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THE BEGINNINGS OF THE JOURNAL OF FOOD LAW & POLICY

*Michael T. Roberts**

INTRODUCTION: A FRONT RUNNER IN FOOD LAW AND POLICY SCHOLARSHIP

In the first sentence of the introduction to the inaugural edition of the *Journal for Food Law & Policy*, Margie Alsbrook, the founding Editor-in-Chief, and I, the founding faculty advisor, stated: "It is with great pride and pleasure that we present the inaugural issue of the *Journal for Food Law & Policy.*" In celebration of the *Journal's* tenth anniversary, I am inclined to echo the same sentiment, but with the added proviso: "surprised!" I confess being gravely concerned ten years ago over the *Journal's* survivability. Food law and policy was then barely in its formative stage. The nascent, social food movement, popularized in literature, media, and progressive circles, was just starting. For example, Michael Pollan's best-seller, *The Omnivore's Dilemma: A Natural History of Four Meals*, which galvanized tremendous interest in food policy and food studies, was published in 2006, one year following the *Journal's* inaugural edition.[1] In short, the *Journal* was a novel, specialty law journal attempting to lead the way of a food law and policy movement that was just inching off the starting block. There was good reason to temper our optimism.

To my surprise and delight, however, the *Journal* has not only survived, it has emerged as a front-runner in scholarly publications focused on food law and policy.[2] From my point of view, the success of the *Journal*

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1. Michael Pollan, THE OMNIVORE'S DILEMMA: A NATURAL HISTORY OF FOUR MEALS, Penguin Press (2006).

2. *See* Baylen J. Linnekin & Emily M. Broad Leib, *Food Law & Policy: The Fertile Field's Origins and First Decade*, 2014 WIS. L. REV. 557, 591 (2014) (recognizing the

is due to three factors. First, is the capable faculty leadership of Professor Susan Schneider, who is the Director of the Graduate Agricultural and Food Law Program and a seasoned leader and innovator in the teaching of agricultural and food law. I recall, shortly after a reception at the law school prior to my leaving in 2006, Professor Schneider promised me that she would watch over the *Journal*. She has more than kept her word, since then serving as its faculty advisor. Second are the tireless, devoted students at the University of Arkansas School of Law who as members of the *Journal* board and staff have solicited, edited, and published top-flight scholarly articles. Third is the remarkable interest and growth in the field of food law and policy in law schools and private practice.[3]

The aim of this short essay is to record the beginnings of the *Journal*. Although I failed to follow the admonishment by Professor Lonnie Beard[4] in 2006 to memorialize the start of the *Journal* in writing, the advantage of recording the history now is that we have a sharper perspective of the *Journal's* significance, including the point that the beginnings of the *Journal* are integral to the start of food law and policy itself.

IN THE BEGINNING: AN IDEA

The *Journal* started with an idea formed through collaboration with colleagues and intense intellectual spadework. Soon after my start at the University of Arkansas School of Law as the Director of the National Agricultural Law Center, which at that time was an integral part of the law school, discussions commenced with colleagues about the research and events agenda for the Center and my own research and teaching focus. These discussions largely occurred over lunch at the university union dining suite and generally included Professor Schneider, the late Dean Richard Atkinson, Professor Chris Kelley (who then taught and continues to teach in the LL.M. program), and Harrison Pittman, a staff attorney for the Center, and other law faculty who would periodically join us. The discussions were lively, interesting, and supportive of the general concept of "food law and policy." These discussions were indispensable to the shaping and refinement of what constituted food law and policy for purposes of the *Journal* and the overall justification of food law and policy as a discipline.

The concept of "food law and policy"—for me at least—was triggered by a class taught in the law school's Graduate Agricultural Program by

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Journal of Food Law & Policy as "the first scholarly publication focused entirely on the field of Food Law &Policy").

3. *See generally id.*

4. Professor Beard was an early supporter of the *Journal* and served as its first faculty advisor, while I worked with him in the capacity as a faculty content advisor.

visiting Neil Hamilton, the Dwight D. Opperman Chair of Law, Professor of Law, and Director of the Agricultural Law Center at Drake Law School. I took the class when enrolled in the graduate program in 1999. The class was titled *Introduction to the Law of Food & Agriculture* and covered agriculture in the context of food systems. Delineating food from agriculture in evaluating food systems struck me as a novel approach to bridging agricultural law to traditional FDA-food law, both subject areas that have been treated as distinct academic fields in the legal academy and as distinct practice areas by the legal bar.[5] This bridge provides a unique platform on which to address not only topics traditionally ascribed to FDA-food law and agricultural law, but also topics integral to food movement including: GMO labeling, nutrition, food waste, sustainability, new farmers, farmland preservation, school lunch reform, local food, food access, urban agriculture, farm bill reform, initiatives to create gardens and cooking classes in school, farm worker rights, nutrition labeling, obesity, hunger, animal welfare, and environmental issues.

Another critical collaboration that inspired the *Journal's* inception involved a trip to Paris, where I attended a European Food Law Conference. At the conference I was introduced to Professor Ferdinando Albisinni, a law professor from Viterbo, who now heads up the European Food Law Center at the University of Tuscia.[6] Professor Alibisinni, under the tutelage of Professor Luigi Costato, had migrated in his academic focus from European Agricultural Law to European Food Law. In their book, *European Food Law*, these two scholars describe a discipline "moving toward an integrated and systematic approach" that brings together local, national, and European regulators and administrators to an emerging, "new legal model, in which rules coming from a Community level and rules coming from national and local level are strictly linked in an unitary model of European Food Law."[7] Our conversation prompted a consciousness for me that a U.S. legal framework, while very different in many respects than the EU approach, could be identified for both traditional food law—for example, the 1938

5. I deal with this distinction and the historic treatment of FDA-food law and agricultural law in a treatise to be published this year by Cambridge University Press, titled *Food Law in the United States. See also* Susan A. Schneider, *A Reconsideration of Agricultural Law: A Call for the Law of Food, Farming, and Sustainability*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 935, 946 (2010) (calling for a convergence of sorts between agriculture law and food law: a food-based agricultural law that reconciles the interest of farmers with the public good of society, advancing sustainability, food safety, health, and nutrition).

6. In 2004, a year prior to the first edition of the *Journal*, the Italian Association of Food Law was created. Luigi Costato & Ferdinando Alibisinni, EUROPEAN FOOD LAW XI (2012).

7. *Id.* at X.

Federal Food, Drug, and Cosmetic Act[8] —and new forms of food law outside the federal food-acts regime—state and municipal laws, litigation, private standards, and voluntary standards that govern and influence policy for public health, labeling, urban agriculture, and local food initiatives. To reiterate, this framework is not by any stretch a "unitary model" of food law; in fact, the framework is fragmented to a fault.[9] Notwithstanding the disjointedness of the framework, its identification and the provision of a food law and policy legal journal allow for a purpose and space where innovative legal and policy proposals can be presented that address the consequences of a modern food system that is unlike anything the world has experienced.

The *Journal* has performed well in its role of serving as an intellectual platform for the vetting of these innovative proposals. Representative published articles that illustrate this accomplishment include titles, such as *A Cost-Benefit Analysis of Sugary Drink Regulations in New York City*;[10] *A Bittersweet Deal for Consumers: The Unnatural Application of Preemption to High Fructose Corn Syrup Labeling Claims*;[11] *The Market for Drug-Free Poultry: Why Robust Regulation of Animal Raising Claims is the Right Prescription to Combat Antibiotic Resistance*;[12] *Fattening Food: Should Purveyors of Fast Food be Required to Warn? A Call for a New Tort*;[13] and *Labeling of Credence Attributes in Livestock Production: Verifying Attributes Which Are More Than "Meet the Eye."*[14] In addition to scholarly articles, essays by leaders in food policy,[15] book reviews,[16] and proceedings from food policy conferences,[17] have populated *Journal* editions, adding valuable insights and information.

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8. Federal Food, Drug, and Cosmetic Act (FDCA), Ch. 675, § 201(f), 52 Stat. 1040, 1040 (1938) (current version at 21 U.S.C. § 321(f)).

9. *See generally* Testimony of Lawrence J. Dyckman, Director, Natural Resources and Environment, GAO, before the Civil Service Subcommittee, Senate Governmental Affairs Committee, U.S. Senate in GAO, FEDERAL FOOD SAFETY AND SECURITY SYSTEM: FUNDAMENTAL RESTRUCTURING IS NEEDED TO ADDRESS FRAGMENTATION AND OVERLAP 17, GAO-04-588T, (Wash., D.C., Mar. 30, 2004).

10. Shi-Ling Hsu, 10 J. FOOD L. & POL'Y 73, 74 (2014).

11. Josh Ashley, 6 J. FOOD L. & POL'Y 235, 236 (2010).

12. Dorinda L. Peacock, 9 J. FOOD L. & POL'Y 223 (2013).

13. Charles E. Cantu, 2 J. FOOD L. & POL'Y 39 (2006).

14. Nicole J. Olynk et. al., 5 J. FOOD L. & POL'Y 181, 182 (2009).

15. *See e.g.,* Nancy Bryson, *An Essay: United States Food and Agriculture in the 21st Century: Is USDA Still Relevant* 1 (2006).

16. *See e.g.,* Alison Peck, *Cows v. Capitalists: Visions of A Post-Carbon Economy Simon Fairlie, Meat: A Benign Extravagance (Chelsea Green Publishing 2010)*, 8 J. FOOD L. & POL'Y 145 (2012).

17. *See e.g.,* Tony Corbo, *Reforming U.S. Food Safety Policy: A Consumer Advocacy Perspective*, 8 J. FOOD L. & POL'Y 193 (2012) (remarks from the National Food Policy Conference).

THE STEPS

Once the concept of "food law and policy" crystalized, we proceeded to explore the prospects of developing a specialty law journal focused on this field. The first step was to research the development and role of specialty law journals.[18] We evaluated the merits and challenges typically faced by specialty law journals, from opportunities for students for editing experience and faculty for publication space to droughts of manuscript submissions and lack of financial and faculty support.[19]

As events unfolded, the next step of making a case to the law faculty and earning their approval turned out to be enjoyable and rewarding. We stressed to faculty that the *Journal* would be the first student-edited journal in the nation exclusively devoted to the study of food law and policy, that a second journal published by the law school would provide its student contributors with invaluable experience, and that the *Journal* would complement the law school's long-standing and respected Graduate Program in Agricultural Law. In addition to Dick Atkinson, Susan Schneider, and Lonnie Beard, other faculty who were especially encouraging, included Carol R. Goforth, Associate Dean for Academic Affairs; Robert B. Leflar, member of the faculty *Journal* committee; and Steve Sheppard, a constant advocate and supporter of the *Journal* and the emerging food law and policy field in general.[20]

Following faculty approval, we set out to select a student editor who would exert strong leadership and academic excellence. Having received permission to recruit a candidate from the Arkansas Law Review staff, we were fortunate enough to convince Margie Alsbrook, a highly capable and energetic second-year law student, to be the founding Editor-in-Chief for the *Journal*. Margie and I then worked side by side in all aspects of the *Journal's* launch, from designing the jacket, setting up the editorial board, finding office space, determining rules and policies, and soliciting articles and contributions for the first editions. One endearing memory about these tasks is the visits to Dean "Dick" Atkinson to get his input on the preferred

18. *See* Tracey E. George & Chris Guthrie, *An Empirical Evaluation of Specialized Law Reviews*, 26 FLA. ST. U. L. REV. 813 (1999).

19. *See* Michael L. Closen & Robert J. Dzielak, *The History and Influence of the Law Review Institution*, 30 AKRON L. REV. 15, 39-40 (1996).

20. Professor Steve Sheppard, who has long been active in the promotion of legal education and legal publications, later served as the faculty founder and advisor to the *Journal of Islamic Law and Culture*, which became the law school's third journal of law. He now Dean of St. Mary's University School of Law.

design.[21] In addition to Margie Alsbrook, the start-up board for the *Journal* was an exceptionally dedicated and talented crew that consisted of Kelly Degostin (Executive Editor), Reagan L. Madison (Articles Editor), and Adrienne Kincaid Murphy and Jason Milne (Note and Comment Editors). It was personally satisfying for me to witness in a start-up journal the strengthening of student bonds through camaraderie and teamwork.

Another important step was to confer with Professor Hamilton to ensure that the *Journal* could co-exist with the *Drake Journal of Agricultural Law*, first published in 1996. Any concerns in approaching Professor Hamilton were quickly dispelled when he expressed strong support for the *Journal* and even kindly offered to publish an essay in the first edition, titled *Food Democracy II: Revolution or Restoration?*,[22] which is now part of a trilogy of articles by Hamilton that explore how democratic tendencies expressed by a "desire for better food, more information and choices, and preference for local action and personal involvement . . . . shape a more sustainable food future."[23]

A final step was to convince Peter Barton Hutt, former General Counsel to the U.S. Food and Drug Administration and a prominent practitioner, teacher, and historian of food law, to write the introductory essay for the inaugural edition, titled *Food Law & Policy: An Essay*.[24] There was a rush of excitement and relief when Hutt called from Disney World in Florida, where he was celebrating the 90th birthday of his mother, to announce that he would write the essay. I suspect that Peter calculated it was easier to write the essay than to continue to respond to my gentle, but dogged entreaties. In his unique, indomitable style, Hutt starts his essay with a bold stroke on the importance of food: "Food has been the driving preoccupation of humans since the dawn of evolution."[25] Hutt concludes his essay by connecting this premise to the endurability of food law and policy: "Because of the central importance of food in all of our lives, food law and policy is a subject that will never become obsolete."[26]

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21. Dean Atkinson, a remarkably kind and effective leader, passed away during his tenure as Dean of the University of Arkansas School of Law in 2006. *See* A Tribute to Richard B. Atkinson, Arkansas Law Record 2-10 (2006), *available at http://law.uark.edu/documents/ArkansasLawRecord2006Final.pdf.*

22. Neil D. Hamilton, 1 J. FOOD L. & POL'Y 13 (2005).

23. Neil D. Hamilton, *Moving Toward Food Democracy: Better Food, New Farmers, and the Myth of Feeding the World*, 16 DRAKE J. AGRIC. L. 117, 118 (2011). *See also* Neil Hamilton, *Essay-Food Democracy and the Future of American Values*, 9 DRAKE J. AGRIC. L. 9 (2004).

24. Peter Barton Hutt, 1 J. FOOD L. & POL'Y 1 (2005).

25. Id. at 1.

26. Id. at 11.

The *Journal* was initially housed in the basement of the now renovated Davis Hall, located across the street from the law school at the northeast corner of Garland Avenue and Maple Street. Although the space was not connected to the law school, it had the advantage of being directly downstairs from the National Agricultural Law Center, which provided a convenient pathway between my office and the *Journal* office. Having ample room for tables, chairs, and workstations, the office had an open, friendly feel to it. I recall fondly being summoned downstairs to the *Journal* office during the first year to counsel and review submitted articles, develop rules and protocols, and offer encouragement.

UNIQUE FEATURES

I am especially pleased that two unique features incorporated in the inaugural edition for the *Journal* are still in tact. The first feature is separate food law updates for the U.S. and EU. Recognizing the globalness of the modern food systems, these updates have served an invaluable role in keeping scholars and practitioners abreast of the world's leading food regulatory systems. At the time we contemplated a third update—China or Asia Food Law Update—but concluded that this additional coverage would be too unwieldy to manage from the start. I am as pleased to report that starting now in forthcoming editions I will publish with the *Journal* an annual China Food Law Update, as I have developed over the years a special interest as an academic and consultant in the China food regulatory system.

Another key feature for the *Journal* was the *Excellence in Writing Award* sponsored by Arent Fox PLLC, in honor of former U.S. Senator Dale Bumpers, who served and continues to serve as counsel at the firm. The award, in the form of a $1,000 cash prize, is presented each year to the outstanding student article published by the Journal. We were excited about the prospects of this award, given Senator Bumper's long and distinguished career in the U.S. Senate and as Governor of Arkansas, his tireless advocacy of agriculture and food in Arkansas, and his commitment to education and scholarship. The arrangements for the award were settled following an initial meeting with Senator Bumpers at his law office in Washington D.C., subsequent negotiations with his law partners, and then a formal agreement executed between the law school and the firm.

A BRIGHT FUTURE

From its tenuous start as a specialty journal in a new, emerging field of law, the *Journal for Food Law & Policy* has secured its position as a leading platform for legal scholarship and innovative thought on food law and policy. Secure in this role, the *Journal* has a bright future. First Amendment issues over the marketing of food to children; the affects of climate change on food production; the role of technology in the ever-changing composition of food product; the continued epidemic of obesity; and concerns over food security, food sovereignty, and food equity are examples of food issues that exemplify the breadth of present and future food law and policy issues. My early concerns about the survivability of the *Journal* have completely vanished, as I am confident that these issues, as well as future unforeseen issues on food law and policy, will occupy scholars and *Journal* students for many years. So, here is wishing the *Journal* a happy 10th anniversary and many more to come.

KEEPING THE FARM AND FARMER IN FOOD POLICY AND LAW

*Neil D. Hamilton**

INTRODUCTION

Thank you for the opportunity to be with you, it is always a pleasure to return to the University of Arkansas Law School where I began my teaching career in the fall of 1981. We are pleased Drake University Law School and the University of Arkansas College of Law have built and maintained a partnership on teaching and research that stretches back over three decades. I am especially pleased to be with you as we celebrate the 10th Anniversary of the *Journal of Food Law and Policy*, another part of the University's pioneering work in the area of food policy and agricultural law.

As I consider the changes over the last ten years, not just in our food system and the law, but also in the people involved, the achievements your programs have made possible are impressive; new interests were fostered, new careers launched, and new opportunities to think, write and publish were made possible. I will always be thankful to the *Journal* for publishing my article on the theme of Food Democracy, a journey still underway in our nation.[1] We see an increase in the number of law schools with programs focusing on food and the law. In addition to what you here at Arkansas and we at Drake have helped lead, we now have efforts such as Michael Robert's program at the Resnick Center at UCLA, the work of Emily Broad Lieb and Allie Condra at Harvard, and a new student group focused on food law being formed at Yale. Other schools have embryonic programs or grand plans to begin them—all in recognition of the growing student interest in food law and policy. But you here in Arkansas have special reasons to be proud of your program and how it has helped lead the way. The hundreds of students who have received their LL.M. degrees here, the dozens who have written and staffed your journal, and the many more who have taken classes—are finding rewarding careers working with food, farming and agriculture. Their success is of real value and their contributions are no less significant than the scholarship you have published.

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* Dwight D. Opperman Chair of Law and Professor of Law, and Director, Drake University Agricultural Law Center.

1. *See* Neil D. Hamilton, *Food Democracy II: Revolution or Restoration?*, 1 J. FOOD L. POL'Y 13 (2005).

I appreciate the opportunity to be here today to share a few thoughts on the future of food law and policy, a subject I have been writing about for many years. Consider how prevalent the subject "the future of food law and policy" is all around us—whether in the debates over food labeling, from added sugars to GMO ingredients, to the increasingly common debates over the safety or ethics of various food production practices (a topic I will examine)—the topic is everywhere.

One measure of the importance and interest in food law and policy can be seen in the proliferation of state legislative ideas and initiatives encompassing the topic. Consider these examples:

Food Freedom laws, such as the one passed in Wyoming and others introduced in Missouri and Virginia, designed to give farmers the right to sell food they produce and consumers the right to purchase these foods, unimpeded by food safety regulations or other legal requirements, if notice of this status is shared;[2]

Urban agriculture protections such as the recent Michigan proposal with the impressive name "Homestead Subsistence Farming Act," designed to allow homeowners to garden and raise livestock such as goats, poultry and bees on their lots free of the burden of local zoning and land use laws;[3]

The New Jersey law to ban the use of gestation crates for swine production, a law quickly vetoed the Governor perhaps with his eyes more on the concerns of Iowa pork producers than on the voters in his own state;[4]

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2. *See, e.g.,* Dan Flynn, *WY Editorials Warn Against Dangers of 'Food Freedom'* Bill, FOOD SAFETY NEWS, Feb. 4, 2015, *available at*: http//www.foodsafetynews.com/2015/02/wyoming-editorial-writers-warn-against-dangers-in-food-freedom/#.VNJmKVZ8yGk (regarding H.B. No. HB0056 in Wyoming); Berndadette Barber, *Va. HB 1290: Groundbreaking Bill Supports Local Food* Choice, Jan. 23, 2015, *available* at: http://www.farmtoconsumer.org/news_wp/?p=17632; H.B.1290, 2015 Sess. (Va. 2015); Dan Flynn, *Missouri Bill Seeks end to State and Local Regulation of Direct Farm* Sales, FOOD SAFETY NEWS, Feb. 25, 2015, *available* at: http://www.foodsafetynews.com/2015/02/missouri-bill-seeks-end-to-state-and-local-regulation-of-direct-farm-sales/#.VPOUoFZ8yGl; H.B.866, 98th Gen. Assem., Reg. Sess. (Mo. 2015).

3. H.B. 4012 (Mich. 2015); *see House Bill 4012: Could Michigan Residents Regain Their 'Basic Human Right' to Farm their Yards?*, Jan. 21, 2015 *available at*: http://www.inquisitr.com/1767732/house-bill-4012-could-michigan-residents-regain-their-basic-human-right-to-farm-their-yards/.

4. *See* Hunter Schwarz, *Christie Vetoed N.J. Pigs bill to Charm Iowa ahead of 2016, critics say,* WASHINGTON POST Dec. 3, 201, *available* at: http://www.washingtonpost.com/blogs/govbeat/wp/2014/12/03/christie-vetoed-n-j-pigs-bill-to-charm-iowa-ahead-of-2016-critics-say/; Christopher Doering, *Tyson Calls for Hog Producers to Forgo Sow Crates*, GANNETT WASHINGTON BUREAU, Jan. 10, 2014, *available at*:

The litigation over California's ban on the importation of eggs from other states not in compliance with the state's standards for cage spacing and humane treatment of laying hens; litigation led by among others the Attorney General of Missouri and the Governor of Iowa, who claim the law is an affront to the Commerce Clause and threatens the free flow of food in our nation;[5]

The continuing debates over the enactment of "ag-gag laws" designed to restrain the ability of individuals concerned about livestock production practices to obtain employment or otherwise discover and reveal their findings without risk of prosecution;[6] and

Seed exchange libraries, a growing phenomena where libraries offer seeds for use by patrons, which have come under scrutiny by state seed regulators in states like Minnesota and Pennsylvania, who apparently believe such local exchanges threaten either the commerce of the seed trade or the safety of the seeds.[7]

These examples, as varied as they are, all involve the law through state legislative or regulatory action, and involve food in some form. They also involve the desire by some people for better food, in whatever form that may be for them. These proposals also help illustrate some of the conflicts or fault lines in our national debate about food—its safety, how it is raised and what can be said or known about it—a theme I will return to later. These proposals may also represent conflicts between agriculture and farmers (or at least some part of agriculture) and those seeking alternatives or more choice in our food system. This brings me to my theme—the need to keep the farm and farmer in mind when we talk about food policy and law. I believe it is of critical importance we marry an understanding and appreciation for farming and agricultural law with our development of food law and policy. This marriage is something the University of Arkansas and Drake both do well, in large part because our respective projects on food law and policy grew out of historic work on agricultural law.

So what does it mean to keep the farm and the farmer in food policy? First it means remembering all of the food issues also involve the land, which

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http://archive.citizen-times.com/article/D2/20140110/BUSINESS01/301100102/Tyson-Foods-calls-hog-producers-forgo-sow-gestation-crates.

5. *See* Christopher Doering, *Branstad joins challenge of California egg law*, GANNETT WASHINGTON BUREAU, Mar. 2, 2014, at 13A,14A.

6. Rita-Marie Cain Reid & Amber L. Kingery, *Putting a Gag on Farm Whistleblowers: The Right to Lie and the Right to Remain Silent Confront State Agricultural Protectionism*, 11 J. FOOD L. POL'Y 33 (2015).

7. Scott McFetridge, *Seed Libraries Struggle with Limiting Exchanges*, THE DES MOINES REGISTER, Dec. 29, 2014, at 6A.

is why land tenure issues—who owns the land, how it is farmed and by who, and who has access to land are critical to the future of not just agriculture, but also of a healthy sustainable food system. Second, it means remembering all these issues involve people making decisions—how to farm, what crops to grow, what production practices to use, how to market a crop—and how to respond to political issues and market forces. Third, it means trying to understand how the real world works, whether it is politics, lawmaking and regulations, or market forces and decisions made by consumers as individuals or as food companies and how these forces affect the acceptance of food. The key is food starts with a farm and with a farmer—all else flows from there.

WHY FOOD LAW PROFESSORS NEED TO KNOW SOMETHING ABOUT FARMING

Underlying my talk is the idea there are certain "givens." One is we all have to eat—we may be able to choose what to eat but not whether to eat. This means we all need agriculture and farmers. A second given is if you produce something on your farm to sell, it has to have a market, someone must want to (or need to) buy it. To the extent you don't understand or trust agriculture you will always be frustrated, worried and looking for more (or other alternatives). To the extent farmers don't appreciate or recognize the validity of consumer concerns they will always be at risk of consumers moving on to something else or continuing to look for "the" issue of the day to attack farming (i.e., the string to unravel the sweater).

As a result it should come as no surprise I believe there is a difference in coming to food law and policy issues from a perspective or understanding of agriculture and farming as compared to coming to food policy issues only as an eater or consumer. The difference may not change your views on an issue, but it will deepen your understanding for why the issue is significant, why some in agriculture might be opposed or concerned, and what might be the impacts or effects of any proposed change in production practices.

One's angle of approach can impact the nature of the examination, *e.g.* what is the goal, who is the audience, and why or for whom the law is being used. Consider for example the difference in looking at direct farm marketing as a new farmer economic development strategy with a focus on marketing, farm income and profitability—as opposed to coming to local foods (which relies on small famers, direct marketing and farmers markets) as a form of food access and a way to address food deserts, promote healthy eating, and other social justice goals.

The reality is both perspectives are valuable but the emphasis and point of departure can determine how the subject is considered and the legal and policy ideas (and issues) that emerge. One issue is who the law is serving

and how? One key point to recognize is the traditional focus on agricultural law was on the people—the farmers who the law served and their needs—and land security, income, and a safer environment. The increased corporatism of the U.S. economy and the increasingly industrialized nature of agriculture, in structure and scale, has helped shift the focus of the law or perhaps our perception of it. Unfortunately what we most often hear now from agriculture are the voices of the large companies who sell the inputs and market the products—rather than from the farm people themselves. This makes it too easy for us to forget the human dimension in farming, and conclude that most farms are factories and many farmers are evil.

I come to these issues from a somewhat unique perspective because my feet and history are firmly planted on both sides of this possible divide. I grew up on a quintessential small Iowa family farm raising hogs and cattle, corn and soybeans—a farm that has been in my family since the 1870's. From that perspective we experienced all the major transitions of U.S. agriculture of the last 50 years—export expansion, industrialization in scale, and the 1980's farm crisis. My neighbor and friend was recently president of the American Soybean Association—one of the most powerful and traditional farm organizations in U.S. politics. And I am a friend and informal advisor to Secretary Vilsack at USDA. Many of my formers students work for agricultural companies like DuPont Pioneer and for farm organizations like the Iowa Corn Growers. I know and understand Big Ag or "production agriculture," a term they may favor, though this doesn't mean I always agree with what agriculture does and how it thinks.

I am a direct marketing small farmer, with my wife Khanh on our 10-acre Sunstead Farm near Waukee, with a reputation for raising high quality produce for local restaurants and a small CSA. I founded and ran the local Slow Food Des Moines chapter for over 10 years, and wrote the *Legal Guide on Direct Farm Marketing*, recently available in electronic format. For six years I chaired the Iowa Food Policy Council under then Gov. Vilsack and with USDA funding the Drake Agricultural Law Center helped form real food policy councils in 15 states and regions. My Center also ran the Buy Fresh Buy Local program for the greater Des Moines region for a decade. I know from experience the legal issues relating to small farming, local food policy and direct marketing.

Why does it matter (or why is it important) to have an understanding of agriculture and farming? One reason is because so many of the key and important issues and controversies in the field of food law and the environment are based on commonly accepted agricultural production practices. So an understanding of how and why farmers might respond as they do when criticized can be critical to understanding complex current policy debates. Consider these issues:

1. The Renewable Fuel Standard ("RFS") and EPA's controversial proposal to possibly restrain it – the significance of this debate cannot be appreciated without understanding the relation of ethanol policy to corn production, increasing land values, expansion of farm leasing, changes in land tenure and the whole economic structure of mid-western agriculture.
2. The FDA and proposals on feeding antibiotics as a growth promoter – the issue is integrally tied to the structure of animal feeding and concentrated livestock production, and is being used by agriculture as a proxy for other issues, such as animal welfare, which are portrayed as "attacks" on livestock production.
3. The 2014 Farm Bill – and all of the internal debates over issues like the expansion of crop insurance, conservation cross compliance, SNAP cuts, the shifting corn belt, and proposals like the King Amendment on the dormant commerce clause aimed at the California egg rules.[8]
4. The Food Safety Modernization Act – especially its impact on small-scale direct market farmers—and the concern the law is being used not just to improve food safety but also to reduce competition.
5. The GMO labeling debate – the current dominance of GMO seeds in commodity crop production and issues about the availability of alternative crops and seed supplies for producers, as well as the growing significance of pesticide resistant weeds and bugs now changing the dynamics of croping practices and products.

All of these issues and debates involve important food policy questions. Basic economics shows the RFS must have some relation to food costs and supplies (in part through higher feed costs and the impact on livestock production). Perhaps the most significant impacts of ethanol are the environmental costs on soil conservation and land conversion. There are real human health concerns about the over use of antibiotics to promote growth and agriculture can clearly exist and thrive without them, as the experience in Denmark shows. There are serious political equity concerns about cutting SNAP benefits while at the same time creating new forms of subsidized crop insurance and farm income supports of untold cost. FMSA has the potential to increase consumer confidence in the food supply, but there are also threats

8. Neil D. Hamilton, *The 2014 Farm Bill: Lessons in Patience, Politics, and Persuasion*, 19 DRAKE J. AGRIC. L. 1 (2014).

through increasing food imports from China—including poultry—and potential unnecessary impacts on small U.S. producers. The GMO labeling debate is interesting, but in many ways is a diversion from what may be more significant food labeling issues, ignoring the legitimate scientific concerns about the overuse and expansion of GM technology.

Our ability to address or resolve whatever the food policy issue may be, won't be possible without addressing and understanding the resistance and opposition of the agriculture and farming sectors and Big Food, and appreciating their perspectives is part of that challenge. I am not saying you had to grow up on a farm to be an effective teacher and scholar in food law and related topics—but to the extent you do not understand agriculture or make any attempt to recognize the significant variations found in America's farming and agricultural system, the risk is your teaching and scholarship will be open to criticism as being one-sided, biased, unrealistic, and uniform. You don't have to agree with farmers about what they do—but if you are going to criticize what they do then you probably need to understand what it is they do and why. In that context let me next turn briefly to an issue that is fundamental to understanding agriculture and that is the role of land and land tenure.

THE IMPORTANCE OF LAND OWNERSHIP IN UNDERSTANDING FOOD AND AGRICULTURAL LAW AND POLICY

In the debates on the future of food and agriculture in the U.S., such as: (1) conflicts between industrial agriculture and the new agrarianism; (2) debates over environmental stewardship, soil conservation and water quality protection; (3) creating opportunities for new and beginning farmers; and (4) discussions about addressing climate change—the land is at the heart of the issue.

Who owns it, who farms it, how it is used, and who makes the decisions? All these issues are involved in land tenure. This is why the issue of farmland ownership is a critical topic for anyone interested in studying food policy and law to consider and understand. You really can't talk about food policy issues without considering land tenure and you certainly can't begin to understand agricultural law without considering farmland ownership. Land ownership provides the stability, the autonomy, the opportunity for long-term planning and investment, and the wealth creation potential central to our agricultural history. Owning land in many ways offers status and legitimacy to the owner. While owning farmland by itself doesn't make the owner a farmer and it is possible to farm without being an owner, the act of owning land is still central to the idea and identify of farming in the U.S. This ideal is at the heart of many of the laws developed over the centuries to deal with farming.

The centrality of land and its importance to the future of agriculture—and the identify of being a farmer—is also why land ownership is a significant issue which should not be overlooked when considering food policy issues. This centrality is why we should be aware of and concerned about developments such as the:

- Concentration of ownership into fewer and older owners;
- Increases in farm tenancy and the separation of ownership from operation;
- Increasing numbers of non-operator landowners who may have very little contact with the land;
- Increased use of trusts which remove management and use of the land from living people and extend the dead hand control of the deceased; and
- Economic forces that concentrate wealth and land into fewer hands and obstacles to creating new landowners and opportunities for land to change hands.

It is also why we have to be creative in looking at new types of landowner relations, such as non-traditional farm land owners like land trusts, and to creating opportunities for farming on smaller acreages.

THE "GIVENS" ABOUT LAND

In thinking about land one question to consider is if there are certain "givens" that accompany any piece of land—things that are unavoidable or which shape the environment in which landownership functions? Here are several to consider:

1. Land is always owned by someone – no land goes unclaimed, though the owners may be private, public or quasi-public entities. Even at the death of an owner the legal title passes either instantly or through a process such that who owns the land is never impossible to determine.
2. There will always be a "market" for the land and someone interested in owning it, although the price or value may fluctuate and differ from the owner's expectations.
3. People own, acquire, and continue to own land for a variety of reasons and economics may be only one

consideration. Others can include: sentiment, tradition, freedom, security, and lack of alternatives.

4. All property is owned subject to interests of other people, such as the neighbors, and is subject to prohibitions or restrictions on use which might arise from statutes, regulations or the common law developed by the courts. This means that while you may own the land and have broad autonomy in how it is used your actions are not without limits.
5. Regardless of where land is located it is subject to the jurisdiction of several levels of government, including the state and county where it is located; and it may be subject to the jurisdiction of private organizations such as a drainage district or a homeowners association.
6. Land by its very nature is shaped by its physical features—the soils, the slope, the drainage, the climate, its geology and the other land features around it—streams, lakes, slopes—and by its location.

There are many decisions made by any owner of farmland, such as: which crops to plant; whether to renew a lease with a tenant; whether to plow up a pasture or a grass waterway; whether to install a buffer strip; and whether to rent a farm, or sell it, to a new and beginning farmer. If we are interested in changing certain behaviors or actions taken by farmland owners—such as not farming right up to the bank of a stream or encouraging them to do something differently like renting a farm to a new farmer—then we have to think about why it is landowners are acting as they are. What are their motivations and where do they get the information that shapes their actions?

CONFRONTING THE DANGERS OF ABSOLUTISM AS WE MOVE FORWARD

The American food and agriculture sectors are facing a period of conflict and change: an aging farm population, increasing scale of farms, more concern about environmental impacts, challenges to new technologies, and food safety concerns are just some of the issues. Communicating with new audiences of consumers who are more willing to scrutinize the status quo and crafting new arguments and legal strategies to defend and support agriculture will all be part of the mix.

The context presents conflicts and controversies—such as labeling food products and agriculture's undeniable role in increasing water pollution—but there are also opportunities for new families finding a future in farming and new rural economic activity with wineries and food artisans.

Some of these controversies will be resolved through court cases and through the application of new legislative responses, but many of the issues will rest on the historic foundation of landownership and laws that have shaped not just the development of agriculture, but of our nation.

Absolutism can be a key problem in food and agriculture—from both sides of the debate—the agriculture community and food policy world. For example, consider these commonly held opposing views found in the agriculture and food camps—all industrial agriculture is bad and all Midwestern commodity production or confined livestock production is industrialized—as contrasted to the idea all groups interested in animal welfare have the goal of ending animal agriculture. First, the fact is neither of these statements is accurate although both can find healthy support among believers. Second, the fact is there may be some truth to them—yes some livestock production is "industrial" in structure if not scale and yes some groups promoting animal welfare laws would prefer to outlaw all livestock production. But at the same time many livestock farms, even very large farms, are family operations and many people who enjoy eating meat are very concerned about how the animals are raised. The key to understand these points is that the truth usually rests somewhere in the middle and understanding food and agriculture policy debates and contributing to real social progress, requires a more informed, nuanced and sensitive understanding of how things really work—in agriculture, in the real world and in legal change.

Rather than the all or nothing categorical approach so often found—what we need is a bit more effort at understanding why things are like they are, how we got here and what it will take to change. The dangers associated with the absolutist view of the world are many and the lack of understanding makes claims like these subject to disdain and rejection by those so labeled. Most of the Iowa corn growers and hog farmers I know and grew up with neither recognize nor welcome their characterization as "industrial-factory farms." On the other hand, my friends at the Environmental Working Group see themselves as conservationists working to promote sound soil stewardship and sustainable farming not as "anti-agriculture environmental extremists" determined to starve the hungry and force people from their farms—as they were recently and approvingly portrayed by a keynote speaker at an Iowa Farm Bureau's annual meeting.

A second danger is how this absolutist certainty can be converted into proposed laws and policies to "protect" agriculture from unfair attacks such as the Missouri "right to farm" constitutional amendment or to promote "opportunities" for farmers and consumers such as the new "food freedom" laws without considering the value of the arguments made by those on the others side, or the opportunity for compromise somewhere between. A good example of a bad idea is the "King" amendment considered but not enacted

by the conference committee trying to develop the 2014 farm bill.[9] This proposal allowed Congress to legislatively decide by fiat a major constitutional issue involving the dormant commerce clause and the ability of California to establish standards for eggs produced or sold in the state, rather than let the issue work its way through the federal courts as issues of Constitutional interpretation should.

This "all or nothing" approach and willingness to characterize the goals of the people on the other side of the debate in a negative light, for example, the claim health food advocates real goal is replacing all existing farms with small scale organic farms, makes the arguments easier to reject as unrealistic—and in so doing may overlook or ignore what may be the real motivations of others or the legitimate concerns they have. For example, the concerns some people have about industrial agriculture may have nothing to do with animal welfare but everything to do with food safety such as the increasing public awareness that much fresh poultry may be contaminated with bacteria. The nation was reminded of this in late December 2013 when the Pew Trust and the Consumers Reports both issued reports on the incidence of contaminated poultry and related health concerns. To illustrate how much our expectation for wholesome food has changed, one evening the NBC Nightly News carried a dramatic but overly alarmist segment showing Dr. Nancy Snyderman illustrating the safe handling of poultry by putting her hand in a baggy to even touch a chicken leg—treating it as if it were dog poop or a hazardous waste product more than food.[10] Is this where we have arrived? With this level of heightened and hyped food safety information, it is no surprise the public is paying attention to how food starts on a farm and is produced and marketed. Developments like this also help explain the growing student interest in food policy and law.

CONCLUSION

The future of food law and policy is bright and the issues we will have the opportunity to address are many. The role for law and lawyers will only continue to grow. As we work to help farmers, consumers, companies and policy makers address the issues our efforts will only be improved if we keep in mind that food started on a farm and was shaped by the decisions made by farmers. If we fail to do so then our efforts will be asymmetrical and will fall short of what our Nation needs and deserves.

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9. Chris Petersen, *King sides against consumers, family farmers*, THE DES MOINES REGISTER, Jan. 15, 2015, at 9A; *see also* Hamilton, supra note 8, at 25-26.

10. See *How to make sure your chicken is safe*, NBC NIGHTLY NEWS, Dec. 19, 2013 *available at*: http://www.nbcnews.com/video/nightly-news/53877321#53877321.

PREDICTING THE FUTURE: OUR FOOD SYSTEM IN 2025

*Susan A. Schneider**

INTRODUCTION

It has been inspiring participate in the development of food law and policy as a recognized discipline. Over the last ten years, the *Journal of Food Law & Policy* and the LL.M. Program in Agricultural & Food Law have each played a significant role in that development. And, the landscape continues to evolve. The impact of changing attitudes toward our food system, environmental challenges, public health concerns and other integrated influences are certain to cause a continued evolution in our food system and the legal system that frames it. My task with this essay is to consider our food system ten years forward. I propose a list of seven projections—not necessarily to describe our food system in 2025—but to describe the trends that will guide us toward that date.

PROJECTIONS

1) There will be a greater integration of food and agriculture by consumers, farmers, policymakers, and academies.

All trends point to a greater integration of food and agriculture. The illusion that the two could be addressed separately is but a temporary and impractical approach. For consumers, this means re-learning the lesson that food comes from agriculture. By this, I mean that food comes from the farm. Consumers will again develop the fundamental understanding that most food comes from the biological processes involved in growing a living plant or animal, it is closely tied to the land, and it is dependent upon natural resources and natural processes. There will be a recognition that the growing process that is undertaken has a profound impact on the food that is produced.

For farmers, this means policies will focus more on food production. I envision a decrease in non-food production such as bio-fuels and a greater emphasis on the production of safe food.[1]

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For policymakers, discussions of food policy and farm policy will become more entwined.[2] This has already begun, but the discussion will become more sophisticated, more complex, and less adversarial as the inherently common goals of food security, food safety, and environmental sustainability converge.

In academia, there will be more classes like our Food Law & Policy class,[3] that integrate issues of food and farm policy with a systemic approach.

2) Climate disruptions will impact food production.

Within ten year's time, the last of the climate change deniers will be silenced by the uncontroverted fact of global warming and the associated extreme weather disruptions.[4] Crop production will be negatively impacted, often in erratic patterns that will make for difficult planning.[5]

It is my hope that we will take actions soon to forestall the worse case scenarios, but it seems apparent that we will not act soon enough to avoid

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serves as the Director of the LL.M. Program in Agricultural & Food Law. She is author of the FOOD, FARMING & SUSTAINABILITY: READINGS IN AGRICULTURAL LAW (2011). Appreciation is extended to Christina Rice, J.D., LL.M. Candidate and Agricultural & Food Law Graduate Assistant, for her excellent research assistance.

1. Estimates indicate that in 2010-11 approximately 40 percent of the U.S. corn crop and 14 percent of the U.S. soybean oil production was used in the biofuel industry. U.S. ENERGY INFORMATION ADMIN., *Biofuels Issues and Trends,* 1 (Oct. 2012) *available at*: http://www.eia.gov/biofuels/issuestrends/pdf/bit.pdf.

2. *See, e.g.,* Mark Bittman, Michael Pollan, Ricardo Salvador and Olivier De Schutter, *How A National Food Policy Could Save Millions Of American Lives,* WASH. POST (Nov. 7, 2014).

3. The LL.M. Program in Agricultural & Food Law was one of the first law schools (along with Neil Hamilton at Drake Law School) to teach Food Law & Policy as a course, and it is now a required course for the Program. For more on the development of food law and policy in an academic setting, see Baylen Linnekin and Emily Broad Lieb, *Food Law & Policy: The Fertile Field's Origins & First Decade*, 2014 WIS. L. REV. 557 (2014) (exploring the development of food law and policy as a discipline and crediting the LL.M. Program at the University of Arkansas School of Law for its leadership role).

4. *See, generally*, R.K. Pachauri, L.A. Meyer, et. al., *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change,* IPCC, Geneva, Switzerland, (2014) (finding that the future impacts of climate change will include the continued rise in sea level, the contoured warmth and acidity in the ocean, more frequent and longer heat waves, and more intense and frequent extreme precipitation events).

5. Hatfield, J., G. Takle, R. Grotjahn, P. Holden, R. C. Izaurralde, T. Mader, E. Marshall, and D. Liverman, *2014: Ch. 6: Agriculture. Climate Change Impacts in the United States: The Third National Climate Assessment, 150-174. doi:10.7930/J02Z13FR* (projecting that climate disruptions to agricultural production are likely to become more extreme over the next 25 years).

the effects already beginning to be felt. So, ten years from now, we will be grappling with the best ways to adapt.[6]

3) Water scarcity will impact food production and food processing.

Many areas will experience water stresses that will impact our food system, literally from farm to fork. Much has been said about the dependency of modern agriculture on fossil fuels; this is certainly true. But in most areas of the country, it is far more dependent on water.[7]

With the historic drought now impacting California[8] and serious concerns about the rates of depletion of the Ogallala aquifer—the water source for a huge section of the great plains that now produces extensive crops—we are beginning to understand the fragile underpinnings of our current production methods and locations.[9]

I predict that in 2025, we will have experienced serious water scarcity in a number of regions, impacting the price of production and the price of food. Additionally, we will become more familiar with the concept of "virtual water"—the water that it takes to produce a product.[10]

What comes to mind most often is growing a product. There have long been aquifer depletion concerns such as those that that have plagued rice producers in the Grand Prairie region of southern Arkansas.[11] There has been a recent media firestorm over the amount of water that it takes to produce

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6. *See*, Nicole M. Civita, *Resilience: The Food Policy Imperative for Volatile Future,* 45 ENVTL. L. REP. (forthcoming 2015).

7. Agriculture consumes 80 percent of the U.S. water supply and 90 percent of the global water supply. *See* U.S. Dep't of Agric. Econ. Research Serv., *Irrigation & Water Use* (2013) *available at*: http://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use.aspx; Amit Kohli, et. al., *Disambiguation of water statistics*, Aquastat Programme FAO, 5 (2012).

8. Cali. Exec. Order No. B-29-15 (Apr. 1, 2015), *available at*: http://gov.ca.gov/docs/4.1.15_Executive_Order.pdf.

9. Steward et. at., *Tapping unsustainable groundwater stores for agricultural production in the High Plains Aquifer of Kansas, projections to 2110,* 110 37 PROC. NATL. ACAD. SCI. USA, E3477-E3486 (2013), *available at*: http://www.pnas.org/content/110/37/E3477.abstract.

10. Tony Allan, *Virtual Water: Tackling the Threat to Our Planet's Most Precious Resource* (2011); *Virtual Water Trade*, Water Footprint Network, *available at*: http://waterfootprint.org/en/water-footprint/national-water-footprint/virtual-water-trade/.

11. *See*, Douglas Jehl, *Arkansas Rice Farmers Run Dry, and U.S. Remedy Sets Off Debate,*
N.Y. TIMES (Nov. 11, 2002) *available at*:
http://www.nytimes.com/2002/11/11/us/arkansas-rice-farmers-run-dry-and-us-remedy-sets-off-debate.html.

almonds.[12] One pound of beef is said to require 1,799 gallons of water to produce.[13] And, another water-dependent aspect of our food system is processing. Chicken processing plants surveyed use an average of 9 gallons per bird.[14] One survey reported water use per day averaged 1,200,000 gallons with some plants using in excess of 2,500,000 gallons per day.[15]

Water scarcity will force us to reconsider how we farm, what we produce, and where we produce it, ultimately leading to greater conservation efforts, an increase in regional food systems in areas that do not require significant irrigation, and a reconsideration of food choices for price and policy reasons.

4) A new appreciation for agro-ecology and environmentalism in food production.

Many involved in agricultural production are threatened by environmentalists, offended at the accusation that they are not practicing good stewardship, and resentful of regulation. I do not predict that farmers will embrace regulation in year 2025.

However, farmers are pragmatists. And, when there is widespread recognition that that treating the soil better—for example, having increased organic matter in the soil—is by far the best solution to withstanding drought, they will embrace this approach.[16]

I predict that as a direct outcome of our strained resources and climate challenges, we will develop a new appreciation for how integrated our natural environment is to our food system, with farmers embracing the benefits of a more ecologically centered production system.

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12. James Hamblin, *The Dark Side of Almond Use, The Atlantic Magazine* (Aug. 28, 2014), *available at*: http://www.theatlantic.com/health/archive/2014/08/almonds-demon-nuts/379244/.

13. *The Hidden Water We Use*, National Geographic, *available at*: http://environment.nationalgeographic.com/environment/freshwater/embedded-water/.

14. Wendy C. Jackson, *Pollution Prevention Pays in Food Processing: Survey Shows That Poultry Processors Can Save Money by Conserving Water*, N.C. Coop. Extension Serv., CD-23, *available at*:
http://fbns.ncsu.edu/extension_program/documents/poultry_conserve_water.pdf.

15. *Id.*

16. Alexandra Bot & Jose Benites, *The importance of soil organic matter: key to drought-resistance soil and sustained food production*, 80 FAO Soils Bulletin (2005), *available at*: http://www.fao.org/docrep/009/a0100e/a0100e.pdf.

5) A new appreciation for the value of good food on the part of consumers.

There is nothing like concerns about scarcity to enhance appreciation. For a generation, we have explored food as a convenience, a cheap commodity, a throw-away. I predict a future that recognizes the value of food. This prediction is based on three very divergent trends that coalesce to that end:

> (1) We have those in popular culture that are successfully promoting the value of good food, such as Michael Pollan[17], Mark Bittman[18], Alice Waters,[19] and many others, along with popular initiatives such as the Slow Food Movement that promotes an appreciation for "real" food.[20]
>
> (2) We have a rapidly advancing public health and medical science movement that is recognizing the scientific connection between nutrition and health.[21] This trend will continue and advance.
>
> (3) We have food production challenges associated with climate change, water scarcity and a generation of unsustainable food production practices. There are few things that increase appreciation more than the thought that you may no longer have something.

What might be the consequences of this new appreciation?

- There may be societal consequences, such as a change in educational focus. Food courses may return to the school curriculum—perhaps not like the Home Economics courses that

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17. *See* Michael Pollan, *avaiable at*: http://michaelpollan.com.

18. *See* Mark Bittman, *available at*: http://markbittman.com.

19. Ruth Reichl, *The 100 Most Influential People Alice Waters,* TIME (Apr. 23, 2014), *available at*: http://time.com/70811/alice-waters-2014-time-100/.

20. Slow Food USA, *available at*: https://www.slowfoodusa.org.

21. *See, e.g.,* Joint WHO/FAO Expert Consultation, *Diet, Nutrition and the Prevention of Chronic Diseases*, 916 WHO technical Report Series (2003), *available at*: http://whqlibdoc.who.int/trs/WHO_TRS_916.pdf?ua=1 (evaluating the connection between nutrition and chronic diseases impacting human health and diseases); *A Series of Systematic Reviews on the Relationship Between Dietary Patterns and Healthy Outcomes*, U.S. DEP'T OF AGRIC. (March 2014), *available at*: http://www.nel.gov/vault/2440/web/files/DietaryPatterns/DPRptFullFinal.pdf (evidencing the scientific relationship between diet and health).

some of us are old enough to remember—but courses that promote a new appreciation of food.[22]

- The farm-to-school movement will continue and expand.[23]
- Home gardens, hydroponic gardens, and rooftop gardens will expand as more people value their connection and their ability to produce their own food.[24]
- Urban agriculture will expand dramatically in many different forms occupying a part of the city landscape as much as the city park. [25]
- Food waste will be looked upon like we consider littering today.[26]

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22. For examples of some recent agriculture, food and nutrition classes added to school curriculums *see* Alexandra Pannoni, *Agriculture Education Blooms in Urban, Rural High Schools,* U.S. NEWS (Mar. 31, 2014), *available at*: http://www.usnews.com/education/blogs/high-school-notes/2014/03/31/agriculture-education-blooms-in-urban-rural-high-schools; Alexandra Pannoni, *High School Food and Nutrition Classes Serve Up Skills for Life,* U.S. NEWS (June 16, 2014), *available at*: http://www.usnews.com/education/blogs/high-school-notes/2014/06/16/high-school-food-and-nutrition-classes-serve-up-skills-for-life.

23. NATIONAL FARM TO SCHOOL NETWORK, *available at*: http://www.farmtoschool.org.

24. Urban Farming, *available at*: http://www.urbanfarming.org; Brian Clark Howard, *Urban Farming Is Growing a Green Future, National Geographic, available at*: http://environment.nationalgeographic.com/environment/photos/urban-farming/#/earth-day-urban-farming-new-york-rooftop_51631_600x450.jpg; Michaeleen Doucleff, *Vertical 'Pinkhouses:' The Future Of Urban Farming?,* NPR (May 21, 2013), *available at*:
http://www.npr.org/blogs/thesalt/2013/05/21/185758529/vertical-pinkhouses-the-future-of-urban-farming.

25. Trish Popovitch, *10 American Cities Lead the Way With Urban Agriculture Ordinances,* Seedstock (Mar. 27, 2014), *available at*: http://seedstock.com/2014/05/27/10-american-cities-lead-the-way-with-urban-agriculture-ordinances/.

26. Buzby, Jean C., Hodan F. Wells, and Jeffrey Hyman. *The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States, EIB-121*, U.S. Dep't of Agric. Econ. Research Serv. (Feb. 2014). This report found that an estimated 31 percent of the available food supply goes uneaten. The estimated value of this food loss is $160 billion. For examples of current states' laws that prevent or restrict food waste *see* Katherine Perry, *Mass. To Make Big Food Wasters Lose The Landfill, NPR* (Aug. 6, 2014), *available at*: http://www.npr.org/blogs/thesalt/2014/08/06/338317224/mass-to-make-big-food-wasters-lose-the-landfill; Seattle Food Waste Requirements, *available at*: http://www.seattle.gov/util/MyServices/Garbage/AboutGarbage/SolidWastePlans/AboutSolidWaste/BanOrdinance/FoodBanFAQs/index.htm. *See also*, FoodRecoveryProject.com (providing updates on the Food Recovery Project at the University of Arkansas School of Law).

6) Animal agriculture

In the past 30 years, we have rapidly moved in two opposite directions. On one hand, we have moved toward an agricultural system that viewed livestock as manufactured commodities, the more that could be produced at the cheapest cost, the better. This has led to an agricultural system that has degraded the physical conditions that we provide to animals. We have figured out how to raise them more cheaply by confining them in small spaces and giving them antibiotics and other pharmaceuticals.[27]

On the other hand, scientific studies produce increasingly persuasive results that show that animals have more intelligence, sentience, and even emotion than we ever thought possible.[28]

We are going in opposite directions. This presents increasing conflict and the trends are irreconcilable.

Looking forward, animal agriculture welfare conditions will improve. There are moral and ethical reasons for why it is unacceptable to confine a female pig to a crate that prevents her from being able to move about or even turn around. But, even if one does not accept the morality of that situation, farmers will be persuaded by the market place. The more consumers know about animal sentience, the less they will accept treatment that is deemed cruel.[29]

As a third generation farmer, it is my hope and my prediction that within the next ten years, the majority of farmers will get on the right side of this issue and begin advocating with integrators for animal welfare standards rather than asking for special legal protections.

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27. *See*, Susan A. Schneider, *Beyond the Food We Eat: Animal Drugs in the Livestock Industry*, 25 DUKE ENV'T L. & POL'Y FORUM (forthcoming, Spring 2015).

28. *See, e.g.*, Philip Low, et. al., *The Cambridge Declaration on Consciousness*, Francis Crick Memorial Conference on Consciousness in Human and Non-Human Animals (Jan. 7, 2012), *available at*: http://fcmconference.org/img/CambridgeDeclarationOnConsciousness.pdf (acknowledging that "humans are not unique in possessing the neurological substrates that generate consciousness. Nonhuman animals, including all mammals and birds. . . also possess these neurological substrates).

29. *See*, *2014 Humane Heartland Farm Animal Welfare Survey*, American Humane Association (2014), *available at*: http://www.americanhumane.org/humane-heartland/2014-humane-heartland-farm-survey.pdf (finding that 95 percent of the people surveyed were concerned about farm animal welfare); *See also, Consumer Perceptions of Farmed Animal Welfare*, Animal Welfare Institute, *available at*: https://awionline.org/sites/default/files/uploads/documents/fa-consumer_perceptionsoffarmwelfare_-112511.pdf. (listing consumer perceptions of farm animal welfare).

The sensibility of this approach is further reflected in the companion issues involving public health, the wise use of natural resources, and the associated environmental considerations.[30] The production and consumption of as much meat as we can produce as cheaply as possible is an unsustainable and flawed approach. Meat prices will rise to reflect the true cost of production, the value of the product, and the cost to society.

7) Technology

In 2025, we will continue to look to new technology to solve our problems. However, unanticipated consequences from our current use will give rise to increased skepticism and the fragility of our environment may give rise to greater caution.

The over-use of glyphosate provides a current example. The pervasive use of genetically modified herbicide resistant crops has led to the production of a new generation of "super weeds" that are resistant to glyphosate.[31] The promise of reduced pesticide use because of this technology has been broken as producers need to rely on ever-stronger pesticides to produce the same results.

Throughout the next decade, we will need to confront the pervasive impact of pesticide use on the natural environment. Studies will continue to confirm the association between pesticide use and the health of pollinators, as well as other wildlife.[32] For science not only brings us new technologies, it also brings us new wisdom in evaluating technology's effects.

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30. *See*, Roberto A. Ferdman, *Stop Eating So Much Meat, Top U.S. Nutritional Panel Says,* WASH. POST (Feb. 19, 2015) *available at*: http://www.washingtonpost.com/blogs/wonkblog/wp/2015/02/19/eating-a-lot-of-meat-is-hurting-the-environment-and-you-should-stop-top-u-s-nutritional-panel-says/

31. *See*, Michael Livingston, ET AL, *The Economics of Glyphosate Resistance Management in Corn and Soybean Production,* USDA, Econ. Res. Serv., ERR No. 154 (Apr. 2015) *available at*: http://www.ers.usda.gov/media/1832877/err184.pdf (describing the increasing problem of weed resistance and management efforts); *See also,* Neil D. Hamilton, *Don't Repeat Mistakes That Led To Superweeds*, DES MOINES REGISTER (June 28, 2014) *available at*: http://www.desmoinesregister.com/story/opinion/columnists/iowa-view/2014/06/28/repeat-mistakes-led-superweeds/11652199/ (commenting on the industry approach of promoting new genetically-engineered seeds with resistance to stronger herbicides).

32. *See, e.g.*, Jeffery S. Pettis, Dennis vanEngelsdorp, Josephine Johnson and Galen Dively, *Pesticide Exposure In Honey Bees Results In Increased Levels Of The Gut Pathogen Nosema*, THE SCIENCE OF NATURE, (Jan. 13, 2012) (linking pesticide use to weakened immune systems in bees) *available at*: http://link.springer.com/article/10.1007/s00114-011-0881-1/fulltext.html.

Consider, for example, the recent characterization of glyphosate as a "probable carcinogen."[33] Glyphosate is widely used in food production, not only in genetically-modified herbicide resistant crops, but as a harvest aid in many food crops, resulting in residues in many different foods.[34] There is currently no regular testing for glyphosate residue testing in food products, but this will likely change as increasing concerns are raised.[35]

Environmental, natural resource, and public health challenges may lead us to a new humility about our ability to successfully control our world through technological improvements. This could lead us toward a technology that works with nature as opposed to against it.

CONCLUSION

Within the next decade, our food system will likely be influenced by unprecedented environmental challenges, many of which can be linked to unsustainable practices we rely upon today. Our food system will similarly be influenced by increasing evidence of the direct link between diet and health and the link between current dietary patterns and public health problems. These critical challenges are ominous, and they will threaten the status quo. Over the next 10 years, we will hear a series of alarms—our "wake-up" calls to improved stewardship and a sustainable food system. It is my hope that we can work together to answer our call to action—all levels of the agricultural community, all sizes and shapes of the food industry, and all categories of consumers—as a sustainable food system should be in everyone's best long term interests.

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33. Guyton, Kathryn Z et al., *Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate,* The Lancet Oncology (March 20, 2015) (presenting report conducted by scientists affiliated with the World Health Organization that classifies glyphosate as " probably carcinogenic to humans") *available at*:
http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(15)70134-8/fulltext.

34. *See, e.g.,* the number of foods that currently have an allowed tolerance for glyphosate residue. 40 C.F.R. § 180.364 (2014). Note that Monsanto, the major manufacturer of glyphosate and glyphosate-resistant seed products, requested an increase in these tolerances. 77 Fed. Reg. 25,954 (May 2, 2012), and some individual levels were increased. 78 Fed. Reg. 25,396 (May 1, 2013) (denying much of the request but establishing separate tolerances at a significant increased level for carrots and sweet potatoes).

35. *EPA May Recommend Testing Food Products for Common Herbicide*, FOOD SAFETY NEWS (Apr. 21, 2015), *avaialble at*: http://www.foodsafetynews.com/2015/04/epa-may-recommend-testing-food-products-for-common-herbicide/#.VUN_SdNViko.

PUTTING A GAG ON FARM WHISTLEBLOWERS: THE RIGHT TO LIE AND THE RIGHT TO REMAIN SILENT CONFRONT STATE AGRICULTURAL PROTECTIONISM

Rita-Marie Cain Reid & Amber L. Kingery***

ABSTRACT

Whistleblowers play an important role in filling gaps in government food safety systems. Unfortunately, several dominant food-producing states have pursued legislative initiatives that punish farm whistleblowers and silence investigative tactics. First, this research describes various state legislative initiatives that curb criticism of agriculture. The work analyzes the federal food safety system and how these protections limiting agricultural criticism contravene that food safety net. Further, the research analyzes the free

speech concerns in the newest protectionist laws. The analysis recommends strategies and future research to improve agriculture safety and protect free speech in an evolving food safety landscape.

I. INTRODUCTION

According to the U.S. Centers for Disease Control and Prevention, in the United States each year forty-eight million people will be sickened from food borne illness.[1] Of those, 128,000 will be hospitalized and three thousand will die.[2] Although the government provides food safety standards and inspectors, there are gaps in the system.[3] Whistleblowers play an important role in filling those gaps to improve food safety.[4] In 2008, a whistleblower report of animal abuse and food safety violations led to the

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The authors dedicate this article to their late friend and colleague, Megan Mowrey, J.D., Ph.D., who contributed research in the early stages of the project and moral support and enthusiasm thereafter. She is greatly missed.

1. *CDC Estimates of Foodborne Illness in the United States*, CNTRS. FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html (last updated Jan. 8, 2014).

2. *Id.*

3. *See* Brief for Reporters Committee for Freedom of the Press et al. as Amici Curiae Supporting Plaintiffs at 4, Animal Legal Def. Fund v. Herbert, No. 2:13-cv-00679-RJS (D. Utah Jan. 15, 2014) (No. 49), *available at* http://www.rcfp.org/sites/default/files/RCFP_Amicus_ALDF.pdf (citing *Continuing Problems in USDA's Enforcement of the Humane Methods of Slaughter Act: Hearing Before the Subcomm. on Domestic Policy of the H. Comm. on Oversight & Gov't Reform*, 111th Cong. (2010)).

4. *Id.* at 2-3.

largest beef recall in history.[5] Moreover, despite improved technology and evolving best practices, incidence of foodborne illness is still pervasive.[6]

Food producers play a major role in self-identifying food contamination hazards in the U.S. food safety system.[7] Such a system would seem to require individuals on farms and in food production facilities be free to investigate and report potential concerns about animal treatment or crop handling. Unfortunately, several dominant food-producing states have pursued legislative initiatives that in effect would punish farm whistleblowers and silence investigative tactics. These protectionist measures are the subject of this research.

Part II of this analysis describes various state legislative initiatives that curb criticism of agriculture. These laws take different forms and are broadly characterized as agricultural protectionism herein. Part III explains the federal food safety system and how protections limiting agricultural criticism contravene that food safety net. Part IV points out inconsistencies and recent events that make it unclear whether current federal policy favors agricultural protectionism or food safty. Part V analyzes the free speech concerns that agriculture protectionism spawns. This constitutional discussion focuses on the newest protectionist laws that criminalize lying to get a farm job and whether they violate a whistleblower's "right to lie." Additionally, it evaluates First Amendment concerns with new measures mandating employee prompt disclosure of farm animal safety violations. Finally, the analysis recommends strategies and future research to improve agriculture safety and protect free speech in an evolving legal landscape.

II. AGRICULTURE PROTECTIONIST LEGISLATION

Agriculture protectionism has taken various forms in the last quarter century. Legislative initiatives have changed over time in response to public criticism, especially about infringed free speech rights, but also in response to food safety concerns that can get suppressed when unhealthy farm practices are protected from scrutiny. This Part highlights various protectionist legislation to reveal an ever-changing legal landscape.

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5. David Brown, *USDA Orders Largest Meat Recall in U.S. History*, WASH. POST (Feb. 18, 2008), http://www.washingtonpost.com/wpdyn/content/article/2008/02/17/AR2008021701530.html.

6. *See Trends in Foodborne Illness in the United States, 2012*, CTRS. FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/features/dsfoodnet2012/reportcard.html (last updated Apr. 18, 2013).

7. *See infra* notes 121-25 and accompanying text.

A. First Generation Protections

Statutory rights to farm have been around for decades in all fifty states.[8] Historically, these laws have been used to shield farmers from neighbors' nuisance suits.[9] In some instances, these protections were so expansive that courts struck them down as unconstitutional takings of plaintiffs' properties.[10]

Another example of state protectionist legislation emerged during the 1990s. After Washington apple growers failed in a common law product disparagement case against CBS over a critical segment on *60 Minutes,*[11] twelve states passed civil food libel laws to address perceived shortcomings in the common law when public criticism about food safety stems public demand for the product.[12] These laws have been widely criticized as unconstitutional infringements on free speech.[13] Nevertheless, they remain on the books in

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8. Neil D. Hamilton, *Right-to-Farm Laws Reconsidered: Ten Reasons Why Legislative Efforts to Resolve Agricultural Nuisances May Be Ineffective*, 3 DRAKE J. AGRIC. L. 103, 103 (1998).

9. *Id.* at 104.

10. *See, e.g.*, Gacke v. Pork Xtra, L.L.C., 684 N.W.2d 168, 171 (Iowa June 16, 2004); *see also* Emily A. Kolbe, Note, *"Won't You Be My Neighbor?" Living with Concentrated Animal Feeding Operations*, 99 IOWA L. REV. 415, 429 n.90 (2013) (citing Carrie Hribar, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities*, NAT'L ASS'N OF LOCAL BDS. OF HEALTH, 11-12 (2010), *available at* http://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf).

11. *See* Auvil v. CBS "60 Minutes," 67 F.3d 816 (9th Cir. 1995) (per curiam).

12. ALA. CODE §§ 6-5-620 to -625 (2011); ARIZ. REV. STAT. ANN. § 3-113 (2011); COLO. REV. STAT. § 35-31-101 (2007); FLA. STAT. § 865.065 (2011); GA. CODE ANN. §§ 2-16-1 to -4 (2005); IDAHO CODE ANN. §§ 6-2001 to -2003 (2008); LA. REV. STAT. ANN. §§ 3:4501–4504 (2011); MISS. CODE ANN. §§ 69-1-251, -253, -255, -257 (1999); N.D. CENT. CODE §§ 32-44-01 to -04 (2008); OHIO REV. CODE ANN. § 2307.81 (West 2011); OKLA. STAT. tit. 2, §§ 5-100 to -102 (2003); S.D. CODIFIED LAWS § 20-10A-1 to -4 (2011); TEX. CIV. PRAC. & REM. CODE ANN. §§ 96.001–.004 (West 2005). For analysis of the different standards of proof in the twelve state food libel laws, *see* Rita Marie Cain, *Food Inglorious Food: Food Safety, Food Libel and Free Speech,* 49 AM. BUS. L.J. 275 (2012); *see also* Marianne Lavelle, *Food Abuse Basis for Suits,* NAT'L L.J., May 5, 1997, at A01 (claiming that 1960s' critics of the pesticide DDT would be liable under standards of proof in food libel laws).

13. *See* Cain, *supra* note 12, at 307-10; Ronald K.L. Collins, *Free Speech, Food Libel, & the First Amendment . . . in Ohio*, 26 OHIO N.U. L. REV. 1, 2 (2000); Howard M. Wasserman, *Two Degrees of Speech Protection: Free Speech Through the Prism of Agricultural Disparagement Laws*, 8 WM. & MARY BILL RTS. J. 323, 323 (2000); Lisa Dobson Gould, Comment, *Mad Cows, Offended Emus, and Old Eggs: Perishable Product Disparagement Laws and Free Speech*, 73 WASH. L. REV. 1019, 1019 (1998); Kevin A. Isern, *When Is Speech No Longer Protected by the First Amendment: A Plaintiff's Perspective of Agricultural Disparagement Laws*, 10 DEPAUL BUS. L.J. 233, 253-55 (1998).

all twelve states and the South Dakota statute currently is at issue in a $1.2 billion disparagement case against ABC News and others.[14] This analysis will not address food libel laws further, except to the extent that recommendations discussed below apply to them, as well as to other state protectionist efforts.

At the same time the food libel laws were emerging from state legislatures, the first generation of "ag-gag" laws appeared.[15] These laws generally concerned trespass and harm to property at animal facilities and properties with field crops.[16] Additionally, however, they criminalized unauthorized photographing or recording at the agriculture facility.[17] In

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14. Beef Prods., Inc. v. Am. Broad. Companies, Inc., 949 F. Supp. 2d 936 (D.S.D. 2013). On March 7, 2012, ABC broadcast a segment on its evening news program about the product which BPI calls "lean finely textured beef" (LFTB). Thereafter, ABC broadcasted eleven follow up reports and numerous online communications about the product and its manufacturer, repeatedly referring to LFTB as "pink slime," a term originally coined by USDA microbiologist Gerald Zirnstein, who appeared in the original ABC segment and is also a defendant in the case. Daniel P. Finney, *Beef Products Inc. Sues ABC for Defamation Over 'Pink Slime'*, DESMOINESREGISTER.COM (Sept. 14, 2012), http://www.desmoinesregister.com/apps/pbcs.dll/article?AID=/20120914/NEWS/309140042&template=printart. BPI v. ABC News, Inc., Civ. 12-292 (1st Jud. Cir. S.D. Mar. 27, 2014) (memorandum decision), *available at* http://beefisbeef.com/assets/content/Memorandum_Decision_03272014_(2).pdf. Most of BPI's claims have been held over for trial. Only BPI's common law claim for product disparagement was dismissed, on the ground that it is preempted by the statutory food libel claim. *Id.* at 8-9.

15. Journalist Mark Bittman coined the term "ag-gag" in 2011 for legislation that heightens legal risks for undercover reporters, agriculture workers, or citizen bystanders who wish to document and report instances of animal abuse or food safety violations. Mark Bittman, *Who Protects the Animals?*, N.Y. TIMES (Apr. 26, 2011, 9:29 PM), http://opinionator.blogs.nytimes.com/2011/04/26/who-protects-the-animals/?_php=true&_type=blogs&_r=0. The label stuck in traditional journalism and popular media. *See, e.g.*, *Animal Cruelty: Attacking the Messenger*, BOS. GLOBE (Apr. 15, 2013), http://www.bostonglobe.com/editorials/2013/04/14/put-gag-gag-laws/w233JSpwLS0pPo1Me2K5aO/story.html. *See also Wrong Way to Get Rid of Cattle Abuse, Illness: Editorial*, L.A. DAILY NEWS (Apr. 8, 2013, 12:01 AM), http://www.dailynews.com/general-news/20130408/wrong-way-to-get-rid-of-cattle-abuse-illness-editorial; *The Daily Show with Jon Stewart: Blowing the Whistle on Whistleblowers* (Comedy Central television broadcast June 11, 2013), *avaialable at* http://www.thedailyshow.com/watch/tue-june-11-2013/blowing-the-whistle-on-whistleblowers.

16. *See, e.g.*, KAN. STAT. ANN. § 47-1827(c) (2013) (effective 1990).

17. *See* Kevin C. Adam, Note, *Shooting the Messenger: A Common-Sense Analysis of State "Ag-Gag" Legislation Under the First Amendment*, 45 SUFFOLK U. L. REV. 1129, 1157-63 (2012); Lewis Bollard, *Ag-Gag: The Unconstitutionality of Laws Restricting Undercover Investigations on Farms*, 42 ENVTL. L. REP. NEWS & ANALYSIS 10960,

1990-1991, Kansas, North Dakota, and Montana passed the first of such laws.[18] The Kansas version requires that the recording be made with intent to harm.[19] North Dakota requires no specific intent.[20] Conceivably, a person could be charged for taking a picture of a friend on a North Dakota farm if he or she failed to get permission first.

The scope of Montana's law is the narrowest.[21] Like Kansas, Montana requires intent to damage the enterprise, but further requires an intent to commit criminal defamation, which occurs when a person communicates defamatory matter to a third party, which exposes the victim to ridicule, disgrace, or injury to his or her business, with the knowledge of its defamatory character and without consent of the subject.[22] Communication that is otherwise defamatory is justified, however, if "the defamatory matter is true [or if] the communication consists of fair comment made in good faith with respect to persons participating in matters of public concern."[23] Accordingly, this robust intent requirement should only apply to those reporters who intentionally misrepresent the activities at a facility.[24] The criminal defamation intent requirement makes the Montana law the most narrowly tailored of all the ag-gag laws to date.[25] But for the criminality, it harkens to the civil food libel laws that were passed in the same time frame, all of which require falsity and disparagement.[26]

10962-66 (2012); Laura Hagen, *2012 State Legislative Review*, 19 ANIMAL L. 497, 510-15 (2013); Sonci Kingery, Note, *The Agricultural Iron Curtain: Ag Gag Legislation and the Threat to Free Speech, Food Safety, and Animal Welfare*, 17 DRAKE J. AGRIC. L. 645, 656-64 (2012); Jessalee Landfried, *Bound & Gagged: Potential First Amendment Challenges to "Ag-Gag" Laws*, 23 DUKE ENVTL. L. & POL'Y F. 377, 391-400 (2013); Jessica Pitts, Note, *"Ag-Gag" Legislation and Public Choice Theory: Maintaining a Diffuse Public by Limiting Information*, 40 AM. J. CRIM. L. 95, 97-103 (2012).

18. Like the Kansas law, North Dakota's act prohibits trespass and damage to or theft of property at animal facilities, *see* N.D. CENT. CODE §§ 12.1-21.1-01 to -05 (2013) (effective 1991) (including a Category One – No Recording provision). *See id.* § 12.1-21.1-02; *compare* N.D. CENT. CODE § 12.1-21.1-02.1-.5, .7 *with* N.D. CENT. CODE § 12.1-21.1-02.6.

19. KAN. STAT. ANN. § 47-1827(c).

20. *See* N.D. CENT. CODE § 12.1-21.1-02.

21. *See* MONT. CODE. ANN. § 81-30-103(2)(e) (2013) ("A person who does not have the effective consent of the owner and who intends to damage the enterprise conducted at an animal facility may not: . . . enter an animal facility to take pictures by photograph, video camera, or other means with the intent to commit criminal defamation.").

22. *Id.* § 45-8-212(1)-(2) (2013).

23. *Id.* § 45-8-212(3)(a), (c).

24. *Id.* (justifying otherwise defamatory speech).

25. *Id.*

26. *See* Cain, *supra* note 12.

No one was ever prosecuted under any of these first generation ag-gag laws and the agricultural protectionist movement was quiet for a generation thereafter. Recently, however, additional states have enacted "ag-gag" laws, and others have considered similar legislation.[27] These evolving efforts to protect farms from scrutiny have gotten increasingly creative and have made recognizing and grouping ag-gag legislation a dynamic process. Nevertheless, understanding this protectionist evolution helps to reveal the safety and free speech concerns that are discussed below. The remainder of this Part will explain the evolution of these state ag-gag laws and their enforcement.

B. Categories of State Ag-Gag Laws

For purposes of this analysis, a definition of what makes a law an ag-gag statute, as opposed to some other agricultural protectionism, is useful. This article defines ag-gag laws as any that would chill good faith undercover investigating or reporting of abuse or safety violations by an employee or citizen at agricultural facilities with the force of criminal law. Prior authors have suggested categorization schemes for ag-gag laws, and this analysis modifies those classifications, particularly to encompass the newest enactments.[28] Thus far, the majority of ag-gag legislation can be said to criminalize one or more of four categories of behavior: (1) recording, photographing, videotaping, or audio-recording at agricultural facilities [hereinafter "Category One - No Recording"]; (2) possession or distribution of recordings made on agricultural facilities[29] [hereinafter "Category Two - No Distributing"]; (3) dishonesty while applying for employment in order to gain access to a facility [hereinafter "Category Three - No Lying"]; and (4) failure to report recorded abuse and/or relinquish recordings within an extremely short timeframe [hereinafter "Category Four - Mandatory Disclosure"]. Some legislation has additional components, but all the ag-gag laws and bills discussed herein will fit within one or more of these categories. As will be seen next, Categories Three and Four, which are the

27. *See* Adam, *supra* note 17, at 1163-65.

28. *See* Adam, *supra* note 17, at 1131 (offering a three-part classification that maps onto the categories employed here up to this article's Category Four); Landfried, *supra* note 17, at 394, 398 (offering a five-part classification that maps onto the four categories presented in this article and adding a fifth called agricultural trespass); Bollard, *supra* note 17, at 10961 (limiting ag-gag laws to the variety in Categories One and Three of this article).

29. This type of ag-gag bill was proposed in earlier legislative sessions, though not prevalent in 2013-2014. *See* Adam, *supra* note 17, at 1164. Adam suggests that Category Two bills have fallen out of favor with ag-gag proponents due to mounting criticism of the category's overt constitutional weaknesses. *See id.* at 1173.

focus of most of this discussion, emerged after criticism about Categories One and Two.

C. The Evolution of Ag-Gag Enactments

The second wave of ag-gag enactments emphasized new ways to chill whistleblowing and undercover reporting.[30] Public outcry against second generation ag-gag legislation has been significant,[31] in part because of free speech implications, but also because of the glaring begged question: what do food producers have to hide?

Iowa ushered in the second generation of ag-gag legislation when it amended its existing "Offenses Relating to Agricultural Production" statutes[32] with a new crime entitled "Agriculture Production Facility Fraud."[33] Similar to first generation statutes, portions of Iowa's law address trespass and property damage at animal and crop facilities.[34] The addition of "Agriculture Production Facility Fraud," however, introduced Category Three - No Lying.[35] Iowa's law criminalizes (1) obtaining access to an agricultural production facility under false pretenses,[36] and (2) lying on a job

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30. While the earlier ag-gag laws were all Category 1 - No Recording, the 2012-2014 acts included multiple categories.

31. *See, e.g.*, Nicole M. Civita, *2012 Developments in Food Law and Policy*, 18 DRAKE J. AGRIC. L. 39, 91-92 (2013) ("According to an opinion poll by Lake Research Partners . . . '71 percent of Americans support undercover investigative efforts by animal welfare organizations to expose animal abuse on industrial farms, including 54 percent who strongly support the efforts.' Additionally, 64% 'of Americans oppose making undercover investigations of animal abuse on industrial farms illegal, with half of all Americans strongly oppose[d].'").

32. IOWA CODE §§ 717A.1-717A.4 (2015).

33. *Id.* § 717A.3A. *See* Letter from Terry E. Branstad, Governor, to Matt Schultz, Iowa Sec'y of State (Mar. 2, 2012), *available at* http://coolice.legis.iowa.gov/linc/84/external/govbills/HF589.pdf (providing a copy of the amendment signed into law).

34. IOWA CODE §§ 717A.2-717A.3.

35. Contrary to some sources, Iowa did not pass a Category One and Category Two ag-gag bill as well. *See, e.g.*, *Ag-Gag Laws*, SOURCEWATCH, http://www.sourcewatch.org/index.php/Ag-gag_laws#Iowa (last modified July 22, 2014). Indeed, Senate File 431 would have criminalized the creation, possession, and distribution of ag-facility recordings. *See* S.F. 431, 84th Gen. Assemb., 2011 Sess. Sec. 9, §§ 717A.2A.1.a-b (Iowa 2011), *available at* http://coolice.legis.iowa.gov/Cool-ICE/default.asp?Category=BillInfo&Service=Billbook&menu=text&ga=84&hbill=SF431. It did not make it into the version of the bill signed by the governor, however. *See* Letter from Terry E. Branstad, Governor, to Matt Schultz, Iowa Sec'y of State, *supra* note 33; IOWA CODE § 717A (2015), *available at* https://www.legis.iowa.gov/docs/ico/code/717a.pdf.

36. IOWA CODE § 717A.3A.1.a.

application or agreement "with an intent to commit an act not authorized by the owner of the agricultural production facility, knowing that the act is not authorized."[37]

While seemingly just one more state to adopt protectionist legislation, Iowa's ag-gag law represents a major addition to the legal landscape because of the state's significant agricultural productivity. According to the 2012 Agriculture Census, Iowa ranks second only to California in total agricultural sales, up fifty-one percent since the 2007 census.[38] Iowa ranks first in egg and soybean production, second for livestock sales and second for total crop sales.[39] Thus, when protectionist criminal laws chill the speech of Iowa whistleblowers about unsafe farm conditions, the negative impact on food safety is disproporationately heightened.

Shortly after Iowa's ag-gag bill became law, Utah enacted its new ag-gag crime, "Agricultural Operation Interference."[40] Utah's bill is part of its criminal code for property destruction.[41] It is a Category One - No Recording and Category Three - No Lying bill.[42] Utah criminalizes recording images or sounds at agriculture production facilities without permission[43] and criminalizes obtaining access to a facility under false pretenses.[44] Further, the law criminalizes applying for employment at an agricultural operation with the intent to create a recording when the applicant knows such recordings are prohibited, yet still creates one.[45] Thus, the law covers the undercover reporter who applies for a job expecting to record wrongdoing

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37. *Id.* § 717A.3A.1.b. A Category Four - Mandatory Disclosure-like provision, offering immunity for violations of agricultural trespass to those who turn over any recordings of suspected animal abuse to authorities within seventy-two hours of filming, did not make the final law. *See* Landfried, *supra* note 17, at 399 n.126 (referring to a proposed immunity provision).

38. Zoe Martin, *Iowa Leads Nation in Many Ag Production Sectors*, IOWA FARMER TODAY (Mar. 13, 2014), http://m.iowafarmertoday.com/news/crop/iowa-leads-nation-in-many-ag-production-sectors/article_63e4a5d6-aa01-11e3-9e9d-001a4bcf887a.html?mobile_touch=true.

39. *Id.*

40. The Iowa ag-gag bill was signed by the governor on March 2, 2012. *See* Letter from Terry E. Branstad, Governor, to Matt Schultz, Iowa Sec'y of State, *supra* note 33. Utah's governor signed his state's bill on March 20, 2012. *See* H.R. 187, 2012 Leg., Gen. Sess. (Utah 2012), *available at* http://le.utah.gov/~2012/bills/hbillenr/HB0187.pdf.

41. UTAH CODE ANN. §§ 76-6-101 to -112 (West 2014).

42. *Id.*

43. *Id.* § 76-6-112(2)(a) (knowingly or intentionally leaving a recording device to record an image or sound); *id.* § 76-6-112(2)(c)(iii) (recording images or sounds while employed and present); *id.* § 76-6-112(2)(d) (recording an image or sound while committing criminal trespass).

44. UTAH CODE ANN. § 76-6-112(2)(b).

45. *Id.* § 76-6-112(2)(c).

and the good faith employee who discovers wrongdoing at work, decides to document it and blow the whistle.

Later in 2012, Missouri passed its own Category Four - Mandatory Disclosure bill.[46] It makes it illegal for a "farm animal professional"[47] to fail to turn over to authorities within twenty-four hours any recordings of perceived animal abuse or neglect.[48] Additionally, Missouri's bill makes any intentional splicing, editing, or manipulation of the recording prior to submission a crime.[49]

Although several ag-gag bills were proposed in 2013, none became law.[50] Idaho broke the reprieve in February 2014 when it passed a Category One - No Recording and Category Three - No Lying law.[51] Among other things, "Interference with Agricultural Production"[52] makes it illegal to "obtain employment with an agricultural production facility by force, threat, or misrepresentation with the intent to cause economic or other injury to the facility's. . . owners,. . . business interests or customers."[53] It also criminalizes entering an agricultural facility and, without the owner's express consent, making "audio or video recordings of the conduct of an agricultural production facility's operations."[54] Although the penalty is only a misdemeanor, it could carry a year of jail time.[55] Under this law a good faith employee could obtain employment without false pretenses, make a clandestine recording of wrongdoing on the premises and be subject to imprisonment.

D. Ag-Gag Litigation

Like the first generation of ag-gag laws, there is no record of prosecutions related to Iowa's and Missouri's second-generation bills. Utah

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46. *See* MO. REV. STAT. § 578.013 (2013) (approved by the governor July 9, 2012) (effective August 28, 2012).

47. A "farm animal professional" is defined as "any individual employed at a location where farm animals are harbored." *Id.* § 578.005(6).

48. *Id.* § 578.013.1.

49. *Id.* § 578.013.2 to .3.

50. *See infra* Part I.E.

51. *See* Dan Flynn, *Idaho Governor Signs 'Ag-Gag' Bill Into Law*, FOOD SAFETY NEWS (Feb. 28, 2014), http://www.foodsafetynews.com/2014/02/governor-otter-should-reconsider-idaho-ag-gag-bill-says-chobani-founder/#.UxOMs_RdWzc.

52. IDAHO CODE ANN. § 18-7042 (2014) (amending Chapter 70, Title 18 of the Idaho Code to include the ag-gag bill); *see also* S. 1337, 62d Leg., 2d Reg. Sess. (Idaho 2014), *available at* http://www.legislature.idaho.gov/legislation/2014/S1337.pdf.

53. *Id.* § 18-7042(1)(c) (including provisions for property damage and trespass).

54. *Id.* § 18-7042(1)(d).

55. *See id.* § 18-7042(3).

prosecuted one person who filmed a slaughterhouse worker pushing a cow with a bulldozer.[56] The charges were dropped, however, because the defendant was standing on public property adjacent to the facility when she made the recording.[57] Utah's law only covers recording while on the premises of the facility.[58] Thereafter, the previously charged defendant and several others filed a civil rights complaint challenging the Utah law.[59] They claim the Utah law violates First Amendment free speech rights, and also violates equal protection and due process under the Fourteenth Amendment.[60] The plaintiffs further claim the state law is preempted by the federal False Claims Act ("FCA") under the Supremacy Clause.[61] The federal FCA is designed for citizen watchdogs to blow the whistle on fraud, waste and abuse in government contracts.[62] The government contracts implicated in agricultural food protectionism involve food provided for school lunch programs.[63]

Idaho has yet to prosecute anyone under its new statute, but activists already have sued the state to enjoin enforcement of the Idaho law.[64] Many of the same plaintiffs are involved in both the Utah and Idaho civil cases and articulate most of the same complaints.[65] Like the Utah action, the Idaho civil case claims preemption based on the federal False Claims Act, but also

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56. *See* Complaint at 9-10, Animal Legal Def. Fund v. Herbert, No. 2:13-cv-00679-RJS (D. Utah July 22, 2013) [hereinafter *ALDF Complaint*], *available at* http://www.law.du.edu/documents/news/Ag-Gag-Complaint.pdf. For an account of the events that led to Amy Meyer's prosecution, authored by her co-plaintiff, *see* Will Potter, *First "Ag-Gag" Prosecution: Utah Woman Filmed a Slaughterhouse from the Public Street*, GREEN IS THE NEW RED (Apr. 29, 2013), http://www.greenisthenewred.com/blog/first-ag-gag-arrest-utah-amy-meyer/6948/.

57. Jim Dalrymple, *Utah prosecutor dismises suddenly high profile 'ag-gag' case,* SALT LAKE TRIBUNE (May 1, 2013, 7:39 AM), http://www.sltrib.com/sltrib/news/56240592-78/case-meyer-law-gag.html.csp.

58. *See supra* notes 41-45 and accompanying text.

59. *See* Civil Docket Report, Animal Legal Def. Fund v. Herbert, No. 2:13-cv-00679-RJS (D. Utah 2013). The additional plaintiffs include journalists, academics, People for the Ethical Treatment of Animals (PETA) and the Animal Legal Defense Fund (ALDF), among others. *Id.*

60. *ALDF Complaint*, *supra* note 56, at 34-39.

61. *Id.* at 37-39.

62. *Id.*

63. *Id.* at 37-38. *See also* Plaintiffs' Opposition to Defendants' Motion to Dismiss at 25-27, Animal Legal Def. Fund v. Herbert, No. 2:13-cv-00679-RJS (D. Utah Dec. 10, 2013) (No. 33), *available at* http://www.scribd.com/doc/190760493/Utah-Ag-Gag-Challenge-Plaintiffs-Opposition-to-the-Motion-to-Dismiss.

64. *See* Complaint, Animal Legal Def. Fund v. Otter, No. 1:14-cv-00104-BLW (D. Idaho Mar. 17, 2014), *available at* https://acluidaho.org/wpsite/wp-content/uploads/1.complaint1.pdf.

65. *Id.*

under the Food Safety Modernization Act ("FSMA") and the Clean Water Act ("CWA").[66] The district courts in Utah and Idaho are in separate federal circuits, meaning the Ninth and Tenth federal appeals circuits may be deciding the constitutionality of these similar ag-gag laws simultaneously.[67]

There is one indication that ag-gag laws could influence criminal prosecutions in states without such laws on their books. Colorado, a state without an ag-gag law, prosecuted an undercover reporter for animal cruelty in November 2013, when she turned over video footage of animal abuse that she filmed while working for Quanah Cattle Company from mid-July through September.[68] The reporter, Taylor Radig, was affiliated with the organization, Compassion Over Killing.[69] In her two months of employment, she filmed such substantial evidence of abuse that three employees were fired and charged with multiple counts of cruelty after Compassion over Killing published the footage.[70] The Weld County Sheriff's Office explained that Radig "may have been criminally negligent for failing to turn over the videotapes to law enforcement in a timely manner, under Colorado Revised Statutes 18-9-201 and 18-9-202."[71] Those statutes, however, reveal no express or implied timely reporting requirements.[72] Ultimately, the county dropped the charges against Radig,[73] but the prosecution clearly evoked the Category Four – Mandatory Disclosure approach, despite having no such law in Colorado.[74]

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66. *Id.* at ¶¶ 168-86. For a discussion of preemption under the Food Safety Modernization Act, *see infra* Part III.

67. *About U.S. Federal Courts*, FED. BAR ASSOC., http://www.fedbar.org/Public-Messaging/About-US-Federal-Courts_1.aspx (last vistited Mar. 5, 2014).

68. *See* Wayne Harrison, *Woman Who Took Cattle Abuse Video Charge with Animal Abuse*, 7NEWS DENVER (Nov. 23, 2013, 12:01 AM), http://www.thedenverchannel.com/news/local-news/woman-who-took-cattle-abuse-video-charged-with-animal-abuse.

69. *Id.*

70. *See* Matt Ferner, *Undercover Video Alleges Shocking Animal Abuse of Newborn Calves at Colorado Facility*, HUFFINGTON POST (Nov. 14, 2013, 2:03 PM), http://www.huffingtonpost.com/2013/11/14/video-newborn-calf-abuse_n_4275001.html (containing the video filmed by Radig and published by Compassion Over Killing); *see also* Alexis Croswell, *Charges Dropped Against Animal Rights Investigator Accused of Animal Cruelty*, ONE GREEN PLANET (Jan. 14, 2014), http://www.onegreenplanet.org/news/charges-dropped-against-animal-rights-investigator-accused-of-animal-cruelty/.

71. Croswell, *supra* note 70 and accompanying text.

72. *See* COLO. REV. STAT. §§ 18-9-201 to -202 (2014).

73. *Charges Dropped Against Woman Accused of Animal Cruelty*, CBS DENVER (Jan. 11, 2014), http://denver.cbslocal.com/2014/01/11/charges-dropped-against-woman-accused-of-animal-cruelty/.

74. There has been news, too, of a representative in Colorado intending to sponsor a Category Four - Mandatory Disclosure bill in Colorado that would make it a

E. Continuing Protectionist Legislative Agenda

In 2013-2014, numerous states proposed ag-gag bills—some with multiple proposals—that did not pass.[75] Most of the protectionist proposals in the states continue to involve one of the four ag-gag categories described above, especially Categories Three and Four, but a few discussed next are new and especially creative.

The Arkansas Senate put forward two ag-gag bills in 2013.[76] One would have criminalized conducting an animal investigation by anyone who was not a certified law enforcement officer.[77] This proposal did not fit into any ag-gag category listed above. Still, it would have criminalized citizen-reporting of incidents concerning farm animals.[78] The bill eventually passed but without the ag-gag portion included.[79]

The Indiana legislature contemplated three ag-gag bills in 2013, all of which were Category One - No Recording bills because they sought to

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misdemeanor to fail to report animal abuse within twenty-four hours. *See* Mary Roberts, *Soapbox: Let's Stop Making Telling the Truth a Crime*, COLORADOAN.COM (Jan. 30, 2014), http://www.coloradoan.com/article/20140130/OPINION04/301300080/.

75. *See Anti-Whistleblower Bills Hide Factory-Farming Abuses from the Public*, HUMANE SOC'Y OF THE U.S. (Mar. 25, 2014), http://www.humanesociety.org/issues/campaigns/factory_farming/fact-sheets/ag_gag.html#id=album-185&num=content-.

76. *See* S. 13, 89th Gen. Assemb., Reg. Sess. (Ark. 2013), *available at* http://www.arkleg.state.ar.us/assembly/2013/2013R/Acts/Act1160.pdf (Senate Bill 13 passed without the ag-gag provisions and was enacted as Act 1160); *Arkansas Senate Bill 13*, LEGISCAN (Apr. 12, 2013), https://legiscan.com/AR/bill/SB13/2013; S.14, 89th Gen. Assemb., Reg. Sess. (Ark. 2013), *available at* http://www.arkleg.state.ar.us/assembly/2013/2013R/SB14.pdf; *SB14 - Creating the Offense of Interference with a Livestock or Poultry Operation*, ARK. STATE LEG., http://www.arkleg.state.ar.us/assembly/2013/2013R/Pages/BillStatusHistory.aspx?measureno=SB14 (last visited Sept. 10, 2014).

77. *See* S. 13, 89th Gen. Assemb., Reg. Sess. (Ark. 2013), *available at* http://legiscan.com/AR/text/SB13/id/684193/Arkansas-2013-SB13-Draft.pdf (providing a proposed draft of Senate Bill 13). *See id.* at Sec. 3, § 5-62-128 (discussing the parameters of, and penalties for, conducting "improper animal investigations").

78. *Id.* at Sec. 3, § 5-62-128.

79. *See* S. 13, 89th Gen. Assemb., Reg. Sess. (Ark. 2013), *available at* http://www.arkleg.state.ar.us/assembly/2013/2013R/Acts/Act1160.pdf. The other Arkansas proposal targeted Category One – No Recordings and Category Three – No Lying offenses. *See* S. 14, 89th Gen. Assemb., Reg. Sess. (Ark. 2013), *available at* http://www.arkleg.state.ar.us/assembly/2013/2013R/Bills/SB14.pdf. This proposal died in May, 2013. *See SB14 - Creating the Offense of Interference with a Livestock or Poultry Operation*, ARK. STATE LEG., http://www.arkleg.state.ar.us/assembly/2013/2013R/Pages/BillStatusHistory.aspx?measureno=SB14 (last visited Sept. 11, 2014) (providing the legislative history of Senate Bill 14).

criminalize photographing or recording images at an agriculture facility.[80] One, however, would have further required the Indiana Board of Animal Health to register people convicted of crimes concerning an agricultural operation, much akin to a sex offender list.[81] Arguably, such a registry would further chill would-be undercover reporters or concerned employees from making recordings because the repercussions for being "listed" are unclear. None of the Indiana bills passed.[82]

Undeterred by those failures, Indiana's senate proposed an ag-gag law for the 2014 session that is both unique and nearly unbounded.[83] It would have amended the state's property crimes to allow agricultural operations to post a notice of "prohibited acts that may compromise the agricultural operation's trade secrets or operations."[84] The proposal would have also criminalized any violations of those private, farm-by-farm notices.[85] While this bill makes no mention of prohibited recordings, distribution of recordings, employment fraud, or mandatory disclosure requirements, it could fit all four ag-gag categories.[86] Indeed, it had the potential to be the most sweeping ag-gag bill yet because it would have vested agricultural operations with the power to create felonies themselves, which would raise serious due process concerns.[87] The only limit on what acts could be prohibited by notice (and thus enforced with a felony charge) is that prohibited acts had to be linked to "compromis[ing] the agricultural

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80. S. 373, 118th Gen. Assemb., 1st Reg. Sess. (Ind. 2013), *available at* http://www.in.gov/legislative/bills/2013/IN/IN0373.1.html; S. 391, 118th Gen. Assemb., 1st Reg. Sess. (Ind. 2013), *available at* http://www.in.gov/legislative/bills/2013/IN/IN0391.1.html; H.R. 1562, 118th Gen. Assemb., 1st Reg. Sess. (Ind. 2013), *available at* http://www.in.gov/legislative/bills/2013/IN/IN1562.1.html.

81. *See* Ind. S. 391; *see also* Ind. H.R. 1562 (proposing an amendment to IND. CODE § 15-17-3-13 to add subsection (33), which requires the registry).

82. *See 2013 Indiana General Assembly Wrap-Up*, HOOSIER ENVTL. COUNCIL, Section IV.e, http://www.hecweb.org/billwatch2013/2013-legislative-session-in-review/ (last visited Sept. 12, 2014) (discussing the bills and their failure to pass).

83. *See Indiana Senate Bill 101*, OPENSTATES, http://openstates.org/in/bills/2014/SB101/#billtext (last visited Mar. 6, 2015) (providing information about Senate Bill 101).

84. S. 101, Sec. 2, § 35-43-1-9, 118th Gen. Assemb., 2d Reg. Sess. (Ind. 2014, as introduced), *available at* http://iga.in.gov/legislative/2014/bills/senate/101/#.

85. *Id.* Specifically, Senate Bill 101 decreed that any person "who knowingly or intentionally commits an act at an agricultural operation that is a prohibited act listed on a notice . . . commits a Level 6 felony." *Id.*

86. *See generally id.*

87. *See* U.S. CONST. amend. V. The potential due process problems with such an approach are beyond the scope of this analysis, but they are easy to anticipate when the particulars of a felony are on notice only in a private facility.

operation's trade secrets or operations."[88] Conceivably, an agricultural operation could have prohibited anyone entering the premises from communicating to anyone (ever) any information learned or instances observed at the facility. Such a prohibition could serve to protect the operation's trade secrets from being compromised. But it could also constitute the most suffocating ag-gag bill yet on the books. The protectionist language did not make it into subsequent versions of the bill.[89] The attempt, however, reflects the creativity of those promoting the agricultural legislative agenda and the lengths some lawmakers will go to protect agriculture interests.

Nebraska Legislative Bill 204 included Category Three - No Lying and Category Four - Mandatory Disclosure provisions.[90] The Nebraska Category Four proposal was both a carrot and a stick: failing to report suspected livestock abuse or neglect within twenty-four hours would be a class III misdemeanor;[91] but reporting within twenty-four hours would make the reporter "immune from liability except for false statements of fact made with malicious intent."[92] Potentially, if an undercover investigator had lied on a job application about an affiliation with an animal rights organization in order to gain employment so he could perform undercover reporting on the operation, that could be construed as such "malicious intent" that would strip away the Category Four immunity. If so, the Category Four - Mandatory Reporting requirement would impose self-incrimination of the Category

88. *See* Ind. S. 101, Sec. 2, § 35-43-1-9.

89. *See* S. 101, 118th Gen. Assemb., 2d Reg. Sess. (Ind. 2014, engrossed version), *available at* http://iga.in.gov/static-documents/c/8/1/9/c819f082/SB0101.04.COMH.pdf.

90. *See LB204 - Change and Provide Criminal Sanctions Regarding Animals and Animal Facilities*, NEB. LEG., http://nebraskalegislature.gov/bills/view_bill.php?DocumentID=17956 (last visited Sept. 12, 2014) (providing the legislative history of Legislative Bill 204).

91. Legis. B. 204, 103rd Leg., 1st Sess., Sec. 2, §§ (3), (8) (Neb. 2013).

92. *Id.* at Sec. 4, § (4).

Three –No Lying crime.[93] Legislative Bill 204 did not pass in 2013[94] and was carried over into the 2014 term[95] when it finally failed.[96]

North Carolina's 2014 enactment may actually represent a new Category Five ag-gag law. North Carolina Senate Bill 648 created the criminal offense of "employment fraud."[97] Despite mimicking the ag-gag Category Three and Category Four scheme, this bill is not specific to agricultural facilities.[98] It criminalizes the act of gaining employment by giving false or incomplete application information when the purpose of gaining access to the place of employment is to create a photo, video, or audio recording within the facility.[99] It goes on to require that any recording made be turned over to local law enforcement within twenty-four hours.[100] There is no immunity for the reporting employee.[101] Accordingly, the relinquishment mandated by the law could trigger self-incrimination if employees turning over recordings effectively reveal their crimes of "employment fraud" committed in accessing the workplace. The bill died in 2013,[102] but was resurrected and passed in 2014.[103]

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93. If the immunity under Category Four is unavailable to the employee who intentionally lied on the job application, then the Category Four mandatory reporting would bring to light the very Category Three violation that strips the immunity. Accordingly, any combined Category Three and Category Four laws (without immunity for both under Category Four) could violate the constitutional right to remain silent. *See* U.S. CONST. amend. V.

94. *See LB204 - Change and Provide Criminal Sanctions Regarding Animals and Animal Facilities*, *supra* note 90.

95. *See State Carryover Procedures*, STATESIDE ASSOCS., http://www.stateside.com/wp-content/uploads/State-Carryover-Procedures-FactPad-Insert.pdf (last updated July 12, 2013) (noting that in Nebraska, bills introduced in the regular session of odd-numbered years are held over for consideration during the regular session in even-numbered years).

96. *See LB204 - Change and Provide Criminal Sanctions Regarding Animals and Animal Facilities*, *supra* note 90.

97. S. 648, Gen. Assemb., 2013 Sess. (N.C. 2013), *available at* http://www.ncleg.net/sessions/2013/bills/senate/PDF/s648v1.pdf. The bill would amend Article 19 of Chapter 14 of the North Carolina General Statutes by inserting the ag-gag bill, entitled "Employment Fraud," at N.C. GEN. STAT. § 14-105.1 (2013). *Id.*

98. *See generally id.*

99. *Id.* at Sec. 1, § 14-105.1(a)(1).

100. *Id.* at Sec. 1, § 14-105.1(c).

101. *See generally* N.C. S. 648, Sec 1.

102. *See Ag-Gag Laws*, SOURCEWATCH, http://www.sourcewatch.org/index.php/Ag-gag_laws#cite_note-34 (last visited Sept. 15, 2014) ("The bill was re-referred to the Senate committee on the Judiciary on May 7, 2013, and died without a vote when the legislative session ended July 26, 2013.").

103. *Senate Bill 648/S.L. 2014-110*, N.C. GEN. ASSEMB., http://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2013&BillID=S648 (last visited Sept. 15, 2014).

This general employment bill has strong agricultural protectionist implications because North Carolina has a large number of concentrated animal feeding operations ("CAFOs"), especially for chicken and swine.[104] Thus, North Carolina's new law may reflect the next generation of efforts by legisltures in states with a strong agricultural economy to protect their ag industry while masking that effort in general across-the-board legislation.

F. Other Related Statutes and Torts

States that have not adopted food libel or ag-gag laws discussed above, still provide other forms of agriculture protection.[105] For example, more than half the states have laws that heighten penalties for fraud, property damage and/or trespass when it involves an animal or agricultural facility to help deter crimes against agribusiness.[106] Additionally, at least eight states have enacted animal terrorism statutes.[107] Like the ag-gag statutes discussed above, these laws tend to target the activities of animal rights activists. Their aim, however, is to protect property rather than to stifle reports of unsafe or inhumane food production practices.[108] Thus, the laws do not impact the free speech of whistleblowers and suppress discussion of food safety concerns directly the way ag-gag laws do.

Finally, states already have torts and crimes that have been used to challenge the kinds of behavior ag-gag laws target. Ag-gag proponents

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104. DANIEL IMHOFF, *Introduction to* CAFO: THE TRAGEDY OF INDUSTRIAL ANIMAL FACTORIES xvi (Daniel Imhoff ed., 2010).

105. *See, e.g.*, S.C. CODE ANN. §§ 47-21-10 to -260 (2012), *available at* http://www.scstatehouse.gov/query.php?search=DOC&searchtext=47%209%20710&category=CODEOFLAWS&conid=7309575&result_pos=0&keyval=979&numrows=10 (containing no ag-gag provision). States with the ag-gag law categories discussed above tend to include them along side or within statutes that heighten penalties for injuries done to agricultural facilities. *See, e.g.*, KAN. STAT. ANN. § 47-1827(c) (2013) (containing an ag-gag provision).

106. Bollard, *supra* note 17, at 10961.

107. *See* Landfried, *supra* note 17, at 379 n.11, 393 n.87.

108. *Id.* at 393. The federal Animal Enterprise Interference Act, 18 U.S.C. § 43 (2012), and its predecessor, the Animal Enterprise Protection Act (AEPA), 18 U.S.C. § 43 (1992), also protect farms and other animal operations from interference by animal rights activists and others. The original federal version was limited to property damage that caused a "physical disruption" of animal enterprise activity, 18 U.S.C. § 43(a) (1992), akin to the state animal terrorism laws that target vandalism and other property damage. The new federal version covers behavior that damages or interferes with the animal enterprise, rather than physically disrupts it. 18 U.S.C. § 43(a) (2012). The act also includes conduct involving threats, not just property damage. 18 U.S.C. § 43(a)(2)(B) (2012). Since this present analysis is focused on state protectionist activities, it will not analyze this federal protection in further detail.

"have stressed that the underlying goal of the laws is to prevent animal-rights activists from infiltrating facilities to capture footage that they will then present in a manner that is untruthful and harmful to the farming industry."[109] Agricultural facilities already have recourse against that kind of behavior in actions for defamation, breach of loyalty, willful misrepresentation, tortious interference, intrusion, and unfair trade practices. Indeed, reporters have been found liable under those legal theories in the performance of their reporting.[110] Accordingly, ag-gag laws criminalize behavior that is already illegal or actionable[111] and move the bulk of enforcement from torts to crimes or hybrid crime-torts, shifting at least some of the cost of enforcement from alleged victims to all taxpayers.[112] This shift confirms that lawmakers in these states are willing to provide protection for agriculture that other economic sectors do not enjoy.

Ag-gag laws are especially incongruous when understood in relation to the current food safety approach embodied in federal law. This food system and its reliance on self-reporting by food workers is discussed next.

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109. Adam, *supra* note 17, at 1173; *see also* Sara Lacy, Comment, *Hard to Watch: How Ag-Gag Laws Demonstrate the Need for Federal Meat and Poultry Industry Whistleblower Protections*, 65 ADMIN. L. REV. 127, 144 (2013).

110. *See* Landfried, *supra* note 17, at 384 nn.33-36; *see also* Adam, *supra* note 17, at 1175; Kingery, *supra* note 17, at 664-67; John K. Edwards, *Should There Be Journalist's Privilege Against Newsgathering Liability?*, 18 COMM. LAW. 8, 10 (2000).

111. *But see* Bollard, *supra* note 17, at 10970 ("Only two tort suits appear to have arisen from animal rights undercover investigations. In both cases, the courts applied reasoning similar to the *Desnick* and *Food Lion* courts' reasoning and dismissed all of the charges brought. The courts' dismissal of these claims suggests why Iowa and Utah lawmakers saw a need for the Ag-Gag laws."). This history Bollard describes is similar to the course of events that spawned statutory food libel protection in the 1990s. *See supra* notes 11-14 and accompanying text.

112. As acknowledged by other commentators, "criminal law . . . has the unique ability to assign blame and censure with a moral force that the civil law cannot. It effectively sends the message that it is prohibiting behavior which lacks *any* social utility. . . . Crime is also seen as a moral fault and carries with it the weight of shame and stigma that the commission of a tort simply does not." Bryan H. Druzin & Jessica Li, *The Criminalization of Lying: Under What Circumstances, If Any, Should Lies Be Made Criminal?*, 101 J. CRIM. L. & CRIMINOLOGY 529, 571-72 (2011). Given the public utility of previous undercover reports on the food industry, it is hard to see how whistleblowing merits criminal sanction.

III. FOOD SAFETY SYSTEM

The United States Department of Agriculture ("USDA") regulates the production of meat, poultry, and eggs.[113] The debate about protectionism embodied in state ag-gag laws has focused on food products governed by the USDA because surreptitious videos that spawned those laws usually involved beef, pork or poultry production facilities.[114] Nevertheless, mass production and distribution of fresh fruits and vegetables are a major source of food safety concerns,[115] and most of the recently passed ag-gag laws apply to both animal and crop farms.[116] Fruits, nuts, dairy, seafood, and vegetables are within the scope of Food and Drug Administration ("FDA").[117] In 2011, the Food Safety Modernization Act ("FSMA")[118] amended the FDA's authority to regulate food safety.[119] The FSMA, however, specifically states that nothing in it shall limit the authority of the Secretary of Agriculture[120] under the Federal Meat Inspection Act,[121] the Poultry Products Inspection Act,[122] or the Egg Products Inspection Act.[123]

The competing USDA and FDA food safety systems, including whistleblower protection (or lack thereof) in each scheme, are discussed next.

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113. The Food Safety and Inspection Service ("FSIS") is the primary body within the USDA that carries out food safety authority under multiple enabling statutes. *See generally About FSIS*, USDA—FOOD SAFETY & INSPECTION SERVICE, http://www.fsis.usda.gov/wps/portal/informational/aboutfsis (last modified Oct. 1, 2014).

114. *See, e.g.*, Brown, *supra* note 5.

115. *See generally* Rita Marie Cain, *Salads, Safety and Speech Under a National Leafy Greens Marketing Agreement*, 67 FOOD & DRUG L.J. 311 (2012).

116. *See generally supra* Part II.

117. The Federal Food, Drug, and Cosmetic Act (FFDCA) established the Food and Drug Administration (FDA) in 1938. Pub. L. No. 75-717, 52 Stat. 1040 (1938) (codified in scattered sections of 21 U.S.C.).

118. Food Safety Modernization Act, Pub. L. No. 111-353, 124 Stat. 3885, 3947 (2011) (codified in scattered sections of 21 U.S.C.). The FDA is an agency within the Department of Health and Human Services ("HHS"). Accordingly, all the mandates in FSMA are directed at the HHS Secretary. *FDA Organization*, U.S. FOOD & DRUG ADMIN., http://www.fda.gov/AboutFDA/CentersOffices/ (last updated Feb. 25, 2015).

119. 21 U.S.C. § 350j (2006 & Supp. IV 2011).

120. 21 U.S.C. § 2251(4) (Supp. IV 2011).

121. *Id.* at (A).

122. *Id.* at (B).

123. *Id.* at (C).

A. USDA Safety Approach

Of the numerous USDA divisions that share some responsibility for food safety,[124] FSIS has been characterized as the most important.[125] FSIS executes the USDA's statutory mandate to examine animals used in commerce, both before and after slaughter.[126] To carry out its authority, FSIS inspectors are expected to have complete, unfettered access to both food processing plants and their products.[127] Inspectors can order any animal or carcass to be removed if unfit for human consumption.[128] Failure to comply can result in an inspector revoking the facility's inspection privileges, effectively shutting the operation down.[129]

Historically, inspection was done using sight, touch, and smell to detect livestock disease or food contamination.[130] Inspectors may detect contamination visually, and require facilities to rectify fecal matter (a carrier for the microbes and pathogens in food) on animals and carcasses.[131] But external inspections are inadequate to address microbial infestations, such as E-coli.[132] Accordingly, the USDA implemented a significant overhaul in its

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124. For example, its Veterinary Services provide surveillance of animal, poultry, and aquaculture health. *Animal Health*, USDA—ANIMAL & PLANT HEALTH INSPECTION SERV., http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/animalhealth (last visited Sept. 22, 2014) (follow "Monitoring and Surveillance" hyperlink, on left; then "National Animal Health Surveillance System (NAHSS)," on right).

125. Richard A. Merrill & Jeffrey K. Francer, *Organizing Federal Food Safety Regulation*, 31 SETON HALL L. REV. 61, 99 (2000).

126. Federal Meat Inspection Act, 21 U.S.C. §§ 602, 603 (2014); Poultry Products Inspection Act, 21 U.S.C. §§ 452, 455 (2014).

127. 9 C.F.R. § 300.6(b) (2004). Eileen Starbranch Pape, Comment, *A Flawed Inspection System: Improvements to Current USDA Inspection Practices Needed to Ensure Safer Beef Products*, 48 HOUS. L. REV. 421, 432 (2011).

128. 9 C.F.R. § 311.1 (1970).

129. 9 C.F.R. §§ 302.1-302.3 (1971) (requiring inspection at ***every*** non-exempt establishment, and of ***all*** livestock and products entering a non-exempt establishment and ***all*** products prepared at a non-exempt establishment (emphasis added)). The pervasive nature of this inspection mandate leads to the conclusion that a USDA decision to withdraw inspectors has the effect of suspending operations. *See* Katherine A. Straw, Note, *Ground Beef Inspections and E. Coli O157:H7: Placing the Needs of the American Beef Industry Above Concerns for the Public Safety*, 37 WASH. U. J.L. & POL'Y 355, 359 (2011); *see also* Pape, *supra* note 127, at 443-44.

130. *See* Pape, *supra* note 127, at 434.

131. *See generally* Cain, *supra* note 115. Slaughterhouses are allowed to use organic acid sprays to wash away fecal matter. FSIS randomly tests ground beef for E-coli, as do producers, voluntarily. *See* Pape, *supra* note 127, at 433-34.

132. *See* Straw, *supra* note 129 (discussing the intricasies of E-coli infestation).

inspection regiment to a Hazard Analysis Critical Control Point ("HACCP")[133] system.

HACCP is a "systematic approach to the identification, evaluation, and control of food safety hazards."[134] HACCP has been characterized as "management-based regulation"[135] in which producers self-identify potential risks throughout food processing and establish minimal values at which the risks can be controlled or eliminated at critical control points.[136] Instead of FSIS inspectors looking for contamination and removing the defective product, "HACCP takes a preventative approach by requiring the placement of controls on conditions that pose threats to contamination throughout the process."[137] The FSIS inspector now only evaluates the plan and inspects the documentation generated at the critical points, not the food.[138] Food safety tasks at critical control points have shifted from FSIS inspectors to the facilities' own employees.[139]

In such a system, transparency and accountability within the food producing operation are critical to safety.[140] If reporting on the procedures in the plan is based on anything less than full disclosure, the resulting FSIS approval will be based on flawed assumptions. When protectionist laws hamper whistleblowers or investigative reporters, the HACCP process is undermined. As such, state protectionist statutes that stifle whistleblowing and investigative reporting are antithetical to the current USDA safety scheme.

Shortcomings in USDA's current HACCP system[141] have led to proposed changes. One such revision, the Safe Meat and Poultry Act of

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133. *See generally* Hazard Analysis and Critical Control Point (HACCP) Systems, 21 C.F.R. §§ 120.1-.25 (2001).

134. NAT'L ADVISORY COMM. ON MICROBIOLOGICAL CRITERIA FOR FOODS, *HACCP Principles and Application Guidelines*, U.S. FOOD & DRUG ADMIN. (Aug. 14, 1997), http://www.fda.gov/Food/GuidanceRegulation/HACCP/ucm2006801.htm.

135. Cary Coglianese & David Lazer, *Management-Based Regulation: Prescribing Private Management to Achieve Public Goals*, 37 LAW & SOC'Y REV. 691, 696-98 (2003).

136. Lauren Gwin & Arion Thiboumery, *Local Meat Processing: Business Strategies and Policy Angles*, 37 VT. L. REV. 987, 1001 (2013); Eva Merian Spahn, *Keep Away from Mouth: How the American System of Food Regulation Is Killing Us*, 65 U. MIAMI L. REV. 669, 710-11 (2011).

137. Pape, *supra* note 127, at 438.

138. *Id.*

139. *Id.* at 439.

140. *Id. See also* Straw, *supra* note 129, at 364-66.

141. Joby Warrick, *An Outbreak Waiting to Happen: Beef-Inspection Failures Let In a Deadly Microbe*, WASH. POST, Apr. 9, 2001, at A1, http://www.cyberclass.net/outbreak.htm. *See also* James S. Cooper, Note and Comment, *Slaughterhouse Rules: How Ag-Gag Laws Erode the Constitution*, 32 TEMP. J. SCI. TECH.

2013, not only specifies new requirements for safe meat handling, but also includes protection for whistleblowers.[142] The bill would protect employees who are "discharged, demoted, suspended, threatened, harassed, or in any other manner discriminated against" for providing information to a supervisor or government agency about an act that the person reasonably believes constitutes a violation of food safety laws, rules or regulations, or that constitutes a threat to the public health.[143] The bill is still pending.[144]

B. FDA Food Safety Under the FSMA

Under its original enabling legislation, the FDA exercised its food safety authority by supporting industry self-regulation and investigating safety problems after the fact.[145] For example, in 2006, an E. coli outbreak resulted in 205 confirmed illnesses and three deaths across twenty-six states.[146] Afterward, the FDA and others[147] traced the outbreak to Dole brand spinach and contamination from one field in California.[148]

At that time, the FDA's quality-control guidelines for fresh produce addressed concerns that could potentially expose produce to pathogens: water sources, manure, field sanitation, worker hygiene, facilities sanitation, and transportation.[149] The International Fresh Produce Association

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& ENVTL. L. 233, 238-40 (2014); Larissa Wilson, Comment, *Ag-Gag Laws: A Shift in the Wrong Direction for Animal Welfare on Farms,* 44 GOLDEN GATE U.L. REV. 311, 326-28 (2014).

142. S. 1502, 113th Cong. § 270 (2013), *available at* http://www.gpo.gov/fdsys/pkg/BILLS-113s1502is/pdf/BILLS-113s1502is.pdf.

143. *Id.*

144. Travis Korte, *Safe Meat and Poultry Act of 2013,*CTR. FOR DATA INNOVATION (Feb. 28, 2014), http://www.datainnovation.org/2014/02/safe-meat-and-poultry-act-of-2013/.

145. *See generally Significant Dates in U.S. Food & Drug Law History*, U.S FOOD & DRUG ADMIN., http://www.fda.gov/AboutFDA/WhatWeDo/History/Milestones/ucm12835.htm (last updated Dec. 19, 2014) (providing a historical timeline of FDA enabling legislation).

146. *FDA Finalizes Report on 2006 Spinach Outbreak*, U.S. FOOD & DRUG ADMIN. (Mar. 23, 2007), http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2007/ucm108873.htm; *How FDA Works to Keep Produce Safe*, DRUGS.COM (Mar. 1, 2007), http://www.drugs.com/fda-consumer/how-fda-works-to-keep-produce-safe-66.html.

147. *How FDA Works to Keep Produce Safe*, *supra* note 146.

148. The investigation was one of the first to trace a food poisoning outbreak to its source. Denis W. Stearns, *On (Cr)edibility: Why Food in the United States May Never be Safe*, 21 STAN. L. & POL'Y REV. 245, 274 (2010).

149. FOOD SAFETY INITIATIVE STAFF, CTR. FOR FOOD SAFETY & APPLIED NUTRITION, GUIDE TO MINIMIZE MICROBIAL FOOD SAFETY HAZARDS FOR FRESH FRUITS AND VEGETABLES 39 (1998), *available at*

developed these safety guidelines in 1998.[150] Thus, the FDA guided industry regarding safety practices, using industries' own self-regulatory standards. The government agency lacked all authority to mandate its own preventative safety measures prior to 2011.[151]

In the face of increasing food contamination incidents,[152] however, the 2011 FSMA created several new duties and powers in the FDA.[153] For the first time, the FDA is required to mandate comprehensive safety standards for production and handling of raw fruits and vegetables.[154] Further, under FSMA, the FDA will partner with the USDA and officials in states and localities, to coordinate food safety programs.[155] Thus, the statute expressly recognizes the importance of a state and local safety net to protect national food safety interests. State protectionist legislation that stifles open dialogue about safety concerns seems antithetical to this FSMA safety scheme. Additionally, under FSMA, food importers have the primary role in verifying the safety of the imported food from foreign suppliers.[156] Such a system gives private parties an important role in self-governance of the food safety system.[157] Again, state protectionism that strips private parties of their ability to monitor these food importers seems counter-intuitive to safety.

The importance of employee reporting of safety violations is reflected in the FSMA's express whistleblower protection scheme. If an employee reports a potential statutory violation, testifies about it, or refuses to participate in it

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http://www.fda.gov/downloads/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/UCM169112.pdf.

150. Matthew Kohnke, Note, *Reeling in a Rogue Industry: Lethal E. Coli in California's Leafy Green Produce & the Regulatory Response*,12 DRAKE J. AGRIC. L. 493, 502-03 (2007).

151. There is no such enabling legislation to be found prior to 2011.

152. In June, 2011, Dole Fresh Vegetables, Inc. of Monterey, California, voluntarily recalled over two thousand cases of "Italian Blend" salad bags in twelve U.S. states and Canada after random sampling by the Ohio Department of Agriculture found the bacteria listeria. *Dole Recalls Thousands of Bags of Salad Greens*, FOOD SAFETY NEWS (June 24, 2011), http://www.foodsafetynews.com/2011/06/dole-recalls-thousands-of-bags-of-salad/. Listeria was the pathogen found on cantaloupes from one large Colorado facility in the fall of 2011 that caused thirty-three deaths and 147 confirmed cases of listeriosis across twenty-eight states. *Multistate Outbreak of Listeriosis Linked to Whole Cantaloupes from Jensen Farms, Colorado*, CTRS. FOR DISEASE CONTROL & PREVENTION (Sept. 28, 2011), http://www.cdc.gov/listeria/outbreaks/cantaloupes-jensen-farms/index.html.

153. *FDA Food Safety Modernization Act (FSMA)*, U.S. FOOD & DRUG ADMIN., http://www.fda.gov/Food/GuidanceRegulation/FSMA/ (last updated Mar. 5, 2015).

154. 21 U.S.C. § 350h(a)(1)(A) (Supp. IV 2011).

155. *Id.* at § 399c(b)-(d) (Supp. IV 2011).

156. *Id.* at § 384a(a)(1) (2013).

157. *See generally* Tacy Katherine Hass, *New Governance: Can User-Promulgated Certification Schemes Provide Safer, Higher Quality Food?*, 68 FOOD & DRUG L.J. 77, 86 (2013).

on the job,[158] the FSMA prohibits any covered employer from firing or otherwise discriminating against that whistleblower "with respect to compensation, terms, conditions, or privileges of employment."[159] This FSMA whistleblower protection, however, does not expressly preempt a food producer under FDA jurisdiction from pursuing legal recourse outside of employment rights or benefits, such as a civil food libel claim, or a criminal charge under state ag-gag laws.[160] The dynamic between federal food safety policy and agricultural protectionism is discussed next.

IV. PROTECTIONISM OR PREEMPTION? UNCERTAIN FEDERAL POLICY

State protectionist legislation that suppresses negative information coming out of farms would seem to directly contravene the federal food safety schemes discussed above that are built around management-based regulation and self-reporting by food producers. Nevertheless, one commentator analyzed the whistleblower protection in FSMA to conclude that it does not expressly or impliedly preempt retaliatory civil food libel claims against food safety whistleblowers.[161] Since that time, OSHA has enacted regulations to implement FSMA whistleblower protections[162] that are considered broad in their scope.[163] Still, the conclusion that the FSMA does not preempt these state efforts at agricultural protectionism seems even stronger when applied to newer state ag-gag laws. Category One through Four ag-gag protections all establish criminal violations. FSMA prohibits retaliatory discharge or other adverse employment actions by food-producing employers against their employees.[164] These whistleblower protections clearly do not reach state prosecutors who pursue criminal charges against whistleblowers. The same conclusion would apply to any ag-gag prosecution in the face of the proposed USDA whistleblower provisions in the 2013 Safe Meat and Poultry Act.[165]

At best, then, federal preemption can only be a defense in an ag-gag prosecution, namely that federal food safety law impliedly preempts any

158. 21 U.S.C. § 399d(a)(1)-(4) (Supp. IV 2011).
159. *Id.* at § 399d(a).
160. *Id.*
161. *See* Cain, *supra* note 12, at 306-07.
162. 29 C.F.R. § 1987 (2014).
163. Earl "Chip" Jones III, Linda Jackson & Jill Weimer, *OSHA Issues New Rule for Food Safety Whistleblowers*, LITTLER (Feb. 21, 2014), http://www.littler.com/publication-press/publication/osha-issues-new-rule-food-safety-whistleblowers.
164. Cain, *supra* note 12, at 306-307.
165. *See* Safe Meat and Poultry Act, *supra* note 142.

state protectionism that shields food safety violators from scrutiny.[166] As was noted above, secrecy is contraindicated under HACCP, which is now the safety approach of both USDA and FDA.[167] Nevertheless, a successful defense of implied preemption based on a general need for openness in the food safety systems seems unlikely in a state ag-gag prosecution.[168] This defense would have working against it, the presumption against federal preemption.[169]

Recently, in *Nat'l Meat Ass'n v. Harris*,[170] the Supreme Court concluded the USDA's slaughterhouse and packing plant regulations under the Federal Meat Inspection Act ("FMIA") preempted California's stricter standards for handling disabled livestock.[171] The scope of the FMIA preemption, although broad according to the Court, clearly focuses on state laws that impose requirements on meat production operations at Food Safety and Inspection Service ("FSIS") inspected facilities.[172] State protectionist laws discussed herein impose no such requirements. Accordingly, nothing in the preemption language applied in *Harris* would seem to apply to state protectionist laws that stifle whistleblowers.

Further highlighting the apparent weakness of current federal law to preempt state agricultural protectionism, federal lawmakers recently attempted to add ***express federal protectionism*** in the federal farm bill.[173]

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166. Alternatively, the United States could challenge the state criminal laws like it successfully did against Arizona's immigration reform laws. *See* United States v. Arizona, 132 S. Ct. 2492 (2012). In the *Arizona* case, however, the government was protecting federal immigration authority, which expressly preempts state immigration laws. *See* U.S. CONST. art. I, § 8, cl. 4. *See also* 8 U.S.C. § 1324a(h)(2) (2012). Such express statutory basis for challenging ag-gag laws neither applies under FSMA nor is proposed under USDA revisions.

167. *See supra* text accompanying notes 133-40.

168. Plaintiffs in the Idaho ag-gag civil litigation asserted preemption under FSMA. *See* Complaint, *supra* note 64, ¶¶ 177-180.

169. *See* Huron Portland Cement Co. v. Detroit, 362 U.S. 440, 446 (1960) (cited by the Court in United States v. Arizona, 132 S. Ct. at 2509-10, supporting the Court's declination to preempt one provision of the Arizona law on checking the status of arrestees until the law had been in effect, enforced, and interpreted by the state courts). Recently, a Tennessee court rejected a preemption defense in a state improper-labeling crime based on federal copyright law. *See* State v. Pierson, No. W2012-02565-CCA-R3-CD, 2014 WL 261414 (Tenn. Crim. App. Jan. 23, 2014). This criminal preemption defense was unsuccessful even in the face of express preemption in federal copyright law. *See* 17 U.S.C § 301(a) (2013) (unavailable for ag-gag defendants under FSMA).

170. Nat'l Meat Ass'n v. Harris, 132 S. Ct. 965 (2012).

171. *Id.*

172. *Id.* at 966 (quoting 21 U.S.C. § 678 (2014)).

173. Agriculture Reform, Food, and Jobs Act of 2013, S. 954, 113th Cong. (2013) (emphasis added).

The farm bill is omnibus legislation[174] passed once every five to seven years that sets the country's agricultural and food security agenda.[175] The latest version became law February 7, 2014.[176] One provision that did not make it into the final law nevertheless is instructive on current federal and state tensions regarding agriculture policy, for instance the Protection of Interstate Commerce Act ("PICA"), not a standalone act but a section of H.R. 2642,[177] would have arguably preempted all state agriculture laws that require tougher safety or animal treatment standards than ones set by federal law.[178] Arguably, PICA represented an unprecedented attempt to extend the Commerce Power into areas traditionally controlled by states.[179] The National Conference of State Legislatures opposed the measure, calling it a violation of the Tenth Amendment that would hinder states' abilities to "protect their citizens from invasive pests and livestock diseases, maintain quality standards for all agricultural products and ensure food safety."[180]

The impetus for PICA was California's Proposition 2.[181] Passed by voters in 2008, this law requires that cages for veal calves, pregnant sows, and egg-laying hens be large enough for the animals to lie down, stand up, fully extend their limbs and turn around freely.[182] In the wake of this successful voter initiative, California legislators passed a 2009 law banning the in-state sale of any eggs not produced under conditions required by the

174. The bill tends to span hundreds of pages because so many issues are addressed. For example, the Senate's proposed 2013 farm bill, Agriculture Reform, Food, and Jobs Act of 2013, S. 954, 113th Cong. (2013), spans 1163 pages. *See* GOVTRACK.US, https://www.govtrack.us/congress/bills/113/s954 (last visited Sept. 22, 2014).

175. *See generally* DANIEL IMHOFF, FOOD FIGHT: THE CITIZEN'S GUIDE TO THE NEXT FOOD AND FARM BILL 24 (Watershed Media, 2d ed. 2012).

176. David Jackson, *Obama Signs Farm Bill*, USA TODAY (Feb. 7, 2014, 4:23 PM), http://www.usatoday.com/story/news/politics/2014/02/07/obama-farm-bill-signing-lansing-michigan/5282827/. In signing the bill, the President compared it to a Swiss Army knife because it does so many things. *Id.*

177. The Agricultural Act of 2014, H.R. 2642, 113th Cong. (2013).

178. *Id.*; *see also* Lydia O'Conner, *Legal Experts Slam Controversial Farm Bill Amendment In Letter To Congress*, HUFFINGTON POST (Jan. 25, 2014, 4:01 PM), http://www.huffingtonpost.com/2013/12/06/law-professors-farm-bill_n_4401489.html.

179. *See* O'Connor, *supra* note 178. *See also* Pamela Vesilind, *Preempting Humanity: Why National Meat Ass'n v. Harris Answered the Wrong Question*, 65 ME. L. REV. 685, 692-702 (2013).

180. Melanie Condon, *NCSL Stakes Out Farm Bill Position in Letter to House, Senate Conference Leaders*, NAT'L CONF. OF STATE LEGISLATURES (Nov. 22, 2013), http://www.ncsl.org/blog/2013/11/22/ncsl-stakes-out-farm-bill-position-in-letter-to-house-senate-conference-leaders.aspx.

181. CAL. HEALTH & SAFETY CODE §§ 25990-94 (effective Jan. 1, 2015).

182. *Id.*

California cage law.[183] In other words, the California market is now closed to all egg sellers who do not comply with California's cage mandate. This helps California egg producers to compete on price with out-of-state egg suppliers who are not constrained by mandates like Proposition 2. PICA's sponsor, Steve King, represents Iowa, the largest egg producing state in the U.S.[184]

Although PICA did not make it into the 2014 farm bill,[185] vestiges of it continue to percolate around the California egg law. The attorney general of Missouri initiated an action against the California law, alleging that it violates the rights of egg producers outside California to sell their eggs in interstate commerce.[186] Subsequently, officials representing Iowa, Nebraska, Kentucky, Oklahoma, and Alabama joined the suit.[187] Thus, proponents of agricultural protectionism now are moving from the statehouse to the courthouse to attack food safety and animal rights initiatives.[188]

For federal food safety policy to trump state agricultural protectionism, express federal preemption will be needed.[189] For now, however, a defense against state ag-gag laws under the First Amendment free speech right could be a stronger challenge to state agriculture protectionism, as is discussed next.

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183. Treatment of Animals – Shelled Eggs – Sale for Human Consumption Act, ch. 51, A.B. No. 1437, 2010 Cal. Stat. 430.

184. *See* Martin, *supra* note 38. *See also Charts and Maps: Annual Egg Production by States*, NAT'L AGRIC. STATISTICS SERV. (Apr. 29, 2014), http://www.nass.usda.gov/Charts_and_Maps/Poultry/eggmap.asp.

185. NCSL, *The Agricultural Act of 2014*, http://www.ncsl.org/documents/standcomm/scrni/2014_fullfarmbillanalysis.pdf (last visited Mar. 24, 2014) (explaining that the King Amendment was not included in the 2014 farm bill).

186. Mike McGraw, *Missouri Enlists in the Egg Wars*, KANSAS CITY STAR (Feb. 1, 2014, 5:31 PM), http://www.kansascity.com/2014/02/01/4792128/missouri-enlists-in-the-egg-wars.html.

187. Jacob Bunge & Jesse Newman, *States Join Suit to Block California Egg Law*, WALL ST. J. (Mar. 6, 2014, 2:51 PM), http://blogs.wsj.com/law/2014/03/06/states-join-suit-to-block-california-egg-law/?mg=blogs-wsj&url=http%253A%252F%252Fblogs.wsj.com%252Flaw%252F2014%252F03%252F06%252Fstates-join-suit-to-block-california-egg-law.

188. The California voter initiative has survived several legal challenges. *See* Kathleen Masterson, *Court Upholds California's Law on Chicken Cage Sizes*, CAPITAL PUB. RADIO (Sept. 13, 2012), http://archive2.capradio.org/articles/2012/09/13/court-upholds-california's-law-on-chicken-cage-sizes.

189. *See* Cain, *supra* note 12, at 317-18. A federal bill, the Egg Products Inspection Act Amendments of 2013, would gradually phase in national cage requirements similar to California's for egg-laying chickens. H.R. 1731, 113th Cong. (1st Sess. 2013), *available at* https://www.govtrack.us/congress/bills/113/hr1731.

V. FIRST AMENDMENT ISSUES IN AGRICULTURAL PROTECTIONISM

The First Amendment states, "Congress shall make no law . . . abridging the freedom of speech, or of the press."[190] State governments are bound by the First Amendment under the Fourteenth Amendment.[191] Agriculture protectionist measures have received some First Amendment analysis. The free speech issues inherent in early food libel laws have been discussed at length and are not repeated here.[192] Similarly, several student authors have analyzed ag-gag laws through the lens of the First Amendment.[193] In those analyses, the authors apply several traditional free speech approaches such as Content-Based Restrictions,[194] Prior Restraints[195] and Expressive Conduct.[196] They differ in the degree of scrutiny they believe applies to the laws and they differ in some of their conclusions.[197] This is not surprising. As distinguished constitutional scholar, Erwin Chemerinsky, noted, there are many First Amendment doctrines, yet "no prescribed order for analysis."[198]

One consistency is reflected in the literature: Categories One and Two (No Recording and No Distributing) have received the bulk of the attention, while Category Three - No Lying and Category Four - Mandatory Disclosure have received scant analysis.[199] This Part explains free speech issues not previously scrutinized relative to Category Three – No Lying laws

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190. U.S. CONST. amend. I.

191. *See, e.g.*, NAACP v. Alabama, 357 U.S. 449, 460 (1958).

192. *See supra* note 13 and accompanying text.

193. *See* Landfried, *supra* note 17; Bollard, *supra* note 17; Adam, *supra* note 17; Kingery, *supra* note 17. *See also* Cooper, *supra* note 141.

194. *See* Landfried, *supra* note 17, at 388-89; Adam, *supra* note 17, at 1169-70; Kingery, *supra* note 17, at 670-71.

195. *See* Landfried, *supra* note 17, at 389; Adam, *supra* note 17, at 1171-72; Kingery, *supra* note 17, at 669-70.

196. *See* Bollard, *supra* note 17, at 10974-75; Adam, *supra* note 17, at 1133-37; Kingery, *supra* note 17, at 667-69. Landfried also discusses Incidental Restraints and Overbreadth, *supra* note 17, at 380-81, while Bollard opines on underinclusion, *supra* note 17, at 10975-77.

197. *See generally* Landfried, *supra* note 17; Adam, *supra* note 17; Kingery, *supra* note 17; Bollard, *supra* note 17.

198. ERWIN CHEMERINSKY, CONSTITUTIONAL LAW: PRINCIPLES AND POLICIES 960 (Wolters Kluwer Law & Bus. 4th ed. 2011). "Simply put, it is not possible to comprehensively flowchart the First Amendment as a defined series of questions in a required sequential order." *Id.*

199. Bollard, *supra* note 17, at 10977; Landfried, *supra* note 17, at 389. *See also,* Larissa U. Leibmann, *Fraud and First Amendment Protections of False Speech: How United States v. Alvarez Impacts Constitutional Challenges to Ag-Gag Laws*, 31 PACE ENVTL. L. REV. 566, 589 (2014).

and compelled relinquishment or reporting under Category Four – Mandatory Disclosure.

A. The Constitutional "Right to Lie"

In 1974, the U.S. Supreme Court stated "there is no constitutional value in false statements of fact."[200] Other statements by the Court before and after *Gertz* suggested that the First Amendment free speech right did not protect lying.[201] Nevertheless, in 2012, the Court held that the First Amendment protects some intentional lies.[202] This Part explains the *Alvarez* opinions to conclude that the Idaho, Iowa and Utah Category Three – No Lying laws may well violate this recently-articulated free speech protection.

While publicly introducing himself as a newly elected member of the water district board for Pomona, California, Xavier Alvarez falsely claimed to have received the Medal of Honor.[203] He was convicted under the federal Stolen Valor Act, which criminalized falsely stating one had received a military decoration or medal.[204] The motive for Alvarez's lie did not appear to be any political or material benefit.[205] As discussed herein, the fact that Alvarez did not lie to secure employment does not sufficiently distinguish his protected lie from those of undercover activists who lie to get farm jobs.

In a 6-3 result, a plurality struck down the Act.[206] Justice Kennedy wrote an opinion that was joined by Chief Justice Roberts and Justices Ginsburg and Sotomayor.[207] Justice Breyer concurred in the result, along with Justice Kagan.[208] Justice Alito was joined by Justices Scalia and

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200. Gertz v. Robert Welch, Inc., 418 U.S. 323, 340 (1974).

201. *See, e.g.*, Virginia State Bd. of Pharmacy v. Virginia Citizens Consumer Council, Inc., 425 U.S. 748, 771 (1976) ("Untruthful speech, commercial or otherwise, has never been protected for its own sake.").

202. *See* United States v. Alvarez, 132 S. Ct. 2537 (2012).

203. Dahlia Lithwick, *Heavy Medals: Sotomayor's Boyfriends Lie to Her? And the Other Untruths that Worry the Supreme Court*, SLATE.COM (Feb. 22, 2012, 8:13 PM), http://www.slate.com/articles/news_and_politics/supreme_court_dispatches/2012/02/xavier_alvarez_lied_about_winning_the_congressional_medal_of_honor_.html. The Stolen Valor Act enhanced penalties for those who falsely claimed receipt of the Congressional Medal of Honor. 18 U.S.C. § 704(c) (2014).

204. 18 U.S.C. § 704(b) (2014).

205. *Alvarez*,132 S. Ct. at 2542.

206. *Id.* at 2537.

207. *Id.*

208. *See id.* at 2551-56.

Thomas in dissent.[209] All three opinions are instructive that Category Three – No Lying laws will not withstand constitutional scrutiny.[210]

Justice Kennedy's opinion rejects an analysis of past precedents that "all proscriptions of false statements are exempt from exacting First Amendment scrutiny."[211] He then goes on to distinguish the Stolen Valor Act from three examples of false speech crimes that have been upheld: lying to a government official, perjury, and falsely representing oneself as a government official.[212] The government has a compelling interest that requires punishing each of these lies, even in the face of rigorous free speech defense.[213] By contrast, the lies targeted by the Stolen Valor Act are ones "simply intended to puff up oneself."[214]

Having established that free speech precedents do not require truthfulness as the basis for First Amendment protection, the opinion zeroes in on speech prohibited by the Stolen Valor Act. Justice Kennedy decries the notion of an unlimited governmental power "to compile a list of subjects about which false statements are punishable."[215] Equating such an environment to George Orwell's *1984*, he warned that if the Stolen Valor Act were sustained, "there could be an endless list of subjects the National Government or the States could single out."[216]

Arguably, the Category Three – No Lying laws are exactly such an unconstitutional list. Or not. Justice Kennedy quickly articulates one "limiting principle" that could allow states to criminalize lying to get a farm job: "Where false claims are made to effect a fraud or secure moneys or other valuable considerations, say offers of employment, it is well established that the Government may restrict speech without affronting the First

209. *Id.* at 2556-65.

210. The holding in a plurality decision is the "position taken by those Members who concurred in the judgment on the narrowest grounds." Marks v. United States, 430 U.S. 188, 193 (1977). For a discussion of "the *Marks* rule," *see* Justin Marceau, *Plurality Decisions: Upward-Flowing Precedent and Acoustic Separation*, 45 CONN. L. REV. 933 (2013). Under the *Marks* rule, *Alvarez* stands for the proposition that the Stolen Valor Act was an unconstitutional violation of free speech. The concept that the First Amendment protects some lies is supported by all three opinions in the case, as is discussed in this Part.

211. *Alvarez*,132 S. Ct. at 2546. "Absent from those few categories where the law allows content-based regulation of speech [obsenity or fraud, for example] is any general exception to the First Amendment for false statements." *Id.* at 2544.

212. *Id.* at 2545-46.

213. *Id.* at 2546.

214. *Id.*

215. *Alveraz*, 132 S.Ct. at 2547.

216. *Id.*

Amendment."[217] In other words, the "right to lie" that *Alvarez* clarifies seemingly does not protect lying to get a job, which ag-gag Category Three laws target. Justice Kennedy seems to equate lying on a job application with fraud because the lie secures a valuable exchange.[218]

The opinion goes on to uphold the government's compelling interest in banning Alvarez's lie, namely to protect "the integrity of the military honors system in general, and the Congressional Medal of Honor in particular."[219] Notwithstanding this interest of reinforcing the military mission, criminal prosecution of liars like Alvarez under the Act did not establish the necessary "link between the Government's interest in protecting the integrity of the military honors system."[220] In particular, the dynamics of free counter speech ("refutation") could offset the lie.[221] Further, "[s]ociety has the right and civic duty to engage in open, dynamic, rational discourse. These ends are not well served when the government seeks to orchestrate public discussion through content-based mandates."[222]

Even if refutation were insufficient to offset the lie of charlatans like Alvarez, criminal prosecution under the Stolen Valor Act does not satisfy the "exacting scrutiny"[223] free speech protection requires. Justice Kennedy opined that a government database of Medal of Honor winners was a mechanism that could protect the integrity of the military awards system

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217. *Id.* (emphasis added) (citing Virginia State Bd. of Pharmacy v. Virginia Citizens Consumer Council, 425 U.S. 748, 771 (1976), for the proposition that fraudulent speech is unprotected).

218. *But see* Food Lion, Inc. v. Capital Cities/ABC, Inc., 194 F.3d 505, 512 (4th Cir. 1999) in which false statements in obtaining jobs for undercover reporters were indisputable. Yet no fraud damages could be attributable to the falsities because the undercover employees performed the jobs as hired and the plaintiff received its expected exchange for the compensation paid. *Id.* at 514. Further, plaintiff's alleged administrative damages for hiring these surreptitious employees, then having to replace them, were inconsistent with the at-will nature of the employment. They could quit or be fired anytime. *Id.* at 513.

219. *Alvarez*, 132 S. Ct. at 2548. In an unsuccessful prosecution that pre-dated *Alvarez*, a district court concluded that the objective of the Stolen Valor Act did ***not*** amount to a compelling government interest. United States v. Strandlof, 746 F. Supp. 2d 1183, 1190-91 (D. Colo. 2010). This was also the approach taken by the Ninth Circuit in striking down the prosecution in *Alvarez*. *See* United States v. Alvarez, 617 F.3d 1198, 1217 (9th Cir. 2010).

220. *Alvarez*,132 S. Ct. at 2549.

221. *Id.*

222. *Id.* at 2550.

223. *Id.* at 2551. *See also* Aaron H. Caplan, *Lies and Levels of Scrutiny*, AM. CONST. SOC'Y (June 28, 2012), https://www.acslaw.org/acsblog/lies-and-levels-of-scrutiny ("[Kennedy's] phrase 'exacting scrutiny' may ultimately become a recognized term of art that signals a form of super-strict scrutiny extremely intolerant (but still a little tolerant) of content-based speech restrictions.").

without any constraint on speech.[224] Accordingly, the statute was deemed unconstitutional.[225]

To determine if the right to lie would undermine No Lying ag-gag laws, especially in the face of Justice Kennedy's statement that equates lying in exchange for a job with fraud, *Alvarez* requires additional analysis. Justice Breyer's concurring opinion supports the conclusion that falsity is not categorically denied free speech protection.[226] In particular, "in technical, philosophical, and scientific contexts,"[227] deliberate falsehoods can be the basis for further examination and public debate that help reveal truth.[228] Under this analysis, farm workers who blow the whistle on farm abuses, revealing themselves to be surreptitious PETA activists or food safety reporters, present just the kind of a case when a "'clearer perception and livelier impression of truth, [is] produced by its collision with error.'"[229] In fact, Justice Breyer's discussion here reveals the free speech concerns with Category One and Two laws against recording and distributing recordings also. The farm worker who is simultaneously a PETA activist only reveals his Category Three – No Lying violation upon release of recordings in violation of Categories One and Two. Accordingly, the clearer perception of truth Justice Breyer seeks to protect actually emerges with a trifecta of ag-gag violations.

The classic whistleblower free speech case, *Food Lion Inc. v. Capital Cities/ABC, Inc.*,[230] revealed just this combination of violations encompassed by ag-gag Categories One, Two and Three. Two ABC reporters for the show *PrimeTime Live* were hired at Food Lion supermarkets using fake identities, addresses, references, and personal histories, including the omission of their concurrent employment with ABC.[231] They intended to film food handling practices in the stores using concealed cameras and microphones.[232] Today, their behavior in getting and performing these supermarket jobs clearly would fall within Category One – No Recording and Category Three – No Lying laws, if the work had been at an agricultural facility. Eventually, *PrimeTime Live* broadcast their undercover footage of

224. *Id.*
225. *Alvarez*, 132 S. Ct. at 2537.
226. *Id.* at 2553.
227. *Id.*
228. *Id.* (internal citations omitted). No such case was presented in *Alvarez*, however: "[t]he dangers of suppressing valuable ideas are lower where, as here, the regulations concern false statements about easily verifiable facts." *Id.* at 2552.
229. *Alvarez*, 132 S. Ct. at 2553 (quoting JOHN STUART MILL, ON LIBERTY 15 (Blackwell ed. 1947)).
230. *See* Food Lion, *supra* note 218.
231. Food Lion, Inc. v. Capital Cities/ABC, Inc., 194 F.3d 505, 510 (4th Cir. 1999).
232. *Id.*

Food Lion employees repackaging fish beyond its expiration date, grinding beef after its expiration date with fresh beef, and coating chicken with barbeque sauce to mask its smell.[233] This action in an agricultural employment setting would amount to violations of Category Two – No Distributing. Just as Justice Breyer opined in *Alvarez*,[234] the employees' lies in *Food Lion* were necessary to reveal a clearer picture of the truth. In an agricultural setting, however, ag-gag laws could undermine that revelation.

Like Justice Kennedy, Justice Breyer describes justifiable crimes against lying, such as perjury and false claims of terrorism.[235] Torts or other civil claims such as fraud, defamation, and trademark infringement can also withstand free speech scrutiny.[236] These examples, however, usually require "proof of specific harm to identifiable victims."[237] In concurring that the Stolen Valor Act was unconstitutional, Breyer found no such limitations on its reach.[238] The Act forbids a lie "in contexts where harm is unlikely or the need for the prohibition is small."[239]

Focusing on this part of Justice Breyer's opinion, farm interests in Idaho, Iowa and Utah could argue that Category Three – No Lying laws are distinguishable from the Stolen Valor Act because they prevent direct harm from a whistle-blowing employee. This ag-gag defense has an obvious, perverse twist. Farms need protection from animal or food safety activists only to hide animal cruelty or unsafe food practices. Category Three – No

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233. *Id.* at 511.
234. Alvarez, 132 S. Ct. at 2552-54.
235. *Id.* at 2554.
236. *Id.*
237. *Id.* For a discussion of harm-based free speech jurisprudence, see Clay Calvert & Rebekah Rich, *Low-Value Expression, Offensive Speech, and the Qualified First Amendment Right to Lie: From Crush Videos to Fabrications About Military Medals*, 42 U. TOL. L. REV. 1, 31-32 (2010); *see also* Bollard, *supra* note 17, at 10975.
238. 132 S. Ct. at 2555.
239. *Id.* Justices Breyer and Kagan depart from the four justices who form the *Alvarez* plurality in opining that the substantial government interest in protecting military honors could be satisfied with a more finely tailored statute that included a requirement of actual knowledge of material harm. *Id.* at 2555-56. Taking that cue, Congress passed the Stolen Valor Act of 2013 which criminalizes lying about military honors "with the intent to obtain money, property, or other tangible benefit." 18 U.S.C. § 704(b). One commentator analyzes whether lies now criminalized under this new Stolen Valor law could withstand constitutional scrutiny under the commercial speech doctrine because the illegal statements would be self-promotion akin to advertising. *See* Alison L. Stohr, Comment, *Valor for Sale: Applying the Commercial Speech Exception to Self-Promoting Individuals*, 85 TEMP. L. REV. 455, 476 (2013). Despite concluding that all speech targeted by the new Stolen Valor law meets the underlying rationale of the commercial speech exception, *id.* at 479, Stohr rejects her espoused constitutional approach and calls for a reexamination of the commercial speech exception altogether. *Id.* at 482-83.

Lying laws are only defensible to protect business operations and profitability when they quell disclosure of potential public harms. This use of Breyer's opinion that lies can be prosecuted to avoid obvious harm,[240] seems indefensible considering his opinion also supports the principle that some lying needs constitutional protection to help reveal truth.

Again, *Food Lion*'s analysis about harm from lying undercover employees is instructive.[241] The *Food Lion* court upheld claims of trespass and breach of the duty of loyalty against the reporter/employees because they "had the requisite intent to act against the interests of their second employer, Food Lion, for the benefit of their main employer, ABC."[242] Similarly, trespass occurred by filming in non-public areas, directly adverse to Food Lion's interests.[243] Nevertheless, the loyalty and trespass violations in *Food Lion* could not be the basis for any damages plaintiff sought in the case from the economic fallout after the broadcast.[244] The lower court excluded damages from lost sales and harm to good will because they were not proximately caused by the loyalty and trespass torts.[245] Instead, these reputation-related damages directly resulted from lost consumer confidence about Food Lion's food handling practices that were exposed.[246] On appeal, the Fourth Circuit upheld that result but elevated the damage exclusion to a free speech issue by concluding that Food Lion could not recover these damages to reputation without proving the constitutional libel standard, namely knowledge of falsity or reckless disregard for the truth.[247] A public

240. For a discussion of torts that would protect against some of the legitimate harms that might arise from lies about military honors, see Lauren A. Valkenaar, Comment, *Civil Liability Approaches to the Stolen Valor Epidemic*, 44 ST. MARY'S L.J. 835, 852-77 (2013). As was noted above, legitimate harms are still actionable from behavior targeted in all ag-gag laws through civil tort claims. *See supra* Part II.E.

241. Food Lion, Inc. v. Capital Cities/ABC, Inc., 194 F.3d 505 (4th Cir. 1999).

242. *Id.* at 516.

243. *Id.* at 518. By contrast, the court rejected the argument that misrepresentation on job applications turned the act of showing up to work into trespass because such misrepresentations did not nullify the employer's consent to enter the property to work. *Id.*

244. *Id.* at 524. The alleged financial effect of ABC's Food Lion expose'—over $1.3 billion in lost stock value. Felicity Barringer, *Appeals Court Rejects Damages Against ABC in Food Lion Case*, N.Y. TIMES (Oct. 21, 1999), http://www.nytimes.com/1999/10/21/us/appeals-court-rejects-damages-against-abc-in-food-lion-case.html.

245. Food Lion, Inc. v. Capital Cities/ABC, Inc., 964 F. Supp. 956, 963 (M.D.N.C. 1997).

246. *See generally* Barringer, *supra* note 244.

247. *Food Lion Inc.*, 194 F.3d at 522 (citing N.Y. Times Co. v. Sullivan, 376 U.S. 254, 279-80 (1964)).

figure plaintiff cannot circumvent the elevated defamation standard by suing for other non-reputational torts.[248]

In reaching this free speech conclusion, the *Food Lion* court contrasted the damage claims from those in *Cohen v. Cowles Media Co.*[249] In *Cowles*, the Supreme Court said a news outlet could not avoid damages under generally applicable laws, even if payment hindered news gathering and reporting.[250] *Cowles* found that the promissory estoppel damages for lost income were unrelated to reputation and, thus, not subject to any special constitutional scrutiny.[251] The damages to reputation in *Food Lion* were the direct result of the publication.[252] Accordingly, the constitutional libel standard applied (which the supermarket could not possibly meet since the broadcast was true).[253]

In summary, *Food Lion* reveals that whistleblowing employees may be liable to their former employers for contract damages, but not if the employment was at will. Further, whistleblowing likely violates an employee's duty of loyalty, but that duty cannot support a claim for damages to reputation unless the employer can meet the First Amendment malice standard. Arguably, Justice Breyer's free speech exception for lies that cause harm must be understood within the purview of *Food Lion*. Harm to reputation from the lies of an activist applicant/whistleblowing employee who exposes food safety violations should not be actionable by agriculture employers.[254]

Justice Alito's dissenting opinion in *Alvarez* also focuses on harms that need statutory protection by pointing out the "proliferation of false claims

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248. *Id.* at 522 (citing Hustler Magazine v. Falwell, 485 U.S. 46 (1988)). An elevated proof requirement also has been applied to private plaintiffs (such as a farm) when the subject of the alleged defamation is a matter of public concern. *See* Phila. Newspapers, Inc. v. Hepps, 475 U.S. 767, 776–77 (1986) (holding that the burden of proving falsity lies with the private plaintiff when the defendant is a media defendant speaking on a matter of grave public concern); Dun & Bradstreet, Inc. v. Greenmoss Builders, Inc., 472 U.S. 749, 784 (1985) (extending the *Hepps* burden of proof to a private plaintiff suing a non-media defendant).

249. *Food Lion Inc.*, 194 F.3d at 523 (comparing the damages claims with those in *Cohen v. Cowles Media Co.*, 501 U.S. 663 (1991)).

250. *Cohen*, 501 U.S. at 669; *see also* Bollard, *supra* note 17 and accompanying text.

251. *Id.* at 670-71.

252. *Food Lion Inc.*, 194 F.3d at 523.

253. *Id.* at 523-24. One commentator argues that ag-gag laws are distinguishable from the promissory estoppel claim in *Cowles* because they are not generally applicable laws, but rather "were drafted to stop expressive activity at agricultural operations . . . ." Bollard, *supra* note 17, at 10971. For this reason, ag-gag laws should fall under strict scrutiny. *Id.* at 10972.

254. *See* People for the Ethical Treatment of Animals v. Bobby Berosini, Ltd., 895 P.2d 1269, 1276 (Nev. 1995) (reaching a similar conclusion under Nevada constitutional law).

concerning the receipt of military awards."[255] Intangible debasing of military awards is the most common harm from "stolen valor."[256] For the dissent, it sufficed that Congress reasonably concluded that a comprehensive database of real award winners could not be compiled and that counter speech would not adequately refute false claims.[257]

Like the other opinions, the dissent notes that torts and crimes targeting falsity that have withstood First Amendment challenges.[258] Nevertheless, the dissent concedes that prosecuting some lies still could chill other protected speech.[259] Here the dissent is instructive regarding Category Three – No Lying laws:

> [t]here are broad areas in which any attempt by the state to penalize purportedly false speech would present a grave and unacceptable danger of suppressing truthful speech. . . . The point is not that there is no such thing as truth or falsity . . . , but rather that it is perilous to permit the state to be the arbiter of truth.[260]

These statements suggest that even the dissenters might shield the lies targeted in Category Three since the lies are motivated by a concern for food safety, and the state should not stand in the way of that information.[261]

Minimally, all of the opinions in *Alvarez* suggest that prosecutions under a Category Three – No Lying law will require a case-by case analysis of the implications to truth regarding food safety and animal abuse. Beyond restricting open discourse, these ag-gag laws potentially harbor unsafe,

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255. United States v. Alvarez, 132 S. Ct. 2537, 2558 (2012).
256. *Id.* at 2559.
257. *Id.* at 2560.
258. *Id.* at 2561-62.
259. *Id.* at 2563-64.
260. Alvarez, 132 S. Ct. at 2564. The dissent concludes that lies proscribed under the Stolen Valor Act present no such risks. *Id.*
261. A district court that ***upheld*** the Stolen Valor Act prior to *Alvarez* also suggested constitutional concerns that would apply to Category Three – No Lying laws. Prosecution of lying "may create conflict between the motivations of the government and the imperatives of free speech." United States v. Robbins, 759 F. Supp. 2d 815, 820 (W.D. Va. 2011).

abusive farms from public scrutiny by criminalizing the very acts that could bring the safety abuses to light, namely lying to gain access to the farm.[262]

Further, many of the rationales that supported striking down the Stolen Valor Act support a conclusion that Category Three – No Lying laws are unconstitutional on their face. Like the Stolen Valor Act, all ag-gag statutes employ content-based mandates by protecting specific farms and farm practices.[263] Additionally, the Category Three – No Lying laws go beyond content-based restrictions to criminalizing the motives of the speaker who is a farm job applicant. None of the Idaho, Iowa, or Utah laws are limited to particular factual misstatements, such as using a false name, address, or employment history in a job application.[264] On the contrary, all target the person's objective in seeking the job.[265] The statutes outlaw lying to get a job "with the intent" to perform acts on the job contrary to the employer's interests in maintaining farm secrecy.[266] As such, Category Three – No Lying laws target the farm job applicant's viewpoint that possible food safety or animal welfare wrongs are occurring and should be exposed.

Arguably, if the employee performs the job as promised for the compensation exchanged, there is not the kind of exchange fraud that *Alvarez* suggested was unprotected speech.[267] The intent to come to work and to work for pay is not fraudulent if that is what the undercover worker does in fact do.[268] Ag-gag employment fraud occurs when the worker uncovers and discloses unfavorable information on the job. Without some safety or animal abuse to uncover, the employee hired with a secret motive to uncover such abuse would just go about his or her job, as hired and paid to do. So-called agriculture employment fraud only applies when the employee's fraudulent

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262. *See* Helen Norton, *Lies and the Constitution*, 2012 SUP. CT. REV. 161, 164-65; *see also* Jonathan D. Varat, *Deception and the First Amendment: A Central, Complex, and Somewhat Curious Relationship*, 53 UCLA L. REV. 1107 (2006).

263. Only North Carolina's proposed law would extend its provisions about lying to get a job to any employment, not just agriculture jobs. *See supra* notes 97-104 and accompanying text.

264. *See supra* notes 32-45, 51-55 and accompanying text.

265. *See supra* notes 32-45, 51-55 and accompanying text.

266. *See supra* notes 32-45, 51-55 and accompanying text.

267. *See* United States v. Alvarez, 132 S. Ct. 2537 (2012).

268. In *Food Lion*, the court held that none of the damages alleged by Food Lion could be attributable to employee falsities. Food Lion Inc., v. Capital Cities/ABC Inc., 194 F.3d 505, 514 (4th Cir. 1999). The undercover employees performed the jobs as hired, so Food Lion received its expected exchange for the compensation it paid them. *Id.* at 514. Further, Food Lion's alleged administrative damages for hiring two employees, then having to replace them, were inconsistent with the at-will nature of the employment. *Id.* at 513. Both could quit or be fired anytime, so misstatements at hiring were not the cause of any administrative harm. *Id.*

access to the workplace actually exposes food safety violations and/or animal abuse on the job.[269]

Ag-gag criminal prosecutions seem to present exactly the grave and unacceptable danger of suppressing truthful speech that even the *Alvarez* dissenters acknowledged is protected under the First Amendment.[270] The significant negative public reaction to all ag-gag legislation[271] reflects a similar concern, that only farms with something to hide need protection from job-seeking activists.

In an analysis based on *Alvarez* of the constitutionality of false campaign and election speech laws, one commentator raises concerns about political motivation and selective prosecution:

> Although the Court's decision in *Alvarez* is badly fractured, there seems unanimous skepticism of laws targeting false speech about issues of public concern and through which the state potentially could use its sanctioning power for political ends. Especially dangerous are criminal laws punishing false speech that could lead to selective criminal prosecution.[272]

These concerns about political motivation and selective prosecution seem equally applicable to enforcement of agriculture protectionist laws in states whose economies are dominated by agricultural interests. As this commentator notes, all of the *Alvarez* opinions suggest these laws violate important free speech objectives.[273]

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269. Some tort cases distinguish between an "intention contained in a promise," such as the promise to work for compensation, which is not actionable in deceit, and a "collateral intent, for which the action will lie." RESTATEMENT (SECOND) OF TORTS § 530 (1977) (Reporter's Note). *See also* Woods v. Scott, 178 A. 886 (Vt. 1935) (upholding directed verdict for defendant when he hired and later fired a housekeeper with the original hope of making her his mistress) (contrary to the Restatement's characterization, the underlying intent to make plaintiff his mistress was not found actionable in this case); Comstock v. Shannon, 73 A.2d 111 (Vt. 1950) (finding that a broken promise did not amount to fraud, but the false statement of an intent not to compete in the future did). Category Three – No Lying laws seem to zero in on this sliver of tort cases when they criminalize the collateral intent to investigate, unrelated to the non-fraudulent promise to work.

270. *See* United States v. Alvarez, 132 S. Ct. 2537, 2556-65 (2012).

271. *See* Civita, *supra* note 31 and accompanying text.

272. Richard L. Hasen, *A Constitutional Right to Lie in Campaigns and Elections?*, 74 MONT. L. REV. 53, 69 (2013).

273. *See id.*

B. Free Speech Issues in Mandatory Disclosure Laws

This discussion has referred to Category Four laws as "Mandatory Disclosure" for ease of reference. In fact, this Category actually comes in two varieties. Mandatory relinquishment laws require the maker of a recording to surrender it to authorities within a short period (usually twenty-four to seventy-two hours).[274] Alternatively, mandatory reporting laws simply require certain classes of people to report suspected animal abuse to authorities, again within a short time.[275]

Missouri is the only state to enact a Category Four ag-gag law thus far.[276] Missouri's law makes it illegal for "farm animal professionals" to fail to relinquish to authorities within twenty-four hours any recordings they make that they believe depict animal abuse or neglect.[277] This law only applies to farmworkers recording animal abuse.[278] It does not apply to recordings of other behavior that might pose food safety violations.[279]

Such a short reporting period makes it impossible to demonstrate a pattern of animal abuse or neglect. With a twenty-four hour reporting period, agricultural facilities always will be able to assert that the recorded behavior was a one-time event, not normal business practice. Moreover, since farmworkers under USDA jurisdiction currently have no federal whistleblower protections,[280] there is a good chance that an employee who complies with the law and submits evidence to authorities of the employer's animal abuse will be fired and have no ability to document further incidents that could prove a pattern of abuse.

There are several ways Category Four laws might be analyzed under the First Amendment.[281] Based on the analysis a court might apply to these

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274. From 2013-2014, Category Four bills that included a relinquishment requirement were proposed in New Hampshire and Tennessee, among others. *See* H.R. 110, 2013 Sess. (N.H. 2013), *available at* https://legiscan.com/NH/text/HB110/id/679691/New_Hampshire-2013-HB110-Introduced.html; S. 1248, Gen. Assemb., 2013 Sess. (Tenn. 2013), *available at* http://www.capitol.tn.gov/Bills/108/Bill/SB1248.pdf; H.R. 1191, Gen. Assemb., 2013 Sess. (Tenn. 2013), *available at* http://www.capitol.tn.gov/Bills/108/Bill/HB1191.pdf.

275. *See supra* notes 90-96 and accompanying text regarding Nebraska's illustrative proposal.

276. MO. REV. STAT. § 578.013 (2014).

277. *Id.*

278. *Id.*

279. *Id.*

280. *See supra* notes 141-44 and accompanying text.

281. As was noted above, Mandatory Disclosure laws can impose an unconstitutional obligation to self-incriminate if the disclosure reveals that the reporter also violated a Category Three Law by lying to obtain employment that resulted in witnessing the animal abuse. *See supra* notes 90-103 and accompanyting text. There are additional areas

Category Four laws, this Part concludes with application of strict and intermediate scrutiny.

1. Compelled Speech

"The right not to speak is as much a constitutional freedom as is the right to speak."[282] Only the speaker, not the government, possesses "the autonomy to choose the content of his own message."[283] Compelled speech cases often involve utterances that convey opinion or belief.[284] Free speech autonomy, however, applies "equally to statements of fact the speaker would rather avoid."[285] For example, in *Riley v. Nat'l Fed'n of the Blind of N.C., Inc.*, the Court threw out a law requiring professional charitable fundraisers to disclose to donors what percentage of funds raised actually went to the charity.[286] The solicitations for contributions were treated as part of the non-profit's overall charitable or social message, which was the charity's prerogative to craft without the government's mandate about the expense of solicitation.[287] The Court recognized that earlier precedent had been guided by "the principle that '[t]he right to speak and the right to refrain from speaking are complementary components of the broader concept of 'individual freedom of mind,'" but it rejected the argument that disclosures of fact, rather than opinion, fell outside the boundaries of First Amendment protection.[288]

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of constitutional scrutiny for Category Four laws that are outside the scope of this analysis. One is whether the mandatory relinquishment laws could constitute a condemnation that requires just compensation and procedural due process. Another is that crimes of omission are generally disfavored and might afford some constitutional protection as such or in combination with a First Amendment theory. *See,e.g.*, Michael M. O'Hear, *Sentencing the Green-Collar Offender: Punishment, Culpability, and Environmental Crime*, 95 J. CRIM. L. & CRIMINOLOGY 133, 177-78 (2004).

282. CHEMERINSKY, *supra* note 198, at 1009.

283. Hurley v. Irish-Am. Gay, Lesbian & Bisexual Grp. of Bos., 515 U.S. 557, 573 (1995).

284. *See id.* (holding that a private parade organizer could not be compelled to include an LGBT-pride marching unit); *see also* Wooley v. Maynard, 430 U.S. 705, 714 (1977) (striking down a New Hampshire law requiring all noncommercial vehicles to display a license plate bearing the state's motto "Live Free or Die"); W. Va. State Bd. of Educ. v. Barnette, 319 U.S. 624 (1943) (striking a law requiring school children to salute the flag).

285. *Hurley*, 515 U.S. at 573.

286. Riley v. Nat'l Fed'n of the Blind of N.C., 487 U.S. 781 (1988).

287. *Id.* at 798.

288. *Id.* at 797-98.

Some scholars have interpreted *Riley* broadly.[289] In dicta, however, the *Riley* Court opined that certain factual disclosures might not violate free speech, such as fundraisers' professional status.[290] Proponents could characterize Category Four – Mandatory Disclosure requirements as just such factual exchanges, rather than compulsion that restricts the "individual freedom of mind."

Alternatively, many "freedom of mind" decisions are made when creating a recording, even if no post-film editing is done. The creator decides what to film, how long to film, whether to include a wide angle for context or zoom in for effect, and how best to capture the light, all of which speak to the creator's opinion of the event being recorded. Although some of these choices may be limited by the logistics of secretly recording suspected abuse, the capacity for those decisions is present. Additionally, when to release a film (or an eyewitness account under mandatory reporting) is part of the whistleblower's message about the extent of perceived animal or safety abuses at the farm. *Riley* suggests the worker, not the state, gets to choose how to craft and disseminate that message, including when to refrain from disseminating it until the report completely reflects scenes the worker witnessed, which might take more than twenty-four hours.[291]

The prohibition on compelled speech protects listeners as well as speakers.[292] Accordingly, any law that dictates early recounting of animal abuse that a farm worker witnessed might distort listeners' rights to learn the complete picture of animal treatment at the farm that otherwise would emerge if the whistleblower were not compelled to report earlier than he or she would choose freely.

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289. *See, e.g.*, Samuel G. Brooks, Comment, *Confession and Mandatory Child Abuse Reporting: A New Take on the Constitutionality of Abrogating the Priest-Penitent Privilege*, 24 BYU J. PUB. L. 117, 133 (2009) ("[A]s long as the individual would not otherwise make the statement, even compulsion to disclose facts interferes with this freedom of mind and, therefore, falls within the protections of the First Amendment.").

290. *Riley*, 487 U.S. at 795, 799 n.11. Justice Scalia was so opposed to the dicta in footnote 11 that he wrote his own concurring opinion disavowing it. *Id.* at 803-04.

291. *See generally id.*

292. *See* Red Lion Broad. Co. v. FCC, 395 U.S. 367, 390 (1969) (holding "[i]t is the right of the viewers and listeners, not the right of the broadcasters, which is paramount . . . [and i]t is the right of the public to receive suitable access to social, political, esthetic, moral, and other ideas and experiences which is crucial."); *see also* Laurent Sacharoff, *Listener Interests in Compelled Speech Cases*, 44 CAL. W. L. REV. 329, 384-85 (2008) (discussing how listener interests rather than speaker interests are paramount in compelled speech cases).

2. Content-Based Restriction on Speech

Short fuse mandatory disclosure requirements also may constitute content-based restrictions on speech because they restrict based on subject matter and viewpoint.[293] As noted, the laws generally restrict reports or creation of videos that evidence a pattern of livestock abuse or neglect over a period of time. In Missouri, recordings that track treatment of other vulnerable populations can be made over time.[294] A recording of elder abuse need not be turned over to authorities at all, and a report of the abuse need only be made within a "reasonable time."[295] Suspected pet abuse requires neither video relinquishment nor reporting.[296] In comparison, the Category Four – Mandatory Disclosure laws restrict the subject matter of the report to animal abuse recorded by a farmworker during one work shift.

Further, Category Four laws are viewpoint-based. "Animal abuse" or "neglect" is in the eye of the beholder.[297] As the discussion of California's "downer cow" law in *Harris* reflected,[298] California voters and USDA regulators differed in their views of what should and should not be allowed in the treatment of livestock.[299] The same is true of California voters versus others regarding the humane treatment of caged farm animals, such as egg-laying hens.[300] Yet, because short reporting periods prevent recordings of

293. *But see* Bollard, *supra* note 17, at 10971 (arguing that ag-gag laws cannot be direct restrictions on speech because there is no constitutional right to record on private property).

294. *See* MO. REV. STAT. § 198.070 (2014) (providing an example of reporting requirements with respect to other populations).

295. *See* MO. REV. STAT. § 198.070(3) (2014). There is no discussion of relinquishing recordings of elder abuse, and the "reasonable time" for reporting seems likely to extend beyond the twenty-four hours mandated for farm workers. Moreover, because there is no relinquishment requirement for evidence of elder abuse, employers are less likely to be able to identify and retaliate against those who report abuse. This means a nursing home aid, for instance, could create a video documenting a pattern of elder abuse so long as he reported each instance of suspected abuse to authorities within "a reasonable time."

296. *See* MO. REV. STAT. § 578.013(1) (2013) (only recordings made by "farm animal professionals" of suspected abuse of "farm animals" need be relinquished). If the intent of the quick reporting period was to allow law enforcement to stamp-out abuse immediately, the state's concern should equally apply to animals kept as pets, which are traditionally afforded greater welfare protections than livestock. *See, e.g.*, Mark Bittman, *Some Animals Are More Equal Than Others*, N.Y. TIMES (Mar. 15, 2011, 8:30 PM), http://opinionator.blogs.nytimes.com/2011/03/15/some-animals-are-more-equal-than-others/?_php=true&_type=blogs&_r=0.

297. The videographer must turn over a recording he or she "believes" depicts farm animal abuse or neglect. MO. REV. STAT. § 578.013(1) (2013).

298. *See* Nat'l Meat Ass'n v. Harris, 132 S. Ct. 965 (2012).

299. *See generally id.*

300. *See supra* notes 181-188 and accompanying text.

continual violations, Category Four laws effectively impose a "belief" on the whistleblower that a single incident of perceived harsh treatment constitutes abuse or neglect. A farmworker who believes that animal neglect or abuse is only clear from a pattern or practice of behavior over a period of time must choose amongst declaring that he believes something that he actually does not, violating the law, or turning a blind eye. Viewed in this light, Category Four laws are content-based restrictions that will pass constitutional muster only if they can survive strict scrutiny.

3. Restriction on Association

Similar to a Category Three – No Lying law,[301] Category Four – Mandatory Disclosure may infringe on freedom of association.[302] Legislative history suggests that proponents of ag-gag bills believe people who make such recordings are affiliated with animal rights groups, and many people who make such recordings are so affiliated.[303] Accordingly, a Mandatory Disclosure law effectively requires videographers to "out" themselves as a member of such a group. The content of the recording is likely to point to its source because few people will have access to a particular section of a particular animal facility on any given day. Moreover, the Missouri law, like other proposed Category Four laws, does not have a provision for anonymous video relinquishments.[304] In fact, it seems unlikely that anonymous drops would be allowed because another provision of the act makes it illegal to edit the recording in any way prior to relinquishment.[305] The state would have no way to enforce that provision if it allowed anonymous drops.

In 1958 the Supreme Court declared:

> It is hardly a novel perception that compelled disclosure of affiliation with groups engaged in advocacy may constitute [an] effective . . . restraint on freedom of association. . . . This Court has recognized the vital relationship between freedom to

301. *See* Bollard, *supra* note 17, at 10974.

302. The freedom to associate is a Due Process right closely aligned with the freedom of speech. *See* Shelton v. Tucker, 364 U.S. 479, 485-87 (1960).

303. *See* Bollard, *supra* note 17, at 10972 (noting that the sponsors of the Iowa and Utah bills collectively asserted that their bills were directed at "national propaganda groups," "activists," "the vegetarian people," and "extremist vegans").

304. *See* MO. REV. STAT. § 578.013 (2013).

305. *See* MO. REV. STAT. § 578.013(2).

> associate and privacy in one's associations. . . . Inviolability of privacy in group association may in many circumstances be indispensable to preservation of freedom of association, particularly where a group espouses dissident beliefs.[306]

Despite this strong rhetoric, the Court has only invoked the freedom of association to strike down regulations that directly require disclosure of affiliations.[307] In *NAACP v. Alabama*, the Court struck down a state law that required the NAACP to disclose its membership lists.[308] Soon thereafter, the Court struck down a state law that required teachers to disclose their affiliations on a yearly basis.[309] In order for these precedents to apply to Category Four ag-gag laws, the Court would have to extend its holdings to situations in which the law indirectly results in an affiliation being revealed. Such an extension would be justified if state legislative histories suggest (1) an assumption that only those affiliated with animal rights groups make recordings of livestock abuse, (2) animus toward such groups, and (3) an intent to use the mandatory disclosure requirement to identify group affiliates.[310]

4. Restriction on Newsgathering

If a court declines to find that a Category Four law constitutes compelled speech or a direct restriction on speech or association, there is a good chance it will characterize the law as a restriction on newsgathering.

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306. NAACP v. Alabama, 357 U.S. 449, 462 (1958). The authors do not contend that everyone creating a recording will be affiliated with an animal rights group, let alone identify as an activist, vegetarian, or "extremist vegan". *See* Bollard, *supra* note 17, at 10972. Nonetheless, proponents of the ag-gag laws, at least in Iowa and Utah, believe that those are the people their bills will target, and their statements to that effect demonstrate that they are targeting advocacy groups that espouse dissident beliefs. *See* Bollard, *supra* note 17, at 10965-66, 10972. *See generally* COLIN SPENCER, THE HERETIC'S FEAST: A HISTORY OF VEGETARIANISM (Univ. Press of New England 1995) (providing a history of vegetarianism and animal rights sentiment, and showing how both have consistently been viewed as subversive by society at large).

307. *See NAACP*, 357 U.S. at 449.

308. *Id.*

309. *See* Shelton v. Tucker, 364 U.S. 479 (1960).

310. Indiana's failed attempt to create a registry of ag-gag offenders lends credence to the notion that one objective of the current protectionist agenda is to "take names" of ag enemies. *See supra* notes 80-82 and accompanying text.

Generally applicable laws that impinge upon newsgathering activities of "the press"[311] are not entitled to heightened First Amendment review the way they would be if they impinged upon publication.[312] For example, "generally applicable laws" include trespass, invasion of privacy, or duty of loyalty. Nevertheless, even while holding the opposite, the Supreme Court has indicated in dicta that there should be protections for newsgathering activities.[313] In 1972, Justice White proclaimed: "Nor is it suggested that news gathering does not qualify for First Amendment protection; without some protection for seeking out the news, freedom of the press could be eviscerated."[314] Some scholars have asserted that Justice White's language has influenced courts to apply heightened review to such laws, despite precedent like *Branzburg* to the contrary.[315] The result has been a great deal of confusion and commentary arguing the need for clarity and reform.[316]

The best argument against the newsgathering precedents that do not protect speech, is that Category Four ag-gag laws are not "general laws" like trespass or invasion of privacy, because of their narrow focus on farms and farm workers.[317] That returns the argument to content-based restrictions and strict scrutiny. The scrutiny that applies to Category Four under the various foregoing speech analyses is discussed next.

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311. There is good reason to believe that newsgathering privileges (to the extent courts apply any) afforded to "the press" would apply also to "good faith," whistleblowing employees who had no intent upon accepting employment to record and distribute footage of illegal activity, but upon seeing such activity decide to record and disseminate evidence of the wrongdoing. *See* First Nat'l Bank of Bos. v. Bellotti, 435 U.S. 765, 802 (1978) (Burger, C.J., concurring) ("[T]he First Amendment does not 'belong' to any definable category of persons or entities: It belongs to all who exercise its freedoms."). *See also* Lambert v. Polk Cnty., Iowa, 723 F. Supp. 128, 133 (S.D. Iowa 1989) ("It is not just news organizations . . . who have First Amendment rights to make and display videotapes of events—all of us . . . have that right.").

312. *See* Branzburg v. Hayes, 408 U.S. 665, 682 (1972) (holding that the First Amendment did not insulate reporters from criminal sanctions for refusing to testify before a grand jury even where their testimony might reveal confidential news sources, reasoning that. . ."the First Amendment does not invalidate every incidental burdening of the press that may result from the enforcement of civil or criminal statutes of general applicability."). *See also* Cohen v. Cowles Media Co., 501 U.S. 663 (1991).

313. *Branzburg*, 408 U.S. at 681.

314. *Id.*

315. *See* Bollard, *supra* note 17, at 10966-67.

316. CHEMERINSKY, *supra* note 198, at 1164.

317. *See* MO. REV. STAT. § 578.013, *supra* note 277 and accompanying text.

5. Application of Strict and Intermediate Scrutiny

If a court found that Category Four laws constituted compelled speech, content-based speech restrictions, or restrictions on association, the laws would not withstand strict scrutiny. States would have to demonstrate that their ag-gag laws were narrowly tailored to protect a compelling government interest.[318] Regardless of what the states may say about a concern for animal abuse or food safety, if a court considers the legislative history behind these laws it will be clear that suppressing speech is their underlying intent.[319] If the real interest is protecting the reputation of the animal farming industry by shielding worse evidence of repeated unsafe, abusive behavior, that interest is related to the suppression of free speech and cannot withstand any scrutiny.[320] "Laws of this sort pose the inherent risk that the Government seeks not to advance a legitimate regulatory goal, but to suppress unpopular ideas or information or to manipulate the public debate through coercion rather than persuasion."[321] If a court accepts that the real intent of Category Four laws is speech suppression, then the laws fail any free speech scrutiny under the first step of the analysis.

Even if a court would countenance that timely reporting of suspected animal abuse is the compelling interest these laws promote, states cannot show that the laws are narrowly tailored to that interest. There are numerous ways that states like Missouri could protect its interest in uncovering farm animal abuse that have no restrictions on speech. The state could create a voluntary, anonymous reporting hotline for farm animal abuse. The state could pass whistleblower protection for farm workers to report abuse without negative job outcomes. The state could create a self-reporting system for farms to obtain reduced penalties for animal abuse violations that are self-reported (consistent with the HACCP food safety model, too). All of these

318. *See,e.g.*, Riley, 487 U.S. at 800 ("[There is a] First Amendment directive that government not dictate the content of speech absent compelling necessity, and then, only by means precisely tailored."); *see also* Bollard, *supra* note 17, at 10975-77 (analyzing ag-gag laws under strict scrutiny).

319. *See* Landfried, *supra* note 17, at 390-91 ("[Category Three and Four ag-gag laws] are deliberately crafted to limit expression"). *See also* Bollard, *supra* note 17, at 10964-65 (discussing the legislative history of Iowa and Utah's ag-gag laws and the national agribusiness lobbying groups that have been pushing bills around the country).

320. Bollard, *supra* note 17, at 10977. This analysis has considered the constitutionality of the different types of ag-gag laws individually. In practice, states often package two or more different categories of ag-gag laws together. When a court reviews those laws, it will likely look to the law as a whole to determine the governmental interest and intent.

321. Turner Broad. Sys., Inc. v. FCC, 512 U.S. 622, 641 (1994). *But see* Bollard, *supra* note 17, at 10971 (arguing that ag-gag laws cannot be direct restrictions on speech because there is no constitutional right to record on private property).

options directly accomplish the alleged government interest in uncovering farm animal abuse. When state legislatures opt for a mandatory disclosure alternative that only marginally protects farm animals and prevents farm workers from documenting a habit or pattern of cruelty, it casts doubt on the alleged government interest and fails strict scrutiny.

A court may effectively apply intermediate scrutiny if it views Mandatory Disclosure laws as restrictions on newsgathering rather than direct restrictions on speech or association.[322] A law will pass intermediate scrutiny "if it furthers an important or substantial governmental interest; if the governmental interest is unrelated to the suppression of free expression; and if the incidental restriction on alleged First Amendment freedoms is no greater than is essential to the furtherance of that interest."[323]

Even if a state has a legitimate economic interest in protecting its agricultural citizens and employers, it is still unclear that Category Four laws impose incidental restrictions on First Amendment freedoms that are no greater than is essential in the furtherance of that interest. Again, if a state wants to protect the reputation of its agricultural facilities it could do many other things that do not hinder speech at all. For instance, it could provide or enhance state-offered training programs and voluntary audits and feedback on good husbandry and food safety practices. It also could provide incentives to companies that provide greater transparency to the public on their food handling and animal treatment practices. States do not have to resort to shrouding their agricultural facilities from the public eye. In fact, the very act of doing so harms their reputation by signaling that they have something to hide.[324] This contradicts the state's interest in protecting its agriculture economy, rather than serving that interest.

Historically, mandatory reporting has been limited to vulnerable populations such as the elderly and the disabled.[325] Further, mandatory reporting has been imposed only on those with "special relationships" to those vulnerable populations, such as medical professionals, clergy, or law enforcement.[326] Category Four – Mandatory Disclosure laws apparently consider farm animals akin to those other vulnerable populations and create

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322. *See* Bollard, *supra* note 17, at 10974-75.

323. United States v. O'Brien, 391 U.S. 367, 377 (1968).

324. *See* Civita, *supra* note 31 and accompanying text (discussing the public view of ag-gag laws as a method for farms to cover up wrongdoing).

325. *See, e.g.*, Lori Stiegel & Ellen Klem, *Reporting Requirements: Provisions and Citations in Adult Protective Services Laws, By State*, A.B.A. COMM'N ON L. & AGING FOR NAT'L CTR. ON ELDER ABUSE (2007), http://www.americanbar.org/content/dam/aba/migrated/aging/docs/MandatoryReportingProvisionsChart.authcheckdam.pdf.

326. *Id.*

a special relationship in anyone who works around those animals. That expansion of an otherwise limited history of mandatory reporting calls into question the wisdom of Category Four laws and their constitutionality under the First Amendment.

VI. RECOMMENDATIONS AND FUTURE RESEARCH

The most direct way to limit state agricultural protectionism and protect food safety would be through express federal preemption. Legislative attempts at federal protectionism like PICA,[327] however, and the fact that Congress has yet to create any whistleblower protection for workers within USDA's jurisdiction,[328] suggest that express federal preemption is not on the horizon. Similarly, the whistleblower protection in FSMA lacks any express preemptive effect, even though whistleblowers have been the impetus for federal food safety legislation historically.[329]

At best, successful implied preemption defenses in the pending Utah and Idaho challenges to those ag-gag laws might give express preemptive legislation some traction.

Possibly more effective would be pressure from state lawmakers without protectionist laws, to encourage their peers to repeal food libel and ag-gag laws, and to refrain from introducing any new legislation like that discussed in Part II. If legislators feel compelled to appease the agricultural, industrial complex in their states, however, they should consider only an ag-gag law like Montana's that incorporates a defamation standard.[330] At least this approach protects the truth and good faith mistakes, and is also underpinned by a long history of defamation case law.

Next, legislative peers in the "locavore-friendly" states should urge protectionist-leaning states to shift to local-friendly efforts and curb their zeal for protecting industrial farming.[331] Although promoting local food is not mutually exclusive with agricultural protectionism, the local food

327. *See supra* notes 177-89 and accompanying text.

328. *See supra* Part III.

329. Slaughterhouse whistleblowers have been credited with aiding the passage of both the 1906 and 1967 Meat Inspection Acts. *See* Brief for Reporters Committee for Freedom of the Press et. al. as Amici Curiae Supporting Plaintiffs at 2-3, Animal Legal Def. Fund v. Herbert, No. 2:13-cv-00679-RJS (D. Utah Jan. 15, 2014).

330. *See supra* notes 21-26 and accompanying text.

331. Ironically, Iowa has been at the forefront of promoting the local farm movement, while also legislating protectionist farm laws discussed herein. Leah Zerbe, *The Best & Worst States for Locally Grown Food*, RODALE NEWS (May 15, 2012), http://www.rodalenews.com/local-food-markets.

movement is seen as "push back" against industrialized food production.[332] As one commentator asserts, "complexity, industrialization, and globalization of food production," make food less safe.[333] Lawmakers in states with protectionist legislation should reconsider who and what they are protecting, and at what cost, when they continue to shield industrial food producers with legislation that suppresses criticism. Protectionist-leaning legislators need to expand their views about economic value to their states, rather than just accommodating the wants of big industrial operations that seek protection under food libel and ag-gag laws.[334] Local food production can benefit entire communities economically through banking, machinery sales, services, and transportation.[335]

Nevertheless, the next protectionist salvo may directly pit industrial farming against small urban and suburban farms. In a classic example that everything old is made new again, the "right to farm" is now reappearing in the protectionist landscape, and taking on a decidedly small farm versus industrial agricultural flavor.[336] Recently, Michigan's Commission of Agriculture and Rural Development ruled that its statutory right to farm did not extend to areas primarily zoned residential.[337] The ruling is perceived to be a direct attack by industrial agriculture against the local food movement, because it permits local governments to ban backyard livestock farms.[338] The Michigan Farm Bureau supported the changes, but challenged the characterization that its membership organization is against small or urban farms.[339]

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332. Nicholas R. Johnson & A. Bryan Endres, *Small Producers, Big Hurdles: Barriers Facing Producers of "Local Foods"*, 33 HAMLINE J. PUB. L. & POL'Y 49, 56-58 (2011).

333. Denis W. Stearns, *A Continuing Plague: Faceless Transactions and the Coincident Rise of Food Adulteration and Legal Regulation of Quality,* 2014 WIS. L. REV. 421, 423 (2014).

334. For a discussion of whether locally-produced food is safer than industrialized farm production, *see* Johnson & Endres, *supra* note 332, at 91-96.

335. *Id.* at 97-99.

336. *See* Richard R. Oswald, *Amendment One would not Protect Missouri Family Farms,* MO. FARMER TODAY (July 2, 2014, 10:30 PM), http://m.missourifarmertoday.com/news/opinion/amendment-one-would-not-protect-missouri-family-farms/article_b1335ef6-0134-11e4-be2f-0019bb2963f4.html.

337. *Michigan's Right to Farm Act FAQ*, DEP'T. OF AGRIC. & RURAL DEV., http://www.michigan.gov/documents/mdard/Michigans_Right_to_Farm_Act_Frequently_Asked_Questions_-_August_28_2014_455493_7_466935_7.pdf (last updated Aug. 28, 2014).

338. *See* Rick Pluta, *State Agriculture Commission Approves Backyard Livestock Rule*, MICH. RADIO (Apr. 28, 2014, 10:58 PM), http://michiganradio.org/post/state-agriculture-commission-approves-backyard-livestock-rule.

339. Matt Kapp, *MFB Statement Regarding Changes to Right to Farm GAAMPs*, MICH. FARM BUREAU (May 5, 2014),

Escalating this protectionist effort in 2012, North Dakota enacted the first ***constitutional*** right to farm.[340] The provision reads: "The right of farmers and ranchers to engage in modern farming and ranching practices shall be forever guaranteed in this state. No law shall be enacted which abridges the right of farmers and ranchers to employ agricultural technology, modern livestock production, and ranching practices."[341] Like the recent Michigan regulatory development, the amendment's protection of "modern" farming and "agricultural technology" evoked criticism that the state sought only to protect industrial agriculture.[342] The Oklahoma legislature passed a similar constitutional amendment, but differences in the House and Senate versions were not reconciled in time to place it on the November ballot.[343] Missouri voters narrowly passed a Right to Farm constitutional amendment in August, 2014.[344] Although the enactment makes no reference to "modern" farm practices,[345] the political rhetoric preceding the election claimed the amendment would protect industrial agriculture, pitting it against smaller and organic farms.[346]

One commentator[347] contends that the movement for constitutional rights to farm is fundamentally different than the earlier push for statutory nuisance protections.[348] Whereas conflicts between farmers and their neighbors prompted statutory rights to farm, perceived conflicts between in-state interests and out-of-state interests provide the impetus for constitutional

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https://www.michfb.com/MI/News/Press_Releases/Statement_RE_Changes_to_Right_to_Farm_GAAMPs/.

340. *See, e.g.*, Carolyn Orr, *First-Of-Its-Kind 'Right to Farm' Law Now Part of North Dakota Constitution*, CSG MIDWEST (Jan. 2013) (emphasis added), *available at*: http://www.csgmidwest.org/policyresearch/0113righttofarm.aspx. *See also* Wilson, *supra* note 141, at 333.

341. N.D. CONST. art. XI, § 29.

342. Brooke Jarvis, *A Constitutional Right to Industrial Farming?*, BLOOMBERG BUSINESSWEEK (Jan. 9, 2014), http://www.businessweek.com/articles/2014-01-09/industrial-farming-state-constitutional-amendments-may-give-legal-shield.

343. Ron Hayes, *Right to Farm Amendment in Missouri Passes by 2,500 Votes,* OKLA. FARM REPORT (Aug. 6, 2014), http://www.oklahomafarmreport.com/wire/news/2014/08/00108_MissouriAmendmentOnePasses08062014_054707.php#.U—1ZEiLlTw.

344. *Id.*

345. *See* H.R.J. Res. 11 & 7, 97th Gen. Assemb., 1st Reg. Sess. (Mo. 2013), *available at* http://www.sos.mo.gov/elections/2014ballot/HJRNos117.pdf.

346. *See Missouri Right-to-Farm, Amendment 1 (August 2014),* BALLOTPEDIA, http://ballotpedia.org/Missouri_Right-to-Farm,_Amendment_1_%28August_2014%29 (last visited Oct. 13, 2014).

347. Ross H. Pifer, *Right to Farm Statutes and the Changing State of Modern Agriculture*, 46 CREIGHTON L. REV. 707 (2013).

348. *See supra* notes 8-10 and accompanying text.

amendments.[349] Proponents argue that such measures are necessary to protect a continued food supply.[350] Opponents see them as attempts by agribusiness to combat the legislative agenda of animal welfare groups,[351] and to exempt itself from legitimate regulation.[352] Because these new constitutional protections are so recent, they have not yielded any conflicts to analyze at this point. Certainly, designating the right to engage in "modern" farming as a fundamental right, on par with free speech and religion, merits future research on the implications of this newest protectionist effort.

VII. CONCLUSION

In 2012, one commentator opined that, despite almost a decade of criticism for food disparagement laws, their continued presence on the books of twelve states could embolden these state legislatures and others to initiate new forms of protectionism.[353] The latest generation of ag-gag laws and constitutional rights to farm, seems to confirm that prediction. These, along with a ten-figure food libel claim that has survived a motion to dismiss and will be heard by a jury, put free speech regarding food safety and farm policy at risk. A proposal to preempt stringent state animal rights laws or agriculture constraints reflects an atmosphere that does not bode well for food safety. Ultimately, court intervention on the constitutional rights at issue in these matters may be necessary to stem the tide of agricultural protectionism.

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349. Pifer, *supra* note 347, at 719.

350. *See Missouri Farming Rights Amendment*, MO. FARMERS CARE, http://mofarmerscare.com/farming-rights-amendment/ (last visited Oct. 13, 2014).

351. *See* Pifer, *supra* note 347, at 716-17. *See also* Brent Haden, *The Right to Farm Amendment – A Perspective by Attorney Brent Haden*, MO. FARMERS CARE (Oct. 23, 2013), http://mofarmerscare.com/the-right-to-farm-amendment-a-perspective-by-attorney-brent-haden/; *Oklahoma Right to Farm Amendment Clears First Hurdle*, PROTECT THE HARVEST, http://protecttheharvest.com/oklahoma-right-farm-amendment-clears-first-hurdle/ (last visited Oct. 13, 2014) (quoting Rep. Scott Biggs, author of Oklahoma's proposed amendment as saying, "Like it or not, agriculture is under attack from some of these animal rights groups.").

352. *See, e.g.*,Quentin Hope, *States Ponder the "Right to Farm"*, HIGH PLAINS PUB. RADIO (June 4, 2013, 8:01 PM), http://hppr.org/post/states-ponder-right-farm.

353. Cain, *supra* note 12, at 310.

TRIBAL FOOD SOVEREIGNTY IN THE AMERICAN SOUTHWEST

*Julia Guarino**

ABSTRACT

Food is an issue that implicates tribal sovereignty for historical, cultural, and public health reasons. This article undertakes a policy analysis of the importance of food to tribal sovereignty, and suggests that tribes, many of which have begun to do so already, make robust use of the concept of "food sovereignty" as part of their overarching project of protecting and promoting tribal sovereignty in general. This article sets the stage for understanding the importance of food sovereignty to tribes by exploring the history of food and culture in the American Southwest, where the public

health consequences of changes in diet have been particularly devastating.

I. INTRODUCTION: AMERICAN INDIAN CONCEPTIONS OF LAND, FOOD, AND IDENTITY

[The Creator] made the Earth and he made the sky and he placed them there, and he tied them together and placed them there. At one point the Earth was not tame, it was wild; and so he made the spider and he made ropes, with it he tied them together securely, the Earth and the sky, and so the Earth was now tame. And upon the Earth he made the living things to stand upon it, and to them he gave a conscience, thought, and he gave them a way of life. And upon it he made 'u:ske:kag, living plants, trees, and he gave it thought and he gave it a way of life. And upon it he made 'u'uwhig da'adam', the birds that fly, and he gave them thought, and he gave them a way of life. And upon it he made 'jewedo memedadam, the ones that run on the ground, and he gave them thought, and he gave them a way of life. And so there are many things that were made. There are many things that were made on the Earth, and if you are interested in hearing it all, there are many things to be said, that is what we were told. And so it happened when the Milga:n [Anglo-American] came, he put us in schools, and from then on it has felt as if we are not free. We feel as if we are not free in the sense that we are not the same way we were back when the Earth was first put here. Back when the land that was of the O'odham, belonged to the O'odham, when it was all desert.[1]

There are many fundamental changes that European contact, Spanish settlement, and subsequent Anglo-American encroachment brought to the

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1. FRANCES MANUEL & DEBORAH NEFF, DESERT INDIAN WOMAN: STORIES AND DREAMS xxxi-xxxii (2001) (Milga:n is translated in this book as "Americans," but I have added the preface Anglo- here to clarify the meaning in context).

lives of the American Indian people of the Southwest.[2] One of the most devastating of these changes has been a forced shift in the way American Indian tribes use and relate to the land on which they reside.[3] Federal assimilation and allotment[4] policies confined tribes to smaller and smaller portions of their traditional territories, or relocated tribes altogether.[5] The fundamental changes in lifestyle that resulted are deeply at odds with traditional American Indian notions of the relationship between land, food, and identity, and have had devastating social and physical health impacts for native communities.[6]

In many American Indian cultures, "[l]andscapes and people cannot be separated; one entails the other. . . . The processes through which cultural landscapes are created and maintained are part and parcel of the processes by which culture instills values, beliefs, and historical memory in people belonging to a community."[7] This deep connection to the land-as-culture brings with it a deep connection to the food produced by traditional lands.[8] Loss of traditional food sources along with traditional land bases is therefore more damaging than Euro-American understanding of food and culture can likely conceive.[9] This article will present research and findings largely based on Euro-American measures of health and land use. It must be acknowledged, however, that although modern research has begun to consider concepts such as "historical trauma,"[10] and to integrate the voices

2. *Id.* at 109.

3. *Id.* at xxxii-xxxiii.

4. With the General Allotment or Dawes Act of 1887, the United States Federal Government officially implemented a policy of dividing and distributing previously communally held tribal lands to individual tribal members, and then selling "excess" lands to American settlers. This policy continued until the passage of the Indian Reorganization Act of 1934, resulting in a staggering loss of tribal land base. See section III(A) for more on the U.S. allotment policy. *See* KRISTIN C. RUPPEL, UNEARTHING INDIAN LAND: LIVING WITH THE LEGACIES OF ALLOTMENT 30-31 (2008).

5. *See Id.*

6. "Environmental degradation resulting from pollution, poverty, and bio-social epidemiology such as diabetes, alcoholism, physical abuse, and high rates of suicide are all related symptoms of 'ethno-stress' caused by the disruption of culture and loss of land base among Indigenous peoples." Gregory Cajete, *Introduction* to A PEOPLE'S ECOLOGY: EXPLORATIONS IN SUSTAINABLE LIVING vii (1999).

7. T.J. FERGUSON & CHIP COLWELL-CHANTHAPHONH, HISTORY IS IN THE LAND 31 (2006).

8. *Id.* at 114.

9. *Id.* at 111.

10. "Historical trauma and grief are sometimes cited as factors impacting psychological and physical health and contributing to the health disparities between [American Indians, Alaska Natives,] and other groups. [Research] indicates that historical trauma has a layering effect and defines the concept as the collective emotional and psychological injury both over the life span and across generations resulting from

of American Indians and other minority groups into academic and scientific research models, there is generally a fundamental rift in the collection and analysis of data through these models and American Indian cultural understanding.

This article will argue that traditional foods must be thought of as an important tool in healing the physical and emotional damage that a largely commodity foods-based diet has done to American Indians of the Southwest, and that by engaging in "food sovereignty," tribal communities can strengthen their de facto sovereignty as tribal nations. In order to lay the backdrop, this article will first explore the history of American Indian presence and agriculture in the American Southwest. The second section will then provide a summary of the effects of assimilationist policies broadly implemented in the United States regarding tribal relationships to land, as well as their specific effects on the tribes of the Southwest. In the third section, subsequent impacts on American Indian health caused by the fundamental shift in diet brought by reservation life and federal food aid programs will be explored. In the fourth section, this article will discuss the state of modern tribal agriculture in the Southwest. This article will conclude by emphasizing the importance of food sovereignty in the pursuit of cultural healing, and the strengthening of tribal sovereignty and culture generally.

The concept of "food sovereignty" was first developed in the international dialogue about food security, and "refers to the 'rights of people to define how they will hunt, grow, gather, sell, or give away their food with respect to their own cultures and own systems of management of natural resources.'"[11]

> The rising incidence of health problems, such as late onset diabetes, heart disease, and other dietary and lifestyle illnesses as well as the compounded challenge to food sovereignty, which the growing hegemony of the global food system represents, has provided a new focus for activism and action for First

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the history of difficulties that Native Americans as a group have experienced in America (Steinman, 2005). These experiences are not 'historical' in the sense that they are in the past and a new life has begun in a new land. Rather, the losses are ever present, represented by the economic conditions of reservation life, discrimination, and a sense of cultural loss (Whitbeck et al, 2004)." U.S. DEP'T OF HEALTH & HUMAN SERVS., OBESITY AND AMERICAN INDIANS/ALASKA NATIVES 31 (2007), *available at* http://aspe.hhs.gov/hsp/07/ai-an-obesity/report.pdf.

11. MICHÈLE COMPANION, INT'L RELIEF & DEV., AN OVERVIEW OF THE STATE OF NATIVE AMERICAN HEALTH: CHALLENGES AND OPPORTUNITIES 4, 27-28 (April 2008).

> Peoples. For many, rebuilding food security and food sovereignty through the revival of traditional food systems is a vital step in rebuilding individual and community health and overcoming the most negative socio-cultural impacts of colonialism.[12]

American Indian communities are possessed of a unique legal and political status in the United States, and in modern times are able to exercise self-determination in ways consistent with the goals of food sovereignty.[13] The practice of community-based food sovereignty is one of the tools available to tribes to combat colonial and assimilationist policies that have so devastated tribal health, land, culture, and use of native foods.[14]

II. AGRICULTURAL PRACTICES IN THE AMERICAN SOUTHWEST PRIOR TO EUROPEAN CONTACT

This section will first describe American Indian histories of tribal presence on ancestral homelands in the Southwest, and their importance for contextualizing archaeological understandings of the origins of people in the Americas, and a subsequent discussion of food, culture, and sovereignty. The second part of this section will explore the archaeological history[15] of American Indian occupation of the Southwest, and will discuss the "disappearance" of the Ancient Puebloan[16] and Fremont peoples from traditionally occupied regions and their absorption into modern tribes. The third part of this section will explore historical evidence of the development of agriculture, and the methods and crops used by American Indian agriculturalists in the Southwest prior to European contact.

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12. Nancy J. Turner & Katherine L. Turner, *Traditional Food Systems, Erosion and Renewal in Northwestern North America*, 6 INDIAN J. OF TRADITIONAL KNOWLEDGE 57, 58-59 (2007).

13. *Id.* at 65.

14. *Id.*

15. While archaeological understandings of ancient peoples and their migrations provide interesting information about land use and historical agriculture, they do not properly represent American Indian cultural knowledge of the landscape and their relationship to it.

16. I am electing to use the terminology "Ancient Puebloan" in favor of the term "Anasazi," which is in use by archaeologists but comes from a Navajo word meaning "ancient enemy." JOY HAKIM, THE FIRST AMERICANS 29 (2003).

A. Indigenous Teachings About the Origin of Peoples in the Southwest

> *The white ear of corn had been transformed into our most ancient male ancestor. And the yellow corn had been transformed into our most ancient female ancestor. It was the wind that had given them life: the very wind that gives us our breath as we go about our daily affairs here in the world we ourselves live in! When this wind ceases to blow inside of us, we become speechless. Then we die. In the skin at the tips of our fingers we can see the trail of that life-giving wind. Look carefully at your own fingertips. There you will see where the wind blew when it created your most ancient ancestors out of two ears of corn, it is said.*[17]

Tribal communities in the Southwest, like many tribal peoples throughout the Americas, tell origin stories that reveal an intimate connection between people and place.[18] Although some might consider tribal creation stories as separate from and incompatible with archeological evidence of early human presence in the American Southwest, these stories provide invaluable perspectives on cultural understandings of the importance of place and sustenance to cultural knowledge and identity. Furthermore, the knowledge that tribal origin stories impart about the presence and history of people and place should, and increasingly do, inform historical accounts of American Indian peoples.[19]

Many of the origin stories of the Navajo, Tohono O'odham, and Pueblo peoples center on rain, wind, and living in the right way; the peoples' relationship to food, plants, and animals also feature prominently.[20]Although these stories often take place in a time that does not entirely resemble the

17. PAUL G. ZOLBROD, DINÉ BAHANÉ: THE NAVAJO CREATION STORY 50-51 (1984).

18. *Id.* at 21-22.

19. *See, e.g.*, AnCita Benally & Peter Iverson, *Finding History*, 36 W. HIST. Q. 353 (2005).

20. Three sources for traditional Navajo, Tohono O'odham, and Pueblo stories are: ZOLBROD, *supra* note 18, at 7 (a version of the Navajo Creation Story); AMERICAN INDIAN MYTHS AND LEGENDS (Richard Erodes & Alfonso Ortiz, eds., 1984); VOICES OF THE AMERICAN INDIAN EXPERIENCE, VOLUME I: CREATION – 1877 (James E. Seelye, Jr. & Steven A. Littleton, eds., 2013). Two other interesting sources that tell life-stories of tribal elders and include various traditional stories are: MANUEL & NEFF, *supra* note 1, at xxxv (the story of a Tohono O'odham woman's life); EVA TULENE WATT & KEITH H. BASSO, DON'T LET THE SUN STEP OVER YOU: A WHITE MOUNTAIN APACHE LIFE, 1860-1975 (2004). Additionally, A PEOPLE'S ECOLOGY: EXPLORATIONS IN SUSTAINABLE LIVING (Gregory Cajete, ed., 1999) conveys some traditional Pueblo stories related to food and what the editor terms "theology of place."

present, they are nonetheless understood to impart vital knowledge about how to live presently in the world.[21] Dudley Patterson, an Apache elder working with ethnologist Keith Basso, explained this concept with a simple phrase: "Wisdom sits in places."[22] Wisdom, in the Western Apache worldview, is something that requires an intimate knowledge of history and place—a deeply spatial as well as intellectual understanding of the Apache homeland and culture.[23] This intimate and ongoing relationship to place is evident in the work of many modern American Indian authors.[24] Simon

21. "The Americas are an ensouled and enchanted geography, and the relationship of Indian people to this geography embodies a 'theology of place' . . . The land has become an extension of Indian thought and being because, in the words of a Pueblo elder, 'It is this place that holds our memories and the bones of our people . . . This is the place that made us.'" Gregory Cajete, *"Look to the Mountain": Reflections on Indigenous Ecology, in* A PEOPLE'S ECOLOGY: EXPLORATIONS IN SUSTAINABLE LIVING 3 (Gregory Cajete, ed., 1999).

22. KEITH H. BASSO, WISDOM SITS IN PLACES: LANDSCAPE AND LANGUAGE AMONG THE WESTERN APACHE 122 (1996).

23. "Stated in general terms, the Apache theory holds that 'wisdom' – *'igoyá'í* – consists in a heightened mental capacity that facilitates the avoidance of harmful events by detecting threatening circumstances when none are apparent. This capacity for prescient thinking is produced and sustained by three mental conditions, described in Apache as *bíni' godilkooh* (smoothness of mind), *bíni' gontl'iz* (resilience of mind), and *bíni' gonldzil* (steadiness of mind). Because none of these conditions are given at birth, each must be cultivated in a conscientious manner by acquiring relevant bodies of knowledge and applying them critically to the workings of one's mind. Knowledge of places and their cultural significance is crucial in this regard because it illustrates with numerous examples of the mental conditions needed for wisdom as well as the practical advantages hat wisdom confers on persons who possess it. Contained in stories attributed to the ancestors, knowledge of places thus embodies an unformalized model of *'igoyá'í* and an authoritative rationale for seeking to attain it." *Id.* at 130-31.

24. Three Southwestern American Indian authors of note are Leslie Marmon Silko (Laguna Pueblo), Ofelia Zepeda (Tohono O'odham), and Simon J. Ortiz (Acoma Pueblo). Silko is a novelist, and her 1999 book GARDEN IN THE DUNES is a luscious story about Indian and non-Indian relationships to food, family, culture, and place. *See* LESLIE MARMON SILKO, GARDENS IN THE DUNES (1999). Ofelia Zepeda is a poet, and two of her collections, OCEAN POWER: POEMS FROM THE DESERT (1995) and WHERE CLOUDS ARE FORMED (2008), are meditations on wind, rain, and life in the desert that reflect her deep and historical connection to the O'odham homeland. *See* OFELIA ZEPEDA, OCEAN POWER: POEMS FROM THE DESERT (1995); OFELIA ZEPEDA, WHERE CLOUDS ARE FORMED (2008). Two other wonderful collections of southwestern native writings and images are: HOME PLACES: CONTEMPORARY NATIVE AMERICAN WRITING FROM SUN TRACKS (LARRY EVERS & OFELIA ZEPEDA, EDS., 1995); and THE PUEBLO IMAGINATION: LANDSCAPE AND MEMORY IN THE PHOTOGRAPHY OF LEE MARMON (2003), which includes writings by Leslie Marmon Silko, Joy Harjo (Muskojee Creek), and Simon Ortiz.

Ortiz, author and poet from the Acoma Pueblo in New Mexico, is one such author.[25] He writes:

The rivers
run from the sky.
Stone soothes
every ache.
Dirt feeds us.
Spirit is nutrition.[26]

These indigenous understandings of the ways in which the land sustains and defines the people who belong to it are vital preface to the following section, which provides a summary of the archeological evidence of the long history of agricultural societies in the American Southwest.[27] Only tribal perspectives, as far as tribal peoples are willing to share them, can provide the context that can begin to illuminate for others the significance of food sovereignty for tribal communities.

B. Archeological Evidence of the Ancient Occupants of the American Southwest

Archaeological exploration of the Southwest is ongoing, and though estimates vary, there is evidence that humans occupied the region beginning more than 20,000 years ago.[28] In 1927, archaeologist Alfred V. Kidder

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25. *See Simon J. Ortiz*, POETRY FOUNDATION, http://www.poetryfoundation.org/bio/simon-j-ortiz (last visited Oct 15, 2014) (Ortiz is professor of literature and a widely renowned poet, and has also authored short stories and children's books).

26. SIMON J. ORTIZ, FROM SAND CREEK 79 (1981).

27. As Stephen H. Lekson artfully explains: "It would be easy to dismiss the historical content of origin stories as 'myth,' but that would be more than simply patronizing; even from the most Eurocentric view, it would be wrong. . . The historic speaks directly to the Western window on the Pueblo past: science and, specifically, archeology. Archaeology cannot and should not 'confirm' origin stories, any more than any body of traditional knowledge can 'confirm' scientific study. The two views are based on incompatible logics and serve entirely different purposes. Origin stories explain, very specifically, how the Pueblo world came to be and how Pueblo people ought to behave within it. Archaeology is one of many noodling paths of insatiable Western curiosity and, insofar as it has a delimitable purpose, it seeks to know the Southwest as yet an element in the much larger global scheme of humanity. These are very different goals." Stephen H. Lekson, *Ruins of the Four Corners, Villages of the Rio Grande*, *in* ANCIENT LAND, ANCESTRAL PLACES 7 (1993).

28. STEVEN SIMMS, ANCIENT PEOPLES OF THE GREAT BASIN & COLORADO PLATEAU 106 (2008).

developed a chronology of Ancient Puebloan history known as the "Pecos Classification," the basic framework of which is still in use by archaeologists today.[29]

Archaeological evidence of domesticated plants appears sometime between 2100 B.C.E. and 1000 B.C.E.,[30] coinciding approximately with the Pecos Classification's Southwestern Late Archaic or Basketmaker I period, which begins in 1500 B.C.E.[31] By the time the Basketmaker II period began in 200 C.E., agricultural crops such as corn, beans, and squash were a larger part of people's diet.[32] During the Basketmaker II time period, the population was largely concentrated in the San Juan watershed, but by the time the Basketmaker III period began in 500 C.E., development had shifted to higher elevations.[33]

During the Pueblo I (800-900 C.E.) and Early Pueblo II (900-1000 C.E.) periods, Ancient Puebloan settlements began to expand throughout the Southwest, and into the more northern reaches of the Four Corners region.[34] This expansion coincided with years of minimal, unpredictable precipitation, which archaeologists theorize indicates: "the period may have been one of experimentation for agriculturalists trying to find reliably productive locations despite poor and variable climate."[35] During Pueblo II, the Ancient Puebloans became increasingly "provincial," as rainfall and conditions for agriculture improved.[36] As Pueblo III began in the early 1100s C.E., however, rainfall again decreased and although agriculture continued, some of the more marginal sites were abandoned.[37]

At the end of the Pueblo III period, a major shift in Ancient Puebloan lifestyle appears to have occurred. Throughout Ancient Puebloan occupation of the Southwest, migration patterns are evident, but by 1300 C.E. much of

29. LINDA S. CORDELL, ARCHAEOLOGY OF THE SOUTHWEST 164-67 (2009).

30. Robert J. Hard & John R. Roney, *Late Archaic Period Hilltop Settlements in Northwestern Chihuahua, Mexico*, *in* IDENTITY, FEASTING, AND THE ARCHAEOLOGY OF THE GREATER SOUTHWEST: PROCEEDINGS OF THE 2002 SOUTHWEST SYMPOSIUM 276 (Barbara J. Mills ed., 2004); CORDELL, *supra* note 29, at 129.

31. CORDELL, *supra* note 29, at 129.

32. R. GWINN VIVIAN & BRUCE HILPERT, THE CHACO HANDBOOK: AN ENCYCLOPEDIC GUIDE 48 (2002).

33. KIRK BRYAN, *Pre-Columbian Agriculture in the Southwest, as Conditioned by Periods of Alluviation*, 31 ANNALS OF THE ASS'N OF AM. GEOGRAPHERS 219, 237-38 (1941).

34. CORDELL, *supra* note 29, at 280.

35. *Id.*

36. *Id.* at 285.

37. *Id.* at 193-94; 285.

the Four Corners region was abandoned by its previous occupants.[38] The reasons for this abandonment are the subject of debate among archaeologists, but what appears to have been a mass migration of Ancient Puebloan peoples seems to have coincided with a major drought.[39] Drought was not unknown to the Ancient Puebloan peoples, and evidence of water storage systems appear during Pueblo II time, but the "Great Drought" of the late 1200s C.E. may have over-taxed even those precautionary measures.[40]

The Fremont peoples, who resided alongside the Ancient Puebloans largely within the boundaries of modern-day Utah, seem to have come to the Southwest around 200 B.C.E.[41] Although hunting and gathering were the major sources of food for the Fremont people, by 500 C.E. they were engaged in some farming, and by 900 C.E. farming took hold as a nearly universal practice.[42] Like the Ancient Puebloans, Fremont peoples appear to have abandoned the Colorado Plateau by 1300 C.E., at which point hunter-gatherer peoples such as the Navajo and Apache appear to have moved into those areas previously occupied by the Fremont.[43] As with the Ancient Puebloans, Fremont peoples seem to have had a cultural pattern of periodic migration, likely precipitated here on a large scale by the Great Drought.[44]

Although the Ancient Puebloans and Fremont peoples abandoned large areas of the Southwest they formerly used for agriculture, the practice of agriculture in the region continued.[45] Many modern tribes of the Southwest descended from these earlier occupants and were still practicing agriculture at the time of European contact.[46]

C. Agricultural Practices in the Southwest prior to European Contact

In the language of the Hopi, "techaqua ikachi" is defined as a blending of the people with the land and

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38. *Ancestral Puebloans and Their World*, NAT'L PARK SERV., MESA VERDE NAT'L PARK, http://www.nps.gov/meve/forteachers/upload/ancestral_puebloans.pdf (last visited Apr. 11, 2015).

39. BRYAN, *supra* note 33, at 239.

40. Richard H. Wilshusen et al., *Prehistoric Reservoirs and Water Basin in the Mesa Verde Region: Intensification of Water Collection Strategies During the Great Pueblo Period*, 62 AM. ANTIQUITY 664, 666 (1997).

41. SIMMS, *supra* note 28, at 186-87.

42. *Id.*

43. *The Fremont Culture*, NAT'L PARK SERV., http://www.nps.gov/care/historyculture/upload/Fremont.pdf (last visited Apr. 11, 2015).

44. SIMMS, supra note 28, at 231-34.

45. *See generally* MICHAEL CADUTO & JOSEPH BRUCHAC, NATIVE AMERICAN GARDENING: STORIES, PROJECTS AND RECIPES FOR FAMILIES (1996).

46. *Id.* at 69.

> *celebrating life. . . For the Hopi, the blue corn is a "way of life" and is used in ceremonies. Hopi "lifeway" is a life based upon cooperation, respect, humility, and earth stewardship.*[47]

Approximately seven thousand years ago, the ancient peoples of Central America domesticated a wild grass called Teosinte, creating the first varieties of corn.[48] Along with this staple crop, these ancient societies domesticated beans, squash, peanuts, and tomatoes.[49] Archaeological evidence left some doubt about the true date of the northern introduction of corn and other crops, but is appears that the arrival of domesticated plants to the American Southwest occurred between 2100 and 1400 B.C.E.[50]

Beans, corn, and squash, the "three sisters," were staples of all of the ancient agricultural communities of the Southwest.[51] These crops supplemented the hunting and gathering practices of Ancient Puebloans and Fremont peoples, along with domesticated turkeys.[52] These ancient peoples and their modern descendants cultivated various local plants in addition to the three sisters for food purposes.[53] The rise of agriculture as a common practice in the Southwest seems to have coincided with the "Medieval Warm Period," which began in approximately 0 C.E.[54] The favorable farming conditions encouraged the formation of larger communities and general population growth in the region.[55] The Great Drought and the mass migrations of the late 13th Century C.E. correspond with the "Little Ice Age," which brought cooler temperatures and less predictable patterns of rainfall to the Southwest than during the Medieval Warm period.[56] Unpredictable

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47. Darla J. Mondou, *The American Indian Agricultural Resources Management Act: Does the Winters Water Bucket Have a Hole in It?*, 3 DRAKE J. AGRIC. L. 381, 405 (1998).

48. CADUTO & BRUCHAC, *supra* note 45, at 67.

49. *Id.* at 7.

50. Hard & Roney, *supra* note 30, at 276.

51. CADUTO & BRUCHAC, *supra* note 45, at 68-69.

52. *Ancestral Puebloans and Their World*, *supra* note 38; BRYAN, *supra* note 33, at 219.

53. Gary Paul Nabhan & Patrick Pynes, *Agricultural Diversity: Crop Genetic Resources, Agrohabitants, and the Farmlands-Wildland Mosaic on the Colorado Plateau*, *in* SAFEGUARDING THE UNIQUENESS OF THE COLORADO PLATEAU: AN ECOREGIONAL ASSESSMENT OF BIOCULTURAL DIVERSITY 59, 60-61 (The Center for Sustainable Environments, Northern Arizona University et al. eds., 2002), *available at* www.terralingna.org/wp-content/uploads/downloads/2011/01/Colorado-plateau.pdf.

54. SIMMS, *supra* note 28, at 88.

55. *Id.* at 231-34, 274.

56. *Id.* at 85.

rainfall not favorable to farming prevailed through the 1600s C.E.[57] Some farming continued among the peoples of the Southwest nonetheless, and has survived into modern times.[58]

Several of the modern tribes of the American Southwest appear to have descended directly from the Ancient Puebloans and Fremont peoples.[59] Hopi is one such tribe, whose cultural knowledge reflects ancient traditions of migration and agriculture.[60] Much of the traditional agricultural practice and knowledge still in use by Hopi peoples today is likely largely unchanged from the time of the Ancient Puebloans, and reflects a deep and unique connection to the land, and to the blue corn that remains the primary crop for the Hopi.[61] With such a deep and abiding connection to traditional land, agricultural practices, and food, there is little wonder that the damage done by the imposition of the Euro-American regime of reservations and notions of modern agriculture have caused extensive cultural and health-related damage to American Indian peoples of the Southwest.

III. EURO-AMERICAN POLICIES OF ASSIMILATION AND THEIR EFFECT ON THE TRIBAL RELATIONSHIP TO LAND

> *American Indians hold their lands – places – as having the highest possible meaning, and all their statements are made with this reference point in mind.*[62]

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57. *Id.*

58. *See generally id.*

59. *People of the Colorado Plateau*, *in* CANYONS, CULTURES AND ENVIRONMENTAL CHANGE: AN INTRODUCTION TO THE LAND-USE HISTORY OF THE COLORADO PLATEAU (John D. Grahame & Thomas D. Sisk eds., 2002), *available at* http://www.cpluhna.nau.edu/.

60. "When Máasaw gave Hopi the use of his land, he also gave them seeds, a gourd of water, and a digging stick with the admonishment that they strive to be humble farmers. It is not surprising, then, that Hopi migration traditions are replete with references to agriculture. It is often said that during their travels the ancestors of the Hopi would scout new locations where the soil and water conditions were favorable for growing crops. Migrating clans would then move to these locations and stay for several years to grow the food needed to continue their travels." FERGUSON & COLWELL-CHANTHAPHONH, *supra* note 7, at 110-11.

61. "The Hopi tribe's unique relationship with the land cannot be easily explained academically... The Hopi tribe exists in the 'fourth way of life,' a concept that is difficult to understand, and secretly guarded by the Hopi. When the 'fourth way of life' was emerging, the Hopi were offered corn by a member of their deity. Other 'peoples' took the largest ears of corn, and the Hopi got the remaining corn - a short ear of blue corn. The short 'blue ear' has profound significance to the Hopi." Mondou, *supra* note 47, at 405.

62. Vine Deloria, Jr, GOD IS RED 61 (2003).

This section of the paper will first outline colonial policies toward American Indians and their lands, which will lay a foundation for understanding the deep changes these policies have wrought to the traditional tribal relationship to land and food. In the second part of this section, the effects of these policies will be examined in the context of the American Southwest.

A. Reservations, Allotment, and General Policies of Assimilation: An Attack on the Native Land Base

Pursuant to colonial policies, the first United States Supreme Court recognized the existence of "Indian title" in all lands traditionally used by tribes, described as a right to exclusive use in *Johnson v. M'Intosh*.[63] This lesser form of property ownership was based on the idea that hunter-gatherers did not fully occupy their territory,[64] and disrupting the traditional food-ways of native peoples by clearing native forests for intensive agriculture was in part a policy aimed at controlling native peoples.[65] *Johnson* further adopted the colonial policy that vests the exclusive right to clear this title in the federal government as United States law.[66] In another early Supreme Court case, *Worcester v. Georgia*, the Court clarified the sovereign powers that tribes retain over land reserved through treaties with the federal government.[67] These sovereign powers reserved to the tribe the right to manage their internal affairs, which precludes state jurisdiction over Indian treaty lands.[68] This power over internal affairs, however, is limited by what the Supreme Court has termed Congress' "plenary authority over the tribal relations of the Indians," which includes the power to abrogate treaties with tribal nations.[69] Early American history of Indian affairs is replete with broken treaties.[70] When Andrew Jackson was elected President in 1828, he lobbied for and succeeded in implementing the passage of the Indian Removal Act of 1830, which authorized the federal government to remove

63. Johnson v. M'Intosh, 21 U.S. 543, 587, 592 (1823).

64. *See* Eric Kades, *History and Interpretation of the Great Case of Johnson v. M'Intosh*, 19 LAW & HIST. REV. 67, 72 (2001).

65. Eric Kades, *The Dark Side of Efficiency: Johnson v. M'Intosh and the Expropriation of American Indian Lands*, 148 U. PA. L. REV. 1065, 1149 (2000).

66. *See Johnson*, 21 U.S. at 543.

67. *See* Worcester v. Georgia, 31 U.S. 515 (1832).

68. *Id.*

69. Lone Wolf v. Hitchcock, 187 U.S. 553, 556 (1903).

70. *See generally* FRED A. SEATON & ELMER F. BENNETT, FEDERAL INDIAN LAW 201 (2008) (providing examples of such treaties).

all Indian tribes from the Eastern Seaboard to territories west of the Mississippi River.[71]

Most eastern tribes were relocated by 1851, when the Indian Appropriations Act allocated funds to move tribes onto the first reservations.[72] These reservations were considered vital to the alleged "civilization" of Indian tribes, which was to be accomplished by imposing European agricultural practices and notions of property on tribal members.[73]

> That Indians held their lands in common was an essential element of the reformers' story. According to that story, tribal societies were "communist," recognizing no private property rights in land. Indians, the story went, were crying out to be saved by the transformative power of private property. According to the reformers, civilization was impossible without the incentive to work that came only from individual ownership of a piece of property. Without the right to enjoy the exclusive fruits of their own labor on the land and to pass the improved land on to their heirs, Indians would have no incentive to abandon the chase and adopt the civilizing course of agriculture and home industry. As an agent to the Sioux put it in 1858, "the common field is the seat of barbarism; the separate farm the door to civilization."[74]

This story, of course, was false, ignoring the fact that tribes recognized private property rights in many forms, and some tribes relied on agriculture more heavily than others.[75] In the Southwest, several tribes, including the Pimas, Tohono O'Odham, Mohave, Hopi, and most of the Pueblo peoples, recognized forms of inheritable and perpetual private property rights for the

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71. Indian Removal Act of 1830, ch. 148, 4 Stat. 411

72. SEATON & BENNETT, *supra* note 70, at 201-03.

73. *See* ROBERT T. ANDERSON, BETHANY BERGER, PHILLIP P. FRICKEY, & SARAH KRAKOFF, AMERICAN INDIAN LAW: CASES AND COMMENTARY 82 (2nd ed. 2010).

74. Kenneth H. Bobroff, *Retelling Allotment: Indian Property Rights and the Myth of Common Ownership*, 54 VAND. L. REV. 1559, 1567 (2001).

75. DAVID RICH LEWIS, NEITHER WOLF NOR DOG: AMERICAN INDIANS, ENVIRONMENT, AND AGRARIAN CHANGE 10-11 (1994).

purpose of farming, often accompanied by communal rights to grazing lands.[76]

The Federal government's policy of moving tribes onto reservations that constituted small portions of their traditional territories and encouraging them to undertake European-style farming on individual plots, turned out to be fairly unsuccessful, so Congress again exercised its "plenary power" and established the General Allotment Act of 1887 (also known as the Dawes Act) making the division and individual ownership of plots of reservation lands mandatory.[77] This policy resulted nationally in the loss of two-thirds of the tribal land base, as "surplus" lands were opened to settlement by non-Indians and non-Indian purchasers bought up land from Indian allottees.[78] "The lands were not, of course, surplus. The formula used—160 acres for the head of the family, eighty acres for older children and wives, and forty acres for minor children, did not look even five years down the road to the future of the tribe."[79] Rather than encouraging Indian peoples to farm, the shift from communal landholdings to individual allotments disrupted traditional tribal farming methods, and led to a decrease in agriculture on reservation lands.[80] Further challenges are presented by the "fractionation" of lands that occurred as subsequent generations inherit smaller and smaller percentages of the individual allotments, making agricultural management or any other use of these plots next to impossible.[81]

The Indian Reorganization Act of 1934 officially terminated allotment, increased Indian presence in the Department of Indian Services, restored some Indian lands, and facilitated the adoption of Euro-American-styled governmental systems on reservations.[82] Despite encouraging some measures of self-determination, however, U.S. policy generally continued to

76. Bobroff, *supra* note 74, at 1586-1589.

77. ANDERSON ET AL., *supra* note 73, at 106.

78. *Id.* at 109.

79. Vine Deloria, Jr., *Reserving to Themselves: Treaties and the Powers of Indian Tribes*, 38 ARIZ. L. REV. 963, 978 (1996).

80. ANDERSON ET AL., *supra* note 73, at 111.

81. *See* Stacy L. Leeds, *By Eminent Domain or Some Other Name: A Tribal Perspective on Taking Land*, 41 TULSA L. REV. 51, 68 (2005) ("The allotment process that was premised on maximizing the efficiency of Indian land use has rendered most Indian land useless. There are multiple examples that illustrate the problem of fractionated ownership in Indian country, but the most famous description follows: 'Tract 1305 is 40 acres and produces $1,080 in income annually. It is valued at $8,000. It has 439 owners, one-third of whom receive less than $.05 in annual rent and two-thirds of whom receive less than $1 . . . The common denominator used to compute fractional interests in the property is 3,394,923,840,000. The smallest heir receives $.01 every 177 years . . . The administrative costs of handling this tract are estimated by the Bureau of Indian Affairs at $17,560 annually.'" (citing Hodel v. Irving, 481 U.S. 704, 713 (1987)).

82. ANDERSON ET AL., *supra* note 73, at 132-33.

favor assimilation of tribal members into mainstream American society.[83] In 1953, Congress passed House Resolution 108, calling for the immediate termination of federal recognition of and aid to certain tribes, and the preparation of a list by the Secretary of the Interior of other tribes "ready for termination."[84] Terminations, which immediately removed tribal lands from trust status, led to the further erosion of tribal land bases.[85] Although the termination policy ended with the Nixon Administration in 1970,[86] the scars left by the enormous loss of tribal land and resulting fundamental changes to tribal life and social structures undoubtedly challenged traditional relationships to land and food.

B. The Effects of Assimilationist Policies on the Tribes of the American Southwest

The fate of tribes West of the Mississippi River differed somewhat from tribes on the East Coast.[87] This is because the United States acquired western territories later and from different colonial powers, and most western tribes were eventually confined to reservations that represented at least some part of their traditional territories.[88]

The Spanish established a handful of small settlements in what is now the Southwestern United States, during which time they recognized the land rights of the Pueblo peoples living in the area, and granted fee title to the land on which individual groups were residing and farming.[89] When Mexico gained its independence from Spain in 1821, it continued to recognize the rights of Pueblos to their land grants.[90] When Mexico ceded title to what is now California, Arizona, and New Mexico to the United States in the 1848 Treaty of Guadalupe Hidalgo, the U.S. government guaranteed all land grants by the former territorial sovereigns.[91] In 1913, the U.S. Supreme Court

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83. *Id.*

84. *Id.* at 144.

85. *See id.*

86. CHARLES WILKINSON, BLOOD STRUGGLE: THE RISE OF MODERN INDIAN NATIONS 196 (2005).

87. JAKE PAGE, IN THE HANDS OF THE GREAT SPIRIT: THE 20,000-YEAR HISTORY OF AMERICAN INDIANS 306-07 (2003).

88. *Id.*

89. *Land Grants*, ALBUQUERQUE HIST. SOC'Y (2008), http://www.albuqhistsoc.org/SecondSite/pkfiles/pk208landgrants.htm.

90. *See generally* JAMES A. VLASICH, PUEBLO AMERICAN AGRICULTURE 71-73 (2005).

91. *See* Treaty of Peace, Friendship, Limits, and Settlement (Treaty of Guadalupe Hidalgo), U.S.-Mex., arts. VIII, IX, Feb. 2, 1848, 9 Stat. 922.

held that the Pueblos were, in fact, "Indian Country" and therefore part of the U.S. reservation system.[92]

Other tribal groups in the Southwest were granted traditional reservations, either by treaty or by executive order.[93] The Navajo now occupy the largest Indian reservation in the United States, which was relatively untouched by the allotment policy.[94] As a result of contact with Spanish livestock practices, the Navajo, who were practicing agriculture before European arrival on the continent,[95] adopted sheepherding during the 16th Century.[96] In 1864 the Navajos were forced off their traditional lands, or Dinétah, on the "long walk" to a reservation in eastern New Mexico, where U.S. officials unsuccessfully attempted to force them to engage in Euro-American style agriculture.[97] In 1868, the government relented and the Navajo people were allowed to return to Dinétah and sheepherding, as well as other forms of traditional agriculture, were reestablished.[98] Livestock herding was also adopted by several other tribes in the Southwest and continues today, although tribal methods have sometimes been at odds with federal policies and management practices.[99] Traditional farming methods continued on other reservations in the region as well despite the pressures of reduced land bases and assimilationist policies.[100]

One advantage Southwestern tribes had over tribes in less arid regions was that their territories were less desirable to American settlers and thus attracted fewer homesteaders, leaving tribal peoples relatively unaffected by policies such as allotment.[101] Southwestern tribal peoples did not entirely

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92. United States v. Sandoval, 231 U.S. 28 (1913).

93. *See generally FAQs,* INDIAN AFFAIRS, http://www.bia.gov/FAQs (last updated Apr. 10, 2015) (providing information as to the creation of reservations).

94. For a description of the Navajo reservation, *see* DAVID E. WILKINS, THE NAVAJO POLITICAL EXPERIENCE xxiii (2003).

95. *Navajo (Diné),* LAND USE HIST. OF N. AM., http://cpluhna.nau.edu/People/navajo.htm#TheModernPeriod (last visited Mar. 9, 2015).

96. *The History and Near Extinction of the Churro,* NAVAJO SHEEP PROJECT, http://navajosheepproject.com/churrohistory.html (last visited May 14, 2014).

97. *See* WILKINS, *supra* note 94, at 78-79, 207.

98. *Navajo (Diné),supra* note 95.

99. *See* David R. Lewis, *Native Americans and the Environment: A Survey of Twentieth Century Issues* 19 AM. INDIAN Q. 423, 425-26 (1995).

100. See section V below for a more in-depth discussion of the survival of traditional agricultural practices.

101. "By the early twentieth century, the little land Native Americans controlled was mostly in the trans-Mississippi West. They maintained a land base and a cultural identity, things that continue to set them apart, economically as well as socially and politically from other ethnic groups or classes in the United States. Although viewed as relatively valueless by nineteenth-century white standards, these lands were places of spiritual value and some contained resources of immense worth. This fact informs nearly all

escape pressures to take on Euro-American government, education, and economic systems, however, and tribes of the American Southwest suffered fundamental shifts in their relationships to land, food, and identity as a result.[102]

IV. MODERN DIETS AND CHRONIC DISEASE

Direct impacts of European contact on American Indian health began with the spread of devastating epidemic diseases, resulting in high mortality rates amongst Native peoples,[103] exacerbated by forced crowding on reservations.[104] This massive loss of population base disrupted cultures, and made European and American occupation of traditional American Indian homelands easier.[105]

In the mid-19th century, the United States government began to establish Indian Reservations in the American Southwest, alongside the Pueblos recognized earlier by the Spanish.[106] Particularly for the less traditionally agricultural tribes, reservation life brought major changes in diet through government food distribution programs.[107] Agricultural tribes were also negatively affected by the loss of much of their traditional land bases, the restriction of supplementary hunting and gathering practices, and the continuing replacement of traditional foods by government-provided commodities.[108] "Diets historically high in complex carbohydrate/high fiber foods and lower in fat were replaced by foods high in refined carbohydrates (e.g. refined sugars), fat, sodium, and low in fruits and vegetables."[109]

In the first part of the 20th century there was widespread hunger on American Indian Reservations, a crisis the federal government has now significantly reduced through food aid.[110] Currently, the United States

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Native American environmental issues in the twentieth century. Land (its loss, location, and resource wealth or poverty), exploitation of land, and changing Indian needs, attitudes, and religious demands define the issues facing modern Indians and their environments." Lewis, *supra* note 99, at 424.

102. *See* WILKINSON, *supra* note 86, at 259-61.

103. Ann F. Ramenofsky et al., *Native American Disease History: Past, Present and Future Directions*, 35 WORLD ARCHAEOLOGY (ARCHAEOLOGY OF EPIDEMIC AND INFECTIONS DISEASE) 241, 241-42 (2003).

104. Lewis, *supra* note 99, at 437.

105. *Id.*

106. *See id.* (discussing the implementation of reservations in the nineteenth-century).

107. "High-fiber, nutrient dense pre-European contact foods have been replaced by commercially produced low-fiber, high-fat, high-sugar foods and beverages, many provided by various feeding programs." COMPANION, *supra* note 11, at 12.

108. *See id.* at 12-13.

109. U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at x.

110. COMPANION, *supra* note 11, at 15

government provides food aid to American Indian reservations through several programs, which include: Special Supplemental Food Program for Women, Infants and Children; Food Distribution Program on American Indian Reservations; Food Stamp Program; Commodity Supplemental Food Program; Nutrition Services Incentive Program; National School Lunch and Breakfast Programs; Child and Adult Care Food Program; Special Milk Program; and Summer Food Service Program.[111] Studies have found that these food aid programs are the only source of food for large percentages of the participating households on American Indian reservations.[112]

The government is recognizing that the poor nutritional quality of standard commodity food products has detrimental health effects on the American Indian populations that rely so heavily on them, and thus has begun to address this new health crisis by improving the nutritional quality of foods provided through the programs.[113] Despite these efforts, the incidence of chronic disease, particularly diabetes, affects American Indians at the level of an epidemic.[114]

Obesity, a major risk factor for Type 2 diabetes,[115] occurs at high rates among Southwestern American Indians.[116] In most of the studies on the prevalence of obesity, rates are higher in American Indian populations than the combined U.S. rates for all races.[117] Obesity is correlated in American Indian populations (as in other ethnic groups) with poor nutrition, low levels of physical activity, and, likely, genetic tendencies to store body fat.[118]

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111. U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at 19-21.

112. *Id.* at 22.

113. *See* KENNETH FINEGOLD ET AL., USDA CONTRACTOR & COOPERATOR REPORT NO. 4, BACKGROUND REPORT ON THE USE AND IMPACT OF FOOD ASSISTANCE PROGRAMS ON INDIAN RESERVATIONS 9-10 (Jan. 2005); U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at 22.

114. *See* CTRS. FOR DISEASE CONTROL & PREVENTION NAT'L DIABETES EDUC. PROGRAM, U.S. DEP'T OF HEALTH & HUMAN SERVS., THE DIABETES EPIDEMIC AMONG AMERICAN INDIANS AND ALASKA NATIVES, *available at* http://www.empirestatephtc.org/Resources/Res/clih/The-Diabetes-Epidemic-Among-American-Indians-and-Alaska-Natives.pdf (last updated Jan. 2011).

115. *Id.*

116. COMPANION, *supra* note 11, at 12.

117. U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at 10-11

118. "Historically, in many Native populations, particularly tribes in the Southwest, the accumulation of body fat was valued. Body fat provides a buffer against food insecurity. Cultural memory of seasonal hunger places many tribal notions of appropriate body size in conflict with current Euro-American ideals of thinness and intentional food restriction. However, obesity has only become a major health concern in the ANIAN [American Indian and Alaska Native] population in the past one to two generations. It is the result of increased high-fat food availability through social programs and rapid changes from active to sedentary lifestyles. Diabetes among the

Obesity is a growing problem for both American Indian adults and children,[119] and the result is that American Indians are almost twice as likely to be diagnosed with diabetes, than any other race.[120]

The U.S. government has established several programs aimed at addressing this staggering statistic.[121] The Indian Health Service ("HIS"), the National Institutes of Health ("NIH"), and the Center for Disease Control and Prevention ("CDC") run several programs to collect data and engage in prevention on American Indian reservations, including the IHS Special Diabetes Program for Indians, NIH's Diabetes Prevention Program and National Diabetes Education Program, and CDC's Native Diabetes Wellness program.[122] It is well established that in order to be successful in working with American Indian populations, nutrition and diabetes prevention programs must be designed in a culturally appropriate manner, which, given the diversity in Indian Country, requires customization to each tribal community.[123] Ideally, such programs are designed and implemented by the tribal communities themselves. Tribal governments and organizations are much better suited than federal government agencies to design and implement culturally relevant and engaging programs to reduce obesity rates and prevent chronic diseases, through which traditional knowledge about food, land, and identity can be shared and strengthened.

V. MODERN AGRICULTURE AND TRADITION IN INDIAN COUNTRY: A RETURN TO ANCIENT FOODS?

This section will first address the modern practice of agriculture among Southwestern American Indian communities, both for profit and for personal use. Secondly, this section will discuss various initiatives by Southwestern American Indian tribes to revive traditional methods of agriculture among tribal members, with the goals of both addressing health issues and encouraging cultural revival. Finally, this section will discuss the survival of traditional agricultural practices amongst tribes of the Southwest. This

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Native American population was uncommon prior to World War II but **has recently grown at a rate 234 percent higher than for all other United States ethnic groups.**" COMPANION, *supra* note 12, at 12. *See also id.* at 13, 20; U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at xi.

119. U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at xi, 77.

120. CARA JAMES, KARYN SCHWARTZ AND JULIA BERNDT, A PROFILE OF AMERICAN INDIANS AND ALASKA NATIVES AND THEIR HEALTH COVERAGE 1 (Sept. 2009).

121. U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at xiii-xv.

122. *Id.*

123. *See* FINEGOLD ET AL., *supra* note 113, at 22.

section will set the stage for the conclusion, which will address agriculture and the traditional foods movement as means to foster tribal sovereignty.

A. Modern Agriculture on Southwestern Indian Reservations

The largely unsuccessful policy of encouraging Euro-American-style agricultural pursuits on Indian reservations was particularly unproductive in the Southwest where Euro-American agricultural methods quickly over-taxed the arid landscape.[124] Much of the land used by American Indians for agricultural production in the Southwest was sold to non-Indians or left fallow after widespread crop failures during the early 20th century.[125] Although modern technology has allowed super-productive agriculture to resume in the Southwest, the sustainability of this method is questionable, while the use of modern chemical pesticides and fertilizers have damaged many precious Southwestern water sources.[126]

Some Southwestern tribes have successfully undertaken modern Euro-American agricultural practices. The Navajo Nation Tribal Council developed an agricultural program in 1970 called the Navajo Agricultural Products Industry ("NAPI").[127] The purpose of NAPI was to create a farm-training program that would increase tribal revenue and make use of tribal water rights.[128] NAPI is currently supported by the Bureau of Indian Affairs ("BIA") through the Indian Self-Determination Act of 1975,[129] and proclaims itself to be "a growing and thriving enterprise with national and international contracts for its agricultural products, sold under the brand name 'Navajo Pride.'"[130] NAPI is a modern agricultural operation that grows alfalfa, corn, pinto beans, potatoes, wheat, and other grains.[131]

In 1993, Congress passed the American Indian Agricultural Resources Management Act ("AIARMA"), the purpose of which is to "carry out the trust responsibility of the United States and promote the self-determination of Indian tribes."[132] Under AIARMA and the Indian Self-Determination Act,

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124. *See* Lewis, *supra* note 99, at 425.
125. *Id.*
126. *Id.*
127. Mondou, *supra* note 47, at 388.
128. HENRY W. KIPP, U.S. DEP'T OF THE INTERIOR, BUREAU OF INDIAN AFFAIRS, INDIANS IN AGRICULTURE: AN HISTORICAL SKETCH 59-60 (1988).
129. *See* 25 U.S.C. §§ 450f–450n (the purpose of this Act is to allow tribal entities to contract with the government to provide services previously implemented by the Bureau of Indian Affairs).
130. *Navajo Agricultural Products Industry, NAPI*, NAVAJO PRIDE, http://www.navajopride.com/NAPI.html (last visited May 14, 2014).
131. *Id.*
132. 25 U.S.C. § 3702.

the BIA's Bureau of Agriculture and Rangeland Development "provides support for tribal agricultural programs under tribal contracts and direct implementation, covering over 46 million acres of Indian land used for farming and grazing by livestock and game animals."[133] Although management responsibility of funded projects under AIARMA largely lies with the BIA, there seems to be consensus that the statute strengthens tribal control over the use and management of fractionated agricultural landholdings.[134]

Such modern agricultural pursuits provide needed tribal revenues and boost employment among chronically under-employed reservation residents, but arguably do little to address the health and nutrition crises facing reservation communities.[135] Questions about the sustainability of modern agricultural methods in such arid, fragile landscapes and the dangers presented by pesticides and fertilizers further challenge the value of these programs to the health and well-being of Southwestern American Indian communities. The traditional foods movement, detailed in the section below, has a very different goal. Although some traditional foods programs are being run as revenue-generating businesses, the overarching goal of most programs is to address the communities' needs for nutrition and cultural preservation and revival, as described in the following section.

B. The Traditional Foods Movement

> *On Thanksgiving Day in 1992 - during the five hundredth anniversary of Spanish arrival in the Americas - children from Prima and Maricopa tribal communities in Arizona shared a special feast. They did not eat foods shared between the Pilgrims and the Native Americans on the Eastern Seaboard. Instead, they ate what their ancestors had eaten before any European ever set his foot on the soil of the North American continent . . . There is hope that the*

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133. *Branch of Agriculture & Rangeland Development*, INDIAN AFFAIRS, http://www.bia.gov/WhoWeAre/BIA/OTS/NaturalResources/AgrRngeDev/index.htm (last visited May 14, 2014).

134. *See* Judith V. Royster, *Practical Sovereignty, Political Sovereignty, and the Indian Tribal Energy Development and Self Determination Act* 12 LEWIS AND CLARK L. REV. 1065, 1076, n. 65 (2008); *see also* Thomas H. Nelson, *Retrieving "Lost" Sovereignty: Trespass Actions in Indian Country,* 12 INDIAN L. NEWSL. 6, 10-11 (Aug. 2004), *available at* http://www.nwiba.org/pdfs/08_04%20Indian%20News.pdf.

135. *See, e.g.*, Annette Fuentes, *American Indian Unemployment: From Bad to Worse in Recession*, NEW AM. MEDIA (Dec. 10, 2009), *available at* http://www.blackradionetwork.com/american_indian_unemployment_from_bad_to_worse_in_recession.

> *Gila River Prima children may benefit directly from the seeds their ancestors safeguarded, through maintaining a diet rich in nutrition and high in fiber. Without such Native foods in their diet and without the kind of exercise that gardening can give them, these children may become as vulnerable to a nutrition-related disease as their parents have been.*[136]

One of the major challenges facing communities that hope to reverse trends of obesity and diabetes is to contend with addiction to high-fat, high-sugar foods such as fry bread,[137] which in many communities has come to be thought of as "traditionally native."[138] American Indian communities also face high rates of depression[139] and suicide,[140] as well as a sense of fatalism about the inevitability of diabetes.[141] Traditional foods, which often have deep cultural meaning, can be invaluable for addressing these challenges and serving as a tool to teach the new generation about culture and tradition.[142] Several programs were developed by tribes, tribal members, and through community partnerships in an effort to accomplish these goals.[143]

One such program is Native Seeds/SEARCH, a nonprofit organization based out of Tuscon, Arizona, which is a partnership between native and non-native food activists.[144] The program "conserves, distributes and documents the adapted and diverse varieties of agricultural seeds, their wild relatives and the role these seeds play in cultures of the American Southwest and northwest Mexico."[145] In addition to collecting and distributing seeds from native and traditional crops, Native Seeds/SEARCH has undertaken a project to engage in "cultural memory banking."[146] Anthropologist Virginia Nazarea coined this term, which "recognizes the intimate link existing

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136. Gary Paul Nabhan, *Forward* to CADUTO & BRUCHAC, *supra* note 45, at xi.

137. A sweet, thick fried dough. "Fry bread was developed as a means of stretching [military] rations [white flour, baking powder, salt pork, bacon, potatoes, beans, coffee, sugar, tea, and lard] into a palatable meal." COMPANION, *supra* note 11, at 12-13

138. Daisy Hernandez, *Got tradition?*, COLORLINES (July 21, 2005, 12:00 PM), http://colorlines.com/archives/2005/07/got_tradition.html.

139. *See* U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at xi.

140. *See id.*

141. *See* Hernandez, *supra* note 138.

142. *See* U.S. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 10, at 17-18.

143. *See generally About Us*, NATIVE SEEDS/SEARCH, http://shop.nativeseeds.org/pages/about-us (last visited Mar. 9, 2015) (providing an example of such a program).

144. *See Id.*

145. *Id.*

146. *Past Projects: Cultural Memory Bank*, NATIVE SEEDS/SEARCH, http://nativeseeds.org/component/content/article?id=15 (last visited Apr. 12, 2015).

between human cultures and their crops."[147] In an effort to preserve this quickly dying knowledge amongst Southwestern and Mexican native famers, Native Seeds/SEARCH is developing a database of information based on interviews with farmers from across the Southwest and Mexico.[148] Native Seeds/SEARCH has additionally produced a CD-ROM called "Agricultural Traditions of the Diné,"[149] which is available at schools and libraries serving Navajo Youth.[150]

Another such program is a grassroots organization on the Tohono O'odham[151] reservation in Arizona, where more than 50 percent of the adults have diabetes, called Tohono O'odham Community Action ("TOCA").[152] TOCA is a community-based organization "dedicated to creating a healthy, culturally-vital and sustainable community on the Tohono O'odham Nation."[153] TOCA heads and collaborates in numerous education and wellness programs, including: the Tohono O'odham Farm and Food Working Group; A New Generation of O'odham Farmers Training Program; and school gardens, nutrition and culture classes, and traditional foods in cafeterias through the Tohono O'odham Food and Fitness Collaboration.[154] Terrol Dew Johnson, founder of TOCA, is particularly enthusiastic about tepary beans, which not only help to lower blood glucose, but also represent a deep cultural connection to land and food:

> "You're not just seeing these beans . . . You're seeing the whole culture. That bean holds our language, our songs, our history" . . . Young Indians, as well as older ones, have been alienated from their own culture, Johnson says, and he thinks these foods can reintroduce them to the traditions. After all, these foods are used in ceremonies and carry the stories of the Desert People. For example, it is said that when Coyote was running with a bag of

147. *Id.*
148. *Id.*
149. Diné is the Navajo word for the Navajo people. NAVAJO PEOPLE, http://navajopeople.org/ (last visited Mar. 11, 2015).
150. *Past Projects: Cultural Memory Bank*, *supra* note 146.
151. Formerly the Papago Tribe. *Tohono O'odham History*, TOHONO O'ODHAM NATION, http://www.tonation-nsn.gov/ton_history.aspx (last visited Mar. 11, 2015).
152. Hernandez, *supra* note 138.
153. TOCA: TOHONO O'ODHAM COMMUNITY ACTION, http://www.tocaonline.org (last visited May 14, 2014).
154. *See id.*

> tepary beans, he tripped and the white beans flew into the sky, creating the Milky Way.[155]

TOCA is particularly proud of its "New Generation" of farmers, some of whom have participated in TOCA's one-year farming apprenticeship training program and summer youth agricultural internships.[156] The summer interns established their own agricultural program called "Project Oidag," with the goal of starting a business.[157]

Native Seeds/SEARCH and TOCA are just two examples of American Indian organizations working to preserve traditional agricultural knowledge. Like other traditional, food-focused organizations, Native Seeds/SEARCH and TOCA are addressing the loss of cultural knowledge by targeting American Indian youth.[158] "Several studies have argued that this [food sovereignty] increases the transmission of cultural knowledge, the revitalization of cultural practices such as songs and ceremonies, reaffirms a positive collective identity . . . and helps to establish and reinvigorate social ties."[159] Thus through their work, Native Seeds/SEARCH, TOCA, and other similar organizations are taking steps to address the physical and cultural health of American Indian peoples, providing a means of strengthening tribal sovereignty.

C. The Unnoticed Survival of Traditional Food Practices in the Southwest

Although American Indian leaders in the traditional foods movement probably lament the loss of traditional agricultural and food preparation practices by the majority of tribal members, particularly the young, some traditions seem to have continued to survive on the isolated reservations of the American Southwest. As discussed above, this arid, sparsely populated region was spared some of the more disruptive land-acquisition policies, and Indian peoples were able to continue to engage in many traditional practices with less interference by the BIA.[160] The survival of these traditional

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155. *Id.*

156. *New Generation of O'odham Farmers: Food System Leadership in Action*, TOCA: TOHONO O'ODHAM COMMUNITY ACTION, http://tocaonline.org/new-generation-of-o-odham-farmers.html (last visited Apr. 12, 2015).

157. *Project Oidag: Youth Gardeners, Mentors*, TOCA: TOHONO O'ODHAM COMMUNITY ACTION, http://www.tocaonline.org/project-oidag.html (last visited May 14, 2014).

158. *See Past Projects: Cultural Memory Bank, supra* note 146; *New Generation of O'odham Farmers: Food System Leadership in Action, supra* note 156.

159. COMPANION, *supra* note 11, at 27.

160. See section III(B)..

practices serves as a foundation for the traditional foods movement, and is a testament to the strength of sovereignty and culture within tribal nations.

The Hopi is one tribe that has maintained a strong hold on traditional farming practices in the Southwest.[161] Masters of dry farming corn in the high deserts of Black Mesa, the Hopi continue to honor the corn, the land, and the rain with annual ceremonies such as Home Dance.[162] This ceremony had been performed since time immemorial, and the tradition, an expression of the Hopi reverence for and connection to their homelands and the food it provides, lives on.[163]

Although the Navajo Nation is engaged in large-scale, Euro-American-style agricultural pursuits, traditional farming practices continue as well.[164] Organizations like Navajo Nation Traditional Agricultural Outreach and DINÉ , Inc.,[165] Tsé Chizhí community garden and seed exchange program in Rough Rock, Arizona,[166] and Native Seeds/SEARCH, honor and keep these traditions alive, while individuals also work to retain traditional family farms.[167]

Many Pueblos have also been able to keep their farming traditions alive.[168] Academic interest by organizations like the Crow Canyon Archaeological Center in Cortez, Colorado, have begun to document traditional Pueblo farming knowledge still in use today.[169] On Cochiti Pueblo in New Mexico, despite disruption by a nearby dam, the people maintain traditional cultural and agricultural practices alongside modern ones.[170] As the Cochiti Pueblo declares on its website:

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161. *Hopi Indian Facts*, NATIVE AMERICAN INDIAN FACTS, http://native-american-indian-facts.com/Southwest-American-Indian-Facts/Hopi-Indian-Facts.shtml (last visited Apr. 12, 2015).

162. For a first-hand description of Home Dance, *see* CHARLES WILKINSON, FIRE ON THE PLATEAU 295-313 (1999).

163. *Id.*

164. *See* NAVAJO NATION TRADITIONAL AGRICULTURAL OUTREACH PROGRAM, http://www.start2farm.gov/programs/nntao-navajo-nation-traditional-agricultural-outreach-program (last visited Mar. 11, 2015).

165. *Id.*

166. Anne Minard, *Mother Earth Gathering on the Navajo Nation Honors Preservation of Traditional Agriculture*, INDIAN COUNTRY TODAY (May 9, 2012), http://indiancountrytodaymedianetwork.com/2012/05/09/mother-earth-gathering-navajo-nation-honors-preservation-traditional-agriculture-112068.

167. TANYA DENKLA COBB, RECLAIMING OUR FOOD: HOW THE GRASSROOTS MOVEMENT IS CHANGING THE WAY WE EAT 186 (2011).

168. *See Pueblo Farming Project*, CROW CANYON ARCHAEOLOGICAL CTR., http://www.crowcanyon.org/index.php/pueblo-farming-project (last visited Mar. 9, 2015) (illustrating that the farming traditions are in fact still alive).

169. *Id.*

170. PUEBLO DE COCHITI, http://www.pueblodecochiti.org/ (last visited May 14, 2014).

> Of primary importance to the Pueblo de Cochiti are the land, air and water on and adjacent to the reservation, which is the lifeline of the Pueblo Traditions and Culture. The Pueblo is located in the heart of the traditional homeland and it would be impossible to retain peoples and culture if the environment is impacted to the point where the Cochiti decide the land is dangerous to utilize for habitat, farming, fishing, hunting, and maintaining Cultural Tradition.[171]

The Cochiti have recognized, as have many tribes, the vital importance of holding on to cultural traditions in the quest to maintain their tribal identity.[172] Like the modern traditional foods movement, the acknowledgment and valuing of the informal survival of traditional agricultural practices strengthens tribal sovereignty and self-determination.

VI. CONCLUSION: FOOD AND SOVEREIGNTY

The major work of modern American Indian nations is a quest for self-determination and sovereignty. For American Indians, the concept of sovereignty is unique to their status as "domestic dependent nations."[173] Tribes have worked hard in modern times to secure the right to self-determination in the wake of allotment and tribal terminations that tore American Indian communities apart during the 19th and much of the 20th centuries. Tribal members, as part of the civil rights movement, began advocating for self-determination in the 1960s, and in 1970 President Richard Nixon made tribal self-determination official federal policy in a congressional address.[174] Through this new acknowledgement of tribal rights to shape and implement programs and policies on their own reservations, American Indian tribes have increasingly been able to engage as sovereign entities in the realm of national policy.[175] The practice of tribal

171. *Id.*
172. *Id.*
173. Established by the Supreme Court of the United States as the status of American Indian nations in relation to the Federal and state governments in *Johnson v. M'Intosh*, 21 U.S. 543 (1823).
174. WILKINSON, *supra* note 86, at 196.
175. *Id.* at 191-98.

sovereignty additionally facilitates cultural sensitivity and revival by healing some historical trauma. As researcher Michèle Companion posits:

> The health of a people is vital for the long-term survival of them and their cultures. Consequently, health and health care issues are central components in sovereignty and self-determination of all indigenous peoples . . . One direct method of empowerment is to link nutrition and food choices to food sovereignty.[176]

Food sovereignty was a concept introduced by La Vía Campesina[177] at the 1996 World Food Summit as a challenge to international "notions of food security, which, almost studiously, avoided discussing the social control of the food system."[178] Instead, global hunger was addressed by entities such as the World Trade Organization, which encourages "agricultural trade liberalization" by fostering large-scale food production.[179] This policy decreases food prices, but "dumping" cheaper food in international markets has devastated small-scale local farming and in-country food production.[180] Although the origins of food sovereignty lie in a concern about the food security of nations, indigenous communities world-wide have begun to adopt the concept as one that fits their own struggles with food security, autonomy, self-determination, and the exercise of sovereignty.[181] This concept has also begun to take hold in Indian Country in the United States:

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176. COMPANION, *supra* note 11, at 4, 27.

177. "La Via Campesina is the international movement which brings together millions of peasants, small and medium-size farmers, landless people, women farmers, indigenous people, migrants and agricultural workers from around the world. It defends small-scale sustainable agriculture as a way to promote social justice and dignity. It strongly opposes corporate driven agriculture and transnational companies that are destroying people and nature." *What is La Via Campesina?*, THE INTERNATIONAL PEASANT'S VOICE, http://viacampesina.org/en/index.php/organisation-mainmenu-44/what-is-la-via-campesina-mainmenu-45 (last visited May 14, 2014).

178. Raj Patel, *What Does Food Sovereignty Look Like?*, *in* FOOD SOVEREIGNTY: RECONNECTING FOOD, NATURE AND COMMUNITY 186, 188 (Hannah Wittman et al., eds., 2010).

179. Hannah Wittman, Annette Aurélie Desmarais & Nettie Weibe, *The Origins and Potential of Food Sovereignty*, *in* FOOD SOVEREIGNTY: RECONNECTING FOOD, NATURE AND COMMUNITY 3 (Hannah Wittman et al., eds., 2010).

180. *Id.*

181. *See, e.g.*, Turner & Turner, *supra* note 12; Kerin Gould, DEEP FOOD AUTONOMY (2004).

American Indians are involved in the movement for food sovereignty at local and national levels, maintaining that it is a prerequisite for food security ([International Indian Treaty Council], 2003). Numerous examples exist across Indian Country showing tribes' involvement in strengthening, protecting, or restoring traditional food practices . . . Many Native people consider the restoration of traditional subsistence foods and practices essential to regain their health, traditional economy, and culture for generations to come.[182]

In the American Southwest several tribes are already engaging in the project of fostering food sovereignty through programs developed under the Indian Self-Determination Act and through their own tribal revenues. The successes achieved through these means should serve as models for more programs like TOCA, which promotes food sovereignty and thus brings together solutions for addressing nutrition and health, cultural revival, and the strengthening of sovereignty on Tohono O'odham. Traditional foods and agricultural practices must be honored as the tribal nations of the Southwest move forward in their quest to strengthen their own sovereignty and protect the spiritual and physical health of their members.

182. Kibbe M. Conti, *Diabetes Prevention in Indian Country: Developing Nutrition Models to Tell the Story of Food-System Change*, 17 J. OF TRANSCULTURAL NURSING 234, 235 (2006).

SETTING THE TABLE FOR FEAST OR FAMINE: HOW EDUCATION WILL PLAY A DECIDING ROLE IN THE FUTURE OF PRECISION AGRICULTURE

*Lauren Manning**

I. INTRODUCTION

A. From Soil to Sky and Everywhere in Between

Precision agriculture has many names including satellite farming, or site-specific crop management.[1] Early forms of precision agriculture involved creating fertilizer maps, yield measurements, grid sampling, and soil pH content monitoring.[2] Roughly 25 years ago, the advent of global positioning systems, commonly known as GPS, enabled farmers to make more informed decisions about where to plant seed and how much seed to plant.[3] Precision agriculture technologies typically utilize sensors that are placed on tractors, combines, and other farm equipment, and which measure various conditions including seeding rates, soil conditions, and other indicators of production.[4] Over time, this technology has been expanded to provide a wide range of services like field mapping, tractor guidance, and yield monitoring.[5] These technologies also help farmers make the most efficient use of pesticides, herbicides, and fertilizers.[6] As a result, farmers are no longer forced to treat fields uniformly or to make guesses about the best courses of action for their fields.[7] Instead, precision agriculture enables farmers to micromanage their fields on a day-to-day basis, or even minute-by-minute basis, while relying on highly accurate data.[8]

Most modern day precision agriculture systems involve equipment-mounted hardware, like GPS devices, sensors, or remote equipment that is placed in the field or on farm equipment.[9] These devices collect information

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1. Alex McBratney, et al. *Future Directions of Precision Agriculture*, 6 PRECISION AGRIC. 7, 7-23 (2005).
2. Lorelei Graham, *Precision Agriculture on the Global Stage*, NORTON ROSE FULBRIGHT (Sept. 2014), http://www.nortonfulbright.com/knowledge/publications/120848/precision-agriculture-on-the-global-stage.
3. *History of Precision Agriculture*, DELMAR CENGAGE LEARNING, http://www.delmarlearning.com/companions/content/140188105X/trends/history_pre_agr.asp (last visited Mar. 13, 2015).
4. *Id.*
5. *Official U.S. Government information about the Global Positioning System (GPS) and related topics*, GPS.GOV, http://www.gps.gov/applications/agriculture/ (last updated Nov. 25, 2014).
6. *Id.*
7. *Id.*
8. *Id.*
9. Graham, *supra* note 2.

that is sent to a software-enabled control system, which creates a variety of data sets.[10] For example, the data can be manipulated to create highly accurate field maps, or to illustrate vegetation density.[11] The GPS systems that these devices and programs utilize can provide accurate measurements down to the centimeter.[12] As a result, the geospatial maps are incredibly accurate, showing boundary markers, roads, and irrigation systems.[13] Armed with these maps, farmers can assess different areas of their fields by collecting soil samples and monitoring crop conditions.[14] Additional examples of precision agriculture technologies include automatic steering systems, precision seed planting systems, optical crop sensing technology, mobile phone and tablet applications, and yield monitors.[15]

Some Agricultural Technology Providers ("ATPs") offer farmers additional data analysis features.[16] For example, crop advisors compile the data that the GPS devices collect and interpret the data to identify an array of issues like pest infestations while also prescribing a solution for the problem.[17] This information is sometimes translated to an aircraft sprayer that sprays the affected portion of the field while leaving the unaffected areas untouched.[18] Remarkably, these prescriptions are not one-size-fits-all, and frequently isolate a specific area of a certain field.[19] A number of devices also enable farmers to make adjustments to their crop management systems with the push of a button, such as variable rate applications.[20] For example, some technologies suggest to farmers when the right time to water may be, whether irrigation is necessary, or whether a dose of fertilizer would improve crop growth.[21] The software is programmed with a catalogue of "best conditions" for a number of specific soil and plant species, which allows the optimization to be even more accurate.[22]

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10. *Id.*
11. *Official U.S. Government information about the Global Positioning System (GPS) and related topics*, *supra* note 5.
12. Graham, *supra* note 2.
13. *Official U.S. Government information about the Global Positioning System (GPS) and related topics*, *supra* note 5.
14. *Id.*
15. Graham, *supra* note 2.
16. *Official U.S. Government information about the Global Positioning System (GPS) and related topics, supra* note 5.
17. *Id.*
18. *Id.*
19. *Id.*
20. Graham, *supra* note 2.
21. Pau Puigdollers, *5 Benefits of Precision Agriculture to Increase your Field Productivity*, IRIS (Feb. 5, 2014). http://iris.cat/5-benefits-of-precision-agriculture-to-increase-your-field-productivity/.
22. *Id.*

There are many different ways that the data collected from precision agriculture devices and programs can be utilized. For example, some ATPs offer services that analyze the data and design "prescriptions" for the farmer's land geared toward providing higher outputs and increasing profit margins.[23] Recently, multi-national corporations Monsanto and John Deere began offering data sharing services touted to help farmers increase their profits.[24] In order to participate, however, farmers must allow the companies to collect their data in real time and agree to participate in so-called big data pooling.[25] Big data is a term that can be coined as meaning the sorting and processing of extremely large amounts of data. Although farmers have shared various forms of crop data with private firms over the last several years, the technological ability to collect this data directly from a farm on a minute-by-minute basis is unprecedented.

As a result of these technologies, farmers are able to more accurately and effectively use pesticide and fertilizers, plant more accurately, and reduce crop damage.[26] Consequently, the ultimate yield for each particular field is maximized.[27] Current predictions estimate that the precision agriculture industry will grow approximately ten to fifteen percent each year between 2014 and 2019.[28] Currently, the United States is leading the world in development and implementation of these technologies with South America, Europe and Asia close behind.[29] In the United States, precision agriculture appears to be most commonly employed in corn and soybean operations, with auto-steering technology as the most common feature, while European countries have primarily utilized precision agriculture to address environmental concerns.[30]

B. A Digital Harvest and The Pests Who Prey Upon It

Unsurprisingly, there is growing concern among farmers and ranchers that their data could be obtained illegally or exploited by larger corporations and government agencies. The potential risks of agricultural data misappropriation are far-reaching for farmers and not without credence.

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23. *See* Graham, *supra* note 2.

24. Dan Charles, *Should Farmers Give John Deere and Monsanto Their Data?*, THE SALT (Jan. 22, 2014, 4:45 PM), http://www.npr.org/blogs/thesalt/2014/01/21/264577744/should-farmers-give-john-deere-and-monsanto-their-data.

25. *Id.*

26. Graham, *supra* note 2.

27. *Id.*

28. *Id.*

29. *Id.*

30. *Id.*

Given the intangible nature of digital data, once it is released into cyberspace the farmer relinquishes direct control over the information and where it goes. Marketing agencies could use this data to send a farmer smart-phone advertisements on a real-time basis that are tailored to the particular crop or fertilizer that the farmer is dealing with at the time. In recent years, growing attention has been directed toward corporations such as Facebook and Google and the issue of whether their collection of user information—with or without the users' knowledge and consent—infringes upon those users' privacy rights. For many individuals, the enjoyment and benefit they receive from using Facebook or Google outweighs the risks associated with the loss of privacy. Similarly, while some farmers deem precision agriculture and prescription services a dream come true, others see it as a threat to their privacy and business.

Some members of the agriculture community would argue that misappropriation of farm data poses even greater threats than unsolicited advertisements. The argument is that disclosing or sharing data about their operations would implicitly involve politically and socially contested issues, including pesticide usage, genetically modified products, and the treatment of livestock. As a result, opponents of agriculture data sharing would further contend that dissemination of information that reveals a farmer's particular practices poses an immediate risk to the farmer's livelihood, and perhaps his or her personhood as well. Other opponents have expressed concern that the Environmental Protection Agency or one of the many organizations that regulate agriculture may be able to subpoena individual farm data.[31] Some opponents underscore the potential for traders dealing in agricultural futures to purchase databases comprised of real-time yield data.[32] Currently, traders rely on private surveys and Department of Agriculture yield data, which reflect patterns from previous months or years.[33]

Concern over the potential misuse of precision agriculture has garnered the attention of a number of members of the United States Congress representing rural states.[34] These representatives have informed their fellow Congressional members about the growing use of precision agriculture technologies and the potential risks that unfettered data collection poses.[35]

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31. Blake Hurst, *Big Farms Are About to Get Bigger*, AM. ENTER. INST. (Dec. 11, 2013), https://www.aei.org/publication/big-farms-are-about-to-get-bigger/.

32. *Id.*

33. *Id.*

34. *See* CONGRESSIONAL RESEARCH SERVICE, *Precision Agriculture and Site-Specific Management: Current Status and Emerging Policy Issues*, CRS REPORT FOR CONGRESS (Aug. 7, 2000), http://nationalaglawcenter.org/wp-content/uploads/assets/crsRL30630.pdf

35. *See id.*

The next several decades may witness the development and enactment of legislation that controls the relationship between farmers, ATPs and their data. Until then, many of these questions will remain unanswered.

Despite these potential dangers, the arguments in support of agricultural data collection and aggregation are wildly compelling. Proponents would argue that the benefits outweigh the risks, particularly when it comes to the potential for agricultural big data to correct imperfections in the market for farmland. Typically, information regarding soil types, weather patterns, and productivity has been limited to local communities. Access to broad-scale maps reflecting aggregate data could correct misconceptions regarding value-related matters, like land prices. Unless the maps and associated data are made publicly available, however, only the individuals and companies who own the property rights to the information would have the ability to reap its benefits

One aspect of precision agriculture that holds great promise is so-called big data pooling, which constitutes the aggregation of farm data on multiple levels.[36] Big data pooling may provide answers to some of the most threatening questions that face the global population. Undoubtedly, the growing population places tremendous demands on global food production. The ability of precision agriculture to help farmers achieve optimal working capacity and to compare productivity across a spectrum of geographical ranges may provide the method for meeting this demand. On an intra-farm level, precision agriculture can help farmers cut costs, increase yield, and address problems on a real time basis with the click of a button.

C. Sewing the Seeds of Safety and Prosperity

When it comes to data rights, the same concerns that plague consumers also inform farmers' and agricultural professionals' opinions of precision agriculture.[37] From a practical perspective, many farmers simply do not have the time or technological acumen to continually monitor the privacy, security, and control of their agricultural data.[38] As a result, farmers wishing to implement precision agriculture technologies must place a great deal of trust and blind faith in the ATP that they choose.[39] This creates an opportunity for some ATPs to potentially abuse these relationships, or to exploit this power imbalance. This is primarily true for farmers who possess

36. *See* Hurst, *supra* note 31.

37. Joseph Russo, *Data Privacy, Ownership in Precision Agriculture*, PRECISIONAG (Sep. 3, 2013), http://www.precisionag.com/opinion/joe-russo/data-privacy-ownership-in-precision-agriculture/.

38. *Id.*

39. *Id.*

only a novice, basic understanding of technology and the amorphous nature of information stored as data. Some farmers may be unaware that they have an ownership claim to the data because it does not conform to their understanding of traditional property rights, which are grounded in more tangible notions of physical possession and control. Conversely, data and digitally stored information are intangible and transported invisibly by wires and airwaves.[40]

Currently, many farmers and ATPs are taking the position that any information gathered regarding a farm or its operations remains the private property of the farm operator.[41] In order to address these growing concerns and in an effort to foster uniformity across the precision agriculture industry, a number of industry leaders joined forces and developed a set of principles that they would like to see implemented in precision agriculture contracts.[42] The Privacy and Security Principles for Farm Data agreement ("the Agreement") outlines a series of data principles that the signatories hope will be implemented in ATPs' contracts.[43] At the outset, the Agreement emphasizes the importance of ensuring alignment between an ATP's policies and practices and the contract terms it offers to farmers.[44] The Agreement highlights key principles that are intended to make farmers more comfortable with ATP service contracts so that they can make use of the benefits that precision agriculture has to offer.[45] These principles are similar to a number of guidelines currently utilized by large-scale data service providers, giving some confidence that their aim will have an impact on the future of precision agriculture.[46]

Overall, the Agreement is a respectable first effort at establishing universal policies that seek to ensure the protection of farmers' data. For precision agriculture to become the status quo and for the industry to take advantage of the benefits that it has to offer, however, substantial efforts must be undertaken to give farmers the tools that they need to hold ATPs accountable and to learn how to use these complex computer systems. Although the Agreement references the importance of educational programs, a greater call to action is needed. For example, many farmers may require legal assistance when it comes to interpreting ATPs' service contracts. On a

40. *Id.*
41. *Id.*
42. Karl Plume, *Farm Groups, Ag Tech Companies Agree on Data Privacy Standards,* REUTERS (Nov. 13, 2014), http://www.reuters.com/article/2014/11/13/us-usa-agriculture-data-idUSKCN0IX2NU20141113.
43. *Id.*
44. *Id.*
45. *Id.*
46. *Id.*

practical level, many farmers are leery of adopting precision agriculture technologies because they do not have the basic technological skills required to navigate the hardware and software programs that it entails, or the acumen required to interpret the data. Accordingly, successful educational efforts will require specialists from many different backgrounds, including scientists, computer engineers, economists, and lawyers.

For now, the agreement is non-binding on ATPs, who retain the ultimate decision over which terms to include in service contracts and how to treat their customers' data.[47] While time will be the only true measure of the Agreement's success, one way to evaluate its potential effectiveness is to examine its provisions through the lens of some of the many recent data rights incidents that have been at the forefront of technological news. In today's world, there is no shortage of current events regarding data privacy rights, security breaches, and ownership battles. These events provide helpful "dos" and "don'ts" for farmers, ATPs, and their lawyers.

Part II of this article takes a closer look at the potential benefits and disadvantages of precision agriculture. Part III of this article provides a survey of recent data-related incidents and highlights three critical principles that farmers can use to evaluate a potential ATP: trust, transparency and choice. Part IV of this article examines the Agreement and its potential effectiveness through the lens of these guiding principles. Finally, Part V of this article argues that the only way to ensure the maximization of precision agriculture's benefits is by giving farmers the educational tools they need to both hold ATPs accountable and to learn how to utilize these technologies.

II. MODERN DAY PRECISION AGRICULTURE

A. Precision Agriculture in Action

One of the best ways to understand the application and benefits of precision agriculture is by considering it in action. The Rias Baixas region of Spain produces the unique Albariño grape, which is used to make a special varietal of white wine.[48] This grape has put Rias Baixas on wine connoisseurs' radar and has created a financial boom for the local economy.[49] Recognizing the promise of this grape, in 2012 the Spanish

47. Plume, *supra* note 42.

48. Javier Martinez, *Smart Viticulture Project in Spain Uses Sensor Devices to Harvest Healthier, More Abundant Grapes for Coveted Albarino Wines*, SENSORS MAG (Feb. 24, 2014), http://www.libelium.com/sensors-mag-smart-viticulture-project-in-spain-uses-sensor-devices-to-harvest-healthier-more-abundant-grapes-for-coveted-albarino-wines/.

49. *Id.*

government hired an international consulting group to launch a Smart Viticulture project that utilizes precision agriculture.[50] Part of this infrastructure update included the implementation of precision agriculture technologies, including the placement of wireless sensor devices in the vineyards.[51] The sensor's job was to monitor environmental conditions and to improve the field managers' environmental management of each vineyard.[52]

Approximately one thousand wine growers throughout the region participated in the project, and each participant's vineyards was outfitted with these sensors and devices.[53] The sensors tracked a multitude of environmental factors, like ambient temperature, soil moisture, humidity, and leaf wetness.[54] By optimizing these variables, the growers are able to enhance grape quality and to increase production capacity.[55] The data collected from these various sensors in turn allows the growers to make optimally informed decisions on a real-time basis.[56] For example, of particular concern to the Rias Baixas wine growers was the issue of phytosanitary conditions and the desire to minimize chemical treatment practices.[57]

The equipment that was installed consisted of three wireless gateways and a dozen sensors that are capable of measuring the four aforementioned parameters: soil moisture, leaf wetness, temperature, and humidity.[58] The wireless gateways collect the data recorded by the sensors and transmit it wirelessly to a Cloud.[59] The wireless gateways are equipped with GPS capabilities, which allows them to accurately record positioning and time of collection.[60] The sensors were placed strategically throughout the vineyards based on the establishment of different zones.[61]

Once in place, a computer application was developed that allowed the vineyard managers to control the system from any computer or device that was capable of connecting to the internet.[62] A statistical prediction model was also developed, which correlates weather conditions with the potential

50. *Id.*
51. *Id.*
52. *Id.*
53. Martinez, *supra* note 48.
54. *Id.*
55. *Id.*
56. *Id.*
57. *Id.*
58. Martinez, *supra* note 48.
59. *Id.*
60. *Id.*
61. *Id.*
62. *Id.*

onset of disease throughout the vineyard.[63] The application is even capable of operating on a tablet.[64] Through this modality, the managers can walk through the rows of each vineyard and see the differentiation in readings as they travel past each plant.[65] Also, the system features a communications channel that facilitates the aggregation of each individual's knowledge, including the wine growers and the viticulture technicians.[66] By creating a theoretical "communal brain," the system can operate more intelligently.[67]

The results of the project were overwhelmingly positive.[68] From the initial pool of one thousand participants, roughly four hundred signed up as regular customers during the first year.[69] Throughout the region, participating wine growers reduced the use of phytosanitary applications, including fertilizers and fungicides, by over twenty percent and increased growing productivity by fifteen percent.[70] The wineries are not only more profitable, but are now operating according to environmentally sustainable practices.[71]

B. A Bounty of Benefits

As the Rias Baixas example illustrates, there are many benefits to utilizing precision agriculture, particularly when it comes to the aggregation of data at both the intra-farm and inter-farm levels. An essential feature of precision agriculture is the ability to establish standards based on real-time aggregated data from other farming operations both located within the same region and on broader, national scales.[72] A useful analogy that has been applied to this function is blood pressure.[73] One way we know whether our blood pressure is too high or too low is by comparing it to the average blood pressure readings of other people.[74] If individuals remained unwilling to share information about their blood pressure readings, we would not have enough collective data to calculate an average range.[75] Additionally, the more information that is provided, the more accurate our calculations

63. Martinez, *supra* note 48.
64. *Id.*
65. *Id.*
66. *Id.*
67. *Id.*
68. Martinez, *supra* note 48.
69. *Id.*
70. *Id.*
71. *Id.*
72. Russo, *supra* note 37.
73. *Id.*
74. *Id.*
75. *Id.*

become.[76] If participants are willing to also provide information about their age, weight, gender, and family history, we can provide people who share similar demographics with a more tailored estimation of a blood pressure range that is safe for them personally as opposed to the public at large.[77]

The same analogy applies to farming, and there can be little doubt that farmers benefit by contributing to collective data analyses.[78] If farmers nationwide provide information regarding when they planted certain crops, the type of seed that was planted, and the amount yielded at harvest, optimal planting and harvest times for particular seed hybrids could be pinpointed. On a national or global scale, if those farmers also provide information about the geographical region in which they are located, the type of soil on their land, and current weather patterns, more accurate recommendations regarding when farmers in those localities should perform certain farming functions may be identified.

The potential benefits of farm data pooling and aggregation are numerous and cannot be underemphasized.[79] For example, data pooling may help resolve many issues that plague farmers on the single-field level.[80] Community data analysis will likely enable farmers to reach quicker, more effective solutions to these problems.[81] By aggregating data, farmers can increase their breadth of knowledge.[82] As opposed to only possessing information about their individual fields, their farm, and perhaps their county of residence, farmers can access information about their state, country, and the world at large.[83] In such a vacuum, it can be difficult to know the particular meaning of a data set.[84] By comparing data or pooling data with a community of peers, the farmer will be able to glean a better, more informed understanding of his or her farming operation.[85] If restricted to the single-farm level, the data derived from those fields will possess only a finite value to the farmer.[86] When pooled with other farmers' data, however, the data value is optimized, production is optimized, and the farmer's yields are maximized.[87]

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76. *Id.*
77. Russo, *supra* note 37.
78. *Id.*
79. Terry Griffin, Presentation, *Advantages of Aggregating Data*, CRESCOAG (July 16, 2013), *available at* http://infoag.org/abstract_papers/papers/abstract_149.pdf.
80. *Id.*
81. *Id.*
82. *Id.*
83. *Id.*
84. *See generally* Griffin, *supra* note 79.
85. *Id.*
86. *Id.*
87. *Id.*

From an economic standpoint, precision agriculture can be utilized to help farmers pinpoint with greater accuracy various optimal working capacities.[88] For example, one of the highest cost variables for many farmers is fertilizer.[89] Precision agriculture allows farmers to more accurately disperse fertilizer and reduces unnecessary waste of this expensive product.[90] The second-highest cost for farmers is seed.[91] Seed planting technologies that rely on GPS guidance systems and variable seed rate technology provide farmers with more accurate planting.[92] This means that seed waste is reduced and total crop yield is increased.[93] Additionally, auto-steering technologies cut down on fuel costs by ensuring that equipment is operated in the most efficient manner.[94] Farm equipment that is operated according to auto-steering or guidance technologies requires significantly lower fuel consumption than unguided machines.[95] There are also the obvious benefits of being able to obtain various types of data, like soil moisture content or vegetation density in real time.[96] The maximization of efficiency across these spectrums frees up the farmer to turn his or her attention to other things, while also reducing operator fatigue.[97]

When it comes to water, ATPs may be able to provide assistance to drought-stricken regions like California.[98] Precision agriculture offers the ability to measure water usage and water quality, and to identify potential avenues for making agricultural water usage more effective.[99] In fact, with the recent implementation of California's Sustainable Groundwater Management Act, precision technologies may soon become the regional standard.[100]

On a broader scale, precision agriculture may provide part of the answer to addressing the rapidly growing global population and the

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88. *Official U.S. Government information about the Global Positioning System (GPS) and related topics*, *supra* note 5.

89. Graham, *supra* note 2.

90. *Id.*

91. *Id.*

92. *Id.*

93. *Id.*

94. Graham, *supra* note 2.

95. *Id.*

96. Puigdollers, *supra* note 21.

97. Graham, *supra* note 2.

98. Sarah Gonzalez, *Ag Companies, USDA, Discuss Big Data Challenges*, AGRI-PULSE (Feb. 19, 2015), http://www.agri-pulse.com/Ag-companies-USDA-discuss-big-data-challenges-02192015.asp.

99. *Id.*

100. *Id.* The Sustainable Groundwater Management Act requires the creation of a groundwater management plan for most of California's groundwater basins by the year 2020 with the goal of reaching sustainability by 2040. *Id.*

increased production capacity demands that this creates.[101] With the world population projected to reach 9.6 billion people by 2050, the agriculture industry will be faced with an increase in production demand of approximately seventy percent of current levels.[102] Precision agriculture will likely serve a crucial role in meeting that demand.[103] For example, some of the primary issues facing the increasing global food demand are the limited availability of arable land for crops and the urbanization of rural and agricultural areas.[104] The diminishing availability of farmland puts a premium on existing farms and creates mounting pressure to ensure that farm production efficiency and field usage is maximized.[105] Precision agriculture and data pooling may provide farmers with the tools they need to accomplish this task.[106]

C. A Plague of Pitfalls

Many unanswered questions and potentially unidentified issues surrounding the use and benefits of precision agriculture lurk in its future.[107] According to the Open Ag Data Alliance ("OADA"), current precision agriculture practices suffer from an array of issues.[108] For example, the concerns regarding the ownership of agricultural data and the implications of deciding this question remain unanswered.[109] From a financial standpoint, implementing precision agriculture is expensive, both in terms of the cost of the physical equipment and maintaining the business relationship.[110] Undoubtedly, some farmers may face legal expenses should they reach a disagreement with their ATP regarding a particular aspect of their data rights.[111]

An additional concern and potential roadblock to the development of precision agriculture is the current inability to collect data from all aspects

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101. *The Global Food Challenge*, CEMA, *available at http://www.cema-agri.org/page/global-food-challenge* (last visited Mar. 10, 2015).
102. *Id.*
103. *Id.*; Cema Agri, *Cema Animated Story on the Global Food Challenge*, YOUTUBE (Dec. 5, 2013), http://www.youtube.com/watch?v=wHMC2T_L_3m.
104. *The Global Food Challenge*, *supra* note 101.
105. *Id.*; Cemi Agri, *supra* note 103.
106. *The Global Food Challenge*, *supra* note 101; Cemi Agri, *supra* note 103.
107. *To Help Farmers Access and Control Their Data*, OPEN AG DATA ALLIANCE, http://openag.io/about-us/ (last visited Mar. 10, 2015) [hereinafter *Data Control*].
108. *Id.*
109. *Id.*
110. *Id.*
111. *Id.*

of a farm and pool it in one location.[112] Currently, no ATP provides the ability to assess every single type of operational data on a farm.[113] From an inter-farm, broad scale data pooling perspective, it seems that the more participants that opt in, the better and more accurate the information will be.[114] Stated differently, the possibility and success of this benefit is tied directly to the ability to pool all of the data in one place for analysis.[115] With accurate information about growing patterns, soil quality, and other factors, farmers will be able to produce more robust and successful crops.[116] One potential solution to this problem is to place the burden on farmers to release their data for pooling purposes.[117] For many farmers, however, the risks of sharing their data outweigh these potential benefits.[118] Until more farmers opt in, or regulations are put in place that dispel the farmers' apprehensions about participating, the accuracy and robustness of the data will continue to fall short of reaching its full potential.[119]

At the intra-farm, single operation level, a farmer needs to be able to integrate the many types of data that his equipment yields.[120] The mountains of data that precision agriculture technologies create, including reports, charts, logs, images, and spreadsheets, can be overwhelming.[121] Many farmers, especially those from older generations, simply do not have the time or acumen to interpret this data and cross-reference between different analytical platforms.[122] In general, younger generations tend to be more comfortable around technology and experience less difficulty in learning how to operate it than older generations.[123] Ideally, hardware and software systems would communicate directly and share information to provide a more synthesized end result for the farmer to rely upon when making decisions about his or her farm.[124]

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112. Cindy Waxer, *Precision Agriculture Yields Big Data Challenges*, DATA-INFORMED (Sept. 22, 2014), http://data-informed.com/precision-agriculture-yields-big-data-challenges/.
113. *Data Control*, *supra* note 107.
114. *See* Waxer, *supra* note 112.
115. *Id.*
116. *Id.*
117. *See* Russo, *supra* note 37.
118. *Id.*
119. Waxer, *supra* note 112.
120. *Data Control*, *supra* note 107.
121. *Id.*
122. Graham, *supra* note 2.
123. *Id.*
124. *Data Control*, *supra* note 107.

To address these roadblocks, OADA has taken the laboring oar on developing a safe and reliable means for farmers to aggregate their data.[125] OADA is in the process of developing a series of open application programming interface(s), or APIs, that will enable farmers' hardware and software devices to communicate directly through a secure cloud network.[126] These open APIs are compatible with a broad range of devices, regardless of the device manufacturers.[127] Recent reports have also indicated that OADA is in the process of developing guidelines to help ensure compliance with regard to OADA principles.[128]

In addition to the problems plaguing the practical application of precision agriculture technologies, even more unanswered questions arise in the context of data rights. Like many other sectors, the agriculture industry is no stranger to the impact of data security breaches. In March 2014, for example, Monsanto's Precision Planting unit suffered a data security breach that exposed the personal data of 1,300 employees and customers.[129] Monsanto discovered that on March 27, 2014, an unauthorized party had accessed Monsanto's Precision Planting servers.[130] Precision Planting is a form of precision agriculture technology, which promises the maximization of field usage by monitoring seed spacing and depth control.[131] The system contains a number of files including customer names, addresses, financial account information, and tax identification numbers.[132] Monsanto indicated that it was not aware of any misuse of the data and offered the affected customers complimentary one-year credit monitoring services.[133] On a broader scale, Monsanto increased the data security measures it uses to thwart future breaches and adopted new security protocols.[134] Monsanto acquired Precision Planting in 2012, and purchased a similar company called Climate Corp. in 2013.[135]

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125. Waxer, *supra* note 112.
126. *Id.*
127. *Id.*
128. *Id.*
129. Jack Kaskey, *Monsanto's Data Security Breached at Precision Planting*, BLOOMBERGBUSINESS (May 29, 2014), http://www.bloomberg.com/news/articles/2014-05-29/monsanto-data-security-breached-at-precision-planting.
130. *Id.*
131. *Manage Your Farm*, PRECISION PLANTING, http://www.precisionplanting.com/#/ (last visited Mar. 11, 2015).
132. Kaskey, *supra* note 129.
133. *Id.*
134. *Id.*
135. *Id.*

As part of Climate Corp.'s new security protocols, the company offered a data storage service that acts as an off-farm computer for farmers to keep their data.[136] Farmers can share the data with others or delete it from the system at any time.[137] According to Climate Corp., the data will not be accessed by anyone unless the farmer gives express permission.[138] In some instances, Climate Corp. may request usage of a particular farmer's data for the purpose of enhancing certain services the company offers or to research certain issues such as fertilizer application.[139] In order to ensure that farmers' privacy rights are protected, Climate Corp. and Monsanto employed the services of a third-party auditor to provide a neutral assessment of whether their practices are fair and whether any data misuses are occurring.[140] The new data policy encompasses many of Monsanto's corporations, including FieldScripts, Climate Basic, and Climate Pro.[141]

Outside the realm of privacy rights and security breaches, some farmers may find themselves in a protracted tug-of-war with an ATP over the ownership rights to his or her farm data. In general, data ownership entails possessing the legal rights to, and complete control over, the information in question.[142] With legal rights and control, comes the ability to modify, edit, share, and restrict access to the data, and the right to transfer or assign some or all of these privileges to another party.[143] The farmer or ATP who holds these ownership rights can also exercise them in defense to any illegitimate use or access of the information.[144] Although some data sets may seem like they would not hold much intrinsic value, like a person's wearable fitness tracker or Facebook account, the aggregation of these data sets can provide a fairly robust and accurate view of an individual's life—or farming operation.[145] Acquiring ownership of multiple data sets would provide many

136. Willie Vogt, *Climate Corp, Monsanto Lay Out New Data Privacy Policies*, FARM INDUSTRY NEWS (Mar. 6, 2014), http://farmindustrynews.com/precision-farming/climate-corp-monsanto-lay-out-new-data-privacy-policies.
137. *Id.*
138. *Id.*
139. *Id.*
140. *Id.*
141. Vogt, *supra* note 136.
142. *Data Ownership*, TECHNOPEDIA, http://www.techopedia.com/definition/29059/data-ownership (last visited Mar. 11, 2015).
143. *Id.*
144. *Id.*
145. Alex Hern, *Sir Tim Berners-Lee Speaks Out on Data Ownership*, THE GUARDIAN (Oct. 8, 2014) http://www.theguardian.com/technology/2014/oct/08/sir-tim-berners-lee-speaks-out-on-data-ownership.

companies with a competitive edge or a sneak peek into their competitors' practices.

In the context of precision agriculture, data ownership has raised a number of issues, particularly when it comes to farm prescription services.[146] For example, Monsanto's prescription service requires farmers to transmit the data that Monsanto's precision agriculture equipment is recording to Monsanto's cloud-based service.[147] Monsanto then analyzes the data and provides the farmer with information regarding how to improve his or her operations.[148] The right combinations of data can be extrapolated to determine the specific fields in which the farmer should plant the most seed due to the ideal soil conditions versus areas in which he should plant fewer seed in order to reduce sunk costs.[149] Due to GPS capabilities, Monsanto can provide these recommendations with shocking specificity, often providing measurements down to the foot.[150] Although this creates incredible gains in terms of crop yield and economic efficiency, it creates a substantial gray area regarding who owns the data that is stored in Monsanto's cloud.[151] If Monsanto is able to acquire a substantial market share for prescription technology, it will also be able to make well-founded predictions regarding farm property values.[152] It would also allow Monsanto to forecast crop yields and pricing fluctuations, which would create untold advantages for Monsanto as one of the world's largest seed providers.[153]

Each of these potential issues must be viewed in light of the ever developing and changing landscape of precision agriculture. Each day, new innovations are announced and the bar is set higher and higher for ATPs. For example, many companies are exploring the use of unmanned aviation vehicles ("UAVs") in agriculture.[154] At present, the United States government has tasked roughly six research facilities with developing and evaluating the future of UAVs in agriculture.[155]

146. Daniel Burrus, *Who Owns Your Data?*, WIRED, http://www.wired.com/2014/02/owns-data/ (last visited Mar. 11, 2015).
147. *Id.*
148. *Id.*
149. *Id.*
150. *Id.*
151. Burrus, *supra* note 146.
152. *Id.*
153. *Id.*
154. Graham, *supra* note 2.
155. *Id.*

III. LEARNING FROM THE PAST

Over the last several decades, major technology companies, like Google and Apple, as well as several healthcare providers, have endured countless highly public events involving unauthorized access of user data. As these recent events suggest, the realm of data privacy, security, and ownership is becoming increasingly complex.[156] The Identity Theft Resource Center ("ITRC") organizes data breach statistics in a number of ways, including the type of incident.[157] Categories of data breach incidents include: insider theft, hacking, data on the move, accidental exposure, subcontractor liability, employee negligence, and physical theft.[158] As this array of categories suggests, data is susceptible to wrongful procurement in many different ways—even those that are arguably innocent.

The information age has spawned a host of technologies designed to make the world a more efficient place to live. For example, we can send messages instantaneously via email and text, we can check our bank accounts in a matter of seconds, and we can store vast amounts of data on a thumb drive device, which is no larger than a box of matches. Doctors have access to patient health records from various healthcare facilities, our telephone companies can provide us with records of nearly every single telephone call that we've made, and financial institutions can move our money in the blink of an eye.[159]

But with the inherent benefits of these new technologies come equal, if not greater, dangers. Many of these transactions require us to provide some sort of information or even to establish an account with the service provider. At the very minimum, this usually entails creating a username, password, and providing an email address for verification purposes. On the other end of the spectrum, we may be required to provide our social security number, address, telephone number, and employer information. The aggregation of these transactions and accounts creates a stockpile of ready information for would-be hackers and identity thieves, and creates mounting concern for consumers.

The potential repercussions of suffering a security breach, a privacy violation, or data misappropriation on a personal level are tremendous. When it lands in the wrong hands, financial information can be used for

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156. *ITRC Breach Statistics 2004 – 2014*, IDENTITY THEFT RES. CTR., http://www.idtheftcenter.org/ITRC-Surveys-Studies/2008-data-breaches.html (last visited Mar. 3, 2015).

157. *Id.*

158. *Id.*

159. *What is Mobile Check Deposit?*, FIND A BETTER BANK, http://www.findabetterbank.com/mobile_check_deposit.html (last visited Mar. 2, 2015).

identity theft and fraud. Additionally, medical records frequently contain deeply personal information that, if exposed, could irreversibly damage an individual's life. And once this data is released into the cyber world, there is usually no way to retrieve it, or to remove it from the wrongdoer's possession. As the following examples illustrate, when it comes to the high-stakes game of data rights, farmers must ensure that any ATP with whom they contract adheres to the policies of transparency, trust, and choice.

A. Privacy Rights Rumbles

In any instance where personal information or sensitive data is collected and stored, whether it is digitally or in hard copy, a potential privacy concern arises.[160] The primary concern with data privacy is creating a way to share the data with appropriate recipients while protecting it from prying eyes or falling into the wrong hands.[161] There are a number of fields in which privacy rights have become a central component, including social media, healthcare, education, criminal justice, and cell phones. In some of these fields, like healthcare, laws prohibit companies from using the data for any ulterior purpose.[162] For example, an employer is prohibited from using information collected about its employees' health for the purpose of charging smokers with higher insurance rates.[163] Additionally, cloud-computing technology has given rise to a host of new privacy concerns and issues.[164] The simple act of placing your data into the cloud server involves a third party who has access to your information.[165] Many cloud computing providers sub-contract with other companies for various services, which further expands the network of individuals who have access to private data.[166]

The following examples illustrate how critical it is for service providers to be completely transparent when it comes to their data privacy policies. Without transparency, users will lose all trust in the service provider and will likely take their business elsewhere. An additional aspect of building this trust includes providing users with options when it comes to how their data is used, stored, and manipulated. Providing users with this choice will ensure

160. Vic Winkler, *Cloud Computing: Data Privacy in the Cloud*, TECHNET MAGAZINE (Aug. 2012), https://technet.microsoft.com/en-us/magazine/jj554305.aspx.
161. *Id.*
162. *Id.*
163. *Id.*
164. *Id.*
165. Winkler, *supra* note 160.
166. *Id.*

that they have a substantial, if not final, say in who is authorized to access their data.

1. Uber

Rideshare company Uber faced public backlash after a news report revealed that company leaders were considering accessing users personal information, like ride location data, to identify journalists who report on Uber's activities.[167] To quell the public backlash, Uber released a new data privacy statement, which, in part, delineated the circumstances in which Uber employees are permitted to access user data.[168] Examples include facilitating payment transactions for drivers, monitoring accounts for fraudulent activity, and addressing issues brought to Uber's attention by its collective user base.[169]

2. Gmail

In Spring 2014, Google updated the Gmail privacy terms and conditions.[170] According to the modified terms of use, any information that users submit, or share with the Gmail system, is considered fair game for not only Google's review, but its associates as well.[171] As emails are sent and received, Gmail scans and indexes the emails.[172] Part of this service is designed to organize a user's inbox and prioritize emails that might be more important to the user.[173] Information gleaned from the scan, however, is also used to provide tailored advertising and serve other marketing based purposes.[174] More specifically, one of the updated terms states:

Our automated systems analyse your content (including emails) to provide you personally relevant product features, such as customised search results, tailored advertising, and spam and malware detection. The analysis occurs as the content is sent, received, and when it is stored.[175]

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167. Paul Carr, *Amid Escalating Scandal, Uber Publishes New Data Privacy Statement*, PANDODAILY (Nov. 18, 2014), http://pando.com/2014/11/18/amid-escalating-scandal-uber-publishes-new-data-privacy-statement/.

168. *Id.*

169. *Id.*

170. Dave Neal, *Google Admits It's Reading Your Emails*, THE INQUIRER (Apr. 15, 2014), http://www.theinquirer.net/inquirer/news/2340003/google-admits-its-reading-your-emails-because-advertising.

171. *Id.*

172. *Id.*

173. *Id.*

174. *Id.*

175. Neal, *supra* note 170.

Some users were so outraged by Gmail's prying eyes that they filed a federal lawsuit in California, alleging that Google violated users privacy rights.[176] Google ultimately reached a confidential settlement with adult plaintiffs, leaving claims that Google violated minors' privacy rights still up for dispute.[177] The litigation faces a significant hurdle, however, following a decision from the United States District Court Judge assigned to the case, who denied class certification, finding that the potential class' claims were too dissimilar to be grouped together.[178] The Ninth Circuit Court of Appeals denied the consumers' appeal seeking review of the class certification denial.[179]

3. OnStar

In 2011 General Motors ran into trouble with its OnStar GPS system, a subscription service that provides a number of safety and connectivity features.[180] The OnStar feature provides two-way communication between the vehicle occupants and OnStar's remote support location.[181] For example, if an OnStar supported vehicle is involved in a collision, the occupants can contact OnStar by pushing a button on their dashboard, and OnStar will then send help to the vehicle's exact location using GPS.[182] Many users expressed their concern about the potential dangers of the two-way system and the ability for OnStar or General Motors to track vehicles without the owners' permission.[183]

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176. Alexei Oreskovic, *Google Explains Exactly How it Reads all Your Email*, HUFFINGTON POST (Apr. 14, 2014), http://www.huffingtonpost.com/2014/04/15/gmail-ads_n_5149032.html.

177. Wendy Davis, *Google Settles Portion of Lawsuit About Gmail Ads*, MEDIA POST (May 28, 2014), http://www.mediapost.com/publications/article/226815/google-settles-portion-of-lawsuit-about-gmail-ads.html#.

178. Jonathan Stempel, *Google Won't Face Email Privacy Class Action*, REUTERS (Mar. 19, 2014), http://www.reuters.com/article/2014/03/19/us-google-gmail-lawsuit-idUSBREA2I13G20140319.

179. Mealeys, *9th Circuit Denies Appeal Of Class Certification Denial In Gmail Privacy Case*, LEXISNEXIS LEGAL NEWSROOM (May 13, 2014), http://www.lexisnexis.com/legalnewsroom/mealeys/b/newsheadlines/archive/2014/05/13/mealey-39-s-litigation-procedure-9th-circuit-denies-appeal-of-class-certification-denial-in-gmail-privacy-case.aspx.

180. John R. Quain, *Changes to OnStar's Privacy Terms Rile Some Users*, N.Y. TIMES (Sep. 22, 2011), http://wheels.blogs.nytimes.com/2011/09/22/changes-to-onstars-privacy-terms-rile-some-users/?_r=0.

181. *Id.*

182. *Id.*

183. *Id.*

In response to these growing concerns, General Motors made two changes to its OnStar policies.[184] The first change consisted of OnStar notifying its users that the two-way system would remain active following termination and that vehicles could be tracked through the system.[185] The second modification clearly notified users that OnStar may share the information it collects, including odometer readings, vehicle speed and location, seat-belt usage and air-bag deployment incidences, with third parties regardless of whether the user is a current OnStar subscriber.[186] In light of these policies, OnStar provided users who wish to cancel their service with the option of completely shutting down the two-way communication service following cancellation.[187] However, the default setting leaves the connection open, allowing OnStar to continue collecting data.[188]

B. Security Breach Blunders

A data breach results where "sensitive, protected, or confidential data is copied, transmitted, viewed, stolen, or used by an individual unauthorized to do so."[189] A data breach can occur in a number of situations and can target a wide range of data types, including financial information, like debit card PIN numbers, health care information, corporate trade secrets, and intellectual property.[190] The accumulation of thousands or even millions of individuals' private information into one digital location can be analogized to taking that same individuals' money and storing it in a vault.[191] Like the vault, the digital file containing the data creates a target for hackers and other wrongdoers.[192] As a result, it is necessary to employ belt-and-suspenders security measures to thwart them.[193] In some contexts, this amounts to quite a feat.[194] Consider a college-level university, for example, which must

184. *Id.*
185. Quain, *supra* note 180.
186. *Id.*
187. *Id.*
188. *Id.*
189. Afrah Fathima and Badiuddin Ahmed, *Making Data Breach Prevention a Matter of Policy in Corporate Governance*, 2 Int'l J. of Sci. Engineering & Tech. 01, 01-07 (Jan. 1, 2013).
190. *Id.*
191. John Breyault, *Your Passwords Are Like Money In a Bank Vault: Column*, USA TODAY (Aug. 7, 2014), http://www.usatoday.com/story/opinion/2014/08/06/password-theft-cybercrime-column/13678023/.
192. *Id.*
193. *Id.*
194. *See* Fathima & Ahmed, *supra* note 189, at 1.

provide an open network, carry a massive amount of data, provide numerous access points, and support countless devices, like laptops and cell phones.[195]

It seems like each month news reports surface regarding another data breach incident, creating widespread apprehension regarding the safety of the personal information that we share with our doctors, teachers, banks, and social media outlets.[196] For many large companies, ensuring data security also becomes a matter of cost.[197] To employ the type of large-scale security protection measures that national corporations require is costly.[198] In many instances, the cost of employing certain security measures is weighed against the potential cost of enduring a security breach.[199]

There are a multitude of hackers who prey on sensitive data, including malicious insiders and well-meaning employees who make mistakes.[200] In the case of the well-meaning insider, a company must monitor the user's activity in order to identify, stop, and investigate suspicious activity.[201] A 2008 study revealed that eighty-eight percent of data breaches resulted from the negligence of an employee.[202] When it comes to the malicious insider, the company faces a more difficult task of attempting to thwart them before they can carry out the breach.[203] Unfortunately, the nature of a data breach will usually put the company in a reactionary posture.[204] Once the bank robbery has occurred, the bank's only option is to regain as much of the stolen money as possible, apprehend the perpetrator, and analyze the breach in order to make its security system stronger against a similar attack in the future.[205]

The following examples highlight the serious threat that data security breaches pose and the many different considerations that both users and service providers must make when choosing a particular service or security method. Additionally, it is critical to use multiple layers of security

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195. *Id.*
196. *Id.*
197. *Id.* at 4.
198. Fathima & Ahmed, *supra* note 189, at 4.
199. Danny Yadron, *Companies Wrestle With the Cost of Cybersecurity*, WALL STREET JOURNAL (Feb. 25, 2014), http://www.wsj.com/articles/SB10001424052702304834704579403421539734550.
200. Fathima & Ahmed, *supra* note 189, at 2.
201. *Id.*
202. *Id.*
203. *Id.*
204. *Id.* at 3.
205. Kate Vinton, *How Companies Can Rebuild Trust After a Security Breach*, FORBES (Jul. 1, 2014, 9:29 AM), http://www.forbes.com/sites/katevinton/2014/07/01/how-companies-can-rebuild-trust-after-a-security-breach/.

measures, like passwords, antivirus software, and diligent monitoring.[206] In some cases, however, even the most elaborate security systems suffer a breach, which raises important concerns regarding the steps that users and service providers must take in the wake of unauthorized access to sensitive data.[207] Similar to privacy violations, users must place a great deal of trust in the service providers that they choose when it comes to protecting their data. Service providers who provide users with transparent information regarding the security of their data will foster this sense of trust, and make users feel comfortable with choosing to share their information with the service provider.[208]

1. HealthNet

California-based insurance company Health Net announced in 2011 that it suffered a privacy breach resulting in nearly two million of its customers' personal information being exposed.[209] The data, including social security numbers, addresses, names, and financial information, was stored in an unencrypted format on hard drives that went missing from a data center with whom Health Net contracted.[210] Connecticut filed a lawsuit against Health Net, seeking to enforce HIPAA privacy laws.[211] In 2009, Health Net suffered a similar breach, losing social security numbers and medical information for approximately one-and-a-half million policyholders, which was stored on a portable hard drive device in direct contravention to Health Net's policies.[212] Many policyholders and the public at large were shocked to learn that Health Net waited over six months before reporting that the information had gone missing.[213]

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206. Bianca Male, *10 Essential Data-Security Measures Every Business Should Take*, BUSINESS INSIDER (Jun. 8, 2010, 11:08 AM), http://www.businessinsider.com/10-essential-data-security-measures-every-buiness-should-take-2010-6?op=1.

207. *BBB Offers Advice On What To Do After a Data Breach Compromises Your Identity*, COUNCIL OF BETTER BUSINESS BUREAUS (Feb. 5, 2015) http://www,bbb.org/council/news-events/news-releases/2015/02/bbb-offers-advice-on-what-to-do-after-a-data-breach-compromises-your-identity/.

208. Vinton, *supra* note 205.

209. Harley Geiger, *HHS Should Require the Encryption of Portable Devices to Curb Health Data Breaches*, CTR. FOR DEMOCRACY & TECH. (Mar. 16, 2011), https://cdt.org/blog/hhs-should-require-the-encryption-of-portable-devices-to-curb-health-data-breaches/.

210. *Id.*

211. Emily Berry, *Connecticut Sues HealthNet Over Data Security Breach*, AM. MED. NEWS (Feb. 1, 2010), http://www.amednews.com/article/20100201/business/302019958/7/.

212. Geiger, *supra* note 209.

213. *Id.*

As the Health Net case suggests, data stored on a portable device is susceptible to physical theft as well as digital theft.[214] Devices like thumb drives, laptops, and external hard drives are commonly used in a variety of business settings, and are often no larger than a box of matches or deck of cards, making them easy to slip into an employee's pocket or briefcase.[215]

2. iCloud

In the fall of 2014, Apple's iCloud suffered a major security breach.[216] Several news sources reported that at least one hacker had breached Apple's iCloud security measures and illegally obtained hundreds of photographs from celebrities' cell phones, many of which were personal and intimate in nature.[217] After conducting an investigation, Apple issued a statement claiming that the breach was not the result of an attack on the iCloud system, but was the result of hackers' concerted efforts to identify celebrities' user names and passwords.[218] Many journalists criticized this statement as placing blame entirely on users instead of the statement's suggestion that Apple iCloud accounts are easy to hack with the right tools.[219]

Apple's iCloud, which is categorized as a "cloud computing technology," allows users to upload a wide range of content, including files, music, pictures, word documents, etc., to a remote location.[220] Having the files stored remotely allows users to access the files from multiple sources like their computers, cell phones, tablets, and other devices.[221] One of the most attractive components of Apple's iCloud is that it is integrated with virtually all of Apple's software products, offering instant and streamlined usage.[222] This integration can be expanded to encompass Apple devices used by other family members or friends as well.[223] Additionally, in the event of

214. *Id.*
215. *Id.*
216. Charles Arthur, *Naked Celebrity Hack: Security Experts Focus on iCloud Backup Theory*, THE GUARDIAN (Sep. 1, 2014), http://www.theguardian.com/technology/2014/sep/01/naked-celebrity-hack-icloud-backup-jennifer-lawrence.
217. *Id.*
218. Steve Kovach, *We Still Don't Have Assurance From Apple that iCloud is Safe*, BUSINESS INSIDER (Sep. 2, 2014), http://www.businessinsider.com/apple-statement-on-icloud-hack-2014-9.
219. *Id.*
220. Stephanie Crawford, *How the Apple iCloud Works*, HOW STUFF WORKS, http://computer.howstuffworks.com/cloud-computing/icloud.htm (last visited Mar. 2, 2015).
221. *Id.*
222. *Id.*
223. *Id.*

a computer crash, iCloud safely restores all of your data and files to your device.[224]

Despite the apparent benefits of using cloud-computing technology, there are many dangers as well.[225] For example, uploading your personal content to a remote system requires the user to relinquish ultimate control over the information.[226] The only way to be entirely sure that information remains secure is to forgo sharing that information with another individual or system.[227] The very act of uploading a file to the cloud requires a data transfer, which renders the information a prime target for data hackers.[228] Although Apple employs encryption programs, which scramble your information along its journey to the cloud with the intent of thwarting would-be hackers from stealing it, it is not infallible.[229] As the fall 2014 scandal indicates, hackers can focus their efforts on deciphering your password by using software programs and algorithms designed to run thousands of different potential password combinations based on easily collectible personal information, such as your birthday, your pet's name, or the city where you were born.[230]

3. Target Brands, Inc.

A security breach can occur even if a company is employing a variety of security measures and monitoring its data systems. In 2013, for example, retail giant Target Brands, Inc. ("Target") suffered a hacking event that exposed roughly forty million customers' credit card and debit card accounts.[231] The hackers infiltrated Target's system to acquire information known as "track data," which enables the hackers to create counterfeit credit cards and debit cards by encoding the stolen information onto a dummy

224. *Id.*
225. John W. Rittinghouse & James F. Ransome, *Cloud Security Challenges*, INFO. SYS. SEC., http://www.infosectoday.com/Articles/Cloud_Security_Challenges.htm (last visited Mar. 12, 2015).
226. *Id.*
227. *Id.*
228. *Id.*
229. *iPhone Encryption Stops FBI, But Not This 7-Year-Old*, CNN WIRE (Dec. 1, 2014), http://fox4kc.com/2014/12/01/iphone-encryption-stops-fbi-but-not-this-7-year-old/.
230. Adrian Kingsley-Hughes, *The Dangerous Side of Apples iCloud*, FORBES (Aug. 4, 2012), http://www.forbes.com/sites/adriankingsleyhughes/2012/08/04/the-dangerous-side-of-apples-icloud/.
231. *Sources: Target Investigation Data Breach*, KREBS ON SECURITY (Dec. 18, 2013), http://krebsonsecurity.com/2013/12/sources-target-investigating-data-breach/.

magnetic stripe.[232] Analysis of the breach has revealed a number of possible methods that the hackers employed to breach Target's system.[233] For example, by performing a Google search, a hacker may have been able to locate Target's Supplier Portal, which provides information for new and existing vendors on how to submit invoices and complete other interactions with Target.[234] Google also reveals information regarding maintenance and refrigeration companies with whom Target has done business in the past.[235]

Some studies have concluded that the hackers may have preyed upon a number of these third-party vendors in order to find a theoretical backdoor into Target's data stores.[236] Many of these third-party vendors do not employ sufficient security measures, including email-scanning software that scans each email to determine whether it contains malware or any other harmful viruses.[237] It is quite possible that one of Target's vendors opened one of the hackers' emails, which would have planted the bug on the vendor's computer system and provided the hackers with a route into Target's systems.[238]

As this example illustrates, even when a company is employing substantial security measures, interactions with third parties pose serious threats to the security of users' data. Many of these consumers remain entirely unaware of the relationship between the company, i.e., Target, and the third-party vendor.[239] Even if they are aware of the relationship, there is very little that the user can do to ensure that the third-party vendor is utilizing appropriate security measures, or to ensure that the service provider is monitoring each vendor.

C. Whose Data is it Anyway?

One of the most critical questions on users' minds, and particularly popular in discussions regarding precision agriculture, is the extent to which a user retains ownership and control of the data that it exchanges with a data service provider or ATP. Assuming that a user has authorized a service provider, whether it is Gmail, Facebook, a health insurer, or an ATP, to access certain information, under what circumstances can the service

232. *Id.*
233. Michael Kassner, *Anatomy of the Target Data Breach: Missed Opportunities and Lessons Learned*, ZDNET (Feb. 2, 2015), http://www.zdnet.com/article/anatomy-of-the-target-data-breach-missed-opportunities-and-lessons-learned/.
234. *Id.*
235. *Id.*
236. *Id.*
237. *Id.*
238. Kassner, *supra* note 233.
239. *Id.*

provider disseminate that information to third parties? Several incidents of data ownership dust-ups have occurred in the realm of social media services, and as the following examples suggest, data ownership is a relatively new subject with many complexities.

1. Facebook Apps

In 2010, Facebook admitted that its top ten most popular application programs, known as "apps," sold user data to advertisers and internet tracking companies, including user names' and users' friends' names.[240] The information transmitted included Facebook identification numbers, which can be used to locate each user's name despite any security settings the individual has chosen on Facebook.[241] For some, the user identification number will reveal the user's age, location, occupation, and photographs.[242] These apps are rarely created by Facebook, but are instead developed by independent companies.[243] Some application developers claimed to be unaware that their programs were inadvertently collecting and disseminating user information.[244] Other developers were fully aware of these activities.[245] For example, one of the brokers in possession of Facebook user data, RapLeaf, Inc., was caught linking the user identification numbers with its own databases.[246] As part of its response to the situation, Facebook banned the app developers from accessing Facebook communication channels for six months and required the developers to submit their data practices to a substantial audit as a condition of future use.[247]

2. Path

Social media networking application Path was the subject of considerable public scrutiny in 2012 when a Singapore-based developer discovered that the app was uploading its users' address books to its

240. Jacqui Cheng, *Facebook Punishes App Developers Found Selling User Data*, ARS TECHNICA (Nov. 1, 2010), http://arstechnica.com/business/2010/11/facebook-punishes-app-developers-found-selling-user-data/.
241. Emily Steel & Geoffrey A. Fowler, *Facebook in Privacy Breach*, THE WALL STREET JOURNAL (Oct. 18, 2010), http://www.wsj.com/articles/SB10001424052702304772804575558484075236968.
242. *Id.*
243. *Id.*
244. *Id.*
245. Cheng, *supra* note 240.
246. *Id.*
247. *Id.*

servers.[248] The application's Terms of Use omitted any reference to this phonebook siphoning, and while the application featured an opt-out feature for the Android platform, the iOS version of the app did not.[249] Path is a social media application that allows users to share information with a network of individuals who they consider to be their closest friends and family.[250]

Many social media platforms, like Path, subscribe to the philosophy that collecting user data and using it for secondary purposes improves the user's experience.[251] On a technical level, this assessment is correct to the extent that the collection and manipulation of user data can lead to improved social media applications.[252] In the context of Path's collection of users' address books, this practice may enable Path to provide users with more accurate and useful "friends lists."[253] However, the potential ownership violation lies in Path's belief that because it has access to certain data stored on your cell phone or tablet, it can collect that data, keep it, and use it for other purposes.[254] Naturally, Path's access to users' phonebooks was tied to the application's performance in that it assisted users with locating their friends and family on Path.[255] When Path collected the phonebooks and stored them in a separate place without obtaining user consent, however, Path arguably misappropriated the information.[256]

Consider this helpful analogy: if you offer to lend your car to a friend in need, does it entitle them to borrow your car on any future occasion without first seeking your permission or even informing you that it intends to borrow your car?[257] Just because a user allows Path to view the user's phonebook for the purpose of finding friends and family members who are also current Path users, it does not automatically entitle Path to access the phonebook at any time for any purpose.[258] When Path accessed users'

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248. Jon Phillips, *Path Social Media App Uploads IOS Address Books to Its Servers*, WIRED (Feb. 8, 2012), http://www.wired.com/2012/02//path-social-media-app-uploads-ios-adress-books-to-its-servers/.

249. *Id.*

250. *Id.*

251. Jay Garmon, *The Path Fiasco Wasn't a Privacy Breach, It Was A Data Ownership Breach*, BACKUPIFY (Feb. 9, 2012), http://blog.backupify.com/2012/02/09/the-path-fiasco-wasnt-a-privacy-breach-it-was-a-data-ownership-breach/.

252. *Id.*

253. *Id.*

254. *Id.*

255. *Id.*

256. Garmon, *supra* note 251.

257. *Id.*

258. *Id.*

phonebooks for the purpose of building its own database, it essentially snuck into the garage and took each user's car for a joyride.[259] Since this practice came to light, Path has uploaded a new version of the application that asks users for permission before uploading their phonebooks to its servers.[260]

3. Facebook Social Ads

One of the most recent examples of the tug-of-war between service providers and users occurred in 2014 when Facebook issued a notice that it intended to update its privacy policy.[261] Many users interpreted the policy change as permitting Facebook to commercialize any images that users upload to the website.[262] In response, Facebook's Privacy Communications Manager issued a statement indicating that the policy update would not result in Facebook taking ownership of uploaded data and that users own the information they share with the site.[263]

Looking at the privacy policy, however, it is not entirely clear what Facebook can or cannot do with information uploaded to the site.[264] When new users create a Facebook account, they must agree to a battery of terms, and agree to grant Facebook "'a non-exclusive, transferable, sub-licensable, royalty-free, worldwide license to use any IP [intellectual property] content that you post on or in connection with Facebook.'"[265] Facebook contends that this grant is necessary to enable Facebook to share content on its platform, but that it does not entitle Facebook to sell the information without the user's permission or knowledge.[266] The license, however, grants Facebook the right to the "use" of your information, which is vague and susceptible to many interpretations.[267] While it may be difficult for Facebook to share your photographs with third parties, it leaves the door open for Facebook to utilize those images in a host of other ways.[268]

One way that Facebook may be using the data uploaded to its site is social ads.[269] Social ads are designed to target a particular friend group and

259. *Id.*
260. *Id.*
261. Olivier Laurent, *No, Facebook is Not Planning to Sell Your Images*, TIME (Dec. 2, 2014), http://time.com/3615271/facebook-privacy-policy-photos/.
262. *Id.*
263. *Id.*
264. *Id.*
265. *Id.*
266. Laurent, *supra* note 261.
267. *Id.*
268. *Id.*
269. Kurt Wagner, *How Facebook is Using Your Photo Ads*, MASHABLE (Sep. 5, 2013), http://mashable.com/2013/09/05/facebook-ads-photo/.

distribute information regarding products and services that may appeal to the group at large based on one friend's Facebook activities.[270] For example, if you view Nike's Facebook page and click the "Like" button, Facebook may reproduce an image of your profile picture next to the Nike logo with a statement indicating that you "Like" Nike.[271] This social ad is then displayed on the Facebook pages of people within your network, i.e., people with whom you've connected on Facebook, or "friended."[272] On the subject, Facebook's Statement of Rights and Responsibilities states:

You give us permission to use your name, profile picture, content, and information in connection with commercial, sponsored, or related content (such as a brand you like) served or enhanced by us. This means, for example, that you permit a business or other entity to pay us to display your name and/or profile picture with your content or information, without any compensation to you. If you have selected a specific audience for your content or information, we will respect your choice when we use it.[273]

This language provides users with some say regarding how their content can be used to create social ads.[274] For example, users can identify a limited group of users with whom they share specific information, and users can prevent the content that they contribute to social ads from being distributed to Facebook users who they do not know.[275] It is worth noting, however, that users receive no compensation for their participation in what is essentially a marketing campaign. By indicating that you "like" a particular product and by enabling that product manufacturer to access your Friends list, you are assisting them with their ultimate marketing goals—for free.[276]

D. Transparency, Trust, and Choice

These examples highlight several common threads between privacy rights, security breaches, and ownership battles. Many of these violations occurred as a result of a service provider's failure to be transparent or trustworthy, or to provide users with a choice regarding how their information is handled. In the context of privacy rights, transparency is the most critical factor. If service providers are not transparent regarding how user data will be manipulated, users will be less willing to share their

270. *Id.*
271. *Id.*
272. *Id.*
273. *Id.*
274. Wagner, *supra* note 269.
275. *Id.*
276. *Id.*

information or subscribe to a particular service no matter how beneficial that service may be. OnStar, for example, provides clear terms of use regarding the location tracking activities that it performs while also providing users with the ability to opt out of this practice.[277] OnStar clearly describes the nature and scope of its practices, offers its users a choice, and assures them that it will abide by that choice.[278] Although Gmail is transparent with its email scanning practices, users are faced with a take-it-or-leave-it decision.[279] Uber provides the best example of what not to do when it comes to privacy rights, by hinting at the possibility of spying on users without their consent and for a reason that in no way relates to enhancing users experience. ATPs can learn a great deal from these examples, and would realize the most success by modeling their practices after OnStar. By fostering a high sense of trust when it comes to privacy rights, more farmers will be willing to contribute their farm for aggregation and pooling purposes.

When it comes to data security, trust is perhaps the most critical factor at play. Once a user places his or her information in the service provider's hands, the burden is on the service provider to ensure that it is safe. Other than reviewing a company's data security practices before agreeing to use the service, there is very little that users can do to ensure the service providers are maintaining the highest level of security awareness. Because users have fewer choices in this regard, a strong sense of trust must be established between the user and the service provider. As the Health Net case illustrates, users have good cause to be concerned about whether their service providers are protecting their information. In light of the Health Net situation, farmers should inquire about the physicality of how their data is stored, i.e., whether any portable devices are used and who has access to those portable devices, and whether the service provider is employing adequate encryption protections.

Additionally, the iCloud hacking scandal provides an excellent example of how usernames and passwords are not a foolproof method of protecting user information and cannot serve as the only security measure. It also illustrates how careful farmers must be with their passwords and that they should consider changing them periodically. Finally, the Target example provides an excellent example of how even the most substantial security measures are still susceptible to breaches. In the event of a security breach, it is critical for an ATP to have a well-planned data breach protocol

277. *See* discussion *supra* Part III.A.3.

278. *Id.*

279. Justin Meyers, *You Can't Stop Gmail From Scanning Your Emails—But You Can Limit Their Ad Targeting*, DIGIWONK (June 2014), http://digiwonk.wonderhowto.com/how-to/you-cant-stop-gmail-from-scanning-your-emails-but-you-can-limit-their-ad-targeting-0154412/.

and to offer users remedial services, like credit monitoring. Farmers should ask questions about how ATPs would address a security breach and how diligently they monitor their systems to identify a breach.

In the realm of ownership rights, choice plays a significant role in determining whether an individual will sign up for a particular service. In the Facebook Social Ads example, we see how users are provided with a clear, transparent explanation of why Facebook collects certain information, how that information is used, and how users can opt out of participating in the Social Ads component. This illustrates the importance of allowing users to opt out of certain aspects of a particular service without requiring a "take it or leave it" decision. Facebook Social Ads strike a balance by offering users a flexible menu of services that they can customize to their liking.

Trust is also an important component of ownership rights. By agreeing to provide information to an ATP, a farmer is intrinsically trusting the ATP to use the data appropriately and in accordance with the agreed upon terms. Unfortunately, as the Facebook Apps example illustrates, data is sometimes misappropriated without users' knowledge or consent, and utilized for purposes beyond the scope of the service agreement. As a result, transparency must be employed in order to foster the trust that users need so they will share their information freely. For example, Path stated that it copied users' phonebooks in order to increase their overall experience with using the application.[280] Although this is an altruistic goal, many users are uncomfortable with the notion that the application was accessing and copying their information without consent. Path is now more transparent when it comes to informing users about this practice, and, most importantly, they provide users with a choice regarding whether they want to participate in the phonebook copying.[281]

As these examples illustrate, three of the most critical factors that farmers should consider when evaluating an ATP's policies on privacy, security, and ownership are trust, transparency, and choice. Farmers should keep these principles in mind when deciding whether to contract with a particular ATP. By doing so, farmers will be able to ensure that they understand how their information is being used, who has access to their information, and whether they will retain the ultimate choice over what happens to their data.

280. *See supra* Part III.C.2.
281. *Id.*

IV. SEWING THE SEEDS OF A SUCCESSFUL FUTURE

In the of Fall 2014, a group of major agricultural organizations and ATPs gathered in Kansas City, Missouri to execute the Privacy and Security Principles for Farm Data agreement ("the Agreement").[282] A representative for one of the participating organizations, the American Farm Bureau, described the agreement as providing "'a measure of needed certainty to farmers regarding the protection of their data.'"[283] One of the motivating factors that led to creation of the Agreement is the desire to encourage the use of precision agriculture technologies, and to provide certainty regarding how ATPs will utilize farm data.[284] The signatories to the Agreement expressed their hope that ATPs will implement the Agreement's policies into their service contracts.[285] If this hope is realized, it would result in a significant step for precision agriculture, and would serve the signatories' ultimate goal of moving the farming industry into the era of precision agriculture.[286]

At the outset, the Agreement acknowledges the many benefits of precision agriculture technology and its ability to increase farmers' "productivity and profitability."[287] At its core, the Agreement seeks to establish conformity between ATPs and the terms that are included in their respective agreements.[288] By establishing contract uniformity, farmers will have a better understanding of the scope of their security, privacy, and ownership rights.[289] Whether the Agreement's principles will achieve this effect remains to be seen. The Agreement delineates 12 main principles:

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282. Matthew J. Grassi, *Major Farm Organizations Ratify Data Privacy Policy*, PRECISIONAG (Nov. 13, 2014), http://www.precisionag.com/data/major-farm-organizations-ratify-data-privacy-policy/.

283. Will Rodger & Mace Thornton, *Farmers, Agriculture Technology Providers Reach Agreement on Big Data Privacy and Security Principles Expected to Accelerate Technology Adoption*, AM. FARM BUREAU FED'N (Nov. 13, 2014), http://www.fb.org/index.php?action=newsroom.news_article&id=188.

284. Grassi, *supra* note 282.

285. *Id.*

286. *Id.*

287. AM. FARM BUREAU FED'N, *Privacy and Security Principles for Farm Data*, Nov. 13, 2014, FB.ORG, http://www.fb.org/tmp/uploads/PrivacyAndSecurityPrinciplesForFarmData.pdf (last visited Mar. 3, 2015).

288. *Id.*

289. Brian Lisik, *Farmers: Get Familiar with New Big Data Agreement*, FARM AND DAIRY (Nov. 20, 2014), http://www.farmanddairy.com/top-stories/farmers-get-familiar-new-big-data-agreement/226958.html.

- Education
- Ownership
- Collect, Access, and Control
- Notice
- Transparency and Consistency
- Choice
- Portability
- Terms and Definitions
- Disclosure, Use, and Sale Limitation
- Data Retention and Availability
- Unlawful or Anti-Competitive Activities
- Liability and Security Safeguards[290]

Many of these principles overlap and bear on multiple aspects of privacy, security, and ownership rights.[291] In theory, they seem to strike a solid balance between protecting the farmers' interests while also encouraging them to participate in data pooling. As previously discussed, data pooling is one of the most beneficial aspects of precision agriculture, both at the micro, intra-farm level and at the macro, inter-farm level.[292] While only time will tell if the principles are effective methods for creating this balance, one way to predict the Agreement's success is to examine its principles according to the guiding principles of transparency, trust, and choice.

A. Privacy Goals

The agreement outlines a number of measures that pertain to protecting farmers' privacy rights.[293] For example, the Agreement states that "[a]n ATP's collection, access, and use of farm data should be granted only with the affirmative and explicit consent of the farmer" and that "[f]armers must be notified that their data is being collected and about how the farm data will be disclosed and used."[294] As we learned from Gmail and OnStar, it is critical for ATPs to provide farmers with transparent explanations of the scope of their services. Without requiring ATPs to be upfront with their data collection and use practices, many farmers will avoid using these beneficial services altogether. To that end, the Agreement states that ATPs "should

290. AM. FARM BUREAU FED'N, *supra* note 287.
291. *Id.*
292. Griffin, *supra* note 79.
293. AM. FARM BUREAU FED'N, *supra* note 287.
294. *Id.*

provide information about. . . the types of third parties to which they disclose the data and the choices the ATP offers for limiting its use and disclosure."[295]

Requiring ATPs to provide notice and to obtain the farmer's consent before collecting *any* data will provide farmers with an opportunity to educate themselves about the particular implications of providing information to ATPs or participating in data pooling. Additionally, the Agreement acknowledges many concerns by prohibiting ATPs from using "the data for unlawful or anticompetitive activities, such as a prohibition on the use of farm data by the ATP to speculate in commodity markets."[296] Overall, the Agreement requires ATPs to be transparent in their privacy policies and to provide clear explanations of how farmers' data will be used.[297]

B. Security Goals

On the subject of security, the Agreement states that "[f]arm data should be protected with reasonable security safeguards against risks such as loss or unauthorized access, destruction, use, modification or disclosure."[298] Additionally, "[p]olicies for notification and response in the event of a breach should be established."[299] The Agreement also specifies that an "ATP should clearly define terms of liability."[300] The Agreement does not provide any specifics regarding the types of security safeguards that would be considered reasonable, or address certain facets of data security like portable storage devices, encryption, and security breach protocols.[301]

As the signatories indicated, the heart of the Agreement is to establish uniformity among ATP contracts so that more farmers will adopt precision agriculture technologies and participate in data pooling.[302] The failure to provide a definition for reasonable security safeguards or to specify the security breach protocols that ATPs ought to adopt leaves a great deal of uncertainty. Many farmers are apprehensive about participating in precision agriculture at either the intra-farm or inter-farm level because of the real threat that security breaches pose. In light of the data breach that Monsanto experienced, their concerns are not misplaced. Accordingly, addressing the issue of security breaches in the context of precision agriculture is an

295. *Id.*
296. *Id.*
297. *Id.*
298. AM. FARM BUREAU FED'N, *supra* note 287.
299. *Id.*
300. *Id.*
301. *Id.*
302. *Id.*

important task that cannot be ignored. Although the Agreement makes a global effort at ensuring transparency and choice are common threads in ATP contracts, it falls short when it comes to fostering a sense of trust between leery farmers and ATPs. Because so many farmers are concerned about the misappropriation or theft of their farm data, the Agreement should include a stronger emphasis on requiring ATPs to include security breach measures, to describe those measures to prospective clients, and to have a clear security breach protocol.

C. Ownership Goals

The Agreement underscores the issue of ownership rights, stating unequivocally that the signatories believe "farmers own information generated on their farming operations."[303] This presents a tricky issue for many farmers who run their businesses in collaboration with other investors and landowners. It is not uncommon for a farmer to rent land from a property owner and then partner with a cooperative to achieve the actual farming operations.[304] Commonly referred to as collaborative farming, many farmers, and small outfits in particular, have heralded the communal support that collaborative farming provides.[305] With this many cooks in the kitchen, however, who will have the final say regarding dissemination of data accumulated from those farming operations? On this subject, the Agreement states that "[t]he farmer contracting with the ATP is responsible for ensuring that only the data they own or have permission to use is included in the account with the ATP."[306] The Agreement also states that "it is the responsibility of the farmer to agree upon data use and sharing with the other stakeholders with an economic interest, such as the tenant, landowner, cooperative, owner of the precision agriculture system hardware, and/or ATP, etc."[307] This policy would seem to require farmers seeking relationships with ATPs to make some sort of agreement, either formal or informal, with their collaborative farming partners. Perhaps a better policy would be to require the farmer to obtain the written consent of his or her collaborative farming partner(s), or to require them to also be a signatory to the ATP agreement. Otherwise, the result may be a tangled web of

303. Lisik, *supra* note 289.
304. Lindsay Rebhan, *Collaborative Farming: New Farmers Thrive by Working Together*, MIDWEST ORGANIC & SUSTAINABLE EDUC. SERV. (July/Aug. 2014), http://mosesorganic.org/projects/new-organic-stewards/news/new-farmers-thrive-by-working-together/.
305. *Id.*
306. AM. FARM BUREAU FED'N, *supra* note 287.
307. *Id.*

agreements, many of which will likely be informal verbal agreements between business partners.

The Agreement also states that "ATPs should explain the effects and abilities of a farmer's decision to opt in, opt out, or disable the availability of services and features offered by the ATP."[308] Additionally, "[i]f multiple options are offered, farmers should be able to choose some, all, or none of the options offered."[309] The emphasis placed on the ability to opt out of services in conjunction with placing a burden on ATPs to explain the ramifications of a farmer's decision to opt out facilitates an ability to make informed choices about precision agriculture.

Regarding the ability to recall data and delete it from a system, the Agreement states that "farmers should be able to retrieve their data for storage or use in other systems," and that ATPs "should include a requirement that farmers have access to the data that an ATP holds during that data retention period."[310] Additionally, the Agreement requires each ATP to "provide for the removal, secure destruction and return of original farm data from the farmer's account upon the request of the farmer or after a pre-agreed period of time."[311] The Agreement also provides that "ATPs should document personally identifiable data retention and availability policies and disposal procedures," and that "[f]armers should be allowed to discontinue a service or halt the collection of data at any time subject to appropriate ongoing obligations."[312] These policies clearly embrace the concepts of trust and transparency, and will help ensure that farmers retain ultimate control over the data and can withdraw their information at any time.

When it comes to data that has been anonymized or aggregated, however, the Agreement acknowledges that it would be difficult to retrieve this data and that ATPs should not be required to provide a method for the farmer to remove it from the system.[313] It will be critical for ATPs to be transparent about this point, and to provide farmers with a clear choice regarding whether they want to contribute their data to an aggregated pool. Farmers must be made aware that once their data is anonymized and aggregated, they will be unable to delete it from that system.

On the subject of disclosure, use, and sale limitations, the Agreement states:

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308. *Id.*
309. *Id.*
310. *Id.*
311. AM. FARM BUREAU FED'N, *supra* note 287.
312. *Id.*
313. *Id.*

An ATP will not sell and/or disclose non-aggregated farm data to a third party without first securing a legally binding commitment to be bound by the same terms and conditions as the ATP has with the farmer. Farmers must be notified if such a sale is going to take place and have the option to opt out or have their data removed prior to that sale. An ATP will not share or disclose original farm data with a third party in any manner that is inconsistent with the contract with the farmer. If the agreement with the third party is not the same as the agreement with the ATP, farmers must be presented with the third party's terms for agreement or rejection.[314]

Noticeably, this provision only references *non-aggregated farm data*, which would seem to imply that aggregated farm data may be sold to a third party at the ATP's discretion. Nothing in this provision specifies whether the ATP must anonymize aggregated farm data prior to sale or distribution. Notwithstanding this uncertainty, this provision does an excellent job of ensuring that ATPs will be transparent in their distribution and sale of non-aggregated farm data. It also creates a situation in which farmers will virtually always have the choice to opt out of a sale or distribution before it occurs.

D. Measuring Up

Overall, the Agreement includes many provisions that are geared towards encouraging ATPs to conduct their businesses in a trustworthy, transparent, and flexible manner.[315] For now, however, its principles are only binding on ATPs if they are incorporated in the parties' contract.[316] Some predict that these policies will eventually become industry standard language regarding the collection of farm data.[317] Because so many farmers are reluctant to implement this beneficial tool, ATPs would benefit from adopting the Agreement's principles and striving to foster transparency, trust, and choice in their practices. Ultimately, farmers will dictate the future of precision agriculture through their decisions to implement the technologies on an intra-farm level, to agree to pool their farm data, or to avoid them altogether.[318]

When it comes to security, however, the Agreement's scant provisions do little to ensure that ATPs will use appropriate measures. The Agreement's

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314. *Id.*
315. *Id.*
316. Lisik, *supra* note 289.
317. *Id.*
318. N.R. Kitchen et al., *Educational Needs of Precision Agriculture*, 3 PRECISION AGRIC. 341, 342 (2002), *available at* http://www.ndsu.edu/fileadmin/soils/pdfs/Educ_Needs_of_Prec_Ag.pdf.

provisions on this subject are vague and open to a great deal of interpretation by ATPs. At the very minimum, the Agreement should have provided a basic set of security protocols or measures that ATPs must provide. This would not be out of the ordinary, considering that many industries are subject to data laws that require specific security standards, like the healthcare industry. Without assuring farmers that their data is secure, they may be less likely to utilize precision agriculture technologies, or to participate in big data pooling.

V. IT ALL COMES DOWN TO EDUCATION

Although the Agreement is a respectable step toward facilitating the wide-scale implementation of precision agriculture, accomplishing this goal will require more than simply encouraging ATPs to adopt transparent, trustworthy, and flexible practices. For farmers to take full advantage of precision agriculture and for the world to derive the numerous benefits of data pooling, many farmers will need to undertake serious educational endeavors to learn about the applications, implications, and potential risks of these technologies.

While the Agreement's policies regarding privacy and ownership make substantial strides toward ensuring that ATPs play fair, the Agreement places a substantial burden on farmers to become computer literate, data savvy, and contract wise. On the subject of education, the Agreement emphasizes the importance of "grower education" and its ability to "ensure clarity between all parties and stakeholders," primarily when it comes to the grower's "rights and responsibilities."[319] Accordingly, the Agreement calls for ATPs to draft contracts using "simple, easy to understand language."[320] However, even the most simply drafted contracts can be vague, open to interpretation, and daunting to unsophisticated parties with little to no experience reading contracts.

The Agreement also states that "[g]rower organizations and industry should work to develop programs, which help to create educated customers who understand their rights and responsibilities."[321] The importance of grower education and the impact that it will have on whether the full benefits of precision agriculture are realized cannot be understated. For many farmers, the road to adopting precision agriculture technologies is littered with countless obstacles, and not only in regard to data rights.[322] At a basic level, many farmers lack confidence when it comes to computer literacy and

319. AM. FARM BUREAU FED'N, *supra* note 287.
320. *Id.*
321. *Id.*
322. Kitchen et al., *supra* note 318, at 341, 343.

navigating software programs.[323] Even so, some of the most technologically savvy farmers will struggle when it comes time to compile and interpret the mountains of data that precision agriculture technologies create.[324] As the Rias Baixas example demonstrates, there are limitless combinations of variables that remote sensors are capable of detecting.[325] For many farmers, knowing which variables to combine and how to manipulate the data provided poses a substantial challenge.[326]

But what would these educational endeavors need to entail in order to truly be successful? For starters, farmers who wish to implement precision agriculture will need educators who understand the ever-changing landscape of these technologies.[327] To be effective, educators need to understand the scientific aspects of how the technologies operate and to be able to communicate this information to a wide range of skill levels, including farmers who possess only a novice level of computer skills.[328] Many of the questions that farmers will need answered regarding precision agriculture focus on the nuts and bolts of how the technology is integrated into their operations, i.e., who will install the equipment, or what happens if it malfunctions.[329] Many other farmers will have questions regarding the storage and retention of their data and how they will be able to determine if the data readings are accurate.[330]

Additionally, many farmers will need assistance when it comes to filling the gaps between interpreting the data and identifying the appropriate solution for a particular problem, such as pest control or irrigation.[331] It is one thing to read several reports, and another to understand how the reports are related and to be able to identify the answers that they implicitly suggest.[332] Once farmers are able to process data, they may require guidance on how to use that data to make management decisions.[333] Naturally, each of these hurdles will vary depending on the specific type of farming practice involved.[334] For example, the methodologies that worked for the wine growers in Rias Baixas may not prove useful for alfalfa farmers in Fresno, California.

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323. *Id.* at 342.
324. *Id.* at 348.
325. Martinez, *supra* note 48.
326. Kitchen et al., *supra* note 318, at 343.
327. *Id.* at 342.
328. *Id.*
329. *Id.* at 350.
330. *Id.* at 349.
331. Kitchen et al., *supra* note 318, at 347.
332. *Id.* at 346.
333. *Id.*
334. *Id.* at 347.

Beyond these technical and practical educational needs, farmers will require substantial assistance from lawyers who are well versed in both agricultural operations and contract law. Educational programs geared toward contract interpretation will help prevent farmers from entering agreements that they do not understand. A crash course in contract law will be essential when it comes to enabling farmers to read a particular ATP's contract and to understand the scope of the services to be provided and the terms to be agreed upon. For example, in the context of privacy, security, and ownership rights, one of the most critical aspects that a farmer must consider is whether he or she has the ability to opt out of a particular service or feature that results in the appropriation of the farmer's data. Although the Agreement emphasizes the ATP's responsibility to provide opt-out choices and to explain the scope of these decisions, many farmers will look for guidance from a neutral third party, such as a lawyer. Providing a broad range of legal services designed to assist farmers of all sophistication levels with reading and interpreting service contracts will be essential for both encouraging the use of precision agriculture technologies and ensuring that they are implemented fairly. This is particularly important for small- to mid-size farmers who may not have the resources to hire an attorney to represent them during contract negotiations. By encouraging educational opportunities for farmers to learn more about the legal implications of ATP contracts, it will likely quell their apprehension and mistrust of large ATPs while facilitating the potential benefits that these technologies afford. As lawyers, we have the opportunity to serve as liaisons between farmers and ATPs and to provide the guidance that farmers need to make the best, most informed decision for their businesses.

One example of a neutral, third party educational resource is Farmers' Legal Action Group ("FLAG").[335] FLAG acknowledges the significant role that contracts play in farmers' businesses, and provides educational resources to help farmers understand the rights and obligations of these agreements.[336] As another example, CrescoAg, LLC, is an independent company that provides farmers with neutral assistance in farm data management, including record keeping and "whole farm" research services.[337] In order to help farmers overcome the multitude of hurdles that they face, the industry will require more organizations like FLAG and CrescoAg to provide neutral and independent guidance for farmers. These

335. *See Topic: Contracts*, FARMERS' LEGAL ACTION GROUP, http://www.falginc.org/topic/contracts (last visited Mar. 16, 2015).

336. *Id.*

337. *About Us*, CRESCOAG, http://www.crescoag.com/about (last visited Mar. 16, 2015).

services will require educators from a variety of backgrounds, including computer scientists, environmental scientists, economists, and lawyers.

Education, of course, is a two-way street. The Agreement includes a provision requiring ATPs to "provide information about how farmers can contact the ATP with any inquiries or complaints."[338] This policy is equally as important as transparency. Without a method for redressing issues and potential contract violations, transparency is merely an ideal without teeth. As precision agriculture progresses, it may be prudent for ATPs to carve out an entire section of their service contracts dedicated to providing users with a clear method for contacting the ATP, and to also include channels on their internet websites, via email, and by telephone. As the Facebook Apps example illustrates, there are many instances in which altruistic service providers are unaware that they have a glitch in their system. By underscoring two-way communication between the ATP and the farmer, both parties can ensure that the service and technology is operating as both parties expect and desire.

VI. CONCLUSION

It is unclear whether the potential benefits of agricultural data collection will outweigh the risks, or whether adequate protections will be set in place before substantial data rights violations or ownership misappropriations can occur. In the meantime, farmers who currently utilize precision agriculture, or who are considering implementing these tools, should take steps to protect the privacy, security, and ownership of their data, and to think carefully before consenting to any data sharing agreement. In order to fully realize the benefits that precision agriculture has to offer, more educational services should be provided in order to help farmers overcome any issues or concerns they have with implementing these technologies. Farmers should not hesitate to consult objective, third party sources regarding any of these concerns, particularly when it comes to the legal implications of a particular ATP's service agreement.

As lawyers, we have the ability to serve as liaisons between the farming community and the complex world of contract law that stands in the way of the decision to utilize precision agriculture. The Agreement provides many useful principles that we can refer to when helping a client determine if a particular ATP's service agreement is in his or her best interest and the implications it may have for his or her rights. Keeping the ultimate goal of farm data aggregation in mind, we can be a part of the effort to allay farmers'

338. AM. FARM BUREAU FED'N, *supra* note 287.

apprehensions regarding this incredible tool while also holding ATPs to the highest standards of transparency, trust, and choice.

Like farming, an idea begins no differently than a seed. The way the field is plowed, the quality of the soil in which they will grow and the water and nutrients they are provided will make all the difference on their ability to thrive and grow. If handled with care and attention, a single seed or idea can flourish into an abundant harvest. The idea of precision agriculture has the potential to revolutionize modern farming and to resolve many issues plaguing the industry around the globe. However, if haphazardly sown without clear goals, rules, and objectives, this seed may sprout into a weed and foster more lament than prosperity. Precision agriculture alone does not pose a threat to modern agriculture. Rather, it is the way in which we bring this tool to the field that will determine whether precision agriculture will take us from famine to feast, or feast to famine.

FROM THE LAB TO THE SUPERMARKET: IN VITRO MEAT AS A VIABLE ALTERNATIVE TO TRADITIONAL MEAT PRODUCTION

*Trae Norton**

I. INTRODUCTION

In 1932, Winston Churchill predicted that 50 years in the future "we shall escape the absurdity of growing a whole chicken in order to eat the breast or wing by growing these parts separately under a suitable medium."[1] Although Churchill's prediction is about 30 years off, in August of 2013, the

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1. Jason Gelt, *In Vitro Meat's Evolution*, L.A. TIMES, Jan. 27, 2010, articles.latimes.com/2010/jan/27/news/la-bx-science-meat27-2010jan27; *see* Winston Churchill, *Fifty Years Hence*, TEACHING AMERICAN HISTORY (Dec. 1931), http://teachingamericanhistory.org/library/document/fifty-years-hence/.

first ever meat patty grown in vitro[2] was consumed in London, England.[3] With this historic scientific achievement, many are predicting that in vitro meat will be a viable solution to the problems associated with industrial meat production, such as animal cruelty, inefficient natural resource consumption, and pollution.[4] Analysts predict that the world population will increase by approximately 2.6 billion people in the next 45 years, making these problems more distinct as the demand for meat increases.[5] However, cost-effective in vitro meat production is years away—the first in vitro meat patty, weighing in at five ounces, cost approximately $325,000.[6]

Like all new technologies, there are many challenges facing the development, production, and marketing of in vitro meat. Of these challenges, this comment will address the delicate process of successfully introducing new food technologies to a skeptical population by examining historical successes and failures, in hopes of providing in vitro meat producers a general model to market and sell their product. Part II discusses the history of meat production and the negative environmental effects that have become apparent from modern meat production. Part III discusses the emergence of in vitro meat and the science involved. Part IV examines historical introductions of food technologies. Lastly, Part V offers suggestions for in vitro meat producers based on past food technologies.

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2. Merriam-Webster defines in vitro as "outside the living body and in an artificial environment." *In Vitro Definition*, MERRIAM-WEBSTER.COM, http://www.merriam-webster.com/dictionary/in%20vitro (last visited Jan. 21, 2015).

3. Kate Kelland, *Scientists To Cook World's First In-Vitro Beef Burger*, REUTERS (Aug. 5, 2013), http://www.reuters.com/article/2013/08/05/us-science-meat-cultured-idUSBRE97119D20130805.

4. Danielle Elliot, *PETA Praises In Vitro Meat*, CBS NEWS (Aug. 6, 2013), http://www.cbsnews.com/8301-205_162-57597223/peta-praises-in-vitro-meat/; M. Betti Datar, *Possibilities for an In Vitro Meat Production System*, 11 INNOVATIVE FOOD SCI. AND EMERGING TECH. 13, 14 (2010), *available at* http://diyhpl.us/~bryan/papers2/bio/Possibilities%20for%20an%20in%20vitro%20meat%20production%20system.pdf.

5. *See* Press Release, United Nations, World Population to Increase by 2.6 Billion Over Next 45 Years (Feb. 2, 2005), *available at* http://www.un.org/News/Press/docs/2005/pop918.doc.htm; Nathan Gray, *In Vitro Meat: Lab-grown Burger to be Unveiled and Tasted Next Week*, FOODNAVIGATOR.COM (July 29, 2013), http://www.foodnavigator.com/Science-Nutrition/In-vitro-meat-Lab-grown-burger-to-be-unveiled-and-tasted-next-week.

6. Henry Fountain, *Building a $325,000 Burger*, N.Y. TIMES (May 12, 2013), http://www.nytimes.com/2013/05/14/science/engineering-the-325000-in-vitro-burger.html?pagewanted=all&_r=0.

II. HISTORICAL MEAT PRODUCTION

In earlier times, meat demands were met mainly by hunting and gathering.[7] With the honing of stable agricultural production, hunting trips began to decline where agriculture proliferated.[8] Hunting changed from an indispensible source of food to a skill used to complement a mainly vegetarian diet.[9] With a steady income of meat and cultivated foods, humans began experimenting with preservation of surplus meat from larger animals that could not be consumed in one meal.[10] For instance, ancient Egyptians salted and sun dried excess meat.[11] As societies grew, instead of spending many hours hunting in the bush, they transitioned to domesticating animals that responded to communication.[12] Early domestication was a process whereby succeeding generations of tamed animals were gradually absorbed into human societies and increasingly exploited, eventually losing all contact with wild ancestral species.[13]

Domestication allowed butchers to begin experimenting with simple and efficient slaughtering techniques.[14] Prior to the proliferation of slaughterhouses, most animals were slaughtered and processed in a variety of places, including backyards.[15] However, as public sentiment towards animal slaughtering shifted to a more sensitive view, some European reformers argued for centralized "public slaughterhouses."[16] These reformers justified public slaughterhouses because, among other reasons, "[T]hey would remove the sight of animal slaughter from public places."[17] One Londoner said of public slaughtering, "[Violence against animals] educate[d] the men in the practice of violence and cruelty, so that they seem to have no restraint on the use of it."[18] Other Western European countries

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7. Stellan Welin, Julie Gold, & Johanna Berlin, *In Vitro Meat: What Are the Moral Issues?*, *in* THE PHILOSOPHY OF FOOD 292, 292 (David M. Kaplin ed., 2012).

8. *Id.*

9. *Id.*

10. Javier Mateo et al., *Meat Processing in Ibero-American Countries: A Historical View*, *in* TRADITIONAL FOOD PRODUCTION AND RURAL SUSTAINABLE DEVELOPMENT 121, 122 (Teresa de Noronha Vaz et al. eds., 2009).

11. *Id.*

12. JULIET CLUTTON-BROCK, DOMESTICATED ANIMALS FROM EARLY TIMES 9 (1981).

13. *Id.* at 11.

14. *See* Amy J. Fitzgerald, *A Social History of the Slaughterhouse: From Inception to Contemporary Implications*, 17 HUMAN ECOLOGY REV. 58 (2010), *available at* http://www.humanecologyreview.org/pastissues/her171/Fitzgerald.pdf.

15. *Id.* at 59-60.

16. *Id.* at 60.

17. *Id.*

18. *Id.*

followed suit by implementing public slaughterhouses with the same goal in mind—removing the slaughtering process from the view of the general public.[19] Ironically, these slaughterhouses were labeled as "public," yet removed the slaughtering process from public view.[20]

Public slaughtering concerns surfaced in the United States as early as the settlement of Jamestown.[21] Cattle, pigs, and sheep were brought to Jamestown from England, with the excess animals being slaughtered at the beginning of winter.[22] Like their European counterparts, officials in the U.S. advocated for centralized slaughterhouses away from city cores.[23] One of the earliest establishments of a commercial slaughterhouse occurred in 1662, when a pig slaughterhouse was established in Springfield, Massachusetts.[24] In 1747, New York City passed an ordinance making it illegal for citizens to slaughter cattle at their home.[25]

By the late nineteenth century, "animal slaughtering in the U.S. [was] an industrialized, mass-production industry."[26] In 2011, the total meat and poultry production in the U.S. reached more than 92.9 billion pounds, up 800 million pounds from 2010.[27] Also in 2011, the American Meat Institute indicated there were "approximately 6,728 federally inspected meat and poultry slaughtering and processing plants in the U.S."[28] Total poultry and turkey production in 2011 burgeoned at 43.5 billion pounds in the U.S., with Arkansas as one of the top poultry and turkey producing states.[29] Total worldwide meat production in 2007 reached a staggering 275 million tons, or 550 billion pounds.[30]

An increased demand for and consumption of meat products has led to a detrimental impact on the environment as meat producers expand their operations. Livestock systems occupy about 30 percent of the planet's ice-free surface.[31] "World meat production is contributing between 15 and 24

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19. Fitzgerald, *supra* note 14, at 60.
20. *Id.*
21. *Id.*
22. *Id.*
23. *Id.*
24. Fitzgerald, *supra* note 14, at 60.
25. *Id.*
26. *Id.* at 61.
27. AM. MEAT INST., *The United States Meat Industry at a Glance*, MEATAMI.COM, http://www.meatami.com/ht/d/sp/i/47465/pid/47465 (last visited Feb. 15, 2014).
28. *Id.*
29. *Id.*
30. *Meat Production Continues to Rise*, WORLDWATCH INST., http://www.worldwatch.org/node/5443 (last visited Feb. 15, 2014).
31. Philip K. Thornton, *Livestock Production: Recent Trends, Future Prospects*, 365 PHIL. TRANSACTIONS OF THE ROYAL SOC'Y B 2853, 2853 (2010).

percent of total current greenhouse gas emissions."[32] The main sources of greenhouse gas emissions are feed production and processing, emissions from livestock during digestion, and manure decomposition.[33] As of 1997, animals in the U.S. industrial production system produced a grand total of approximately 1.4 billion tons of waste.[34] For instance, a typical pig farm of about 5,000 pigs produces waste equivalent to a small city of 20,000 people with no sewage treatment.[35]

The industrialization of grain production has allowed farmers to feed a greater number of animals than those sustained on grass and forage,[36] resulting in an inefficient conversion of grain to protein.[37] For example, cattle require 7 kilograms of grain to produce 1 kilogram of beef; pigs require 4 kilograms of grain to produce 1 kilogram of pork; and poultry require 2 kilograms of grain to produce 1 kilogram of poultry.[38] Furthermore, industrial meat production requires water for the animals to drink, plus approximately 1000 tons of water to grow 1 ton of grain for feed.[39] Thus, in 2011, the U.S. produced 92.9 billion pounds of meat.[40] Assuming it took 4.4 pounds (2 kilograms) of grain to produce 1 pound of meat in 2011, grain usage converts to approximately 408.8 billion pounds of grain consumed to produce the 92.9 billion pounds of meat.[41] By comparison, between 1995 and 2012, the U.S. donated a total of approximately 165.8 billion pounds of wheat as a part of the Food Aid Convention.[42]

Large amounts of pesticides are also polluting rivers and streams as a result of industrial grain farming.[43] According to the Environmental Protection Agency ("EPA"), "agriculture is the main source of pollution in

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32. Datar, *supra* note 4, at 14.

33. *Major Reductions of Greenhouse Gas Emissions From Livestock Within Reach – UN Agency*, UN NEWS CTR. (Sept. 26, 2013), http://www.un.org/apps/news/story.asp?NewsID=46028&Cr=greenhouse&Cr1#.Uwjf2j_YODA.

34. Polly Walker et al., *Invited Paper: Public Health Implications of Meat Production and Consumption*, 8 PUB. HEALTH NUTRITION 348, 351 (2005), *available at* http://journals.cambridge.org/download.php?file=%2FPHN%2FPHN8_04%2FS1368980005000492a.pdf&code=8d801d4cdf66ae0dd298f403f4d38dc7.

35. *Id.*

36. *Id.*

37. *Id.*

38. *Id.*

39. Walker et al., *supra* note 34, at 351.

40. AM. MEAT INST., *supra* note 27.

41. 1 kg = 2.2 pounds.

42. Charles E. Hanrahan & Carol Canada, *International Food Aid: U.S. and Other Donor Contributions*, CONGRESSIONAL RESEARCH SERVICE, Nov. 12, 2013, *available at* http://www.fas.org/sgp/crs/misc/RS21279.pdf.

43. Walker et al., *supra* note 34, at 350.

U.S. rivers . . . and contributes to 70 [percent] of all water quality problems identified in [navigable] rivers and streams,"[44] and it estimates approximately 173,629 river miles are affected by agricultural pollutants.[45] In 2005, global agriculture used 3 million tons of pesticides and over 1,600 chemicals in the manufacture of pesticides, many of which have not been tested for toxic effects on humans.[46]

Not only has the slaughtering of land-grazing livestock been industrialized, but fish have also been domesticated through "fish farming."[47] "The public health implications of the industrial methods used to grow aquatic species are similar to [those] of the industrial production of meat and poultry."[48] Fish farming also has potential ecological effects that include "habitat destruction, nutrient discharge, and chemical pollution."[49] For instance, fish farming is contributing to the destruction of ocean fisheries because it takes 2-5 pounds of wild-caught ocean fish to produce 1 pound of farmed fish.[50] Additionally, some researchers believe "wild fish species are less likely to have cancer-causing pollutants than farm-raised fish."[51]

The industrialization of meat products cannot continue without increased strains on the environment, the animals being slaughtered, and the general population of meat consumers. As the world population increases, so too does the demand for meat products.[52] Industrial livestock production is one of the fastest growing agricultural subsectors in developing countries due to population growth and increasing incomes.[53] On the other hand, countries like the United States and those in Western Europe are seeing a reduction in the rate of population growth, which stagnates livestock consumption, although still at high levels.[54] For example, in spite of the decrease in per-capita consumption of beef in the United States since the 1970s, the gross amount of meat consumption has risen.[55]

Considering these health and environmental concerns, maintenance of high-meat consumption in developed countries, and increased meat diets in developing countries, cannot take place without increasing environmental

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44. *Id.*
45. *Id.*
46. *Id.*
47. *Id.* at 351
48. Walker et al., *supra* note 34, at 351.
49. *Id.*
50. *Id.*
51. *Id.*
52. Thornton, *supra* note 31.
53. *Id.*
54. *Id.*
55. Fitzgerald, *supra* note 14, at 62.

impacts.[56] In vitro meat has become a possible solution, among other alternatives, to the many concerns of traditional meat production.[57]

III. THE EMERGENCE OF IN VITRO MEAT

Generally, when producing in vitro meat, scientists take a small amount of cells from a living or freshly slaughtered animal and culture it in a growth medium to encourage the cells to multiply into lumps of muscle tissues that, theoretically, could be eaten.[58] With in vitro meat, there is no animal to slaughter, which means no inefficient natural resource consumption raising the animal to slaughter.[59] One writer notes, "[B]ecause there has never been a whole animal we cannot say the tissue is the 'living-dead.' This meat was never born, has never been 'alive' in any usual way we would apply to an animal, and has never been killed."[60] In vitro meat finds its origins in biomedical research settings geared towards curing disease by transplanting healthy stem cells into an unhealthy body to promote rejuvenating tissue growth.[61] In vitro meat researchers "harness the growth potential of stem cells to produce healthy meat tissue."[62] Unlike the extensive legal, ethical, and social discussions associated with the biomedical research, in vitro meat research has attracted a broader interest from academic disciplines including ethicists, artists, cultural studies, cultural theorists, and designers.[63]

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56. Vaclav Smil, *Worldwide Transformation of Diets, Burdens of Meat Production and Opportunities for Novel Food Proteins*, 30 ENZYME AND MICROBIAL TECH. 305, 307 (2002), *available at* http://tier-im-fokus.ch/wp-content/uploads/2009/10/smilo2.pdf.

57. *See* Anahita Hosseini Matin, Canadian Consumers' Preferences for Food Products Produced by Novel Technologies (May 2-3, 2013) (unpublished Master of Science thesis, University of Alberta), *available at* http://era.library.ualberta.ca. Other possible options may include diets with more vegetables and fruits and less meat products.

58. Neil Stephens, *In Vitro Meat: Zombies on the Menu?*, 7 SCRIPTED 394, 395 (2010).

59. *Id.*

60. *Id.*

61. *Id.* Merriam-Webster defines "stem cell" as "a simple cell in the body that is able to develop into any one of various kinds of cells (such as blood cells, skin cells, etc.)." *Stem Cell Definition*, MERRIAM-WEBSTER.COM, http://www.merriam-webster.com/dictionary/stem%20cell (last visited Jan. 25, 2015).

62. Stephens, *supra* note 58, at 395.

63. *Id.* The stigma associated with biomedical and in vitro meat research may be on the decline after President Obama issued an Executive Order in March, 2009 titled "Removing Barriers to Responsible Scientific Research Involving Human Stem Cells." One purpose for the EO is "to enhance the contribution of America's scientists to important new discoveries and new therapies for the benefit of humankind." Exec. Order No. 13,505, 74 Fed. Reg. 10,667 (Mar. 9, 2009), *available at* http://www.gpo.gov/fdsys/pkg/FR-2009-03-11/pdf/E9-5441.pdf.

Early research aimed at in vitro meat production was funded by the National Aeronautics and Space Administration ("NASA") in 2002, and explicitly addressed "the feeding of astronauts in space, while considering the relationship between protein sources and space vehicle crew morale."[64] Researchers successfully grew goldfish cells, some of which were harvested for cooking and, perhaps, eating.[65] However, NASA did not further pursue in vitro meat production after publishing its results.[66] Ultimately, the researchers concluded their work "points the way to means of alleviating food supply and safety problems in both the public and private sectors worldwide."[67]

Today, groups located at universities in the Netherlands, Sweden and Norway conduct mostin vitro meat research.[68] The Dutch group, the largest and most funded of the European researchers, is looking to establish a pig derived cell line, which would allow researchers to increase cell numbers to be harvested for continued research or production use.[69] The smaller Swedish and Norwegian groups are funded mostly by universities, although external funding is frequently sought.[70] The Swedish group is using various techniques "to understand how mouse muscle cells can be encouraged to bond to, and grow on, larger starch particles in specially configured bioreactors"[71] and the Norwegians are focusing on "pig umbilical cord cells as a source of muscle tissue."[72] Interestingly, each group runs broader biomedical research programs, with in vitro meat research as a complementary research component.[73] A research group dedicated solely to in vitro meat could possibly speed up the timetable for an economically viable production system.[74]

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64. Stephens, *supra* note 58, at 396.
65. *Id.*
66. *Id.*
67. M. Benjaminson et al., *In Vitro Edible Muscle Protein Production System (MPPS): Stage 1, Fish*, 12 ACTA ASTRONAUT 879 (Dec. 2002), *available at* http://www.ncbi.nlm.nih.gov/pubmed/12416526.
68. Stephens, *supra* note 58, at 397.
69. *Id.*
70. *Id.*
71. *Id.*
72. *Id.*
73. Stephens, *supra* note 58, at 397.
74. *See* Datar, *supra* note 4, who notes "The greatest stumbling block comes with commercial implementation of [a commercial production system], where cost-effectiveness and consumer acceptance determine if cultured myocyte tissue will become a significant meat alternative on the market."

A. The Science of In Vitro Meat

"Most edible animal meat is made of skeletal muscle tissue."[75] Skeletal muscle tissues makeup the muscles that are attached to and bring about the movement of the various bones of the skeleton.[76] The two main techniques commonly used by scientists when growing in vitro meat are "scaffold-based" and "self-organizing" tissue culturing.[77] The scaffold-based technique is best suited to produce tissue similar to processed meat, such as sausages and burgers, which lack the textured complexity of highly structured meats like beef steaks or chicken breasts.[78] Cells are taken from an animal at either the embryonic stage or the adult stage and attached to a scaffold made of protein meshwork, eventually growing into strands of muscle cells.[79] The self-organizing technique "requires a culture medium that directs tissue growth in the correctly organi[z]ed form over three-dimensions."[80] These techniques produce large quantities of muscle cells lacking fat tissue, blood vessels, and connective tissue found in traditionally grown meat products.[81]

B. London Taste Test

The first in vitro meat burger was served in London, England in August of 2013.[82] According to taste testers, the fried burger was "dry and a bit lacking in flavor."[83] One taster said, "[T]he bite feels like a conventional hamburger" but the meat tastes "like an animal-protein cake."[84] Another

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75. P.D. Edelman et al., *Commentary: In Vitro-Cultured Meat Production*, 11 TISSUE ENGINEERING 659 (2005).

76. *See* Brian R. Macintosh, et al., SKELETAL MUSCLE FORM AND FUNCTION 9 (2nd ed. 2006).

77. Edelman et al., *supra* note 75.

78. *Id.*

79. *Id.*; for a simple illustration of the scaffold-based technique, *see Food of the Future: in vitro meat?*, SITNFLASH (Mar. 30, 2011), https://sitn.hms.harvard.edu/sitnflash_wp/2011/03/.

80. Stephens, *supra* note 58, at 397.

81. *Id.* By no means do I claim to be an expert on the science involved with in vitro meat production. For a better understanding of in vitro meat production, I suggest visiting the sources herein, or conducting independent research online or in your local library.

82. Henry Fountain, *A Lab-Grown Burger Gets a Taste Test*, N.Y.TIMES (Aug. 5, 2013), http://www.nytimes.com/2013/08/06/science/a-lab-grown-burger-gets-a-taste-test.html?_r=1&.

83. *Id.*

84. *Id.*

taster commented, "I was expecting the texture to be more soft."[85] The meat was produced using stem cells from a cow's shoulder muscle.[86] Using the self-organizing technique, "[t]he cells were multiplied in a nutrient solution and put into small petri dishes, where they became muscle cells and formed tiny strips of muscle fiber."[87] "About 20,000 strips were used to make the five-ounce burger, which contained breadcrumbs, salt, and some natural coloring as well."[88]

The event, put on "by a public relations firm and broadcast live on the [w]eb", was arranged to make the case that in vitro meat deserves more funding and research.[89] "The two-year project to make the one burger, plus extra tissue for testing, cost $325,000."[90] Dr. Mark Post, a lead scientist involved in the creation of the burger, said "there was still much research to be done" and that "it would probably take 10 years or more before cultured meat was commercially viable."[91] Sergey Brin, one of the founders of Google, paid for the project because he "basically shares the same concerns [as Dr. Mark Post] about the sustainability of meat production and animal welfare."[92] Mr. Brin said, "[P]eople [have] an erroneous image of modern meat production, imagining 'pristine farms' with just a few animals in them. When you see how these cows are treated, it's certainly something I'm not comfortable with."[93]

Three months after the London event, Dr. Post won the World Technology Award for creating the world's first cultured beef hamburger.[94] The World Technology Network ("WTN") Fellows choose a winner who they believe is "doing the innovative work of 'the greatest likely long-term significance' in their fields."[95] Among WTN winners are Wikileaks founder Julian Assange and Google's CEO Eric Schmidt.[96]

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85. Alok Jha, *First Lab-grown Hamburger Gets Full Marks for 'Mouth Feel'*, THE GUARDIAN (Aug. 6, 2013), http://www.theguardian.com/science/2013/aug/05/world-first-synthetic-hamburger-mouth-feel.

86. Fountain, *supra* note 82.

87. *Id.*

88. *Id.*

89. *Id.*

90. *Id.*

91. Fountain, *supra* note 82.

92. *Id.*

93. Jha, *supra* note 85.

94. *Prof. Mark Post Wins World Technology Award for Cultured Beef Project*, MAASTRICHT UNIV. (Nov. 16, 2013), http://www.maastrichtuniversity.nl/web/Main/Sitewide/News1/Prof.MarkPostWinsWorldTechnologyAwardForCulturedBeefProject.htm.

95. *Id.*

96. *Id.*

Not everyone has been as enthusiastic about Dr. Post's creation as the WTN, animal rights advocates, and environmental activists. Amanda Radke of *BEEF Daily* writes, "[T]he sight of this raw product doesn't look appetizing. Call me crazy but I want my beef to be 100% beef, not stem cells of a beef animal mixed with breadcrumbs and red beet juice."[97] Sherry Colb, a vegan law professor at Cornell Law School, writes, "The consumption of animal products . . . is unnecessary for human survival. To spend time and money attempting to develop cultured meat is therefore to pursue an unnecessary goal that is premised on an unexamined commitment of humans to the consumption of animal products."[98] Colb also believes the manner in which in vitro meat is produced may be a barrier to hungry consumers noting, "[In vitro meat] could itself face serious obstacles to acceptance among people who are wedded to doing things the way they always have."[99] Thus, even though in vitro meat could potentially alleviate many concerns associated with traditional meat production, some are predicting an apathetic, perhaps adverse, response to this scientific breakthrough.[100]

IV. SUCCESS AND FAILURE IN FOOD TECHNOLOGY

The introduction of in vitro meat may generate consumer resistance because it is such a new food technology, and some consumers may be unwilling to step outside of their dietary habits. However, most foods consumed today would not enjoy much success if consumers were mindful of the production process and ingredients. Among many reasons, behavioral economists believe this is because consumers respond to certain psychological cues, such as packaging and presentation, without thoroughly examining the product.[101] Evidence suggests that convenience and ease of cleaning up also have influences on consumers in choosing less healthy foods.[102]

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97. Amanda Radke, *Would You Eat A Test-Tube Burger?*, BEEF DAILY (Aug. 6, 2013), http://beefmagazine.com/blog/would-you-eat-test-tube-burger.

98. Sherry F. Colb, *What's Wrong With In Vitro Meat?*, VERDICT (Oct. 2, 2013), http://verdict.justia.com/2013/10/02/whats-wrong-with-in-vitro-meat.

99. *Id.*

100. *See id.; see also* Radke, *supra* note 97; Adam Kochanowicz, *'In Vitro' Meat Has No Place in Animal Rights Campaigns*, EXAMINER.COM (Nov. 18, 2009), http://www.examiner.com/article/in-vitro-meat-has-no-place-animal-rights-campaigns.

101. U.S. DEP'T. OF AGRIC., ECONOMIC RESEARCH REPORT NO. 43, David R. Just et al., *Could Behavioral Economics Help Improve Diet Quality for Nutrition Assistance Program Participants?*, 1 (June 2007).

102. *Id.* at 5.

Additionally, advertising plays a major role. Fast food chains, which are well known for unhealthy products and questionable production techniques, spend exorbitant amounts of money on advertising.[103] For example, McDonald's reported spending $787.5 million on advertising alone in 2012.[104] Many of the larger fast food chains spend advertising dollars appealing to the consumer through famous athletes, musicians, and movie stars; however, some advertising comes at no cost. In 2013, Usain Bolt, the Olympic sprinter from Jamaica, recounted in his memoir that he ate roughly 1,000 chicken McNuggets during the Beijing Olympics, where he won three gold medals.[105]

In 2011, McDonald's raked in $34.1 billion in revenue, beating Subway and Starbuck's total revenues combined.[106] Between 2010 and 2011, Subway had the largest store growth after adding 872 new locations with a total of 24,722 locations, approximately 10,000 more locations than McDonald's.[107] While in vitro meat producers likely have a long and arduous path to success, the following examples may provide producers with potential dos and don'ts for introducing the new food technology.

A. Chicken Nuggets

With fast food restaurants virtually around every corner east of the Mississippi River, it is easy to see why fast food menus are well-known, particularly the chicken McNugget.[108] But what makes up a chicken McNugget? According to Jennifer Rabideau, a Product Development Scientist for Cargill Canada, McDonald's chicken McNuggets begin with whole chickens that have the breast meat removed.[109] The cuts of breast

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103. *See Overview of Fast Food Market*, FASTFOODMARKETING.ORG (2013), http://www.fastfoodmarketing.org/media/FastFoodFACTS_Report_Results.pdf.

104. 2012 Annual Report, MCDONALD'S CORPORATION, 2012, at 33, *available at* http://www.aboutmcdonalds.com/content/dam/AboutMcDonalds/Investors/Investor%202013/2012%20Annual%20Report%20Final.pdf.

105. Laura Stampler, *Usain Bolt Ate 100 Chicken McNuggets a Day in Beijing and Somehow Won Three Gold Medals*, TIME.COM (Nov. 4, 2013), http://newsfeed.time.com/2013/11/04/olympic-gold-medalist-reveals-beijing-diet-of-1000-chicken-mcnuggets-in-10-days/.

106. Sam Oches, *The QSR 50*, QSR MAGAZINE (Aug. 2012), http://www.qsrmagazine.com/reports/qsr50-2012-top-50-chart.

107. *Id.*

108. *See The Leviathan of Scale, or, Can McDonald's and Wal-Mart Help Save the World?*, FOOD MAPPING (Mar. 27, 2008), http://foodmapper.wordpress.com/2008/03/27/the-leviathan-of-scale-or-can-mcdonalds-and-wal-mart-help-save-the-world/

109. McDonald's Canada, *Pink Goop in Chicken McNuggets? McDonald's Canada Answers*, YouTube (Jan. 31, 2014),

meat are gathered in bins and sent to an industrial-sized blender to be ground up with seasoning and chicken skin, which enhances flavor and acts as a binder for the meat.[110] From there, the ground meat is formed into the familiar nugget shape, covered with two types of batter, and boxed for shipment.[111] The McNuggets are frozen to prevent spoilage of the raw meat within the batter.[112] The McNuggets remain frozen until fully cooked in Canadian, golden-arched restaurants.[113] Christina Taylor, public relations manager for McDonald's USA, said, "[The McDonald's Canada chicken McNugget Production Video] depicts the same process we use with our U.S. suppliers."[114]

In the United States, Doctor Richard D. deShazo, a distinguished professor of medicine and pediatrics at the University of Mississippi Medical Center, dissected undisclosed chicken nuggets to examine the ingredients.[115] The first nugget contained approximately 50 percent muscle.[116] The other half was "primarily fat, with some blood vessels and nerve, as well as 'generous quantities of epithelium [from skin of visceral organs] and associated supportive tissue.'"[117] These ingredients overall reflect 56 percent fat, 25 percent carbohydrates, and 19 percent protein.[118] Dr. deShazo and Dr. Bigler, a pathologist working with Dr. deShazo, concluded the word "chicken" in chicken nugget is a misnomer because "the predominant components aren't chicken."[119]

Despite Dr. deShazo's information about chicken nuggets published in medical journals and floating around in cyberspace, as well as information on how chicken nuggets are made, there is no evidence to suggest that chicken nugget sales are tapering.[120] Thus, one might think if chicken nuggets, with questionable ingredients and a peculiar manufacturing process,

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http://www.youtube.com/watch?v=Ua5PaSqKD6k#t=10.

110. *Id.*

111. *Id.*

112. *Id.*

113. *Id.*

114. Maria Goody, *Oh, So That's What Goes Into A McDonald's Chicken McNugget*, NPR.ORG (Feb. 6, 2014), http://www.npr.org/blogs/thesalt/2014/02/06/272112028/oh-so-thats-what-goes-into-a-mcdonalds-chicken-mcnugget.

115. James Hamblin, *Look Inside a Chicken Nugget*, THE ATLANTIC (Oct. 21, 2013, 2:15 PM), http://www.theatlantic.com/health/archive/2013/10/look-inside-a-chicken-nugget/280720/. Dr. deShazo did not disclose which fast food restaurant the chicken nuggets came from. *Id.*

116. *Id.*

117. *Id.*

118. *Id.*

119. *Id.*

120. Sam Oches, *The QSR 50*, QSR MAGAZINE (Aug. 2012), http://www.qsrmagazine.com/reports/qsr50-2012-top-50-chart.

have been successfully marketed and sold, then in vitro meat should face little opposition by consumers.

B. Cloned Meat

Dolly the Sheep was born in 1996.[121] She "was a cloned animal, created by a cloning technique known as 'somatic cell nuclear transfer.'"[122] This technique "involves removing the DNA from a mammalian egg and replacing it with the DNA from the animal that is being cloned."[123] Cell division occurs when the egg is placed in a nutrient bath.[124] After cell division takes place, the egg is implanted into a surrogate animal's uterus, and eventually goes through the normal birthing process.[125] Many forward-thinking proponents of cloned meat consider it a viable food source.[126] However, a cloned animal still must be slaughtered to harvest its meat.[127]

In December 2006, the U.S. Food and Drug Administration ("FDA") released a statement that concluded cloned meat was chemically indistinguishable from non-cloned meats on the market at that time and was safe to consume.[128] Because cloned meat is indistinguishable from non-cloned meat, the FDA announced that it would almost certainly not require special labels for cloned meat.[129] Focusing on the identity of the meat is part of the FDA's "science-based" approach to food labeling, and as one author notes, "from this perspective, the decision not to require labels on cloned meat and milk makes perfect sense."[130] If laboratory tests cannot detect a difference between cloned and non-cloned meat then, under the science-based approach, "there is no difference."[131]

Although the FDA says cloned meat is no different than non-cloned meat, consumers have been reluctant to buy in to the FDA's assurances.[132]

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121. George B. Walker, *Double Trouble: Competing Federal and State Approaches to Regulating the New Technology of Cloned Animal Foods, and Suggestions for the Future*, 14 J. TECH. L. & POL'Y 29, 32 (2009).
122. *Id.*
123. *Id.*
124. *Id.*
125. *Id.*
126. Walker, *supra* note 121, at 32-3.
127. *See generally* Stephens, *supra* note 58, at 398.
128. Matthew R. Kain, *Throw Another Cloned Steak on the Barbie: Examining the FDA's Lack of Authority to Impose Mandatory Labeling Requirements for Cloned Beef*, 8 N.C. J. L. & TECH. 303, 303 (2007).
129. Donna M. Byrne, *Cloned Meat, Voluntary Food Labeling, and Organic Oreos*, 8 PIERCE L. REV. 31, 32 (2009).
130. *Id.* at 33.
131. *Id.*
132. *Id.* at 33-34.

The FDA recognized consumers' potential trepidation stating, "[W]e are continuing to ask producers of clones and livestock breeders to voluntarily refrain from introducing food products from these animals into commerce so that we will have the opportunity to consider the public's comments and to issue any final documents as warranted."[133] A Gallup poll revealed "66 percent of American consumers said that cloning animals was 'morally wrong.'"[134] The International Food Information Council, in March 2005, reported "63 percent of consumers would likely not buy food from cloned animals, even if the FDA determined the products were safe."[135] In February 2007, Maryland Senator Barbara Mukulski introduced the Cloned Food Labeling Act, which would require the FDA and the U.S. Department of Agriculture ("USDA") to "mandate that all food that comes from cloned animals be labeled as such."[136] The label, if successfully implemented, would read "THIS PRODUCT IS FROM A CLONED ANIMAL OR ITS PROGENY."[137] Representative Rosa DeLauro also introduced a companion bill requiring labels on cloned products, which suggests "labeling would be a battleground in the near future."[138] The FDA responded with the "Safety of Food From Animal Clones Final Risk Assessment,"[139] which essentially repeated the conclusions in the earlier assessment—that cloned animals pose no "subtle hazards" to consumers compared to sexually-derived animals, nor do the progeny of cloned animals.[140] Thus, unlike chicken nuggets and despite FDA assurances, cloned meat has elicited a cold response from consumers.

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133. Press Release, FDA, FDA Issues Draft Documents on the Safety of Animal Clones (Dec. 28, 2006), *available at* http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2006/ucm108819.htm.

134. Kain, *supra* note 128, at 305.

135. *Id.*

136. *"Yuck Factor" Causes Many to Oppose Cloning of Animals for Food*, THE ORGANIC & NON-GMO REPORT (Mar., 2007), http://www.non-gmoreport.com/articles/mar07/animal_cloning_for_food.php.

137. *Id.*

138. Andrew Martin & Andrew Pollack, *F.D.A. Says Food From Cloned Animals Is Safe*, N.Y. TIMES (Jan. 16, 2008), http://www.nytimes.com/2008/01/16/business/16clone.html?_r=0.

139. Walker, *supra* note 121, at 35-36.

140. *Id.* at 36.

C. Lean Finely Textured Beef

On February 2, 2012, Eldon Roth, the creator of lean finely textured beef ("LFTB"), was inducted into the Nebraska Business Hall of Fame.[141] Speaking at the induction, Roth said, "Some of the things you do in life, at the time, you have no idea what they're gonna mean."[142] Five weeks later, the American Broadcasting Company ("ABC") ran an investigative story on LFTB, slamming the production process for putting "pink slime" in the American food supply and misleading consumers.[143]

Before ABC's story, LFTB was considered to be the result of an innovative process that utilized by-products from the butchering process to extract lean beef.[144] Traditionally, the extra trimmings from the butchering process were discarded because there was no efficient method to separate the small amount of muscle meat from the massive amount of unwanted fat.[145] To extract the muscle meat, Roth used a centrifuge to spin the trimmings very fast while simultaneously applying heat to separate the muscle from the fat.[146] Adding LFTB to conventional ground beef decreases the overall fat content and the price, making it an attractive additive to meat producers.[147]

Roth's dedication to sanitation and cleanliness also made LFTB a product unlikely to be feared by consumers. According to food scientists who visited the South Dakota-based LFTB plant, the company Beef Products Inc. ("BPI") "developed a reputation for going beyond federal sanitation guidelines in order to prevent bacteria and other microbes from infiltrating its product."[148] As a result of an E. coli outbreak in 1993, Roth saw an opportunity to further LFTB's reputation for superior sanitation.[149] Both the FDA and the USDA approved Roth's new "pH Enhancement System," which treated the meat with ammonia gas once it is removed from the centrifuge.[150]

However, LFTB has its critics. USDA microbiologist Gerald Zirnstein has said, "It's pink. It's pasty. And it's slimy looking."[151] Zirnstein began

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141. Josh Sanburn, *One Year Later, The Makers of 'Pink Slime' Are Hanging On, and Fighting Back*, TIME (Mar. 6, 2013), http://business.time.com/2013/03/06/one-year-later-the-makers-of-pink-slime-are-hanging-on-and-fighting-back/.
142. *Id.*
143. *Id.*
144. *Id.*
145. *Id.*
146. Sanburn, *supra* note 141.
147. *Id.*
148. *Id.*
149. *Id.*
150. *Id.*
151. Sanburn, *supra* note 141.

referring to the product as "pink slime" in USDA internal emails, but the catchy, unattractive name went public when Zirnstein was quoted in a 2009 New York Times article raising concerns over LFTB.[152] Specifically, the article cited dozens of E. coli cases involving LFTB and included reports of shipments to schools and buyers complaining of a strong ammonia odor from LFTB products.[153] Not surprisingly, Zirnstein advocates that LFTB is not what it claims to be and believes Roth's company, BPI, is conducting "economic fraud" by referring to LFTB as "fresh ground beef."[154]

"Pink Slime" became a nationally known term after ABC aired 11 not-so-flattering segments on LFTB.[155] With a simple change of the name, from LFTB to pink slime, the product was no longer an innovative beef additive, but rather a slimy, disgusting by-product found in a wide range of meats.[156] Many fast food chains released statements that LFTB was no longer used in their meat products.[157] Several public schools removed beef products containing LFTB from the menu.[158] Social media exploded with conversations of pink slime and its negative media coverage.[159] And as a result of a massive decrease in sales, BPI was forced to close several plants and hundreds of employees lost their jobs.[160]

V. SUGGESTIONS

The food technologies discussed above illustrate it is not easy introducing new food products. In vitro meat producers will certainly face similar challenges and obstacles discussed herein. Moreover, because in vitro meat is such a new technology, producers can expect novel problems. A non-exhaustive list of suggestions is offered below to give in vitro meat producers a framework to consider when introducing their products.

A. The Name

One obstacle for in vitro meat lies within the familiar name of the product—*in vitro*. In vitro gives an initial impression of a medical term and is often associated with in vitro fertilization, a process that allows a

152. *Id.*
153. *Id.*
154. *Id.*
155. *Id.*
156. Sanburn, *supra* note 141.
157. *Id.*
158. *Id.*
159. *Id.*
160. *Id.*

pregnancy to begin outside of the body before returning to the uterus.[161] Needless to say, in vitro meat producers do not want their product associated with the fertilization process that was once thought to create "test-tube babies."[162] Likewise, local grocery stores and restaurants could have trouble selling a "test-tube burger."[163] There is already a real world example of the negative effects associated with a scientific or medical name—*cloned* meat.[164]

In vitro meat would likely benefit from a name change, and the sooner, the better. To continue describing in vitro meat by its scientific name only raises concerns previously mentioned. Consider lean finely textured beef—consumers were purchasing LFTB for years before it was branded as "pink slime."[165] However, once the unappealing, unappetizing label "pink slime" replaced LFTB, consumers jettisoned the product like it was poison even though the FDA and USDA approved it without any special labeling.[166] Possibly, if LFTB were referred to as "pink slime" early in its history, it likely would not have seen the successes it did. On the other hand, chicken McNuggets have flourished even with Dr. deShazo's recent publication.[167] But perhaps it would be a different story if Dr. deShazo referred to his chicken-nugget specimen as a "processed slime nugget."

Another name associated with in vitro meat is "cultured" meat.[168] "Cultured" has two common definitions: 1) "having or showing good education, tastes, and manners;" and 2) "grown or made under controlled conditions."[169] Referring to the meat as cultured instead of in vitro leaves consumers with three options when contemplating the name: 1) they associate cultured with the first definition, that is, good education, manners, etc.; 2) they associate cultured with the second definition, produced under controlled circumstances; and 3) they do not know what cultured means. Of

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161. *Infertility and In Vitro Fertilization*, WEBMD (June 21, 2012), http://www.webmd.com/infertility-and-reproduction/guide/in-vitro-fertilization?page=3 (last reviewed Jan. 18, 2015).

162. *Id.*

163. Kate Kelland, *First Taste of Test-Tube Burger Declared 'Close to Meat'*, REUTERS (Aug. 6, 2013, 11:44 AM), http://www.reuters.com/article/2013/08/06/us-science-meat-in-vitro-idUSBRE9740PL20130806.

164. *See* Part IV.b. *Cloned Meat.*

165. *See* Part IV.c. *Lean Finely Textured Beef.*

166. *Id.*

167. *See* Part IV.a. *The Science of In Vitro Meat.*

168. *Cultured Meat; Manufacturing of Meat Products Through "Tissue-Engineering" Technology*, FUTURE FOOD, http://www.futurefood.org/in-vitro-meat/index_en.php (last visited Mar. 11, 2014).

169. *Cultured Definition*, MERRIAM-WEBSTER.COM, http://www.merriam-webster.com/dictionary/cultured (last visited Jan. 28, 2015).

course, "cultured" meat producers want consumers to think of "cultured" in an appealing manner. However, the process of cultured meat falls within the latter definition and consumers could easily be turned off after looking up the definition.

To continue referring to in vitro meat by its scientific name will have consumers thinking of the product as a Frankenstein science project rather than a wholesome, nutritious, environmentally friendly meat source. The name that should replace in vitro meat is beyond my experience and should be left to the marketing experts.

B. Labeling

Much like cloned meat, there can be no doubt that consumers will want to know whether in vitro meat is in their burger or steak. Unlike the cigarette-box styled label that has been proposed for cloned meat, in vitro meat's label should be something less menacing. Current FDA laws require food labeling "if there are any safety concerns or if there is a material difference in composition of food."[170] Depending on the cellular structure of the final product, a label indicating that a product contains in vitro meat may be unnecessary if in vitro meat is indistinguishable from traditional meat.[171] Moreover, the FDA does not require process labeling.[172] The FDA's focus is primarily on the "chemical identity of the food" and "[p]rocess information has the potential to suggest a material difference in the food itself even when there is no such difference."[173] In any event, an appealing label should be used so consumers will not be turned off of the product.

The irradiated food label is a good example. The irradiation process exposes food to radiation to prevent the growth of bacteria commonly found on certain foods and to increase shelf life.[174] Consumer hesitation to food that has been exposed to radiation is understandable. In an attempt to assuage hesitant consumers, the FDA and USDA both approved irradiated

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170. Walt D. Osborne, *FDA's Animal Cloning Documents Underscore Safety of Meat and Milk From Cloned Animals*, FDA VETERINARIAN NEWSLETTER (Center for Veterinary Medicine), 2007, at 3, 4. After finding no distinction between milk sold every day and milk produced from cloned cows, the FDA determined there was "no science-based reason to use labels to distinguish between milk derived from clones and that from conventional animals." *Id.*

171. *See* Part IV.b. *Cloned Meat.*

172. Donna M. Byrne, *Cloned Meat, Voluntary Food Labeling, and Organic Oreos*, 8 PIERCE L. REV. 31, 48-49 (2009).

173. *Id.* at 49.

174. *Food Irradiation: What You Need to Know*, FDA (April 23, 2013), http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm261680.htm.

food as safe to eat.[175] To alert consumers to irradiated foods, the FDA requires a "radura" label on the package.[176] The radura label is a green circle with what appears to be a leaf in the middle; not your typical radiation-associated label, but looks more like an organic label.[177] If a label is required for in vitro meat, producers should advocate for a label similar to irradiated foods.

In vitro meat could benefit from a newly created "environmental impact label" that quantifies the energy, water, and feed used to create an in vitro product.[178] This label would also quantify the greenhouse gases emitted from in vitro production.[179] Such a label would allow consumers to make an environmentally conscious decision when choosing their meat product.[180] The label should also include a comparison between the natural resources used for traditional meat and in vitro meat. Otherwise, an environmental impact label is meaningless if consumers have no way of knowing how in vitro meat positively affects the environment.

C. Advertising

Picture a thick, juicy hamburger patty sitting between two golden buns, topped with fresh pickles, tomatoes, lettuce, onions, and melted cheese. Cut to an attractive young actress who takes a savory bite of the perfectly crafted burger. Lastly, fade the scene out with a Nick Offerman-like voice mentioning the burger is a product of in vitro meat. There you have it, the first ever in vitro meat commercial. Of course, there are a myriad of advertising techniques available and marketers should choose techniques that expose in vitro meat to many demographics while stressing the benefits associated with the product.[181]

In vitro meat producers should also be willing to explain or demonstrate the production process to consumers. For instance, McDonald's Canada uploaded a video on YouTube depicting the chicken McNugget production process after one consumer asked if McNuggets contained "pink goop."[182] The video allows consumers to see that McNuggets are not made with "pink

175. *Id.*
176. *Id.*
177. *Id.*
178. Isha Datar, *Re-Thinking Meat: Isha Datar at TEDxToronto*, YOUTUBE (Apr. 27, 2013), http://www.youtube.com/watch?v=TFL3P89T1Hk.
179. *Id.*
180. *Id.*
181. And, of course, all advertising must comply with governmental regulations.
182. *See* McDonald's Canada, *supra* note 109.

goop," but whole chicken breasts.[183] Compare this to LFTB, where producers did not allow consumers to see how the product was made.[184] Instead, the maker of LFTB, Beef Products Inc., provided a vague description of how LFTB is made from "beef trim," which is placed in a centrifuge to separate the lean beef from fat.[185] BPI also responded to negative press by filing a defamation lawsuit against ABC Broadcasting claiming $1.2 billion in damages.[186] In vitro meat producers would be better off revealing, rather than concealing, the unconventional meat production process. LFTB is an example of what can happen if consumers are not fully aware of what they are eating.

D. Policy

The United States, and other science-based regulatory countries, could be an ideal starting point for introducing in vitro meat. Government officials within the United States strongly oppose a precautionary principle because it is seen as a replacement for the science-dominated regulatory structures that characterize most of the global governmental policies today.[187] Such a "science-dominated" regulatory structure could allow in vitro meat producers to introduce their product easier than in countries that follow a precautionary approach. The precautionary approach can be defined as, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent [harm]."[188] Thus, in vitro meat would have to be proven virtually 100 percent safe before approval in a precautionary country.

Countries following a precautionary approach have already rejected cutting-edge food technologies. Cass Sunstein writes, "European nations have taken a highly precautionary approach to genetically modified

183. *Id.*

184. *See generally* Beef Products Inc., *Our Commitment (Food Safety and Quality)*, BEEFPRODUCTS.COM, http://www.beefproducts.com/our_commitment.php (last visited Feb. 2, 2015).

185. *Id.*

186. Eliza Barclay, *Beef Products Inc. Sues ABC Over Repeated Attacks On 'Pink Slime'*, NPR.ORG (Sept. 13, 2012, 12:59 PM), http://www.npr.org/blogs/thesalt/2012/09/13/161064306/beef-products-inc-sues-abc-over-repeated-attacks-on-pink-slime.

187. John S. Applegate, *The Taming of the Precautionary Principle*, 27 WM. & MARY ENVTL. L. & POL'Y REV. 13, 14 (2002).

188. Sonia Boutillon, Note, *The Precautionary Principle: Development of an International Standard*, 23 MICH. J. INT'L L. 429, 430 (2002).

foods."[189] In 1998, the European Union ("EU") adopted regulations removing certain antibiotics from animal feeds based on "the possibility that antibiotic resistance in animals could be transferred to humans, thus reducing the effectiveness of these products as human medicines."[190] In 2006, the World Trade Organization found the "EU had essentially suspended the approval of Genetically Modified Organisms ("GMOs"), resulting in a de facto moratorium on biotech products with a significant impact on the world market."[191]

On the surface, the benefits of a precautionary approach are evident. To oppose a principle that will prevent harmful products from entering commerce appears heartless at first glance. However, a precautionary approach in its strongest form can lead to circularly logical results—it can be beneficial and detrimental at the same time.[192] For instance, a ban on cyclamate sweeteners due to carcinogenicity in the 1960s resulted in a rush to fill the market with replacement sweeteners.[193] Consumers switched to alternate sweeteners that were probably just as bad as the banned sweeteners and likely consumed more sugar, which may have resulted in increased weight gain and lead to diabetes.[194] This theory is especially relevant here. A hard precautionary approach to in vitro meat would seem to "impose a burden of proof that cannot be met" by proponents.[195] Moreover, such an approach would only prolong the concerns associated with traditional meat production discussed herein.[196]

E. Regulation in the United States

Imagine the public has accepted in vitro meat and manufacturers are capable of cost-effective mass production—who then will regulate this "innovative consumer product ingredient[] never before seen in nature?"[197]

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189. Cass R. Sunstein, *Beyond The Precautionary Principle*, 151 U. PA. L. REV. 1003, 1015-16 (2003).

190. Joanne Scott, *European Regulations of GMOs and the WTO*, 9 COLUM. J. EUR. L. 213, 220 (2003).

191. Laura M. Smith, Note, *Divided We Fall: The Shortcomings of the European Union's Proposal for Independent Member States to Regulate the Cultivation of Genetically Modified Organisms*, 33 U. PA. J. INT'L L. 841 (2012).

192. Sunstein, *supra* note 189, at 1004.

193. Frank B. Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH. & LEE L. REV. 851, 863-64 (1996).

194. *Id.* at 864.

195. Sunstein, *supra* note 189, at 1023.

196. *See* Part II. HISTORICAL MEAT PRODUCTION.

197. Katharine V. Tassel, *Regulating in Uncertainty: Animating the Public Health Product Safety Net to Capture Consumer Products Regulated By the FDA that Use*

Similar to cloned meat, the FDA will likely be responsible for regulating in vitro meat.[198] Several laws and FDA regulations would apply to in vitro meat, including sanitary manufacturing compliance, safety of the final product, and labeling.[199] As with cloned meat, the FDA may be willing to announce in vitro meat is safe if no distinction can be made when compared to traditional meat products.

VI. CONCLUSION

By looking to past food technologies, in vitro meat producers can create a competitive framework to potentially alleviate the detrimental effects of industrial meat production. As discussed above, industrial meat production is consuming an unsustainable amount of land and natural resources while emitting extremely high levels of greenhouse gases. Moreover, poor treatment of animals in the industrial meat production system has raised serious concerns with animal activists.[200]Society can no longer ignore the ever-increasing negatives associated with industrial meat production, which will continue to increase as more people demand meat products. In vitro meat production would leave a much smaller footprint on the environment than the industrial meat production system. Industrial meat production requires vast acreage to grow grains for feed. Feed requires a deluge of water to sustain the crops, not to mention the water used for animal consumption. In vitro meat requires no animal to slaughter, and thus no feed to plump the animal. Furthermore, in vitro meat labs could be built upwards instead of occupying the surface acreage required for feed, livestock, and slaughterhouses.

Because in vitro meat is such a new food technology, consumers who are used to traditional meat will certainly be hesitant. However, in vitro meat producers could potentially calm consumer worries by producing a product that is virtually indistinguishable from the real thing. Even if producers are capable of making an indistinguishable product, the benefit of an early disclosure of the origin and process of in vitro meat will outweigh the detriment of not disclosing the production process.[201] In any event, in vitro meat is years away from a viable production system, but such a production

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Innovative Technologies, Including Nanotechnologies, Genetic Modification, Cloning, and Lab Grown Meat, 2013 U. CHI. LEGAL F. 433, 434 (2013).

198. Zach Schneider, *In Vitro Meat: Space Travel, Cannibalism, and Federal Regulation*, 50 HOUS. L. REV. 991, 1014-15 (2013).

199. *See id.* at 1013-24.

200. PETA, *PETAs 'In Vitro' Chicken Contest*, PETA.ORG, http://www.peta.org/features/vitro-meat-contest/ (last visited Jan. 31, 2015).

201. *See* Part IV.c. *Lean Finely Textured Beef.*

system could provide exciting possibilities never imagined. Bill Nye sums it up best, "What makes the United States a world leader is our technology, our new ideas, our innovations. If we continue to eschew science, we won't stay ahead."[202]

202. Bill Nye, *Bill Nye Debates Ken Ham – HD (Official)*, YOUTUBE (Feb. 4. 2014), beginning at 26:47, http://www.youtube.com/watch?v=z6kgvhG3AkI.