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Geertson Seed Farms v. Johanns: Why Alfalfa is Not the Only Little Rascal for Bio-Agriculture Law

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GEERTSON SEED FARMS V. JOHANNS: WHY ALFALFA IS NOT THE ONLY LITTLE RASCAL FOR BIO-AGRICULTURE LAW

I. INTRODUCTION

Twenty years ago, genetically modified (GM) agriculture was barely conceivable; today, however, the prominence of biotechnology in food around the world is undisputed.[1] In 2006, GM crops comprised 102 million hectares globally, growing annually at a rate of thirteen percent.[2] Nevertheless, as the growth of GM agriculture rises, so too does the controversy surrounding the practice.[3] Proponents argue that increasing the quality and reliability of the world's food supply with GM crops could help fight global problems such as hunger and malnutrition.[4] Others fear, however, that these crops could adversely affect the environment, human health and the "economic order."[5]

One of the primary reasons for the opposition to GM technology is the scientific uncertainty surrounding the environmental effects of GM crops.[6] Opponents of the technology are hesitant to approve such agricultural developments until the risks of these new practices are clear.[7] The recent controversy surrounding GM al-

1. *See* A. Bryan Endres, *Coexistence Strategies, the Common Law of Biotechnology and Economic Liability Risks*, 13 DRAKE J. AGRIC. L. 115, 116 (2008) (identifying international scope of GM agriculture).

2. *See id.* (noting large amount of biotech crops planted worldwide). A hectare is equal to ten thousand square meters. Dictionary.com, http://dictionary.reference.com/browse/hectare (last visited Feb. 7, 2010) (defining hectare).

3. *See* Sophia Kolehmainen, *Precaution Before Profits: An Overview of Issues in Genetically Engineered Food and Crops*, 20 VA. ENVTL. L.J. 267, 268 (2001) (drawing attention to widespread controversy surrounding GM agriculture).

4. *See* Anthony J. Conner et al., *The Release of Genetically Modified Crops Into the Environment, Part II Overview of Risk Assessment*, 33 THE PLANT J. 19, 19-20 (2003), *available at* http://www.inai.org.ar/ogm/The%20relese. . . . . .part%202.pdf (recognizing benefits of GM crops, which allow farmers to meet consumer demands more quickly); *see also* Gregory N. Mandel, *Gaps, Inexperience, Inconsistencies, and Overlaps: Crisis in the Regulation of Genetically Modified Plants and Animals*, 45 WM. & MARY L. REV. 2167, 2171 (2004) (discussing potential benefits of GM crops).

5. *See* Conner, *supra* note 4, at 20 (identifying reasons for opposition).

6. *See* Rebecca Bratspies, *Some Thoughts on the American Approach to Regulating Genetically Modified Organisms*, 16 KAN. J.L. & PUB. POL'Y 393, 394 (2007) (summarizing GM opponents' arguments for need to explore scientific uncertainties of GM crops). GM crop opponents fear this agriculture could pose a threat to surrounding ecosystems and genetic biodiversity, among other worries. *See id.* at 404.

7. *See id.* (explaining opponents' need for certainty of effects of GM agriculture before approval).

falfa illustrates the tension between both sides of the debate over GM products in the United States.[8] The Ninth Circuit addressed this issue in *Geertson Seed Farms v. Johanns* (*Geertson Seed Farms*),[9] when the court upheld an injunction against the planting of GM "Roundup Ready" alfalfa until an Environmental Impact Statement (EIS) could answer specific questions about the alfalfa's environmental effects.[10] The issue, however, is far from settled.[11] The Supreme Court granted certiorari in January 2010 to determine whether injunctive relief is appropriate.[12]

This Note examines the Ninth Circuit's decision in *Geertson Seed Farms* in light of the Supreme Court's recent decision to hear the case.[13] Part II discusses the development and commercial introduction of Roundup Ready Alfalfa, as well as the procedural history of the case.[14] Part III provides a brief overview of the regulatory structure of GM agriculture, explores other recent cases concerning GM agriculture, and discusses the evidentiary hearing requirement at issue in *Geertson Seed Farms*.[15] Part IV analyzes the Circuit Court's decision to uphold the injunction against planting the GM crop.[16] Part V critiques the Ninth Circuit's decision, asserting that the court could have issued an injunction without disregarding proper procedure.[17] Lastly, Part VI considers the impact of this

8. *See* Western Organization of Resource Councils, *The Problem With GM Alfalfa* 1, Aug. 2005, *available at* http://www.worc.org/userfiles/The%20Problem%20with%20GM%20Alfalfa(1).pdf (discussing problems with GM alfalfa in U.S.).

9. 570 F.3d 1130, 1136 (9th Cir. 2009) (considering whether injunction's scope for NEPA violation was appropriate and whether evidentiary hearing should have been conducted).

10. *Id.* at 1141 (affirming district court's order).

11. For a further discussion of the Supreme Court's decision to grant certiorari and how it may decide the case, see *infra* notes 167-72.

12. *Geertson Seed Farms v. Johanns*, 570 F.3d 1130 (9th Cir. 2009), *cert. granted*, 2010 WL 144075 (Jan. 15, 2010) (No. 09-475) (granting certiorari to determine appropriateness of injunctive relief).

13. *Geertson Seed Farms*, 570 F.3d at 1141 (deciding that injunction against planting of Roundup Ready alfalfa should be upheld).

14. For a discussion of the facts of *Geertson Seed Farms*, see *infra* notes 19-47 and accompanying text.

15. For a further discussion of NEPA's background, the regulatory framework for GM agriculture, and relevant case law, see *infra* notes 48-101 and accompanying text.

16. For a discussion of the Ninth Circuit's analysis in *Geertson Seed Farms*, see *infra* notes 102-27 and accompanying text.

17. For a critical analysis of the Ninth Circuit's decision in *Geertson Seed Farms*, see *infra* notes 128-49 and accompanying text.

case in the wake of future developments involving GM agriculture.[18]

II. FACTS

Monsanto Company (Monsanto), a manufacturer of herbicides and pesticides, developed Roundup Ready alfalfa in the 1990s to resist the chemical glyphosate, the active ingredient in the herbicide, Roundup.[19] This tolerance to Roundup allows farmers to use the herbicide to kill weeds around their alfalfa crops without damaging the alfalfa itself.[20] The Animal and Plant Health Inspection Service (APHIS), the administrative agency responsible for determining which GM crops require regulation, initially classified Roundup Ready alfalfa as a crop in need of regulation.[21] In April 2004, however, Monsanto petitioned for the crop to be deregulated.[22]

Pursuant to the National Environmental Policy Act (NEPA), APHIS prepared an Environmental Assessment (EA) to determine the consequences of deregulating Roundup Ready alfalfa.[23] Based on its findings in the EA, APHIS determined that, despite insect cross-pollination of alfalfa, Roundup Ready alfalfa would not significantly affect organic farming.[24] APHIS received 663 comments regarding the deregulation of Roundup Ready alfalfa during the public comment period following publication of the EA, only 137 of which were from supporters.[25] In June 2005, despite the public opposition to deregulation, APHIS made a Finding of No Signifi-

18. For a discussion of the potential impact of the court's holding in *Geertson Seed Farms*, see *infra* notes 150-82 and accompanying text.

19. *See Geertson Seed Farms v. Johanns*, 570 F.3d at 1133-34 (providing factual background regarding GM alfalfa).

20. *Morning Edition: Genetically Modified Alfalfa Tested in Court*, National Public Radio broadcast (Apr. 27, 2007), *available at* http://www.npr.org/templates/transcript/transcript.php?storyId=9870452 (explaining how Roundup Ready alfalfa works).

21. *See Geertson Seed Farms*, 570 F.3d at 1134 (discussing preliminary judgment of APHIS to require regulation for Roundup Ready alfalfa).

22. *See id.* (providing summary of Monsanto's actions to push for deregulation).

23. *See id.* (recounting APHIS's decision to conduct EA).

24. *See id.* (discussing APHIS's conclusion based on EA). APHIS reasoned that, because the National Organic Program requires buffer zones around organic production operations, genetic contamination by Roundup Ready alfalfa was unlikely. *Id.*

25. *See id.* at 1134 (giving result from public comment period, which was comprised of overwhelmingly more opponents than supporters).

cant Impact (FONSI) based upon the results of the EA.[26] As a result, APHIS determined that an Environmental Impact Statement (EIS) was not required, and thus unconditionally deregulated Roundup Ready alfalfa.[27] This decision allowed Roundup Ready alfalfa to be the first commercialized GM perennial crop in the United States.[28]

In February 2006, Geertson Seed Farms, a "conventional" alfalfa seed farm, along with other similar seed farms and environmental groups, brought an action in the United States District Court for the Central District of California against the U.S. Department of Agriculture (USDA), Environmental Protection Agency (EPA), and APHIS.[29] This was the first lawsuit to ever challenge the deregulation of a GM crop.[30] Geertson Seed Farms alleged a NEPA violation because APHIS failed to prepare an EIS before deregulating Roundup Ready alfalfa.[31] The district court granted the plaintiffs' motion for summary judgment in February 2007 after determining that APHIS had, in fact, violated NEPA.[32] Following this decision, the district court entered a preliminary injunction, enjoining all planting of Roundup Ready alfalfa and all sales of the seed after March 30, 2007, until the court could determine permanent injunctive relief.[33]

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26. *See Geertson Seed Farms*, 570 F.3d at 1135 (summarizing conclusion reached in EA). For public notice of APHIS's decision to deregulate Roundup Ready alfalfa, see Monsanto Co. and Forage Genetics Int'l; Availability Determination of Nonregulated Status for Alfalfa Genetically Engineered for Tolerance to the Herbicide Glyphosate, 70 Fed. Reg. 36,917, 36,918 (June 27, 2005).

27. *See Geertson Seed Farms*, 570 F.3d at 1135 (noting APHIS's decision to deregulate).

28. *See* Western Organization of Research Councils, *supra* note 8, at 1 (identifying unprecedented nature of Roundup Ready alfalfa deregulation).

29. *See Geertson Seed Farms*, 570 F.3d at 1133 (providing procedural background of case). Conventional agriculture is "an industrialized agricultural system characterized by mechanization, monocultures, and the use of synthetic inputs such as chemical fertilizers and pesticides, with an emphasis on maximizing productivity and profitability." Annie Eicher, *Organic Agriculture: A Glossary of Terms for Farmers and Gardeners*, 2003, http://ucce.ucdavis.edu/files/filelibrary/1068/8286.pdf

30. Kristina Hubbard, *A Guide to Genetically Modified Alfalfa*, Western Organization of Resource Councils (2008), *available at* http://www.worc.org/userfiles/file/Guide_%20to_%20GM_%20Alfafa_%20v2.pdf (noting significance of *Geertson Seed Farms* in agricultural litigation).

31. *Geertson Seed Farms*, 570 F.3d at 1135 (discussing reason for suit against USDA).

32. *Id.* (reasoning that by failing to prepare EIS before deregulating, APHIS failed to take required "hard look" into possibility of genetic contamination).

33. *Id.* (reciting procedural history of case).

The district court conducted this hearing in April 2007.[34] During the hearing, Geertson Seed Farms sought to enjoin future planting of Roundup Ready alfalfa until APHIS prepared an EIS and made a new deregulation decision based on its findings.[35] Unlike Geertson Seed Farms, APHIS did not oppose resuming Roundup Ready alfalfa planting, but believed such planting should be qualified.[36] APHIS suggested "requiring isolation distances from other crops and requiring certain harvesting conditions to minimize gene flow to non-genetically engineered alfalfa seeds."[37] Without conducting an evidentiary hearing on the environmental issues surrounding Roundup Ready alfalfa, the court rejected APHIS's suggestions, but took a "middle course" when determining injunctive relief.[38] The court entered a permanent injunction, enjoining all planting of Roundup Ready alfalfa until APHIS could complete an EIS and make a new decision on deregulation.[39] The court, however, refused to enjoin the harvesting of any previously planted Roundup Ready alfalfa.[40]

Appellants, joined by intervenors Monsanto and Forage Genetics, appealed the injunction, arguing it was overbroad.[41] The appellants did not dispute that a NEPA violation occurred, but instead challenged the scope of the injunction and whether the district court should have conducted an evidentiary hearing prior to issuing the injunction.[42] After considering these issues, the Ninth Circuit affirmed the district court's order, holding that the lower court correctly issued the injunction while APHIS completed the requisite EIS.[43] The Appellants challenged the Ninth Circuit's decision and requested that the court rehear the case.[44] The court denied the petitions for panel rehearing and rehearing *en banc*, thus reaf-

34. *Id.* (discussing court hearing).

35. *Id.* (noting plaintiffs' argument at hearing).

36. *See Geertson Seed Farms*, 570 F.3d at 1135 (explaining defendants' desire to resume planting of Roundup Ready alfalfa).

37. *Id.* (summarizing defendants' proposal for future planting).

38. *See id.* at 1136 (attempting to compromise while giving remedy).

39. *See id.* (refusing to allow planting until EIS is prepared).

40. *See id.* (compromising between desires of Geertson Seed Farms and APHIS).

41. *See Geertson Seed Farms*, 570 F.3d at 1136 (discussing defendants' issue with injunction's scope). Forage genetics is a leading developer and producer of "value-added alfalfa genetics." Forage Genetics International, http://www.foragegenetics.com (last visited Feb. 9, 2010).

42. *See Geertson Seed Farms*, 570 F.3d at 1136 (discussing defendants' challenges to district court's decision).

43. *See id.* at 1141 (upholding district court's decision).

44. *See* The Center for Food Safety, *Federal Court Upholds Ban on Genetically Engineered Alfalfa*, http://truefoodnow.org/2009/06/25/federal-court-upholds-

firming its earlier decision.[45] On October 22, 2009, Monsanto petitioned the Supreme Court for a writ of certiorari.[46] The Supreme Court granted certiorari on January 15, 2010.[47]

III. BACKGROUND

A. National Environmental Policy Act

The National Environmental Policy Act (NEPA), which established the United States' environmental policies, became law in 1970 and was the first major environmental law in the United States.[48] This law was designed

> [t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.[49]

Though created almost forty years ago, NEPA is still very relevant today.[50] It applies to every agency within the executive branch of the federal government and requires these agencies to "make informed decisions" by determining beforehand whether proposed actions will significantly affect the environment.[51]

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ban-on-genetically-engineered-alfalfa/ (June 25, 2009) (discussing Defendant-Intervenors' request for Ninth Circuit to rehear case).

45. *See Geertson Seed Farms*, 570 F.3d at 1133 (denying petition for rehearing); *see also* The Center for Food Safety, *supra* note 44 (summarizing Ninth Circuit's reaffirmation of September 2008 decision).

46. Petition for Writ of Certiorari, *Montsanto Co. v. Geertson Seed Farms*, 2009 WL 3420495 (U.S. Oct. 22, 2009) (No. 09-475) (petitioning for writ of certiorari).

47. *Geertson Seed Farms v. Johanns*, 570 F.3d 1130 (9th Cir. 2009), *cert. granted sub nom. Monsanto v. Geertson Seed Farms*, 2010 WL 144075 (Jan. 15, 2010) (No. 09-475) (granting certiorari).

48. *See* Council on Environmental Quality, *A Citizen's Guide to the NEPA Having Your Voice Heard* 2 (Dec. 2007), *available at* http://ceq.hss.doe.gov/nepa/Citizens_Guide_Dec07.pdf (providing historical background of NEPA).

49. National Environmental Policy Act, 42 U.S.C. § 4321 (1970) (listing purposes of NEPA).

50. For further discussion of NEPA's relevance, see *infra* notes 51-58 and accompanying text.

51. *See* 42 U.S.C. § 4332(c) (1970) (requiring detailed statement by responsible official on environmental impact of proposed action); *see also* Council on Environmental Quality, *supra* note 48, at 2 (describing responsibilities of executive agencies under NEPA).

B. NEPA Procedural Requirements

When a federal agency develops a proposed action, NEPA requires the agency to analyze whether the action is likely to have significant environmental effects.[52] If there are no likely significant effects on the quality of the environment, the agency establishes a Categorical Exclusion (CE).[53] Further, as long as no "extraordinary circumstances" exist that might cause the action to significantly affect the environment, the proposed action is permissible.[54]

On the other hand, if the agency determines that the proposed action will significantly affect the quality of the environment, NEPA requires the agency to prepare an EIS, necessitating more extensive regulatory requirements.[55] The agency must identify all of the environmental issues involved and make recommendations about the action, while receiving public feedback.[56] Based on the findings of the EIS and the public commentary, a decision is made regarding whether to implement the proposed action.[57]

If an agency is unsure whether its proposed action will significantly affect environmental quality, it must prepare an EA.[58] This was the route APHIS took in *Geertson Seed Farms* when determining whether to deregulate Roundup Ready alfalfa.[59] An EA provides information concerning "the context and intensity of effects that may 'significantly' affect the quality of the human environment" and considers ways to alter the action to reduce such effects.[60] If the agency determines that significant environmental effects are

52. *See* Council on Environmental Quality, *supra* note 48, at 8-9 (summarizing first steps in NEPA process).

53. *See* 40 C.F.R. pt. 1508.4 (1978) (defining Categorical Exclusion); *see also* Council on Environmental Quality, *supra* note 48, at 10-11 (detailing Categorical Exclusion determination).

54. *See* Council on Environmental Quality, *supra* note 48, at 11 (permitting action under Categorical Exclusion).

55. *See* 40 C.F.R. pt. 1501.4 (1978) (establishing when to prepare EIS); *see also* Council on Environmental Quality, *supra* note 48, at 13 (describing EIS process).

56. *See* 40. C.F.R. pt. 1501.7 (1978) (requiring scoping of issues for EIS); *see also* Council on Environmental Quality, *supra* note 48, at 13-14 (summarizing Notice of Intent and Scoping elements of EIS process).

57. *See* Council on Environmental Quality, *supra* note 48, at 8 (mapping EIS process).

58. *See* 40 C.F.R. pt. 1508.9 (1978) (setting forth requirements for EA); *see also* Council on Environmental Quality, *supra* note 48, at 11 (discussing purpose of EA).

59. *See Geertson Seed Farms v. Johanns*, 570 F.3d 1130, 1134 (9th Cir. 2009) (noting APHIS's decision to publish EA).

60. Council on Environmental Quality, *supra* note 48, at 12 (evaluating significance of proposed action under EA).

possible, it prepares an EIS.[61] Alternatively, if the agency finds an absence of significant environmental effects, it makes a FONSI and makes a decision about the action accordingly.[62]

APHIS made a FONSI after conducting its EA, which led to the deregulation of Roundup Ready alfalfa.[63] As exhibited by APHIS's determinations in this case, the NEPA process provides agencies with a great deal of discretion when determining the environmental effects of their actions.[64] Moreover, APHIS faces the difficult task under NEPA of determining the environmental effects of GM agriculture when unresolved scientific issues still exist.[65] The confusion in *Geertson Seed Farms* over whether deregulating Roundup Ready alfalfa would significantly affect the environment illustrates this difficulty.[66] Making these determinations based on limited scientific knowledge can result in incorrect assessments, as demonstrated by APHIS's NEPA violation in this case.[67]

C. The Coordinated Framework

In 1986, following the dawn of the biotechnology industry, the White House Office of Science and Technology created the Coordinated Framework for Regulation of Biotechnology (Coordinated Framework).[68] This Coordinated Framework established the United States' "regulatory policy for ensuring the safety of biotechnology research and products."[69] Despite questions regarding the agricultural and environmental risks of GM products, the Coordi-

61. *See* Council on Environmental Quality, *supra* note 48, at 12 (describing one possible conclusion of EA process).

62. *See* Council on Environmental Quality, *supra* note 48, at 12 (discussing other possible conclusion of EA process).

63. *See Geertson Seed Farms*, 570 F.3d at 1134-35 (restating APHIS's conclusion that deregulation of Roundup Ready alfalfa would not significantly impact organic farming).

64. *See* Philip Michael Ferester, *Revitalizing the National Environmental Policy Act: Substantive Law Adaptions from NEPA's Progeny*, 16 HARV. ENVTL. L. REV. 207, 207-08 (1992) (describing NEPA as a "mere full disclosure bill," which gives federal agencies great amount of discretion when implementing requirements).

65. *See* Conner, *supra* note 4, at 39 (identifying scientific questions that still exist regarding effects of GM agriculture).

66. *See Geertson Seed Farms*, 570 F.3d at 1135 (mentioning APHIS's FONSI, which court found to be in violation of NEPA). APHIS violated NEPA because it "failed to take the required 'hard look' at whether and to what extent the unconditional deregulation of Roundup Ready alfalfa would lead to genetic contamination of non-genetically engineered alfalfa." *Id.*

67. *See id.* (discussing APHIS's violation of NEPA).

68. *See* Mandel, *supra* note 4, at 2216 (describing rationale behind culmination of Coordinated Framework).

69. Coordinated Framework for Regulation of Biotechnology, 51 Fed. Reg. 23,302 (June 26, 1986) (formulating federal regulatory policy for biotechnology).

nated Framework established that existing product regulation laws were sufficient to address biotechnology products' regulatory needs.[70] The result has been a "shared system of oversight" of biotechnology between the EPA, the Food and Drug Administration (FDA) and the USDA.[71]

The USDA, through APHIS, is responsible for regulating genetically engineered agriculture pursuant to the Plant Protection Act (PPA).[72] Guided by NEPA's decision-making procedural requirements, APHIS determines the safety of field trials of GM plants, makes decisions to authorize field tests and decides whether to deregulate GM plant products.[73] APHIS makes these determinations based on the same framework used to regulate conventional agriculture, which has been criticized by many as lacking the ability to adequately address the full range of potential adverse effects of genetic engineering.[74]

Further fueling the fire of this debate, APHIS has recently been under considerable scrutiny for its practices related to GM crops.[75] The USDA Office of Inspector General criticized APHIS in a 2005 audit report, noting insufficiencies in many of its current practices in carrying out its regulatory duties.[76] For example, the Inspector General observed that APHIS lacks critical information to assist with oversight because APHIS relies on permit-seeking individuals to supply the agency with the necessary information, rather than performing its own research.[77] Additionally, APHIS was unaware of the locations of many field-testing sites it was responsible

70. *See id.* (hypothesizing that existing statutes would provide adequate public safeguards).

71. Endres, *supra* note 1, at 119-20 (listing federal regulatory bodies comprising Coordinated Framework).

72. *See* Kohlemainen, *supra* note 3, at 291 (discussing APHIS's role in regulatory scheme).

73. *See* 7 C.F.R. pt. 340.0(a)(2) (2005) (regulating "plant pests" created by genetic engineering); *see also* Endres, *supra* note 1, at 119-20 (describing APHIS's responsibilities).

74. *See* Kohlemainen, *supra* note 3, at 292 (noting insufficiencies in laws and regulations caused by ad hoc application).

75. *See* Bratspies, *supra* note 6, at 415-16 (discussing criticisms by USDA Office of Inspector General of USDA and APHIS practices regarding GM crops).

76. *See* U.S. Department of Agriculture Office of Inspector General Southwest Region, *Audit Report Animal and Plant Inspection Service Controls Over Issuance of Genetically Engineered Organism Release Permits* 13 (Dec. 2005), *available at* http://www.usda.gov/oig/webdocs/50601-08-TE.pdf (criticizing APHIS actions during oversight process).

77. *Id.* (noting APHIS shortcomings in obtaining necessary information for field test inspections).

for monitoring.[78] These and other similar criticisms have led to questions regarding whether APHIS "has the capacity to conduct sufficient environmental reviews."[79]

D. Other Recent GM Agriculture Cases

Parties adversely affected by APHIS's regulatory approval of GM crops are increasingly turning to the courts to provide a remedy for the shortcomings of these decisions.[80] The most recent example of the courts' role in ensuring compliance with NEPA's procedural requirements is *Center for Food Safety v. Vilsack* (*Vilsack*),[81] decided on September 21, 2009.[82] In *Vilsack*, the plaintiffs challenged APHIS's decision to deregulate Roundup Ready sugar beets, another Monsanto product.[83] In the case, APHIS conducted an EA, reached a FONSI and unconditionally deregulated the GM crop, similar to its actions in *Geertson Seed Farms*.[84] The United States District Court for the Northern District of California found that deregulation of the Roundup Ready sugar beets could significantly affect the environment because of the potential for contamination of conventional sugar beets.[85]

The court held that "potential elimination of a farmer's choice to grow non-genetically engineered crops, or a consumer's choice to eat non-genetically engineered food, and an action that potentially eliminates or reduces the availability of a particular plant has a

78. *Id.* (criticizing APHIS oversight of field release program).

79. Mandel, *supra* note 4, at 2233 (questioning APHIS's ability to perform environmental reviews).

80. *See* Blake Denton, Comment, *Regulating the Regulators: The Increased Role for the Federal Judiciary in Monitoring the Debate Over Genetically Modified Crops*, 25 UCLA J. ENVTL. L. & POL'Y 333, 362 (2006-2007) (predicting that courts will begin to play larger role in GM regulation); *see also* Thomas P. Redick & A. Bryan Endres, *Litigating the Economic Impacts of Biotech Crops*, 22 NAT. RES. & ENV'T 24, 24-25 (2008) (identifying several recent cases regarding agricultural biotechnology).

81. No. C 08-00484 JSW, 2009 WL 3047227 (N.D. Cal. Sept. 21, 2009).

82. *Id.* at *1 (providing recent example of court stepping in to remedy inadequate APHIS decision).

83. *See id.* (giving factual background of case).

84. *See id.* at *2 (summarizing APHIS's determination under NEPA and subsequent decision to deregulate).

85. *See id.* at *9 (determining that deregulation of GM sugar beets would significantly affect environment). The court cited evidence that wind and insects can spread sugar beet pollen up to 800 meters, with the potential for even further distances in windier conditions. *Id.* at *7. Conventional sugar beet seed is produced primarily on 3,000 to 5,000 acres of land in Oregon's Willamette Valley. *Id.* As a result, the court found that these conditions make contamination of conventional sugar beets a very real possibility, as GM sugar beet pollen could easily be dispersed throughout the Willamette Valley. *See id.* at *9.

significant effect on the human environment."[86] Accordingly, the court held that APHIS violated NEPA and ordered it to complete an EIS.[87] While the court has not yet considered the appropriate remedy in this case, it is possible that injunctive relief will be granted at the remedies hearing.[88] Regardless of the court's upcoming decision, critics of GM agriculture see this case as a "major consumer victory for preserving the right to grow and eat organic foods in the United States."[89]

The United States District Court for the District of Columbia reached a similar conclusion when assessing the environmental effects of Roundup Ready creeping bentgrass in *International Center for Technology Assessment v. Johanns* (*International Center*).[90] In this case, APHIS granted permits to conduct field tests of GM creeping bentgrass without first preparing an EA or EIS to determine these tests' potential environmental effects.[91] The plaintiffs were concerned about GM contamination of conventional bentgrass, "enhanced weediness" and increased use of herbicides as a result of the GM bentgrass testing.[92] The court held that APHIS violated NEPA because it did not consider whether the field tests could significantly affect the environment, and granted an injunction against issuing field test permits in similar circumstances without initial NEPA preparation.[93]

E. Evidentiary Hearing Requirement

As a general rule, an evidentiary hearing is required prior to the issuance of an injunction unless (1) the facts are not in dispute; or (2) the adverse party waived its right to a hearing.[94] The Ninth

86. *Ctr. for Food Safety*, 2009 WL 3047227, at *9 (emphasizing importance of farmers' and consumers' ability to choose organic crops).

87. *See id.* (ordering APHIS to conduct proper inquiry into effects of gene transmission of GM sugar beets).

88. *See* Posting of Heather Whitehead to http://truefoodnow.org/2009/09/22/ (Sept. 22, 2009) (forecasting possible remedy).

89. *Id.* (noting importance of case for farmers and consumers of organic products).

90. 473 F. Supp. 2d 9, 29-30 (D.D.C. 2007) (providing another example of recent litigation concerning APHIS's decision to deregulate GM agriculture).

91. *See id.* at 12 (giving factual background of case). Creeping bentgrass is most commonly used for athletic fields, including golf course greens and lawns. *Id.* at 13.

92. *See id.* at 14 (discussing petitioners' claims).

93. *See id.* at 29-30 (remedying APHIS deregulation decision by requiring better inquiry before granting permits).

94. *See Charlton v. Estate of Charlton*, 841 F.2d 988, 989 (9th Cir. 1988) (establishing evidentiary hearing requirement for injunctions and noting two exceptions to requirement).

Circuit muddied this rule a bit in *Idaho Watersheds Project v. Hahn* (*Idaho Watersheds*),[95] when it held that an evidentiary hearing was not required before issuing a permanent injunction, despite the lack of either recognized exception.[96] The court reasoned that an evidentiary hearing was not required because the injunction at issue involved only "interim measures" in place until the Bureau of Land Management (BLM) conducted an environmental inquiry.[97] Central to this determination was the limited nature of the injunction and the deference the court gave to the BLM when adopting its proposed interim measures.[98]

The court's decision has resulted in confusion within the Ninth Circuit regarding its appropriate application.[99] Some judges have read *Idaho Watersheds* to allow an entirely new exception to the evidentiary hearing requirement, while others interpret it far more narrowly, viewing the discretion given to the agency as negating the need for an evidentiary hearing in those limited circumstances.[100] The mixed views concerning application of the *Idaho Watersheds* holding is central to the disagreement between the majority and dissenting judges over the evidentiary hearing issue in *Geertson Seed Farms*.[101]

IV. NARRATIVE ANALYSIS

In *Geertson Seed Farms*, the Ninth Circuit upheld the district court's order enjoining new planting of Roundup Ready alfalfa.[102] Though the appellants argued that the injunction was too broad in

95. 307 F.3d 815 (9th Cir. 2002).

96. *See id.* at 831 (foregoing evidentiary hearing requirement). The injunction required the defendant, the Bureau of Land Management (BLM), to review the environmental effects of cattle grazing permits it had previously issued, but allowed for cattle grazing to continue while the inquiry was being conducted. *Id.* at 823. To combat possible environmental harms, the court adopted recommendations made by the BLM to mitigate any potential harms which could occur during the BLM's environmental inquiry. *See id.* at 831.

97. *See id.* (holding that evidentiary hearing was not required).

98. *See id.* at 830-31 (explaining that hearing was not required because this case differed from typical injunction).

99. *See Geertson Seed Farms v. Johanns*, 570 F.3d 1130, 1140-42 (9th Cir. 2009) (expressing different views on application of *Idaho Watersheds*).

100. *Compare id.* at 1140 (interpreting *Idaho Watersheds* as not requiring evidentiary hearing for injunctions only in place until further environmental analysis), *with id.* at 1142 (Smith, J., dissenting) (interpreting *Idaho Watersheds* as not requiring evidentiary hearing for injunction when deference is given to agency recommendations).

101. *See id.* at 1140 (drawing attention to differing interpretations of *Idaho Watersheds*).

102. *See id.* at 1139 (noting that district court did not abuse its discretion in issuing permanent injunction).

scope and an evidentiary hearing should have been held prior to enjoining future planting, the Ninth Circuit rejected both arguments.[103] After extensive discussion of the district court's treatment of the case, the Ninth Circuit asserted that the district court followed proper procedure when determining injunctive relief, and thus, an evidentiary hearing in these circumstances was unnecessary prior to issuance of the injunction.[104]

A. Scope of Permanent Injunction

The first issue the Ninth Circuit considered was the scope of the injunction granted by the district court.[105] The appellants argued that the district court incorrectly granted injunctive relief because it presumed irreparable injury instead of conducting the "four-factor" test prior to issuing the permanent injunction.[106] The four-factor test requires a plaintiff to show

> (1) that it has suffered irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.[107]

In response to this argument, the Ninth Circuit noted that the district court "expressly recognized" that an injunction is not automatic following a NEPA violation and discussed how the court applied each of the test's four factors.[108]

When considering the first factor of the test, the Ninth Circuit noted that irreparable harm existed in the case, as irreversible contamination of conventional and organic alfalfa had already occurred from planting Roundup Ready alfalfa.[109] The second factor

103. *See id.* at 1141 (holding that district court did not err in issuing permanent injunction and declining to hold evidentiary hearing).

104. *See Geertson Seed Farms*, 570 F.3d at 1141 (providing reasoning for holding in favor of Geertson Seed Farms).

105. *See id.* at 1136 (determining scope of permanent injunction).

106. *See id.* (summarizing appellants' argument).

107. *Id.* (restating four factor test to obtain permanent injunctive relief).

108. *See id.* at 1137-38 (observing that district court applied each factor of test for permanent injunctive relief).

109. *See Geertson Seed Farms*, 570 F.3d at 1137 (noting district court inquired into first element of test and thus, did not presume irreparable harm). The court noted that this contamination was irreparable because contamination is irreversible, and conventional alfalfa cannot be replanted for two to four years after removal of the contaminated alfalfa. *Id.*

of the test was satisfied because "genetic contamination was sufficiently likely to occur so as to warrant broad injunctive relief."[110] In determining the balance of hardships, the third factor of the test, the court determined that the harm suffered by growers and consumers of conventional alfalfa outweighed the minimal economic harm Monsanto and Forage Genetics would suffer from an injunction.[111] Considering the final factor, public interest, the Ninth Circuit affirmed the district court's determination that it was in the public's best interest to enjoin future planting of Roundup Ready alfalfa prior to research on its effects.[112] The Ninth Circuit noted that while courts should give deference to agencies, courts are not required to automatically adopt agency decisions.[113] Accordingly, upon careful consideration of the four factors, the Ninth Circuit held that the district court did not abuse its discretion in ordering injunctive relief.[114]

B. Lack of Evidentiary Hearing

Additionally, the appellants argued that the district court should have held an evidentiary hearing prior to issuing a permanent injunction.[115] They asserted that before granting injunctive relief, the court should have considered evidence regarding the risk of genetic contamination, or lack thereof, posed by Roundup Ready alfalfa.[116] The Ninth Circuit disagreed, upholding the district court's reasoning that conducting an evidentiary hearing in this case would require the court to conduct essentially the same EIS inquiry required of APHIS.[117]

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110. *Id.* at 1138 (considering likelihood of irreparable injury from "hay-to-hay transmission").

111. *See id.* (balancing harm suffered by appellants and harm suffered by growers and consumers of conventional alfalfa). The Ninth Circuit reasoned that by issuing an injunction, but allowing the harvesting of GM alfalfa that had already been planted, "the court crafted a remedy that accounted for the hardships to both sides." *Id.*

112. *See id.* at 1138 (considering fourth factor of test and identifying that failure to study full effects of Roundup Ready alfalfa could result in elimination of conventional alfalfa, which would be against public interest).

113. *See id.* at 1138 (reasoning that giving deference to APHIS would allow a system which causes environmental harm to continue).

114. *See Geertson Seed Farms*, 570 F.3d at 1139 (noting that district court applied traditional four-factor test and did not make clearly erroneous factual determinations).

115. *See id.* (identifying appellants' second argument).

116. *See id.* (summarizing appellants' argument that court should have assessed witnesses' opinions and resolved evidentiary disputes over degree of risk).

117. *See id.* at 1141 (adopting district court's rationale).

More importantly, the court also found that the absence of an evidentiary hearing in these circumstances was appropriate because of the nature of the injunction in the case.[118] The Ninth Circuit noted that in *Idaho Watersheds*, an evidentiary hearing was not required prior to issuing an injunction in the case of a NEPA violation.[119] Similarly, because the injunction in *Geertson Seed Farms* was only issued until APHIS prepared an EIS, it had "a more limited purpose and duration," laying out "interim measures that would be in place only until the EIS was completed."[120] Due to the nature of the limited permanent injunction in these circumstances, the Ninth Circuit held that the district court was not required to conduct an evidentiary hearing before issuing injunctive relief.[121]

C. Judge Smith's Dissent

Judge N. Randy Smith believed that the majority opinion created a new exception to the evidentiary hearing requirement.[122] He noted that a court must conduct an evidentiary hearing prior to issuing a permanent injunction "unless (1) the facts were undisputed; or (2) the adverse party expressly waived its right to an evidentiary hearing."[123] Neither of these two exceptions was present in this case; rather, "the facts were sharply disputed by the parties."[124] Judge Smith argued that the Ninth Circuit should have reversed and remanded the case to allow the district court to conduct a proper evidentiary hearing.[125] Doing so, he opined, allows the court to consider live testimony and to test the witnesses' credibility through cross-examination.[126] This additional information would

118. *See id.* at 1139-40 (distinguishing injunction issued by district court from normal injunctions).

119. *See Geertson Seed Farms*, 570 F.3d at 1140 (restating holding of *Idaho Watersheds* case).

120. *Id.* at 1139-40 (comparing injunction in this case to injunction in *Idaho Watersheds*).

121. *See id.* at 1140 (holding that since injunction only involved interim measures and since evidence was considered at remedies hearing, evidentiary hearing was unnecessary).

122. *Id.* at 1141 (Smith, J., dissenting) (providing opinion on consequences of majority's decision to issue injunction without conducting evidentiary hearing).

123. *Id.* (listing exceptions to evidentiary hearing requirement).

124. *Geertson Seed Farms*, 570 F.3d at 1141 (Smith, J., dissenting) (noting that parties disagreed on risk of genetic contamination, which was underlying issue in determining whether injunction was needed).

125. *See id.* at 1143 (expressing belief that evidentiary hearing was needed).

126. *See id.* at 1142-43 (identifying additional information district court could receive from evidentiary hearing).

enable the court to better understand the alleged injury and the parties' hardships before issuing a nationwide injunction.[127]

V. CRITICAL ANALYSIS

Though the Ninth Circuit properly upheld the injunction in this case, it did so at the expense of clearly established procedural requirements.[128] The court correctly determined that the district court applied the four-factor test to determine injunctive relief.[129] Furthermore, the Ninth Circuit also noted that "the balance of harms will usually favor the issuance of an injunction to protect the environment" because "[e]nvironmental injury, by its nature, can seldom be adequately remedied by money damages and is often permanent or at least of long duration."[130] As environmental injury had already occurred in this case, and was sufficiently likely to continue occurring, precedent indicates that the odds were in favor of Geertson Seed Farms receiving injunctive relief.[131] It is for that reason that the Ninth Circuit's decision to disregard the procedural requirement of an evidentiary hearing is so perplexing. Because an evidentiary hearing would most likely affirm the clear injury suffered by Geertson Seed Farms, it would not have precluded the court from issuing injunctive relief.[132]

A. Disregarding Procedural Requirement

The court cites *Idaho Watersheds* to support its decision not to issue an evidentiary hearing, noting that the case permitted an injunction to ensure compliance with NEPA without first conducting such a hearing.[133] As Judge Smith correctly recognized in his dissent, the circumstances surrounding the injunction in *Idaho Water-*

127. *See id.* (recognizing that additional information from evidentiary hearing would provide court with more knowledge and support regarding decision to grant nationwide injunction).

128. *See id.* at 1141 (arguing that precedent is clear regarding evidentiary hearing requirement and that majority created new exception with its decision).

129. *See Geertson Seed Farms*, 570 F.3d at 1137-38 (considering each factor of test for injunctive relief and arriving at proper conclusion).

130. *Id.* at 1137 (quoting *Amoco Prod. Co. v. Vill. of Gambell*, 480 U.S. 531, 535 (1987)) (indicating that Court usually favors issuing injunction when environmental harm is involved).

131. *See id.* at 1137 (identifying likelihood of receiving injunctive relief when environmental injury exists).

132. *See id.* (determining that harm already occurred and proposed mitigation measures would be unenforceable due to government's lack of resources).

133. *See id.* at 1139-40 (adopting court's reasoning in *Idaho Watersheds* for determining evidentiary hearing was not required).

sheds were considerably different.[134] Although the court granted an injunction in *Idaho Watersheds*, it deferred to the BLM's recommendations to grant a temporary injunction, rendering an evidentiary hearing unnecessary because the dispute was essentially resolved.[135] Conversely, in *Geertson Seed Farms*, the court did not defer to APHIS's recommendations, thereby violating the appellants' procedural rights by failing to provide them an opportunity to present their scientific findings via an evidentiary hearing.[136] This decision, as Justice Smith so aptly recognized, "would eliminate a 'significant procedural step' without any real justification."[137] He suggested that this result will likely lead to a new exclusion to the evidentiary hearing requirement for cases where "(1) the injunction might dissolve at some point and (2) the issues, to be raised at the hearing, overlap the issues the agency must consider in making a final decision regarding the controversy."[138]

B. Respecting NEPA

By upholding the injunction in this case, the Ninth Circuit is sending a clear message: given the scientific uncertainty surrounding the effects of GM agriculture, it is best to tread lightly when making a decision to deregulate.[139] This decision shows that the court would rather err on the side of caution by issuing an injunction to avoid the possible harms of deregulation.[140] Moreover, though contrary to established procedure, the Ninth Circuit's decision not to require an evidentiary hearing illustrates a desire to uphold the NEPA evaluation process and to preserve it from judicial interference.[141]

The court explicitly stated that it did not wish to engage in the same inquiry of scientific facts required of APHIS when drafting its

134. *See Geertson Seed Farms*, 570 F.3d at 1142 (Smith, J., dissenting) (distinguishing case from *Idaho Watersheds*).

135. *See Idaho Watersheds Project v. Hahn*, 307 F.3d 815, 823 (9th Cir. 2002) (discussing district court's adoption of BLM's recommendations).

136. *See Geertson Seed Farms*, 570 F.3d at 1139 (recognizing rejection of APHIS's proposed mitigations measures).

137. *Id.* at 1143 (Smith, J., dissenting) (citation omitted) (expressing view that there is no need to eliminate evidentiary hearing requirement).

138. *See id.* (presenting circumstances where evidentiary hearing no longer will be required).

139. *See id.* at 1138 (noting necessity of studying effects of Roundup Ready alfalfa prior to deregulation decision in order to avoid potential harms).

140. *See id.* (adopting district court's policy rationale for issuing injunction).

141. *See Geertson Seed Farms*, 570 F.3d at 1141 (refusing to require further evidentiary hearing beyond its consideration of remedies-phase evidence).

EIS.[142] The court feared that conducting an evidentiary hearing under these circumstances would be tantamount to accepting a condensed EIS without all the relevant data and without the opportunity for public comment.[143] The Supreme Court will take a closer look at the district court's questionable handling of procedural requirements to determine whether the issuance of an injunction in these circumstances was proper.

C. What Next?

While it is evident that the Ninth Circuit does not want to become mixed up with regulatory agencies' powers, the court may find itself being asked to make these types of executive determinations more and more frequently, as it assumes the role of fact finder in disputes over GM agriculture.[144] Recently, an increased number of cases have arisen regarding APHIS's failure to properly administer the Coordinated Framework and to adhere to NEPA's procedural policy.[145] In addition to *Geertson Seed Farms*, the U.S. District Court for the District of Columbia issued an injunction against APHIS in *International Center*, enjoining the planting of Roundup Ready creeping bentgrass until APHIS prepared an EIS.[146] Similarly, the U.S. District Court for the Northern District of California recently found that APHIS violated NEPA when it permitted field tests of GM sugar beets.[147] While the courts have played a major role in ensuring agency compliance with NEPA procedure, "litigating class action common law claims may be an inefficient and costly substitute for a proactive regulatory strategy."[148] Indeed, something more needs to be done.[149]

142. *See id.* at 1140 (agreeing with district court that evidentiary hearing should not be held to consider same matters APHIS would look at while conducting EIS).

143. *See id.* at 1139 (affirming importance of developing data and receiving public comment through NEPA's EIS process).

144. *See* Redick & Endres, *supra* note 80, at 24 (predicting crops passing through "federal approval hurdle" may increasingly become subject to liability).

145. *See* Bratspies, *supra* note 6, at 417 (noting that many court decisions in recent years have ruled that agencies failed to properly carry out their duties under Coordinated Framework).

146. *See id.* at 419-20 (summarizing decision in *Int'l. Ctr. for Tech. Assessment*, which was similar to decision in *Geertson Seed Farms*).

147. *See Ctr. for Food Safety v. Vilsack*, No. C 08-00484 JSW, 2009 WL 3047227, at *9 (N.D. Cal. Sept. 21, 2009) (concluding APHIS did not take required "hard look" at environmental effects, as required by NEPA).

148. Redick & Endres, *supra* note 80, at 29 (preferring development of proactive regulatory strategy for biotechnology over litigation).

149. *See, e.g.*, Paul Voosen, *Courts Force U.S. Reckoning With Dominance of G.M. Crops*, N.Y. TIMES, Oct. 8, 2009, *available at* http://www.nytimes.com/gwire/2009/

VI. IMPACT

Alfalfa is the fourth largest crop in the United States and is grown on over 20 million acres across the country.[150] Though we may not eat alfalfa directly, dairy and beef cattle, lambs, pigs and honeybees consume it; therefore, we ingest alfalfa secondhand from many of the foods we eat.[151] This crop's prominence in the United States renders the future of Roundup Ready alfalfa of great importance.[152]

A. Consequences of Deregulation

While the Ninth Circuit issued an injunction against the planting of Roundup Ready alfalfa for now, it did so only until APHIS conducts an EIS, and through the EIS, a more extensive inquiry into the issues surrounding deregulation.[153] Following this inquiry, APHIS may still conclude that it is appropriate to deregulate Roundup Ready alfalfa, as "NEPA merely prohibits uninformed rather than unwise-agency action."[154] Indeed, APHIS released its draft EIS in November 2009 and preliminarily concluded that deregulation of Roundup Ready alfalfa would not significantly affect the environment.[155] After conclusion of the public comment period in February 2010, APHIS will consider the comments received, issue a final EIS and determine whether the alfalfa should be deregulated.[156] If APHIS reaches the same conclusion in its final EIS that it did in its draft EIS, deregulation could have dramatic effects

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10/08/08greenwire-courts-force-us-reckoning-with-dominance-of-gm-43684.html?pagewanted=all (expressing need for new and better GM policies).

150. Hubbard, *supra* note 30, at 5 (noting importance of alfalfa in Americans' daily lives).

151. *See id.* (asserting that alfalfa is large part of Americans' diets).

152. *See id.* (identifying wide array of risks Roundup Ready alfalfa poses to Americans).

153. *See Geertson Seed Farms v. Johanns*, 570 F.3d 1130, 1141 (9th Cir. 2009) (limiting injunction by issuing it only for time period before APHIS complies with NEPA).

154. *See Int'l Ctr. for Tech. Assessment v. Johanns*, 473 F. Supp. 2d 9 at 28 (D.D.C. 2007) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989)).

155. *See* USDA, GLYPHOSATE-TOLERANT ALFALFA EVENTS J101 AND J163: REQUEST FOR NONREGULATED STATUS xii (2009), *available at* http://www.aphis.usda.gov/biotechnology/downloads/alfalfa/gealfalfa_deis.pdf (summarizing APHIS's conclusion in draft EIS).

156. USDA, Roundup Ready Environment Impact Statement (EIS), Jan. 13, 2010, http://www.aphis.usda.gov/biotechnology/alfalfa_eis.shtml (explaining alfalfa EIS process).

on the farming industry and the environment.[157] As described by Phillip Geertson, the owner of Geertson Seed Farms, "Once [Roundup Ready alfalfa] is in the environment, it's there—it will get in everything. . . Alfalfa as we know it will be gone forever."[158]

Deregulation will likely lead to genetic contamination of conventional alfalfa from cross-pollination, as already occurred prior to issuance of the injunction in *Geertson Seed Farms*.[159] This contamination, in turn, could negatively affect the country's organic food market.[160] Stores specializing in organic foods, such as Whole Foods Market and Trader Joe's, require their products to be free of GM ingredients.[161] With farmers unable to guarantee that their livestock does not consume traces of Roundup Ready alfalfa that may have contaminated their organic alfalfa, the farming industry will encounter difficulties fulfilling the demands for pure organic products.[162] U.S. alfalfa exports to foreign countries could also be adversely affected, as many countries require GM-free feed.[163]

In addition to these agricultural problems, deregulation may lead to increased herbicide use.[164] Since the introduction of

157. *See* Hubbard, *supra* note 30, at 8-12 (recognizing various agricultural, environmental and market risks posed by deregulation of Roundup Ready alfalfa).

158. Hubbard, *supra* note 30, at 48 (expressing concern from organic farmer's point of view about effects of deregulating Roundup Ready alfalfa).

159. *See Geertson Seed Farms v. Johanns*, 570 F.3d 1130, 1137 (9th Cir. 2009) (acknowledging that Roundup Ready alfalfa contamination already occurred, which establishes that genetic contamination is likely to occur again). For a further discussion of rising contamination rates by GM crops, see Hubbard, *supra* note 30, at 39-40 (identifying recent GM contamination incidents).

160. *See* Hubbard, *supra* note 30, at 10 (realizing that GM contamination puts organic food market at risk).

161. Hubbard, *supra* note 30, at 10 (naming food stores that require GM-free ingredients); *see also* Whole Foods Market, *Organic Food*, http://www.wholefoodsmarket.com/values/organic.php (last visited Jan. 10, 2010) (ensuring that its organic products are certified and protected from contamination by nonorganic materials).

162. *See* Hubbard, *supra* note 30, at 54-55 (explaining that concern exists among both farmers and export businesses about ability to provide GM-free alfalfa).

163. *See* Hubbard, *supra* note 30, at 55 (listing alfalfa export countries which have low tolerance for GM alfalfa). Some conventional seed producers have had to move outside the United States to ensure compliance with foreign, anti-GM standards. Voosen, *supra* note 149 (identifying difficulties for conventional seed producers posed by GM cross-pollination).

164. Hubbard, *supra* note 30, at 9 (identifying increased herbicide use as environmental risk of Roundup Ready alfalfa). Scientists fear that herbicide-resistant crops will eventually allow weeds to develop herbicide resistance as well. *See, e.g.*, Miguel A. Altieri, *The Ecological Impacts of Transgenic Crops on Agroecosystem Health*, 6 ECOSYSTEM HEALTH 13, 16 (2000), *available at* http://www.colby.edu/biology/BI402B/Altieri%202000.pdf (fearing herbicide resistance). To combat this problem, an increased use of certain herbicides will likely develop. *See id.*

Roundup Ready crops in the United States, herbicide use has increased by 60,000 tons.[165] The greater use of herbicides increases the risk of subsequent environmental effects, such as the development of herbicide-resistant weeds.[166]

B. The Upcoming Supreme Court Decision

Once APHIS completes its EIS, the Ninth Circuit's injunction will expire, thereby making the appeal moot.[167] If, however, the Supreme Court nonetheless finds the case justiciable, it will consider whether NEPA plaintiffs are required to show a "likelihood of irreparable harm" and whether an evidentiary hearing is required to receive injunctive relief in these circumstances.[168] The Supreme Court will also decide whether an injunction in these circumstances, which Monsanto argues present only a "remote possibility of reparable harm," was appropriate.[169]

If the Supreme Court continues its trend from last term, when it ruled against environmental interests in all five environmental cases it heard, a reversal of the Ninth Circuit's decision in *Geertson Seed Farms* is a very real possibility.[170] Should the Supreme Court overturn the Ninth Circuit's decision, conventional crop farmers seeking injunctive relief would need to present more evidence through an evidentiary hearing to prove irreparable harm caused

165. *See* Hubbard, *supra* note 30, at 33 (demonstrating that herbicide use has greatly increased since introduction of Roundup Ready crops in U.S.).

166. *See* DONNA V. VOGT & MICKEY PARISH, FOOD BIOTECHNOLOGY IN THE UNITED STATES: SCIENCE, REGULATION, AND ISSUES, RL 30198, at 21 (2001), *available at* http://202.41.85.234:8000/InfoUSA/tech/biotech/st-41.pdf (noting possibility of herbicide-resistant weeds). Herbicide-resistant weeds require the use of "new, different, or stronger herbicides" to prevent their spread. *Id.* Using too large an amount of the herbicide glyphosate raises the possibility of "global warming, acidification, nutrification, summer smog and toxic particulates." Richard Bennett et al., *Environmental and human health impacts of growing genetically modified herbicide-tolerant sugar beet: a life-cycle assessment*, 2 PLANT BIOTECH. J. 1, 4 (2004), *available at* http://www.bouldercounty.org/OPENSPACE/sugarbeets/pdf/03Bennett.pdf (identifying potential environmental problems involved with greater application of glyphosate).

167. Brief for the Federal Respondents in Opposition at *11, *Monsanto Co. v. Geertson Seed Farms*, 2009 WL 5423018 (U.S. Dec. 23, 2009) (No. 09-475) (arguing that Supreme Court should not grant certiorari because appeal will become moot before Court can hear case).

168. *See* Petition for a Writ of Certiorari, *supra* note 46, at *i (presenting questions for Supreme Court consideration).

169. *See id.* (providing Supreme Court with third question for consideration).

170. *See* Adam Liptak, *Environmental Groups Find Less Support on Court*, N.Y. TIMES, July 3, 2009, *available at* http://www.nytimes.com/2009/07/04/us/04scotus.html (observing trend among Supreme Court's treatment of recent environmental cases).

by GM crops.[171] Meeting this evidentiary burden may prove to be difficult, as the environmental effects of GM crops remain disputed.[172]

C. Beyond Geertson Seed Farms

Regardless of what the Supreme Court decides, *Geertson Seed Farms* has far broader implications beyond GM alfalfa; it illustrates the growing trend of genetic modification in agriculture, the unanswered questions surrounding its environmental effects, and the insufficiency of APHIS's decision making under the existing laws and Coordinated Framework.[173] Today, it is estimated that at least seventy percent of the food found in grocery stores is a product of GM seeds.[174] The popularity of GM agriculture will only persist as large corporations like Monsanto continue to develop new GM products, such as GM milk and sugar beets.[175] Moreover, as this technology continues to develop, it is likely that new issues and concerns will surface, causing additional problems.[176]

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171. *See Geertson Seed Farms v. Johanns*, 570 F.3d 1130, 1142-43 (9th Cir. 2009) (Smith, J., dissenting) (describing why evidentiary hearing is necessary prior to granting injunctive relief and listing types of evidence considered in such hearing).

172. *See* Conner, *supra* note 4, at 34 (summarizing both positive and negative predictions of future impact of GM crops). While some forecasts predict GM crops will cause "irreversible and catastrophic harm to biodiversity," many others exist that "predict the opposite." *Id.* A particular GM crop's potential impact on biodiversity must be assessed on a case-by-case basis because the particular risk depends on such factors as "the particular characteristics of a given GM crop, as well as [on] the socio-economic and legal context of the agricultural system into which the crop is introduced." *Id.* For a further discussion of the uncertainty surrounding the environmental risks of GM crops, see *supra* notes 5-7 and accompanying text (accounting for scientific uncertainty of effects of GM crops, which sparks opposition to introduction of such crops).

173. *See* Dennis J. Kucinich, *Is USDA Accounting for Costs to Farmers from Contamination Caused by Genetically Engineered Plants?* 4-5, Opening Statement, Domestic Policy Subcommittee, Oversight and Government Reform Committee (Mar. 13, 2008), *available at* http://domesticpolicy.oversight.house.gov/documents/20080327113956.pdf (recognizing bigger picture of *Geertson Seed Farms* beyond initial decision); *see also* Denton, *supra* note 76, at 361 (asserting that APHIS's inadequacies extend well beyond the immediate suits against it).

174. Mandel, *supra* note 4, at 2177 (providing statistics regarding prominence of genetically modified agriculture).

175. *See* Donald L. Barlett & James B. Steele, *Monsanto's Harvest of Fear*, VANITY FAIR, May 2008, *available at* http://www.vanityfair.com/politics/features/2008/05/monsanto200805?currentPage=2 (mentioning products currently under development by Monsanto).

176. *See* Mandel, *supra* note 4, at 2246 (hypothesizing that regulating under existing Coordinated Framework will become more difficult as new issues arise with biotechnology).

Despite the wide use of GM agriculture, these products are regulated under NEPA, which was created at a time when GM products had not yet been conceived.[177] As a result, the current regulation of GM agriculture "is a product of the historical accident of transgenic products being squeezed into statutory definitions not intended for them."[178] Though courts expressed a willingness to enforce the regulatory standards set forth by NEPA in *Vilsack* and *International Center*, the continued issuance of injunctions on a case-by-case basis for each new GM product may become costly and inefficient as GM agriculture and its accompanying regulatory problems grow.[179] Furthermore, courts lack the scientific expertise needed to make determinations about the safety of these products.[180] Rather than relying on the courts to enforce NEPA and make the scientific determinations required of regulatory agencies, a new regulatory system must be designed to rectify the inadequacies of the current system.[181] New laws specifically devoted to the regulation of GM agriculture must be developed, and the division of regulatory authority over GM agriculture must shift from APHIS to an agency with the scientific knowledge, experience and resources to properly assess the environmental effects of this technology.[182]

*Allison M. Straka**

177. *See* Mandel, *supra* note 4, at 2242-43 (identifying underlying problem that framework was not designed to regulate GM products).

178. Mandel, *supra* note 4, at 2251 (criticizing current GM product regulation).

179. *See* Redick & Endres, *supra* note 80, at 29 (recognizing inefficiency of litigating biotechnology claims).

180. *See* Conner et al., *supra* note 4, at 39 (suggesting that scientific evaluations are needed to resolve questions about effects of GM crops).

181. *See, e.g.*, Bratspies, *supra* note 6, at 423 (calling for improved regulation of agricultural biotechnology). Bratspies urges the adoption of a system "that independently reviews and approves products that are safe for consumers and the environment." *Id.*

182. *See, e.g.*, Mandel, *supra* note 4, at 2250, 2259 (suggesting new regulatory system).

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