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Department of Agricultural Economics Working Paper No. AEW P 2003-5

June 2003

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Draft Date: June 10, 2003

Abstract: Interviews with Missouri corn and soybean farmers reveal what farmers feel are the most important ethical challenges in agriculture. In contrast to the literature, which characterizes ethical challenges in terms of philosophical debates about soil conservation, the use of pesticides and genetically modified seeds, or the treatment of animals, for instance, this research finds that farmers perceive ethical challenges in behavioral terms. The reason is rooted in the industrialization of agricultural production, which creates tensions for farmers between doing what they believe to be right and doing what they feel they must in order to survive.

* An earlier version of this paper was presented at the annual meetings of the Agriculture, Food, and Human Values Society, in Austin, Texas. This research was supported in part by the Missouri Agricultural Experiment Station.

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"We must diversify and deepen our capacity for saying what is important to us and why, and for hearing what is important to others (and why)." (Thompson, 1998, p. 208)

Introduction

There are many important ethical issues and challenges in agriculture. Kunkel (2000, pp. 26-27) identified several of these as "the industrialization of agriculture, the diminution of the family farm, the emphasis on production agriculture in contrast to the provision of food directed toward targets of human health and environmental integrity, the sustainability of the resources (soil, water, clean air) and agricultural people, equity among consumers and farmers, social justice for the poor and landless, the right of choice, the interests of nonhuman organisms, the apparent uncoupling of agricultural science and technology from ecology, and the current developments in science and technology, stimulated in part by biotechnology and other emerging sciences." These are serious problems, to be sure. However, their delineation and exposition have been accomplished principally "outside" of agriculture – by academic researchers and philosophers, for instance.

There have been few studies devoted at understanding what those on the "inside" of agriculture – the farmer and other agricultural producers – perceive to be important ethical challenges in agriculture. For example, Dundon (1991, p. 63) identified "a set of dynamic first principles for an applied ethics in agriculture" by examining the writings of eight religious-based

organizations, including the Reformed Church of America, the U.S. Catholic Conference, and the American Lutheran Church. The ethical challenges important to these religious organizations, which Dundon said involved representation from agricultural interests, included the impact of private ownership on society, the adequacy of the food supply, sustainability, and the environment. More recently, Schoon and Te Grotemhuis (2000) interviewed conventional and ecological Dutch farmers to determine the relationship among the values of farmers regarding sustainability and nature and specific farming practices. They observed a correlation between values and the behavioral choices of farmers. They also found that farmers have a concern for "societal appreciation, continuity of the farm, and perceptions of 'nature'" (pp. 25-26).

The purpose of this paper is to provide evidence of the ethical concerns of agricultural producers. Specifically, this paper presents findings from interviews with Missouri corn and soybean farmers designed to learn what farmers feel are the most important ethical challenges in agriculture. Instead of gauging farmer opinions on specific ethical issues, such as attitudes towards nature or satisfaction with farm life, as in Sullivan, McCann, De Young, and Erickson (1996), this study attempts to understand what farmers believe are important ethical issues in their own words and from their own perspectives. Are the ethical challenges of farmers the same as those articulated by academic researchers? If not, what are they, and why do they differ? Because of the importance of agriculture to society, and recognizing the role of the farmer within the agricultural system, it is imperative that we acknowledge the perspectives of farmers with respect to agricultural ethics.

This research builds on the distinction I have made between two general types of ethical problems in agriculture (James, 2003). One type of ethical challenge reflects philosophical

"debates." For example, should farmers adopt genetically modified (GM) crops or should they use GM-free seeds? Should animal welfare be considered in concentrated livestock production? Should intensive farming practices be used or should farmers practice sustainable farming techniques? These are "debates" in the sense that answers are not obvious but rather are a source of protracted controversy. In contrast, the other type of challenge reflects behavioral issues in which people have incentives to do things that they or others understand to be inappropriate. Examples here include the dumping of toxic wastes into public water systems and the violation of food safety standards by food processors. Although it is generally recognized that one should not indiscriminately dispose of toxicants into public waterways or bribe agricultural inspectors, for example, people often have incentives to do just that, thus creating an ethical problem. Philosophers, agriculturalists, and academics that write about ethical issues in agriculture focus largely on the philosophical debates. A principal finding of this study is that the important ethical issues in agriculture, from the perspective of farmers, are more behavioral than philosophical. The reason why the ethical challenges of farming are characterized more in terms of behavior than philosophy is that farming takes place in an environment that is increasingly industrial, market-oriented and business-like. This is not to say that farming has not been considered a business until only recently – "it is important also to remember that a farmer is a businessman," says Edwards (1991, p. 75). Rather, it is an acknowledgment that the intensification of market processes in agriculture might compel farmers to believe that ethics should be thought about in terms of how they affect business, thus creating the potential for farmers to justify unethical conduct because such behavior is seen as necessary in order to remain competitive.¹ In short,

¹ This is the thesis of Carr (1997), who stated that in the case of deception, there is a difference between business morality and ordinary morality. "[M]ost bluffing in business might be regarded simply as game strategy – much like bluffing in poker, which does not reflect on the morality of the bluffer" (p. 451). "The essential point ... is that ethics

ethics for farmers is summarized by the following statement of one farmer interviewed for this study: "*Most things come down to money, or power.*"

This paper begins with a brief overview of changes that have occurred within agriculture during the past 100 years. The purpose of this overview is to illustrate how economic pressures are increasing for farmers, thus providing the context within which farmers today operate. Next, the paper presents an encapsulation of the findings obtained from interviews with farmers about ethics. As shown below, the predominant theme of these interviews was the economic pressures farmers face as a result of the industrialization of agriculture. Finally, the paper concludes with a discussion of implications and directions for future research.

Economic Context of Ethics in Agriculture

The ethical challenges that exist in agriculture today, as depicted in the literature, can be summarized within the following four main categories: "animal (nature) rights, conservation, organization of agriculture, and people versus planet relationships" (Wunderlich, 1990, p. 21). These categories of ethical challenges, while important separately, are related to and a product of one basic root cause: the industrialization of agriculture. The industrialization of agriculture resulted from the "application of scientific knowledge, both basic and applied, to agriculture, ... dating from the middle of the 19th century" (Johnson, 1997, p. 2). Agricultural industrialization is manifested as a shift from small size and labor intensive farming practices in which labor was the scarcest factor of production (Boserup, 1965) to large scale operations characterized by an

of business are game ethics, different from the ethics of religion" (p. 452). "Most executives from time to time are almost compelled, in the interests of their companies or themselves, to practice some form of deception when negotiating with customers, dealers, labor unions, government officials, or even other department of their own companies.... I think it is fair to say that if the individual executive refuses to bluff from time to time – if he feels obligated to tell the truth, the whole truth, and nothing but the truth – he is ignoring opportunities permitted under the rules and is at a heavy disadvantage in his business dealings" (p. 452).

increased reliance on machinery and technology and the intensive use of land, chemicals and energy rather than labor resources in agricultural production. Machinery and technology not only affects how agricultural production is organized but also has implications for animal welfare, environmental conservation and the relationship between people and the planet. For instance, the use of machinery in agricultural production results in greater productivity per unit of human effort, thus lowering the average cost of agricultural production. This creates incentives for farmers to increase the scale of operation in order to remain competitive and recoup the fixed costs associated with the adoption of new technology. Moreover, "as the inputs of modern technology are supplied from the industrial sector of the economy, pressure persists to convert farming to an industrial style of organization" (Breimyer, 1982, p. 192). These factors contribute to the decline of the family farm and the rise of corporate farming. Because industrial agriculture is resource (land, water, agrochemicals) intensive, issues involving environmental conservation and sustainability as well as concerns over animal welfare arise (see Larkin, 1990). Furthermore, industrial agriculture is by nature labor non-intensive (because machinery replaces human labor), thus contributing to concerns about the rural poor, farm family structure, and farming communities (see Albrecht, 1998) as well as equity among consumer, farmer, and agribusiness.

Table 1 presents a summary of some of the changes that have characterized the industrialization of agriculture during the 20th century, and Table 2 gives a summary of nominal prices for selected agricultural commodities for the decades between 1970 and 2000. These tables provide evidence that economic pressures for farmers have increased during the last century. For instance, during the last century the number of farms decreased while the average farm size increased. Fewer people worked in agriculture, while those who did relied less on animal labor and more on machinery (e.g., tractors). Total production for most agricultural

commodities increased and agricultural productivity, measured as the ratio of inputs used to outputs produced, nearly tripled. However, even though U.S. civilian population increased over the last 100 years causing demand for agricultural products to increase as well, as seen in Table 2 the net effect of agricultural industrialization has been a downward pressure on the some of the most important agricultural commodities in the U.S. in nominal terms (i.e., excluding the effect of inflation). The impact of the downward pressure of farm prices on farmer well-being is exacerbated by the fact that input prices have generally increased for farmers even while product prices declined, as seen in the declining ratio of prices received to prices paid (see Table 1).² When input costs increase as output prices decrease, producers will either go out of business or increase the scale and/or productivity of their operations in order to maintain a given level of net income (hence the declining number of farms and increasing farm size). The downward pressure on prices resulting from increased production and productivity causes what Bonnen and Browne (1989, p. 14) described as a "technological treadmill." As Thompson (1998, p. 108) clarified, "agricultural technology increased farm productivity, but this in turn lowers prices, forcing individual farmers to run faster just to stay in place."

The industrialization of agriculture and the resulting technological treadmill on which farmers are increasingly being forced to run is a result of technological change and social preferences for low cost, high quality food. According to Burkhardt (1991, p. 321),

The historical analogies are clear: nearly every efficiency- increasing innovation in technology over the past 100 years that has been introduced into agriculture and widely adopted by agricultural producers has contributed to the industrialization and concentration of agricultural production. The predominant judgment on the part of the agricultural establishment (including farmers), as well as the implicit judgment on the part of consumers, has been that increased productivity, yields, and cheap and available

² For example, the ratio of prices received to prices paid shows how \$1 in farmer input costs is translated into farmer income. In 1910 the ratio was 1.02, suggesting that for every dollar spent on input \$1.02 was received as income. In 1997 the ratio was only \$0.44.

food are the prime concern. Economics appears to dictate that this will be best (or only) achieved by high-tech, large-scale agricultural operations, so that technologies favoring this structure have been and probably will continue to be introduced into agriculture.

The desire for "cheap and available food" is particularly important. We (especially North Americans) value low cost and high quality not just in foodstuffs³ but also in all products and services. We want it available, and we want it cheap. Perhaps the clearest evidence of this is the fact that Wal-Mart – a company that institutionalized the concept of low-cost pricing with its slogan "Everyday Low Price" – not only is the largest company in the United States, in terms of annual revenue, but also is the largest U.S. grocery retailer.⁴ If society did not value low price over other ends, Wal-Mart would not be where it is.⁵

As long as low price is valued by society and the industrialization of agriculture puts downward pressure on agricultural prices, the "technological treadmill" on which farmers run will increase in speed and intensity. The implication is that farmers will face greater economic pressures over time to decrease the costs of production by adopting new technologies and increasing farm size or to increase the revenues generated, no matter how this is done. This is the economic environment – which one "insider" described as "hostile" (Edwards, 1991, p. 78) – within which today's farmers operate. Understanding the increasing economic pressures facing farmers is necessary in order to understand the perspectives farmers have on ethical issues in agriculture. Indeed, it is within this framework that discussions are conducted with farmers about

³ Indeed, "virtually all states desire a cheap food policy, either from humanitarian concerns for the poor or from a desire to avoid civil unrest, or both" assert Busch, Lacy, Burkhardt, and Lacy (1991, p. 107).

⁴ In 2002 Wal-Mart had revenue of \$246.5 billion, putting it at the top of the Fortune 500 list (Fortune, 2003). According to Wal-Mart's annual report (10-K filing on April 15, 2003 with the Security and Exchange Commission), its grocery operations accounted for 24 percent of its revenue, or approximately \$59 billion in sales. Interestingly, three other grocery retailers, Kroger, Albertson's, and Safeway, rank in the top 50 of the Fortune 500 list. But Kroger's, the second largest food retailer in the U.S., had revenue of "only" \$51.8 billion in 2002.

⁵ Social preferences do affect the fortunes of businesses. Opposition by citizens of small towns, for instance, has prevented Wal-Mart from entering some markets (see Hansen, 1994).

the ethical challenges they face. Because of the growing industrialization of agriculture and the increasing economic pressures being placed on farmers to be competitive, it is hypothesized that farmers will express the ethical problems they face more in behavioral rather than philosophical terms – that is, in terms of pressures to take actions that might be considered unethical rather than as struggles to reconcile conflicting philosophical debates. This is not to say that the ethical problems in agriculture framed in terms of philosophical debates are not of interest or immediate concern to farmers. Rather, farmers who tire of running faster just to stay in place may begin to look for alternatives to running – that is, they may seek unethical short cuts. Identifying the specific margins at which farmers take ethical short cuts and how they perceive these in terms of overall ethical problems in agriculture is an important step in ultimately identifying solutions to the ethical challenges of farming.

What Farmers Say

The following presents a summary of findings generated from interviews with approximately two dozen Missouri corn and soybean farmers between January and May of 2003. My purpose in interviewing farmers was to learn from them, in their own words, what ethical challenges they face. I identified potential interview subjects through personal contacts within the farming community. I also requested recommendations from farmers as well as colleagues within the University of Missouri College of Agriculture, Food and Natural Resources. Additionally, I met with a group of farmers attending a University extension meeting in central Missouri. No attempt was made to produce a formal or "scientific random sample" of interview subjects. Simply, I spoke with any farmer willing to meet with me. For this reason, caution must be made in generalizing the results of this study. Nevertheless, I did meet with different types of

farmers from different parts of Missouri. These included small farmers (farming fewer than 300 acres) and large farmers (farming several thousand acres), and growers who use genetically modified (GM) seeds as well as growers of non-GM crops, so as to improve the generalizability of my findings. The ages of farmers interviewed ranged from 35 to 62. All farmers considered themselves conventional farmers; I did not meet with any farmers who operated organic farms.

Although the interviews were intended to be open-ended discussions, they each followed a similar format. Specifically, after a brief introduction, I asked farmers to describe their farming operations, including the number of acres farmed and types of crops planted. I also asked farmers to explain their basic philosophy about farming (i.e., "why do you farm?"). Finally, I asked farmers to describe what they perceive to be the most important ethical issues in farming. Interestingly, a common reaction of farmers to my request to talk with them about ethics was that they would get a grin on their face, as if they had a story to tell about some ethical issue or problem they've observed or have had to deal with. All of the farmers I met with were quite willing to talk with me about ethics. In fact, some were even anxious. One farmer in particular literally broke down in tears as he described the pressures to do what he thinks is right even when the individuals and institutions he must associate with challenge his ethical principles. However, farmers generally don't think about "ethics" *per se* as they do their farming, as in "Gee, I wonder if this is the ethical thing for me to do." Rather, they go about their business the best way they know how, generally wanting to do the right thing.

The most common theme that arose during my interviews was the growing industrialization of agriculture and the economic realities it produces.⁶ In fact, when asked to describe what they thought were the most important ethical issues in farming, nearly every

⁶ This was also the theme of an essay written by a fifth generation farmer (Edwards, 1991).

farmer gave as their first illustration some factor that can be linked to economic pressures created by industrialization. For example, one farmer observed that farming is becoming more cutthroat, one began by saying "*you do what you need to do*," two farmers specifically mentioned that business agreements in farming today can no longer be done simply on a handshake, and several described the necessity of increasing farm size and the trend toward concentration of farms. Only one farmer mentioned as a first example a non-economic issue – pollution derived from hog waste and the question of whether livestock held in confinement should be exercised (he thought these were related) – but he also discussed industrialization and the difficulty farmers have in making a living as important ethical issues.

Many farmers referred to the industrialization of agriculture in terms of a tension between their belief in working the land out of a sense of stewardship and the economic realities of farming as a business. "*There is a high state of frustration in agriculture*" as a result of industrialization, commented one farmer. Technology, economies of scale, corporate interests, the need to make a living, the competitiveness of other farmers, agricultural production in other countries, government agricultural programs, and social interests for low-cost food were specifically mentioned. Most farmers, but particularly the older ones who reminisced about what farming was like in the past, lamented the fact that farming is becoming more like a business and less like a way of life. Farmers agreed that they farm to make a living – "*We farm to make a living, we farm to make money, to be quite honest about it ... You're going to be out of there if you can't pay the bills*," said one experienced farmer. However, the pressure to make a living is increasing for them as competition squeezes profit margins. This, in turn, forces farmers to change not only the way they think about farming but also the way they farm.

As an illustration, several farmers bemoaned the fact that farms have become less diversified during the past decade by, for instance, shedding hog operations and scaling back cattle businesses in order to concentrate principally on corn, soybeans and wheat. "*Farming is less rewarding now than it used to be,*" said one farmer who recently sold off his unprofitable hog and cattle operations in order to free up land for row crops. Many crop farmers felt they should specialize in crops not only because they are losing money in livestock but also because low profit margins in grain require them to devote more acreage to crops in order to maintain income levels. Such specialization is expected as market pressures increase (see Stigler, 1951; Burda and Dluhosch, 2002), but the impact of the change is felt much deeper for the farmer. Some farmers enjoyed the physical labor associated with working with animals, in contrast to the monotony of driving a tractor up and down acres and acres of farmland. Others felt they had a moral imperative to have livestock on a farm, particularly if they were raised on farms that used animal labor, but the moral imperative could not be reconciled with the fact that it was financially impossible to sustain a livestock business. Specializing in crops rather than having diversified farms with crops and livestock also changes the way many farmers work and manage their finances. The cash flow from a hog business, for instance, could smooth farmer incomes throughout the year. Now, farmers must either borrow money throughout the year or take on second or third jobs during the "down time" in winter to generate additional family income. Most farmers have a spouse who worked outside of the home in order to supplement farming family incomes.

The concern that farming is becoming more business-like was a view widely expressed by older farmers. Younger farmers, however, did not necessarily see this as a problem *per se*. For them, farming was just another business or career choice. One young farmer, for instance,

expressed no sense of obligation to sell his grain to the locally owned grain elevator or to purchase his seeds and other farm inputs from local suppliers. Rather, he went wherever he could get the best price. Indeed, farmers reported, it is not uncommon for a farmer to own a truck in order to haul grain a hundred or more miles in order to capture a marginal premium in price. And this is in spite of the fact that farmers observe local elevators going out of business or local supply shops going out of business.

The young farmer who specifically expressed a willingness to go wherever he could get the best price did acknowledge the importance of personal ethics, being trustworthy in business dealings, and soil conservation, for instance, because these are just "*good business practice.*" But for him, as well as for most of the farmers I met with, everything is done in terms of the business calculation. Hog operations are shed because they are no longer profitable. Grain is shipped to the next county because an elevator there offers a better price than the local elevator. Fertilizer and other nutrients are added to the soil because the increase in yields justifies the added input cost (if not, land is not maintained). Genetically modified (GM) seeds are planted because they require less pesticide and because they "*make a lot of money*" (in the words of a farmer). Interestingly, several farmers describing the business view of farming also expressed concern over the fact that corporate farms would come into their community, outbid local farmers on rented land (thus increasing land rental prices), bring in own equipment and supplies, farm land for a few years without fertilizing, then stop renting after yields declined. One farmer called this "raping" the land. "*People should farm, corporations should not,*" he said. For farmers, ethics is seen more from their own perspective than from the viewpoint of an outside observer. It is easy to identify unethical conduct of others, but hard to see it in themselves. The idea that farmers will take actions that benefit themselves without fully considering the impact of their decisions on

their surrounding community confirms Thompson's (1998, pp. 183-184) claim that "those who ... farm increasingly tend to see their operations as a business and resent the suggestion that they should be held up as moral exemplars."

Because farms are becoming larger and more specialized, and because farmers are feeling increasing economic pressures to compete or just to make a living, many farmers acknowledged a pressure to take short-cuts that they otherwise would not have been willing to consider. However, no farmer specifically admitted to doing anything seriously unethical. Indeed, many professed strongly the belief that most farmers are very ethical people and that it is important to do the right thing. Nevertheless, nearly every farmer interviewed had one or more anecdotes about things they had seen neighboring farmers do that they thought were either unethical or illegal. For example, one interview subject said that some farmers, in order to apply pesticides and herbicides according to a set calendared schedule, would spray regardless of the weather or wind, in violation of federal guidelines (see Environmental Protection Agency, 1999). As one insider put it: *"Some producers would rather pay another producer for damage to their crops caused by drift than delay spraying their field. They calculate that it is cheaper to pay them than wait and not get all their fields sprayed."* Similarly, other farmers do not follow the label instructions regarding the quantity of pesticide spray to use. *"Instead of 2.5 quarts to the acre they spray 1.5 or 2 quarts to save money. Instead of spraying weeds at three to nine inches tall, then spot spraying skips later, they wait until weeds are 12 to 18 inches tall so they can spray only once. [This makes] it harder for the chemicals to work correctly. This leads to tolerant weeds and insects."*

Several farmers reported a general decline in neighborliness, which they attributed to the pressure farmers have to increase the size of their operations in order to remain competitive.

Where land prices are high, farmers can only (profitably) increase their scale of operation by renting rather than purchasing land. If landowners are uninterested in who actually farms the land, so long as the rent received is maximized, then they will rent to whomever offers the highest cash-rent price. For instance, two farmers I interviewed told stories of neighbors who had farmed a rented plot of land for many years, only to lose the lease because another farmer in the community, or a large corporate farm, came in and offered a higher rental price for the land. Both farmers who told this story expressed the opinion that overbidding a neighbor without first warning him was an unethical thing to do. But, they said it seemed to be happening with greater frequency today than in the past. This is in contrast to farmer recollections about neighbors helping neighbors. You "*didn't view neighbor as your competitor*," said a farmer.

Furthermore, farmers are increasingly seeing business decisions that used to be done on a handshake now being done through formal contracts. The implication is that conflicts, when they arise, are being resolved by courts or a reliance on the terms of the written contractual agreement rather than on the strength of personal relationships. For instance, one farmer explained how agreements to supply a certain quantity of corn to the local grain elevator were usually done over the telephone. If that farmer ever had difficulty fulfilling the supply agreement, because of poor weather, for instance, he and the grain elevator would renegotiate the contract in a mutually satisfactory way. However, after the grain elevator was purchased by an out-of-state agribusiness, all supply contracts with farmers were formalized, with delivery terms and remedies for breach made explicit within the contract. This farmer then explained how he tried to renegotiate delivery terms because of weather-related crop damage, as he had on other occasions when the elevator was locally-owned, but was rebuffed by the corporate owners, thus forcing him to purchase grain at a loss from other sources in order to meet his delivery agreements. For

this and other reasons, most farmers expressed a general disdain for large agribusinesses. This disdain was particularly heaped upon those companies involved in biotechnology and the production of genetically modified (GM) seeds. They are "*the scourge of the earth*," said one farmer. One reason for the low opinion of large agribusinesses is that they are perceived as having too much economic power in agriculture. Most farmers feel squeezed by the flat or declining nominal prices of agricultural output, and many blame agribusiness. Says one farmer, "*Biotechnology ... [and] chemical companies, they're taking most of it. ... So there's not a whole lot [of money] left.*" Interestingly, each farmer interviewed admitted to planting GM crops, even those who expressed negative attitudes towards biotechnology in general and agribusiness producing GM products in particular, because doing so was simply good business. "*Is it worth it, or not?*" was the question one farmer regularly asked himself when questioning the appropriateness of using GM seeds. For farmers, the answer to this question is based not on moral concerns but rather on the economic advantages provided. For example, one farmer planted BT corn for one season but then stopped, not because of a concern for the appropriateness of planting a hybrid corn *per se* but rather because of a concern that he would not be able to market his crop as cattle feed.

The question of the appropriateness of participation in government programs was also a common theme discussed by farmers. In fact, there was a clear consensus among those interviewed that some form of government involvement in agriculture was necessary. The reasons expressed by farmers for government involvement varied, from a concern over competition by foreign agriculture to the opinion that government support ensured that consumers got the cheap and safe food they wanted. However, they each reflected the notion that farmers would not be able to farm without some form of government support. Indeed, several

farmers acknowledged that their total annual income was approximately equal to the size of government program payment received in that year.

Although the farmers interviewed did not believe that participation in government farm programs was unethical in and of itself, some believed that government programs encouraged farmers either to adopt an orientation of deception or to behave unethically outright. For example, one farmer expressed a concern over the U.S. government's "three-entity rule."⁷ He said that this program allows farmers to obtain government payments as multiple farm entities from the same plot of land, thus encouraging them to misrepresent their farming activities in order to increase the payments they receive. Another farmer expressed a concern about farmers receiving payments from the government for activities that they would have continued to do even without the support payments. For example, he explained how he recently signed up for a government water conservation program in which he receives payments for conservation activities on certain plots of land, even though he had already been practicing water conservation without the government incentive. Finally, several farmers also expressed concerns over the government's crop insurance program, which pays farmers for crop failures due to natural or weather-related disasters. The problem with this program, as explained by some farmers, is that because neither the government nor the companies issuing the insurance policies regularly verify farmer yields on crop land insured through the program, farmers have an incentive to shift crops from one farm to another (thus lowering the yield on the first field) in order to fraudulently obtain insurance payments (see Kilman, 2003).

⁷ According to the U.S. House of Representatives Committee on Agriculture, the "three entity rule" is defined as follows: "Federal law currently sets an annual cap on the amount of direct payments that a person may receive from major farm programs. A provision in this law permits a person to receive payments up to the full cap on the first farm in which the person has a substantial beneficial interest, and up to half the full cap on each of two additional farms; hence the so-called 'three-entity rule.'" (Accessed online at http://agriculture.house.gov/glossary/three_entity_rule.htm on May 8, 2003.)

Discussion

Farmers have much to contribute to ethical challenges in agriculture. Philosophers and other scholars interested in agricultural ethics would do well in spending time with them. This paper presented a summarization of findings resulting from interviews with Missouri corn and soybean producers. Most of the farmers interviewed were articulate and opinionated, particularly when talking about what is right and what is wrong. Even so, farmers do not think about ethical problems in the same way philosophers and academics do. Farmers are not overly preoccupied with the philosophical debates about pollution, soil conservation, the use of pesticides and genetically modified seeds, or the treatment of animals (see, for instance, Te Velde, Aarts, and Van Woerkum, 2002), although these specific items were mentioned in the interviews as important issues. Rather, the ethical challenges facing farmers, as expressed by them, seem to be more behavioral than philosophical. They reflect the idea that the industrialization of agriculture creates pressures for them that challenge their perceptions of what is right. The reason is that the increasingly competitive nature of agriculture is creating tensions for farmers between doing what they believe to be right and doing what they feel they must in order to survive. Farmers are not philosophers, but they are businessmen. Therefore, the economic realities of farming are increasingly forcing them to balance "ethics" with "economics," or to consider dollars and cents when making ethical judgments. Indeed, the tension farmers feel about doing what is right seemed to be the focal point of my discussions with them. For example, farmers don't like being pressured to think about farming in terms of business decisions, but they do so anyway. Farmers don't like the growing salience of large agribusinesses and biotechnology in agriculture, but they

continue to patronize them. Farmers may not like the fact that government farm programs are ubiquitous, but they continue to accept the government checks.

It is important that we recognize the behavioral characteristics of many ethical problems in agriculture in addition to the philosophical debates about technology, industrialization, sustainability and rural welfare. Thompson (1998) states that the "current generation of adults may believe that rural residents, particularly farmers, are more likely to exhibit ethically praiseworthy conduct and more likely to base action and decision on ethical principles. In one manifestation, agrarian ideology has maintained the notion that farm families are more likely to be guided by principles of ethics than are others, and that because farming is morally significant, agriculture should be given special consideration in matters of public policy" (p. 95). Regardless of whether such perceptions are true, if current trends continue in the sense that industrialization is forcing farmers to think about farming more in business terms than in life choices, the potential for business-like ethical problems in agriculture will only increase. In short, the ethics of farmers may eventually become equated with the ethics of businessmen.

Is there an "Enron" waiting to happen in agriculture?⁸ The answer is not clear, but there are at least two important forces at work suggesting that the ethical behavior of farmers will become increasingly important issue for society. First, in traditional agriculture the "process" by which farmers do agriculture (e.g., having diversified farms, being loyal to community-based institutions, neighbors helping neighbors, etc) is just as important to the farmer, if not more so, than the income farming provides. In fact, many farmers report that they could probably find more profitable, if less rewarding, ways of making a living (see, for instance, Stevens, 1997),

⁸ This is in reference to the accounting scandals beginning in 2001 in the United States in which Enron, WorldCom, and other companies overstated revenues, misstated expenses, and otherwise falsified their accounting records for financial gain (see, for instance, Holtzman, Venuti, and Fonfeder, 2003).

suggesting that farming as a vocation has intrinsic value to farmers. However, as farming becomes more industrial, farmers will become increasingly preoccupied with profitability and competitiveness because the economic pressures of the market will so compel them. As a result, the "ends" of farming – paying the bills, generating an income – will become more important to the farmer than the means by which bills are paid and income is generated. Second, so long as food is plentiful, cheap, and perceived to be safe to eat, the ethics of farmers will not be an important consideration for consumers (see McEachern and Schröder, 2002). Therefore, it is not likely that farmers will acknowledge the importance of behaving ethically if consumers will not transmit such signals through the market.

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Tables

Table 1. Trends in U.S. agriculture between 1900 and 1990

<i>Trend</i>	<i>1900*</i>	<i>1990*</i>
Number of farms (millions)	5.7	1.9 ^h
Average farm size (acres)	146	487 ^h
Total acreage (million acres)	839	932 ^h
US farm population (millions)	29.9	4.6 ^f
Percent of US population on farms	38.8	1.7 ^f
Number of horses and mules (millions)	21.5	2.5 ^h
Number of tractors (millions)	0.2 ^b	3.9 ^h
Oats (million acres harvested annually)	31.0	2.3
Soybeans (million acres harvested annually)	0.5 ^c	72.4
Corn yields (bushels per acre annually)	28.1	133.0
Cows milked (million head annually)	21.4 ^c	9.2
Milk per cow (thousands of pounds annually)	4.2 ^c	17.8
Beef production (billions of pounds annually)	19.5 ^d	42.3
Hog production (billions of pounds annually)	18.8 ^d	25.6
Broiler production (billions of pounds annually)	1.1 ^d	40.8
Agricultural productivity index (1987=1)	0.5 ^e	1.2 ^g
Land values (average nominal price per acre)	20	1050
Prices received to prices paid index	1.0 ^a	0.4 ^h

Source: USDA NASS, "Trends in U.S. Agriculture,"

<http://www.usda.gov/nass/pubs/trends/index.htm>, accessed April 17, 2003.

* Unless otherwise noted as follows: ^a 1910, ^b 1920, ^c 1924, ^d 1945, ^e 1948, ^f 1990, ^g 1996, ^h 1997

Table 2. Price trend for selected agricultural commodities in current dollars, 1970 through 2000.

<i>Commodity</i>	<i>1970 Price</i>	<i>1980 Price</i>	<i>1990 Price</i>	<i>2000 Price*</i>
Corn (\$ per bushel)	1.33	3.12	2.28	1.85
Soybeans (\$ per bushel)	2.85	7.60	5.74	4.54
Wheat (\$ per bushel)	1.33	3.99	2.61	2.62
Cotton (cts per pound)	22.00	74.70	68.20	51.60
All milk (\$ per hundred weight)	5.72	13.05	13.68	15.45 ^a
Beef, slaughter steer price (cts per pound)	29.32	67.64	78.56	65.56 ^b
Pork, barrow & gilt (cts per pound)	22.41	39.49	55.32	31.67 ^a
Broilers, average price received (cts per pound)	13.47	27.92	32.38	34.25

Source: USDA NASS and ERS.

* Unless otherwise noted as follows: ^a 1998, ^b 1999