

1993

Feeding Our Future: Six Philosophical Issues Shaping Agricultural Law

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Neil D. Hamilton, *Feeding Our Future: Six Philosophical Issues Shaping Agricultural Law*, 72 Neb. L. Rev. (1993)

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Feeding Our Future: Six Philosophical Issues Shaping Agricultural Law

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I. INTRODUCTION: IDENTIFYING THE LEGAL QUESTIONS SHAPING THE FUTURE OF AGRICULTURE

Agricultural lawyers play a fundamental role in servicing the legal needs of the food and agricultural sector and in helping our nation craft the legal and institutional arrangements responsible for promoting a productive, profitable, and sustainable agriculture. The history of agricultural law reflects periods of development as new legal challenges have required scholars, practitioners, and law makers to respond to the changing needs of the sector.¹ The attention to estate planning in the 1970's was followed by the concern with farm financial issues in the 1980's. Now it is apparent the nation has entered a period in the 1990's when environmental concerns and the rapid industrialization of agriculture are adding new subjects to what comprises agricultural law. It is important that the professionals most directly responsible for defining and developing the content of agricultural law consider the forces influencing agriculture and consider what they will mean in terms of the new legal issues and challenges. While every period of history has seen the agricultural system change and

1. For a discussion of the history and development of agricultural law in the United States and its contribution to the strength of the nation's agricultural system, see Neil D. Hamilton, *The Study of Agricultural Law in the United States: Education, Organization and Practice*, 43 ARK. L. REV. 503 (1990). For an excellent discussion of the role of government policy and law, see J.W. Looney, *The Changing Focus of Government Regulations of Agriculture in the United States*, 44 MERCER L. REV. 763 (1993).

adapt to new technologies, new markets, and new social conditions, an argument can be made that the agriculture of recent years and which will evolve and emerge over the next decade, is being shaped by unprecedented economic, social, and political pressures.² These pressures have the potential to result in dramatic changes in agriculture. Rapid changes in the demographics of farming and rural communities, shifts in public attitudes and perceptions of farming, continued concentration and vertical integration in both food production and marketing, and new technologies such as genetic engineering, will combine to shape the agriculture of tomorrow.

The goal of this article is to identify trends, developments, and emerging issues the legal community of agriculture—practitioners, professors, government officials, and students alike—need to recognize and address. The law profession needs to give more timely and scholarly thought to the forces shaping agriculture. By doing so, agricultural lawyers can anticipate the agricultural sector's need for legal information and advice and reflect on what these forces may mean for agriculture. While it may be natural to view the forces neutrally or objectively, it is important to recognize many emerging issues are neither neutral in their impact on the agricultural community, nor inexorable in their development. Lawyers and legal institutions will play a major role in shaping the future of agriculture as they have in the past, creating opportunities for legal activism both in the representing individual farmers and in developing policies and law, at the local, state, national, and international levels on these issues. Law is what gives legs to policy; by helping infuse society's policy debates with its insights the agricultural law profession can play a necessary and fundamental role in shaping the future of agriculture. This article considers six philosophical questions shaping the future of agricultural law:

1. What is agriculture?
2. Is there a right to farm?
3. Is there a duty of stewardship associated with ownership or use of farmland?
4. What are the limits of private property?
5. Do farm animals have rights?
6. Should plant genetic resources be subject to legal ownership?

The legal issues which flow from these questions, in the form of legislative and administrative rules, legal documents, court disputes, and institutional relations will in many ways define the content of agricultural law in the future.

2. For a general discussion of agricultural law, see Neil D. Hamilton, *The Role of the Law in Shaping the Future of American Agriculture*, 38 DRAKE L. REV. 573 (1989).

II. WHAT IS AGRICULTURE?

The question may seem odd because we all have well developed views of what agriculture is—and even perhaps what it is not. But different legal definitions of agriculture are found in various laws, depending on the issue. An increasingly important issue may be whether some food producing operations lose their status as agricultural if they reach a certain size or are organized in certain ways. Two related developments make the issue more than just a simplistic theoretical question—first the rapidly advancing industrialization of American agriculture and second the sharply declining number of farmers and the related structural shifts in the agricultural system. These developments may redesign the shape and appearance of agriculture and in so doing, drastically alter how the public views farming.

A. Industrialization of American Agriculture

American agriculture is changing rapidly—becoming more concentrated, more technically advanced, and more integrated with the input and marketing sectors. In other words, American agriculture is rapidly becoming industrialized.³ Thomas Urban, president of Pioneer Hi-Bred International, Inc. of Des Moines, Iowa, the world's largest supplier of hybrid seed, describes industrialization as the process whereby the production of goods is restructured under the pressure of increasing levels of capital and technology in a manner which allows for a management system to integrate "each step in the economic process to achieve increasing efficiencies in the use of capital, labor and technology."⁴ He has this to say about the change:

Production agriculture in the Western World is now entering the last phase of industrialization—the integration of each step in the food production system. The production segment is rapidly becoming part of an industrialized food system."⁵

While not advocating the changes, Urban views the development optimistically, noting it will maximize uniformity and predictability in agricultural production allowing for branding of food and marketing of "identity preserved" products, a development his plant breeders are actively pursuing.⁶ He believes it will attract capital to agriculture and lead to more rapid adoption of new technologies. He is also optimistic it will create new opportunities—possibly giving rise to a new family

3. For a discussion of agricultural industrialization, and the status of the family farm, see MARTY STRANGE, *FAMILY FARMING: A NEW ECONOMIC VISION*, (1988), especially Ch. 9 *Technology: Getting Control of the Farm*.

4. Thomas N. Urban, *Agricultural Industrialization: It's Inevitable*, CHOICES, 4th Qtr., 1991, at 4.

5. *Id.*

6. See David Wheat and Wade Wilson, *Tailoring Grains for a Perfect Fit*, FEED-STUFFS, May 13, 1991, at 1.

farm—one that is “dependent as much on financial management skills and contract marketing as on production and agronomy know-how”—a “super farmer” who will respond quickly to new opportunities to increase income and reduce risk.⁷ It is this person who will be part of the industrialization of agriculture.

Of course the movement to an industrialized agriculture is not without critics who identify concerns about the economic and social health of family farms and rural communities, the stewardship of the land, and the effect on the cost and quality of our food.⁸ Regardless of conflicting opinions on the issue, the signs of the industrialization of American agriculture are all around. Consider these developments:

- the movement toward contract production of swine in the Midwest, following the example of the large integrators who dominate the poultry sector;⁹
- continued trends towards larger, confined animal feeding facilities with operations shifting between states in search of lower environmental standards;¹⁰
- the prospect of commercialization of biotechnology,¹¹ on the horizon for years but now becoming reality as products, such as Calgene's Flav'r Savr tomato, near the table;¹²
- increased efforts to develop markets and technology for producing “industrial” crops to create new uses for agricultural production;¹³ and
- increased concentration in the food processing industry with vertical integration into production by food processors and marketers.¹⁴

7. Urban, *supra* note 4 at 5.

8. See, e.g., George Anthon, *Is Industrialization Good for U.S. Agriculture?*, DES MOINES REG., Dec. 15, 1991, at 2C, who compares Urban's article with Wendell Berry's article, *Living with the Land*, 46 *J. Soil & Water Conserv.* 390 (1991), which decries the social ills accompanying industrialized agriculture.

9. For example, in August 1989 the DES MOINES REG. ran a series written by Dan Looker, *Hogging the Market*, on whether Iowa would be able to maintain its dominance in the hog industry in light of competition by vertically integrated packers and large contractors. See, e.g., *Iowa Reign as Pork King Threatened*, DES MOINES REG. Aug. 13, 1989, at 1A.

10. See, e.g., Steve Marbery, *By Moving Hog Operations to Oklahoma, Tyson Finds Welcome*, FEEDSTUFFS, June 29, 1992, at 9.

11. The Bush Administration took a major policy step to accelerate the movement of genetically engineered foods to the market when the Food and Drug Administration proposed new rules to allow their sale without government testing, except in limited circumstances. 57 Fed. Reg. 22,984, (1992). See also, *Genetically Altered Food Moving Closer to U.S. Grocery Shelves*, DES MOINES REG., May 27, 1992, at 3A and *FDA Issues Biotech Policy; Consumer Groups Decry Labeling, Testing Shortfalls*, NUTRITION WK., May 29, 1992, at 1.

12. Pamela Weintraub, *The Coming of the High-Tech Harvest*, AUDUBON, July-Aug. 1992, at 92.

13. See, e.g., Don Muhm, *Finding New Uses for Iowa's Surplus Crops*, DES MOINES REG., May 13, 1992, at 8S, on a hearing in Cedar Rapids by the USDA's Alternative Agriculture Research and Commercialization Board; and Don Muhm, *Project to Focus on Special Crops*, DES MOINES REG., May 17, 1992, at J1, on a project by Iowa cooperatives to market specialty grains raised by members.

14. Tyson Foods, Inc. of Springdale, Ark, the nation's largest producer of poultry has expanded into swine production and has become one of the nation's largest producers of pigs. Tyson recently announced plans to purchase a packing plant in Monmouth, Illinois. The purchase, which was later canceled, would have allowed

Each of these trends raises fundamental legal issues which will challenge both the farming community and agricultural lawyers. For example, increased use of contract production for hogs will raise questions both about the fairness of the contracts offered producers and the economic effect of integration on the swine industry.¹⁵ Some states, such as Minnesota, have responded by regulating agricultural contracting to protect producers who enter such agreements.¹⁶ The development has also triggered controversies over the Iowa ban on packer feeding of livestock,¹⁷ on the location and construction of new large-scale swine facilities, and even on the appropriate relation between cooperatives and their members. When Farmland Foods decided to compete with its members by producing pigs under contract through local cooperatives,¹⁸ the Iowa legislature considered a bill to require a cooperative's decision to use contracting be voted on by the members.¹⁹

The movement to large scale livestock facilities may tempt courts and lawmakers to re-examine the very issue of what is agriculture, for example, as the appropriateness of offering "right to farm" protections to large operations becomes controversial.²⁰ Whether courts will view large scale livestock operations as part of agriculture is not an idle

Tyson to pack hogs it raises under contract to become a fully integrated producer of pork, in direct competition with the nation's independent hog farmers. While this sale was not completed Tyson is expected to enter hog packing in the near future. See Steve Marbery, *Tyson, Purina Call Off Talks on Sale of Hog Slaughter Plant*, FEEDSTUFFS, August 31, 1992, at 1.

15. Critics charge contracting reduces farmers to low wage employees who assume most of the financial risks without the potential for increased returns. See, e.g., Dan Looker, *Hog Feeding on Contract: Safe Money or Servitude?*, DES MOINES REG., Aug. 15, 1989, at 1A; and Cynthia Hubert, *Contract Poultry Farming Decried by Activists at Meeting*, DES MOINES REG., Feb. 2, 1992, at 3A.
16. MINN. STAT. ANN §§ 17.90 - 17.98 (West 1993) establishes a number of requirements for using agricultural contracts. See, Neil D. Hamilton and Greg Andrews, *State Regulation of Contract Feeding and Packer Integration in the Swine Industry*, White Paper # 3, (Oct. 1992)(on file with The Nebraska Law Review and available from the author at Drake University Agricultural Law Center).
17. IOWA CODE § 172C.2 (1991).
18. Steve Marbery, *Coop Conflict*, HOG FARM MGMT., Nov. 1991, at 8.
19. Senate File 2244, 1992 Iowa Legis. Serv. S.F. 2244 (West), originally provided for referenda but was amended to create an interim study committee on livestock contracting. See, *Vertical Integration Study Adopted*, IOWA PORK PRODUCER, June 1992, at 7.
20. Steve Marbery, *Carolina Group Presses For Hog Industry Controls*, FEEDSTUFFS, June 1, 1992, at 22. In discussing current trends towards large swine production facilities in the state, he reports:

Ultimately, it could force a legal confrontation with national implications. If, for instance, the North Carolina showdown forces the courts to re-examine the definition of "farm," the courts may decide, opponents believe, that industrialized food animal production is not farming per se, which would deny producers protection under right-to-farm laws.

Id. at 22.

concern. Twenty-two years ago the Iowa Supreme Court concluded concentrated poultry production on a small tract without accompanying crop activity was not agriculture and refused to apply an agriculture exemption from county zoning.²¹ Similar questions will no doubt be raised whenever the planned construction of a large animal feeding operation generates local opposition.

The development of specialty crops and industrial uses raise the potential for greatly expanded marketing opportunities and greater diversity in the mix of crops raised.²² But legal issues of producer access to contracting opportunities and the role of specialty crop production in spurring concentration of production are real.²³ One direct result of agricultural industrialization may be the need for farmers to consider collective action to negotiate fair contracts on a parallel with organized labor's practices. Urban recognized this:

We may even see farmers organize with like members of a system, or systems, as labor did at the turn of the century, to protect their interests in the face of contracts perceived to be unfair. They will certainly ask for, and receive, legislative protection at state and federal levels as labor has done in the past.²⁴

In recent years broiler producers throughout the South have organized to combat both the unequal bargaining strength of integrators²⁵ and cases of fraudulent weighing. In 1991 the 11th Circuit Court of Appeals upheld an Alabama federal court jury award of \$13.6 million to 268 chicken producers who sued ConAgra, Inc. for fraudulently misweighing their birds.²⁶ In January 1991, the 11th Circuit affirmed a Florida district court's injunction to prevent Cargill from retaliatory termination of contracts with a grower who complained about deceptive practices and who was organizing other growers.²⁷ The experiences of farmers who live under industrialized integrated production contract systems indicate Urban's prediction may be on point, meaning collective bargaining will join the growing field of agricultural law.²⁸

21. *Farmegg Prod., Inc. v. Humboldt County*, 190 N.W.2d 454 (Iowa 1971), discussed in Neil D. Hamilton, *Freedom to Farm! Understanding the Agricultural Exemption to County Zoning in Iowa*, 31 DRAKE L. REV. 565 (1981).

22. Rex Gogerty, *Farming for Factories*, THE FURROW, Nov.-Dec. 1991, at 10.

23. Robin Hoffman, "Super Farmers" Grab Crop Contracts, TOP PRODUCER, May/June 1992 at 24.

24. Urban, *supra* note 4 at 5.

25. Christopher Sullivan, *Chicken Growers Claim 'Feudal' Contracts Keep Them From Riches*, DES MOINES REG., Nov. 25, 1990, at J1.

26. *Braswell v. ConAgra, Inc.*, 936 F.2d 1169 (1991).

27. *Baldree v. Cargill, Inc.*, 925 F.2d 1474 (11th Cir. 1991), *aff'g*, 758 F. Supp 704 (M.D. Fla. 1990), discussed in H. Clay Fulcher, *Cargill Enjoined*, AGRI. L. UPDATE, Apr. 1991, at 1, and in Des Keller, *A Place for Contract Growers to Roost*, PROGRESSIVE FARMER, Apr. 1992, at 84.

28. For an excellent discussion of the issues raised under poultry contracts, see H. Clay Fulcher, *Vertical Integration In The Poultry Industry: The Contractual Relationship*, AGRI. L. UPDATE, Jan. 1992, at 4.

The industrialization of agriculture has also raised concerns about the control and location of the mechanisms for making domestic policy on food and agriculture issues. One major change in U.S. agriculture in the last twenty years is the increasing reliance on export markets. This reliance has led to major changes in federal farm programs so U.S. farm policies do not interfere with the ability to sell products overseas. Increased reliance on international markets has led to conflicts with major Western allies, such as the European Community over the impact of domestic agricultural policies on world trade.²⁹ A bitter impasse over agricultural trade has blocked completion of the Uruguay round of GATT trade talks and threatens progress on world trade in all economic fields.³⁰

One dimension of control over domestic agricultural policy concerns the role of international bodies in determining American actions. Two recent controversies illustrate the issue. First, in August 1991, a three-member GATT dispute resolution panel determined the provisions of the U.S. Marine Mammal Protection Act, which prohibits importing tuna caught over dolphins, were an illegal trade barrier which violates Mexico's right to fish the oceans as it chooses.³¹ The decision set off a stream of controversy in the United States and raises concerns how the pending GATT accord and the proposed North American Free Trade Agreement might weaken stronger U.S. laws on issues such as environmental protection and food safety.³² A second example concerns the role of the Codex Alimentarius in establishing international standards for food safety, under proposals to "harmonize" national standards under the GATT.³³

The Codex is an obscure international group established in Rome in 1962 by the United Nation's Food and Agriculture Organization (FAO) and the World Health Organization (WHO).³⁴ Representatives appointed by member nations meet every two years and are charged with establishing international health and safety standards for food.

29. See, e.g., Sonja Hilgen, *Man the Torpedoes: Trade War Talk Could Dominate Agriculture's Election Year*, TOP PRODUCER, Mid-Feb. 1992, at 24.

30. For a general discussion of international trade issues, see John S. Markle, *Slaying the Sacred Cow: Looking for Consensus in the Reformation of World Agricultural Trade*, 68 N.D. L. REV. 607 (1992).

31. See, e.g., *US Dolphin Safe Policy Declared Trade Barrier by GATT Panel of Experts*, NUTRITION WK., Aug. 23, 1991, at 1.

32. See, Ted McDorman, *The 1991 U.S.-Mexico GATT Panel Report on Tuna and Dolphin: Implications for Trade and Environmental Conflicts*, 17 N.C. J. INT'L. & COM. REG. 461 (1992).

33. See, *Codex Poses New Threat to US Food Safety Laws*, NUTRITION WK., Apr. 5, 1991, at 4.

34. For a discussion of the organization, see, Donna L. Malloy, *The Codex Alimentarius Provides International Standards for Food Production and Safety*, 12 J. AGRI. TAX'N & LAW 334 (1991) and James Walston, *C.O.D.E.X. Spells Controversy*, CERES, #136, FAO, July-Aug., 1992, at 28.

The potential role of the Codex in world trade was highlighted in 1991 when the United States tried unsuccessfully to reform Codex rules to deny countries the right to vote no on a standard unless scientific evidence was presented to support the action.³⁵ The U.S. proposal was aimed at the European Community's ban on the import of meat products from livestock raised with growth hormones, an action seen by the United States as a politically motivated trade barrier unsupported by scientific proof that hormones present a threat to consumers. In its history the Codex had never voted on a proposal but instead has acted by consensus. In this case, the EC demanded a vote on the proposal, which was rejected 28 to 13, with 9 countries abstaining. Calculating the impact of international agreements on domestic agricultural policy adds an important issue of national sovereignty to the study of agricultural law.

B. Declining Farm Numbers and Related Structural Issues

The 1990 Census data contained startling news for agriculture and agricultural lawyers, reflecting the body count of declining farm numbers inflicted by the farm financial crisis of the 1980's. For example, Iowa lost twenty-five percent of its farmers, with those who describe farming as their primary occupation declining from 125,763 in 1980 to only 93,780 in 1990.³⁶ Only 7% of Iowa's work force now farms, meaning there are more school teachers, health care workers, or business executives and managers in the state than farmers.³⁷ The farm population in the Midwest declined even more rapidly than did farm numbers. In the 1980's Iowa's farm population dropped by 34% with nearly 135,000 people leaving the countryside, with similar or steeper declines in Illinois, Minnesota, and Missouri.³⁸ Today only 9% of the Iowa population is classified as rural while 61% is urban. The reports show a steeper decline in the number of young farmers, which combined with an aging farm population sets the stage for continuing and perhaps even steeper drops in farm numbers and more wrenching changes in rural communities.

35. See, *U.S. Wants Codex Reform As Price of Membership*, NUTRITION WK., Nov. 1, 1991, at 2., and Jon F. Scheid, *U.S. Proposes Science to be Only Base to Codex Decisions*, FEEDSTUFFS, Nov. 18, 1991 at 6. The U.S.-E.C. debate over the issue of animal hormones also illustrated the issue of what the Europeans refer to as the "4th criterion" in approval of new drugs and technologies. Traditional considerations have included reliability, efficacy and safety, but the fourth criterion focuses on the socio-economic impacts of the product. See, e.g., Ronald Bailey, *The Fourth Hurdle*, FORBES, April 2, 1990, at 166 and Rodney E. Leonard, *Global Trends Indicate 4th Criterion Inevitable*, NUTRITION WK., July 19, 1991, at 4.

36. Kenneth Pins, *25% Quit Farming in 1980's*, DES MOINES REG., May 22, 1992 at 1A.

37. *Id.*

38. Dirck Steimel, *Big Drop For Iowa Farm Population*, DES MOINES REG., July 19, 1992, at J1.

The implications of changing demographics are clear—fewer farms, larger operations, and concentrated land ownership. Legal challenges which may accompany these trends include:

- increased farm tenancy and separation of land ownership from management, meaning an issue of historical legislative concern in connection with land stewardship may assume even greater significance in years ahead;
- creating systems to link older and retiring landowners with young farmers who want a start in agriculture. Several midwestern states operate beginning farmer loan programs which have successfully financed a small crop of new farmers,³⁹ but states are now looking at methods for more direct and aggressive linkages.⁴⁰ In Nebraska, the innovative Center for Rural Affairs operates the Land Link program to connect older farm owners with those desiring to start farming, and Iowa has recently instituted a version called "Farm On."⁴¹
- continued division of American agriculture into two segments, large scale commercial farms producing most of our grain, meat and fiber and a larger sector of small and part-time farms, which will require laws and policies sensitive to the differing needs of each.⁴²
- a changing farm labor market has led to increased use of seasonal and migrant labor to perform functions, such as detasseling seed corn, traditionally performed by local youth. The use of seasonal and migrant labor brings with it the obligation to comply with the regimen of federal and state labor laws protecting workers.⁴³ The application of these laws has already resulted in litigation in the Midwest and creates a multitude of risks for any farm operation failing to comply.⁴⁴ In

39. See, e.g., IOWA CODE Ch. 175 (Agricultural Development).

40. See, e.g., Del Deterling, *Help for the Little Guy*, PROGRESSIVE FARMER, August 1992, at 32.

41. Dan Looker, *Nebraska Program Comes To Iowa*, DES MOINES REG., April 1, 1992, at 8S. The idea of linking retiring farmers with new producers has even spawned at least one commercial venture in Iowa. For a fee, Homestead American will assist beginning farmers in finding financing and farms. Dan Looker, *Firm Matches Farmers, Beginners*, DES MOINES REG., July 17, 1992, at 8S.

42. The 1987 Census of Agriculture shows the continuing segregation in farm numbers and production in the United States. In 1987 the 14% of farms with sales over \$100,000 accounted for 76.3% of all products sold and the 4.4% of farms with sales of more than \$250,000 sold over 53.4%. BUREAU OF THE CENSUS, U.S. DEPT. OF COMMERCE, 1987 CENSUS OF AGRICULTURE, part 51 at 4 (1989). For a recent discussion of the continued growth of small farms in production of vegetables and specialty crops, see Molly O'Neill, *Small Farms Cultivate Way of Life, and Profit*, N.Y. TIMES, August 23, 1992, at 1.

43. For an excellent review of these laws and a discussion of how America's largest seed corn company deals with potential worker claims, see Beverly A. Clark, *The Iowa Migrant Ombudsman Project: An Innovative Response to Farmworker Claims*, 68 N.D. L. REV. 509 (1992).

44. See, e.g., *Calderon v. Witvoet*, 764 F. Supp. 536 (C.D. Ill. 1991) concerning the experiences of an Illinois farm which discovered its labor practices were not covered under a family business exemption.

August, 1992, the Environmental Protection Agency (EPA) proposed new worker protection regulations concerning handling and safety garment requirements to reduce worker on-the-job exposures to pesticides.⁴⁵ Increasing use of hired labor and the enactment of laws designed to protect their safety and financial interests place new demands on agricultural lawyers.

The changing demographics of agriculture and the industrialization now underway are clearly linked. A major part of the linkage is the role of technology and how it is employed in farming. A direct result of increased industrialization and use of new technologies such as genetic engineering is that an ever smaller share of economic activity from agriculture is being contributed by the farming sector.⁴⁶ Determining whether the linkage is cause and effect or merely symptomatic of larger economic and social forces is not as important as is recognizing the significant legal dimension of these forces. Declining farm numbers will impact the agricultural law community, as reflected in the recent closing of the farm division of the Iowa Attorney General's office, the first such office in the nation.⁴⁷ The forces also create opportunities for lawyers to perform valuable services for farm and agricultural clients who must adjust to the changes.

III. IS THERE A RIGHT TO FARM?

Every state has passed some form of "right to farm" law,⁴⁸ primarily to protect livestock producers who are sued for nuisance by neighbors concerned about odors.⁴⁹ The laws give a legal priority to the farmer if certain conditions are met, such as being located there first,

45. See, Worker Protection Standard, 57 Fed. Reg. 38,102 (1992)(Codified at 40 C.F.R. §§ 156 & 170); and *EPA Issues Regulations To Protect Farm Workers From Pesticides Exposures*, DES MOINES REG., Aug. 14, 1992, at 4A.

46. George Anthan, *The Decline of Farming*, DES MOINES REG., May 10, 1992, at 1J and Stew Smith, "Farming"—*It's Declining in the U.S.*, CHOICES, 1st Q., 1992, at 8. Smith notes that

[b]iotechnology being developed today with the support of the LGUs [land grant universities] will lead to a more industrialized system, with most farming activity conducted by part-time farmers and nonfarm firms performing much of the production activity away from the soil. Full time, family-owned and managed farming, as we have known it, will cease to exist.

Id. at 10.

47. Dan Looker, *Division Is Budget Casualty*, DES MOINES REG., May 6, 1992, at 10S.

48. See, e.g., IOWA CODE Chs. 172D (Livestock Feedlots) and 176B (Land Preservation and Use)(1991).

49. For a discussion of right to farm laws, see Neil D. Hamilton & David Bolte, *Nuisance Law and Livestock Production in the United States: A Fifty-State Analysis*, 10 J. AGRIC. TAX'N & LAW 99 (1988). For the experiences of a practitioner in attempting to use a right to farm law, see J. Patrick Wheeler, *Livestock Odor & Nuisance Actions vs. "Right-To-Farm" Laws: Report by Defendant Farmer's Attorney*, 68 N.D. L. REV. 459 (1992).

operating reasonably, or complying with "generally accepted agricultural practices." The question for society is, should farmers be given such special protections to carry on activities which have adverse social consequences? The same question can be asked about laws passed in several states, referred to as "right to spray" laws,⁵⁰ to protect farmers from suits for cleaning up water pollution if they used farm chemicals according to the label.⁵¹ Passage of these laws indicates society has answered the question affirmatively, at least for now. But the change to an industrialized agriculture, from the traditional model of independent family farms, may mean the question of whether there is a right to farm is reopened for legitimate inquiry. The idea that agriculture is losing its uniqueness is not new, having been the theme of a 1980 book by Don Paarlberg.⁵² But the issue for the legal community today is, as agriculture loses its uniqueness, how should it be treated under a variety of laws, especially those dealing with property use and the environment. The issues which emerge from an inquiry into whether there is a right to farm involve both conflicts between agricultural practices and urban activities, and conflicts over the use of agricultural property.

A. Agriculture—Urban conflicts

There are two prime examples of agricultural-urban tension. The first is the traditional conflict between livestock production and residential dwellers about odors. While all states have passed right to farm laws, the laws have not prevented nuisance suits involving livestock production. A case decided in Oklahoma this spring resulted in the closure of a cattle feedlot near Alva which the court found to be a nuisance to an existing housing development 3/4 miles away.⁵³ While the decision is on appeal, a recent study of state court cases involving right to farm laws shows courts have generally been hostile to legislative efforts to limit application of nuisance rules to agriculture.⁵⁴ The future success of efforts to alter nuisance law to protect farmers may depend on improved legislation, such as including provisions for notifying prospective purchasers, requiring local grievance panels, and

50. *E.g.*, VT. STAT. ANN. tit. 10, § 1410 (Supp. 1992).

51. Terence J. Centner, *Blameless Contamination: New State Legislation Regulating Liability for Agricultural Chemicals in Groundwater*, 45 J. SOIL & WATER CONSERV. 216 (1990).

52. DON PAARLBERG, *FARM AND FOOD POLICY: ISSUES OF THE 1980's*, (1980). *See, e.g.*, Ch. 2, *Agriculture Loses its Uniqueness, Id.* at 5. For an excellent discussion of the role of myths in shaping farm policies in the United States, see WILLIAM P. BROWNE ET AL., *SACRED COWS AND HOT POTATOTES: AGRARIAN MYTHS IN AGRICULTURAL POLICY*, (1992).

53. Larry Stalcup, *It Stinks*, BEEF TODAY, May 1992 at 14.

54. Neil D. Hamilton, *Right to Farm Law Revisited: Judicial Consideration of Nuisance Protections for Agriculture*, 14 J. AGRIC. TAX'N & LAW 185 (1992).

basing protections on compliance with environmental regulations or codes of best management practices. The irony is that most state regulations for livestock operations concern preventing water pollution, but little attention is given odor control—the subject of most nuisance suits against livestock operations.

The second controversy reflecting conflicts in rural-urban attitudes towards farming concerns the power of local governments to restrict use of pesticides. In June 1991 the U.S. Supreme Court held local regulations, such as the Casey, Wisconsin ban on aerial spraying, were not pre-empted by federal pesticide laws, but instead were a question of state law.⁵⁵ Legislation has been introduced in Congress to pre-empt such local actions,⁵⁶ which the agricultural chemical industry says make farm chemical use subject to regulation by 18,000 governmental units, such as cities, towns, and counties, rather than just EPA and the states. The Bush Administration supported the bill,⁵⁷ but Congress has not acted on the amendment and may not give that local control over practices believed harmful to public safety is a vital component of American law.

B. Agricultural Property Use Conflicts

Restrictions on the use of farm property represent a second area of tension between the agricultural community and societal concerns. The subject involves not just the constitutional taking issue, discussed later, but also conflicts over traditional agricultural activities and restrictions on land use. Four examples illustrate the issues:

- land use restrictions on livestock production;
- agricultural water rights;
- grazing permits on public land; and
- the protection of endangered species.

The first example concerns set-back and distance separation requirements in state regulations on animal feeding and waste disposal. As states have acted to deal with the wastes and potential odors associated with large confined animal feeding operations, some have established set-back requirements to separate livestock facilities from neighboring residences. For example, Arkansas regulations on disposal of liquid animal waste, implemented July 24, 1992, require a mini-

55. *Wisconsin Public Intervenor v. Mortier*, 111 S. Ct. 2476, (1991).

56. *See, e.g.*, H.R. 3850, 102d Cong., 1st Sess. (1991), The Federal-State Pesticide Regulation Partnership Act of 1991. This bill was introduced by the chair of the Peanuts and Tobacco Activities Subcommittee with the support of two-thirds of the Agriculture Committee to prohibit and preempt the promulgation of statutes or regulations by counties, cities, municipalities, or other local governments with respect to the use or sale of pesticides. However, the Agriculture Committee failed to take any action on H.R. 3850.

57. *See*, Gordon S. Carlson, *U.S. Wants Federal Over Local Pesticide Rules*, FEED-STUFFS, April 20, 1992, at 16.

imum of 500 feet separate animal facilities from neighbors and for larger units the distance is 1/4 mile.⁵⁸ In June 1991, the Illinois Pollution Control Board capped five years of work by enacting regulations concerning odors from livestock facilities. The rules require new facilities be located at least 1/2 mile from populated areas and at least 1/4 mile from non-farm homes.⁵⁹ These rules, and similar court rulings, mean significant tracts of farmland may not be used to locate large feeding operations or to dispose of animal wastes. While the rules may be necessary to accommodate non-farm residents and protect public health, they represent a modern limitation on the tradition of engaging in farming wherever desired.

The second example concerns conflicts between agriculture, especially irrigators, and others over water rights. Urban development in the arid West has increased demand for water and recent droughts such as in California,⁶⁰ have brought new attention to the issue of water rights and methods for allocating water in times of shortage. New attention has focused on creating legal mechanisms to allow marketing of water, as some California farmers have done.⁶¹ Shortages have also renewed focus on the social utility of using scarce and valuable water supplies to irrigate low value crops, produced in surplus elsewhere. The new attention has triggered legal conflicts between farmers and others over water rights.⁶² Legal questions concerning access to water and interpretation of decades old water claims are fundamental issues in many agricultural areas and will become increasingly important for many agricultural lawyers.

The third example concerns the ongoing dispute over grazing on public land and Congressional efforts to increase the fees for grazing permits.⁶³ The issue has pitted the western cattle industry which has developed on the basis of access to public lands, against the environmental community which contends current grazing fees are less than rates for private land and do not compensate for the environmental destruction caused by cattle and sheep over-grazing fragile public

58. STATE OF ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY, REGULATION No. 5, LIQUID ANIMAL WASTE MANAGEMENT SYSTEMS, § 6(3).

59. ILL. ADMIN. CODE tit. 35 § 501.402(c)(1). The rules are discussed in NEIL D. HAMILTON, A LIVESTOCK PRODUCER'S LEGAL GUIDE TO: NUISANCE, LAND USE CONTROL, AND ENVIRONMENTAL LAW, Drake University 104 (1992).

60. Robert Reinhold, *Continued Drought in California Hurts Farms Relying on Irrigation*, DES MOINES REG., Feb. 7, 1991, at 7S. For an excellent discussion of this development, see MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER, (1986).

61. Robert D. Hof, *California's Next Cash Crop May Soon Be . . . Water?*, BUS. WK., March 2, 1992, at 76.

62. Karl Wolfshohl, *Water Wars*, PROGRESSIVE FARMER, July 1992, at 18.

63. See, e.g., Vandana Mathur, *House Votes to Quadruple Grazing Fees*, FEEDSTUFFS, July 1, 1991 at 3.

land.⁶⁴ The debate over proposed increases in grazing fees on public land has subsided, with Congress considering a compromise to gradually increase fees. New demands for "multiple uses" of public land mean the conflict between what permit holders see as an historic right to graze public land and what environmentalists see as abuse of public land by a small number of permittees promises to continue.⁶⁵

A final example of conflict between public policies and agriculture concerns the endangered species act and its effect on agriculture.⁶⁶ The act has not been a major issue for the agricultural community,⁶⁷ but recent controversies concerning the spotted owl and protection of the Snake River sockeye salmon have caused some farm groups to re-examine the possible effect on agriculture.⁶⁸ The main fears are expanding lists of endangered and threaten species and a concern that the discovery of an endangered species may lead to restrictions on using the farmland which is habitat for the species.⁶⁹ In March 1992 a coalition of agricultural and business groups called on Congress to amend the law when it is reauthorized in order to reduce its impact on agriculture.⁷⁰ The growing concern over the endangered species act reflects the strong authority in the law and the difficulty of balancing human economic activity with threats of extinction of a species. One irony is that while the law makes it illegal to "take" or kill an animal species, the law does not directly regulate exploitation of plant species due to concerns that plants, unlike animals, are private property under United States law.⁷¹ Thus while authorities may be able to regulate use of adjacent land to protect the plant, such as by restricting pesticide use, it is not clear a landowner who knowingly destroys en-

64. For an environmental view of the grazing dispute, see George Wuerthner, *How the West was Eaten*, WILDERNESS, Spring 1991, at 28. For a contrasting view, see Rod Smith, *New Grazing Fees May Jeopardize Western Industry*, FEEDSTUFFS, Feb. 4, 1991, at 3.

65. One intriguing policy issue submerged in the grazing fee dispute concerns regional conflicts within the cattle industry. The potential exists to greatly increase grazing on private land now retired in the Midwest under the CRP, if cattle are removed from the western public lands. A legitimate national policy question is whether it makes sense to pay to retire private land suitable for grazing while allowing public lands to deteriorate under subsidized grazing.

66. Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544 (1988).

67. Laura Sands, *How Endangered Species Could Take a Bite Out of Your Farm*, TOP PRODUCER, Mid-Mar. 1992, at 28.

68. Steven Bahls & Jane Bahls, *Spotted Owls and the American Farmer*, FARM FUTURES, July/Aug. 1992, at 26.

69. See, e.g., Rod Smith, *Endangered Species Listings Seen as Potential Threat to Livestock Producers*, FEEDSTUFFS, Aug. 26, 1991 at 4.

70. See, ENDANGERED SPECIES ACT ROUNDTABLE, ENDANGERED SPECIES ACT: TIME FOR CHANGE-A WHITE PAPER (1992), the result of an effort chaired by the National Cattlemen's Association.

71. For a discussion of this issue, see Faith Campbell, *Legal Protection of Plants in the United States*, 6 PACE ENVTL. L. REV. 1 (1988).

dangered plants violates the act.⁷²

These four examples illustrate how a changing agriculture is coming into conflict with modern society's desires for a range of values—be it clean air, fresh water, protection of endangered species, or the right to use public lands. While the economic interests of the agriculture sector will not be unheard or disregarded in these debates, the changing nature of agriculture, its declining political base, and its public image will greatly influence the outcome. The issue can be stated as whether the public will continue to view farmers as stewards of the land who perform a unique social function as producers of our food and thus deserve special legal status,⁷³ or instead come to see farmers as concerned solely with profits, exercising little care for either the health of the land or the public good. The issue may be determined by how society answers the next question.⁷⁴

IV. IS THERE A DUTY OF STEWARDSHIP ATTACHED TO OWNERSHIP AND USE OF FARMLAND?

As society tries to protect the environment and natural resources for future generations a fundamental issue has developed—is there a legal duty of landowners to protect the land and water they use? The question is often addressed in terms of stewardship. In the agricultural context the debate provides an opportunity to explore the basis for a duty of stewardship and the legal mechanisms for implementing it. The issue of stewardship is at the heart of the Jeffersonian agrarian model upon which American agriculture and democracy was founded and finds its roots in religious and ethical principles upon which our society developed.⁷⁵ But the idea that a duty of stewardship, especially a legal duty, accompanies ownership is a difficult concept to define or quantify.

The question of a duty of stewardship is not a new issue in American agricultural policy. Secretary of Agriculture, Henry A. Wallace,

72. *Id.* at 7-9.

73. If a recent New York Times article is accurate we may be entering a period when the contributions of farmers as producers of our food are again exalted. See, Trish Hall, *In 90's Cuisine, the Farmer is the Star*, N.Y. TIMES, July 8, 1992, at C1.

74. For an excellent discussion of the different perceptions of farmers and environmentalists, see, Jeffrey A. Zinn & John E. Blodgett, *Agriculture Versus the Environment: Communicating Perspectives*, 44 J. SOIL & WATER CONSERV. 184 (1989). How the public perceives the farming sector is recognized as a key concern by some farm groups. See, e.g., Malinda Miller, *Farmer Image Blurred by Public's Perception*, IOWA FARMER TODAY, Mar. 28, 1992 at 1; Malinda Miller, *Environmental Concerns Hurt Ag. Image*, IOWA FARMER TODAY, Mar. 28, 1992 at 17; Malinda Miller, *Farmers "Misunderstood" by Public*, IOWA FARMER TODAY, Mar. 28, 1992 at 17.

75. See, e.g., WENDELL BERRY, *THE GIFT OF GOOD LAND*, 267-81 (1981); *MEETING THE EXPECTATIONS OF THE LAND* (Wes Jackson et al. eds., 1984).

in the forward to the USDA's 1938 *Yearbook of Agriculture* said, "The social lesson of soil waste is that no man has the right to destroy soil even if he does own it in fee simple. The soil requires a duty of man which we have been slow to recognize."⁷⁶ In 1943, the Iowa Supreme Court, in upholding a law requiring advance notice for terminating farm tenancies, said this about the role of land owners in protecting soil:

It is quite apparent that during recent years the old concept of duties and responsibilities of the owners and operators of farm land has undergone a change. Such persons, by controlling the food source of the nation, bear a certain responsibility to the general public. They possess a vital part of the national wealth, and legislation designed to stop waste and exploitation in the interest of the general public is within the sphere of the state's police power.⁷⁷

The debate over the existence of a duty of stewardship has definite ethical implications as perhaps best articulated by Aldo Leopold in "The Land Ethic" an essay published in *A Sand County Almanac*.⁷⁸ Leopold noted mankind's history reveals an ethical sequence, first in relations between individuals and then between individuals and society. What concerned Leopold was society's failure to develop a necessary third ethical dimension, that between man and the land. It was this land ethic which Leopold described as "an evolutionary possibility and an ecological necessity."⁷⁹ The issue today is whether American society is moving toward recognizing a duty of stewardship. If it does, how will the duty be established and implemented? In attempting to identify possible sources of a duty of stewardship in American agricultural law, three areas provide fruitful consideration:

- the role of environmental law in establishing a duty of stewardship;
- the regulation of soil erosion as an example of a stewardship duty; and
- the common law covenant of good husbandry in farm tenancies.

A. The Evolution of Environmental Policy for Agriculture

The growing debate over the environmental impact of agriculture has obvious implications for both the farming and the legal communities.⁸⁰ The nation has entered a new period of policy development for how environmental problems associated with agriculture will be ad-

76. Henry A. Wallace, *Forward to USDA YEARBOOK OF AGRICULTURE 1938, SOILS AND MEN*.

77. *Benschoter v. Hakes*, 8 N.W.2d 481 (Iowa 1943).

78. ALDO LEOPOLD, *A SAND COUNTY ALMANAC*, (1949).

79. *Id.* at 203.

80. Segments of this analysis are drawn from *Feeding Our Future: How Law Establishes American Agriculture's Duty of Environmental Stewardship*, to be published as part of the proceedings from a conference, "Agricultural Law in Canada: The Emerging Discipline and Pressing Issues", March 13 and 14, 1992, Saskatoon, Saskatchewan, sponsored by the Schools of Law, Universities of Saskatchewan and Western Ontario. A version was published in France, see Neil D. Hamilton, *Produire demain: La creation par le droit d'un devoir de protection de*

dressed. The *first* stage was identified by the historical ideal of an agriculture community committed to land stewardship, as reflected in government soil conservation laws from the 1930's to the early 1980's. The impact of agriculture on the environment was considered to be manageable and primarily an issue of providing education and sufficient financial assistance to farmers, who, acting out of a sense of stewardship and economic self-interest, would protect the soil and water. The first stage, while retaining viability, is being challenged by a new *second* stage, in which greater reliance is being placed on using laws to impose on agriculture a duty to protect the environment. This period began with passage of the conservation title of the 1985 farm bill and will continue in the treatment of non-point sources of pollution in the reauthorization of the Clean Water Act.⁸¹ Development of this second stage is being influenced by several factors, including evidence of agriculture's impact on the environment, concern that problems may not be manageable using "voluntary" approaches, and by the modern environmental movement. This new period is premised on greater reliance on *more legalized* regulatory approaches as well as using penalties or economic disincentives to obtain farmer compliance.

B. Regulation of Soil Erosion as a Legislated Duty of Stewardship

The second stage of modern environmental policy for agriculture is best illustrated by the "revolutionary" soil conservation provisions of the 1985 federal farm bill.⁸² New laws—sodbuster, swampbuster, conservation compliance and the conservation reserve program (CRP)—marked a fundamental shift in federal soil conservation efforts.⁸³ The programs adopted several new approaches to address agriculture's impact on the environment and for allocating public resources. *First*, the swampbuster and sodbuster laws identify environmentally sensitive lands, wetlands and fragile lands not recently cropped, and prohibit farmers from bringing them into production. *Second*, conservation compliance targets the 135 million acres of highly erosive land already being farmed and requires by January 1, 1995, the land be farmed pur-

l'environnement pour l'agriculture americaine, REVUE DE DROIT RURAL, Mai 1992 at 202.

81. See, e.g., Dan Miller, *The Clean Water Act Targets Farming*, PROGRESSIVE FARMER, Mar. 1992, at 94.

82. See, Food Security Act of 1985, Pub. L. No. 99-198, tit. 12 § 1213 99 Stat. 1354 (1985)(codified at 16 U.S.C. §§ 3801-3845 (1988)).

83. Linda Malone has three excellent articles describing the history and implementation of the laws, *An Historical Essay on the Conservation Provisions of the 1985 Farm Bill: Sodbusting, Swampbusting, and the Conservation Reserve*, 34 KAN. L. REV. 577 (1986); *Conservation at the Crossroads: Reauthorization of the 1985 Farm Bill Conservation Provisions*, 8 VA. ENVTL. L.J. 215 (1989); and *The Renewed Concern Over Soil Erosion: The Current Federal Programs and Proposals*, 10 J. AGRIC. TAX'N & LAW 310 (1989).

suant to a conservation plan designed to protect long term productivity. For the first time a farmer's eligibility for federal farm benefits is being tied not just to what is raised but to how the land is farmed. This simple but fundamental shift is the most significant change in United States farm policy in fifty years.⁸⁴

The new generation of federal soil conservation laws illustrate what could be the most significant impacts of the second stage of policy development. *First*, agriculture is being made to confront evidence of its adverse impact on the environment and reconcile it with traditional claims of farmers' commitment to stewardship. While many farmers are dedicated stewards, the reality is that for a variety of reasons, some are not. *Second*, agriculture is being forced to accept both the responsibility and burden for its impact on the environment. It is increasingly clear society will not accept environmental problems as the cost of having reasonably priced food. *Third*, law and legal institutions are being used as a primary force to deal with agriculture's impact on the environment and as the delivery mechanism for implementing a "new relation" between farmers and the environment. As a result of the shift in society's attitude toward agriculture, government programs relating to agriculture and the environment are being re-examined. Reauthorization of the federal Clean Water Act, scheduled for 1993, will include provisions on non-point source pollution from agriculture, and may reflect how the "struggle of perspectives" is being resolved.⁸⁵

In the 40 years since Leopold wrote "The Land Ethic" society has made little progress in developing a true ethical dimension in man's relation to the environment. But in many ways Leopold's views provided a theoretical underpinning for the modern ecology movement, which attempts to alter how man relates to the environment and to assign the costs of environmental degradation to those responsible. Whether Americans will ever develop a true land ethic, one which changes attitudes to the use of land, may be doubtful given the market oriented view of land.⁸⁶ Even if the United States experiences diffi-

84. The issue of how to encourage land stewardship to prevent soil erosion has become an important issue in other countries, see J.W. Looney, *Land Degradation in Australia: The Search for a Legal Remedy*, 46 J. SOIL & WATER CONSERV., 256 (1991).

85. For an discussion of current federal law on nonpoint source pollution from agriculture, see George A. Gould, *Agriculture, Nonpoint Source Pollution, and Federal Law*, 23 U.C. DAVIS L. REV. 461 (1990). For an insightful discussion of how agriculture contributes to water pollution, see John H. Davidson, *Thinking About Nonpoint Sources of Water Pollution and South Dakota Agriculture*, 34 S.D. L. REV. 20 (1989).

86. Even with a market orientation toward land the United States has made progress. Consider farmland preservation, a fundamental issue of U.S. agriculture's impact on the environment. In the last 15 years, state and local governments have passed a variety of laws to protect farmland from conversion to non-farm uses. These

culty developing a true Leopoldian land ethic, it does not mean society is without methods to address agriculture's impact on the environment. *In an increasingly legalized society we have come to rely on laws and legal duties as a substitute for a land ethic.* Laws which impose a duty on landowners to protect their soil from erosion, such as one enacted in Iowa in 1971⁸⁷, and new laws requiring farmers to account for their impact on the environment have the effect of changing the man-land relation.⁸⁸ It is true, by regulating the relation of individuals to society rather than the individual to the land, these laws function in a different ethical dimension than would a true "land ethic." But as society comes to view protecting the environment as a significant societal goal, the substitution of legal duties, although not a perfect proxy for a "land ethic," may be the legacy of the second stage of environmental policy toward agriculture.

C. The Covenant of Good Husbandry in Farm Leases as a Stewardship Duty

The fact that close to one-half of American farm land is under some form of tenancy raises concerns about the impact the separation of ownership from management may have on how the land is farmed.⁸⁹ Research on the effect of tenancy on the adoption of soil conservation is mixed, with some researchers concluding tenancy is not as significant a hindrance to adoption of soil conservation as may

laws, ranging from regulatory approaches of agricultural zoning to market based programs of purchasing development rights, have protected millions of acres. An even more important impact has been to change attitudes. Rather than viewing farmland as "undeveloped" land waiting for conversion to other uses, as is often true with urban zoning laws, farmland preservation laws accord farmland a higher priority and force people to view it, in some cases, as the highest and best use of the most fertile lands, thereby funnelling development to less productive lands. Organizations like the American Farmland Trust have worked to place farmland preservation on the national policy agenda. As part of the 1990 farm bill Congress included the Farms for the Future Act which offers federal funding for states administering "a land preservation fund that invests funds in the protection or preservation of farmland for agricultural purposes." 7 U.S.C. § 4201 (Supp. III 1991)(as amended by the 1991 Food, Agriculture, Conservation, and Trade Act Amendments, P.L. 102-237, § 203, 105 Stat. 1848 (1991)).

87. IOWA CODE § 467A.43 (1989). See *infra* note 97 and corresponding text.

88. The 1990 farm bill included a provision requiring individuals who apply restricted use pesticides to keep detailed records of the use. See Food, Agriculture, Conservation, and Trade Act of 1990, Pub. L. No. 101-624, § 1491, 104 Stat. 3359 (1990)(codified at 7 C.F.R. § 110 (1992))(implementing recordkeeping).

89. For example Ken Cook, the vice-president of the Center for Resource Economics, and an influential player in the development of national conservation policy, recently testified before a House Agriculture subcommittee that the concentration of land ownership and the increase in tenancy raises questions about whether there are enough people on the land to provide for adequate stewardship. See, *Few Farmland Owners Inspire Troubling Questions*, IOWA FARMER TODAY, June 6, 1991, at 17.

be small farm size,⁹⁰ while others report crop share rental arrangements are used in some states, rather than cash leasing, as a way to minimize incentives for soil exploitation by renters.⁹¹ The trend to increased rates of tenancy and the potential for more land moving into tenancy as a result of an aging and declining farm population means issues concerning farm leases will become an increasingly important topic for agricultural lawyers. One question relevant to a discussion is whether the common law establishes a stewardship duty in farm leases.⁹²

When the parties use a written form lease including specific clauses on proper husbandry and care of the soil, there is little doubt the reasonableness and impact of the tenant's farming practices are subject to judicial scrutiny. A related but perhaps more difficult issue is whether there exists an implied covenant of good husbandry to care for the soil when a lease does not specifically provide one, such as when the agreement is oral. The general view in American common law is an implied covenant of good husbandry does exist in the lease of farm land, a rule which finds its origins in the doctrine of waste.⁹³ Several cases illustrate the proposition that all tenants are required to care for the land regardless of the terms of the lease.⁹⁴

In *Quade v. Hediderscheit*, the Iowa Court of Appeals considered an action by a landlord and held the tenant liable for damages due to farming practices that violated specific terms of a lease.⁹⁵ While Iowa courts have not addressed the issue of an implied covenant of good husbandry in a lease context⁹⁶ their opinions leave little doubt the courts believe such a duty exists. The Iowa Supreme Court has shown a particular sensitivity to the misuse of agricultural land and has held that the preservation of the state's soil is vital to the public. The court noted this in 1979 when considering the constitutionality of a law mak-

90. See, e.g., Linda K. Lee, *Land Tenure and Adoption of Conservation Tillage*, 38 J. SOIL & WATER CONSERV. 166 (1983).

91. See, Douglas W. Allen & Dean Lueck, *Farmland Leasing in Modern Agriculture*, CHOICES, 1st Quarter 1992, at 30-31.

92. For a discussion of this issue, see Neil D. Hamilton, *Adjusting Farm Tenancy Practices to Support Sustainable Agriculture*, 12 J. AGRIC. TAX'N & LAW 226 (1990).

93. See, e.g., 49 AM. JUR. 2D, *Landlord and Tenant* § 230 (1970); 2 WILLIAM F. WALSH, *THE LAW OF REAL PROPERTY* § 161 (1947); and 3 JOHN S. GRIMES, *THOMPSON ON REAL PROPERTY* § 1146 (1980 repl.). For a discussion of waste law see 93 C.J.S. *Waste*, §§ 1-19 (1988 & Supp. 1992). Poor husbandry by itself does not constitute waste but may when it materially affects the rights of the other party.

94. See, e.g., *Turner v. McNutt*, 197 S.W.2d 143 (Tex. Ct. App. 1946); *Schultz v. Ramey*, 328 P.2d 937 (N.M. 1958); *Newberry v. McLaren*, 575 S.W.2d 438, 440-41 (Ark. 1979); and *Olson v. Bedke*, 555 P.2d 156 (Idaho 1976).

95. *Quade v. Hediderscheit*, 391 N.W.2d 261 (Iowa Ct. App. 1986).

96. The court referred to the issue in *The Brown Land Company v. Lehman*, 112 N.W. 185 (1907), but never ruled on it.

ing it the duty of every landowner to protect the land from soil erosion.⁹⁷ The provision states:

To conserve the fertility, general usefulness, and value of the soil and soil resources of this state, and to prevent the injurious effects of soil erosion, it is hereby made the duty of the owners of real property in this state to establish and maintain soil and water conservation practices or erosion control practices, as required by the regulations of the commissioners of the respective soil conservation districts.⁹⁸

A Woodbury County farmer was found in violation of the county soil loss limits and ordered to spend thousands of dollars to implement soil conservation practices, three-quarters of the cost to be paid by the public. He challenged the law as a taking of private property without just compensation. The district court agreed but the Iowa Supreme Court reversed and upheld the law's constitutionality noting, "[t]he state has a vital interest in protecting its soil as the greatest of its natural resources, and it has a right to do so."⁹⁹ While the statutory provision applies to landowners, the ruling reveals a judicial concern for protecting soil, which could underpin a covenant of good husbandry.

The rulings show authority exists in the common law for courts to scrutinize farming practices employed by tenants. In cases where the practices are demonstrably injurious to the land or raise concerns about the impact on public health, such as by threatening water supplies, the courts may have authority, with or without a specific lease term, to find a tenant's actions violate a covenant of good husbandry or are a nuisance. Growing concern over the impact of conventional farming on the environment may create more opportunities for the courts to address the issue of the covenant of good husbandry.

D. Mechanisms for Implementing a Duty of Stewardship

A discussion of whether agricultural land ownership and use is subject to a duty of stewardship is not complete until the legal mechanisms for implementing such a duty, if one exists, are considered. In addition to enforcing a covenant of good husbandry, several other legal mechanisms have potential for implementing a duty of stewardship:

- using the regulatory authority of local soil and water conservation districts;
- relying on economic incentives, as in federal conservation programs;
- creating systems of producer education and certification; and
- harnessing the economic power of research on sustainable agriculture.

97. Woodbury Co. Soil Conserv. Dist. v. Ortner, 279 N.W.2d 276 (Iowa 1979).

98. IOWA CODE § 467A.43 (1989).

99. Woodbury Co. Soil Conserv. Dist., 279 N.W.2d 276, 278 (Iowa 1979)(citing Iowa Nat. Res. Council v. Van Zee, 158 N.W.2d 111, 118 (1968)).

1. *Regulatory Authority of the Soil and Water Conservation Districts*

One of the more intriguing issues in the nation's effort to establish a long range policy on soil and water conservation is the potential to employ the over 3,000 local soil and water conservation districts as a regulatory mechanism to develop and implement environmental policies. The districts were originally ceated under state laws to carry out federal soil conservation programs and represent one of the most significant innovations in American soil conservation policy.¹⁰⁰ By combining federal, state, and local administration and funding, the districts have provided a familiar, locally controlled method for implementing soil conservation laws on the nation's farms. The success of the districts has been in voluntary programs of education, technical assistance and cost sharing to landowners. Administering non-regulatory conservation efforts remains an important function of the districts even as they adapt to changing environmental issues.

The Standard State Soil Conservation Districts Act¹⁰¹ developed in 1936, was the basis for laws enacted in every state. The act recognized the potential need to have districts play a regulatory role in implementing soil conservation and provided for district enactment and enforcement of local land use control regulations. However, district use of this authority has been limited, and many states have deleted the language. In the two dozen states retaining it, use of regulatory authority by local districts has been limited to a handful of districts. But this limited experience with districts regulating environmentally harmful activities has done little to weaken either their potential, or the interest of conservation policy makers searching for ways to reinvigorate the districts as a front line player in the nation's environmental protection effort.

The historic and continuing interest in the potential regulatory activity of the districts is reflected in the periodic discussions of the issue in legal literature. A 1941 article in the Yale Law Journal discussed the newly empowered districts and their ability to adopt land-use legislation.¹⁰² A 1949 Iowa Law Review article by a former USDA attorney related the history of state reaction to empowering districts with regulatory powers and reviewed the limited and fragmentary use of

100. For a comprehensive discussion of United States soil conservation policy and the efforts of one state to deal with the issue, see James L. Arts and William L. Church, *Soil Erosion—The Next Crisis?*, 1982 WIS. L. REV. 535. For a historical discussion of the role of soil in the development of civilization and the impact of soil erosion, see DANIEL J. HILLEL, *OUT OF THE EARTH: CIVILIZATION AND THE LIFE OF SOIL*, (1991).

101. SOIL CONSERVATION SERVICE, USDA, *A STANDARD STATE SOIL CONSERVATION DISTRICTS LAW*, (1936).

102. Comment, *Legal Techniques for Promoting Soil Conservation Efforts*, 50 YALE L.J. 1056 (1941).

regulatory powers at the time.¹⁰³ The issue surfaced twenty years later in an article by the general counsel of the National Association of Conservation Districts (NACD), who as assistant solicitor in the USDA from 1934 to 1942 helped Assistant Secretary M.L. Wilson write the Standard State Law.¹⁰⁴ The premise of the article was a belief the soil conservation district was entering a period of transformation from which it would emerge as a more effective multi-purpose institution for implementing and enforcing a range of resource protection policies. The article also discussed why the districts had not used the regulatory powers, including statutory requirements of super majorities in local referenda, to enact regulations. The role of conservation districts most recently resurfaced in the late 1970's as part of federal and state efforts to deal with nonpoint source pollution under Section 208 of the Federal Water Pollution Control Act Amendments of 1972.¹⁰⁵ An effort by the NACD to expand the district's role in implementing Section 208¹⁰⁶ is documented in a 1977 article by an NACD consultant on water quality laws, detailing the remaining state authority for district development of water quality protection efforts and the limited attempts at such programs in Montana, Minnesota, Nevada, and Colorado.¹⁰⁷

History shows the various author's invitations were largely ignored and their predictions were if not inaccurate at least premature. Another fifteen years has passed, and the potential regulatory role of soil and water conservation districts still remains largely untapped. There are notable examples of innovative programs in which local districts or their equivalents are controlling water pollution caused by livestock facilities or use of fertilizers.¹⁰⁸ A prime example is the Groundwater Quality Management Program implemented by the Central Platte Natural Resources District in Nebraska, which restricts the timing and use of nitrogen fertilizer based on levels of nitrate contami-

103. Edwin E. Ferguson, *Nation-Wide Erosion Control: Soil Conservation Districts and the Power of Land-Use Regulation*, 34 IOWA L. REV. 166 (1949).

104. Philip M. Glick, *The Coming Transformation of the Soil Conservation District*, J. SOIL & WATER CONSERV., Mar.-Apr. 1967, 44.

105. Pub. L. No. 92-500, 88 Stat. 816 (1972)(codified at 33 U.S.C. §§ 1251-1387 (1988 & Supp. II 1990), now known as the Clean Water Act).

106. NACD CONSERVATION DISTRICTS AND 208 WATER QUALITY MANAGEMENT, 1977.

107. Mary M. Gardner, *Regulatory Programs for Nonpoint Pollution Control: The Role of Conservation Districts*, J. SOIL & WATER CONSERV., Sept.-Oct. 1977, at 199. That same year, the issue was discussed in an article focusing on the nation's inability to implement "voluntary" efforts to adopt "best management practices (BMP's) to eliminate soil erosion." Lynn L. Schloesser, *Agricultural Non-Point Source Water Pollution Control Under Sections 208 and 303 of the Clean Water Act: Has Forty Years of Experience Taught Us Anything?*, 54 N.D. L. REV. 589 (1978).

108. For a thorough discussion of a number of innovative district efforts, see, COOPERATING FOR CLEAN WATER: CASE STUDIES OF AGRICULTURAL NONPOINT SOURCE POLLUTION IN THE GREAT LAKES STATES, (Nancy Bushwick et al., eds., 1986).

nation in groundwater.¹⁰⁹ To date the examples of local regulatory approaches are more the exception than the rule. The conservation district system remains firmly committed to voluntary programs of education and financial assistance, both as a function of the political beliefs of district leadership and as a reflection of past successes. The reliance is not necessarily misplaced, if the districts can successfully implement effective resource protection using these approaches; however, the time may come when the regulatory potential of the local districts, as foreseen by their creators over fifty years ago, must be tapped if agriculture is to develop an effective system of locally designed and administered environmental protection.

2. *Economic Incentives to "Encourage" Stewardship*

The 1985 farm bill initiated an unprecedented shift in national soil conservation policy by integrating compliance with soil conservation provisions and eligibility for federal farm programs. The mechanism used to deliver the programs is the farmer's economic desire, perhaps need, to participate in farm programs, such as price support loans, deficiency payments, subsidized crop insurance, and disaster loans. The potential loss of eligibility for benefits is used to encourage farmers to comply with the programs. The success of this extortive linkage in making farmers consider soil conservation problems on their land has been dramatic. In the last five years federal soil conservation officials have written over 1.3 million conservation compliance plans covering 135 million acres of highly erodible land. The plans, which are now being implemented, have resulted in a significant increase in use of "no-till" and reduced tillage systems, as farmers have turned to residue management as a way to conserve soil.¹¹⁰ The sodbuster and swampbuster provisions have prevented millions of acres of fragile land from being put under the plow.

The Conservation Reserve Program (CRP) offers landowners the opportunity to retire erosive cropland from production for ten years and receive annual rental payments for practicing conservation. The program has proven very popular and has attracted 36 million acres of former crop land. The 1990 farm bill added several new programs which continue the evolution of federal soil and water conservation policy.¹¹¹ Under the Water Quality Incentives Program (WQIP) farm-

109. For an excellent review of the program, see Susan A. Schnieder, *The Regulation of Agricultural Practices to Protect Groundwater Quality: The Nebraska Model for Controlling Nitrate Contamination*, 10 VA. ENVTL. L.J. 1 (Fall 1990).

110. See, e.g., Dan Looker, *Iowa's Making Progress on Saving Soil*, DES MOINES REG., July 14, 1992, at 8S, which reports that nearly one half of Iowa's 22 million acres of corn and soybeans were planted using conservation tillage, up from only 7 million acres in 1991.

111. See, Food, Agriculture, Conservation, and Trade Act of 1990, Pub. L. No. 101-624,

ers who adopt multi-year plans to protect water quality will receive federal payments.¹¹² While the act set a goal of 10 million acres under contract by 1995, unfortunately Congress has provided only limited funding for the WQIP as a pilot program.¹¹³ Failure to adequately fund the program means the potential to use economic incentives to change farming practices to protect water quality has not been adequately tested. Several other 1990 farm bill initiatives, including the Wetland Reserve Program (WRP) which has a goal of restoring one million acres of drained wetlands by 1995,¹¹⁴ utilize conservation easements with the public purchasing a long-term interest in farmland in exchange for the owner's agreement to protect important environmental resources.¹¹⁵ But these programs, most notably the WRP, have also suffered from a lack of Congressional funding.¹¹⁶

While the new generation of federal conservation programs has led to a significant shift in farmer attitudes, the implementation of the programs has not been without controversy. The earliest concern for environmentalists was the USDA's lowering of the standards for what was required in conservation plans.¹¹⁷ The most recent concerns are the pace of adoption of plans and fears the agency has been lax in enforcing the conservation requirements.¹¹⁸ For example, a recent investigation by the Center for Resource Economics raises serious questions about the performance of the ASCS in identifying and penalizing farmers who have violated the laws.¹¹⁹ While 1,190 Iowa farmers were

104 Stat. 3359 (1990), [hereinafter cited as FACTA](codified at U.S.C.A. §§ 3838-3838(f)(West 1992)).

112. FACTA. This program has not received significant funding and is presently implemented only as a limited pilot effort.
113. The WQIP received \$3.5 million in 1991, \$6.7 million in 1992, but for 1993 the Senate approved an increase to \$15 million. See, CENTER FOR RURAL AFF. NEWSL., Aug. 1992, at 2.
114. FACTA, § 1237. For the implementation of the program see the discussion accompanying notes 149 and 150 *infra*.
115. For a general discussion of the issue, see Justin R. Ward, and F. Kaid Benfield, *Conservation Easements: Prospects for Sustainable Agriculture*, 8 VA. ENVTL. L.J. 271 (1989).
116. For a discussion of Congresses' failure to fund the WRP, see text accompanying note 150 *infra*.
117. The controversy is discussed in Neil D. Hamilton, *Legal Issues in Enforcing Federal Soil Conservation Programs: An Introduction and Preliminary Review*, 23 U.C. DAVIS L. REV. 637, at 641-44 (1990).
118. Perhaps the most complete and objective review of the implementation of the conservation title is, SOIL AND WATER CONSERVATION SOCIETY, FINAL REPORT: IMPLEMENTING THE CONSERVATION TITLE OF THE FOOD SECURITY ACT, EXECUTIVE SUMMARY (1992). See, George Anthan, *Soil Group Finds Federal Erosion Rules Not Met*, DES MOINES REG., April 3, 1992 at 8A, and George Anthan, *Agriculture's Big Test — Critics: Many Farmers Still Let Soil Slip Away*, DES MOINES REG., September 7, 1991, at 1.
119. *The Bad: Violators Go Free*, DES MOINES REG., July 20, 1992, at 12A. See also, KENNETH A. COOK & ANDREW B. ART, CENTER FOR RESOURCE ECONOMICS,

found to be out of compliance during 1991 spot checks, by the time the agency finished applying various exemptions only one farmer was penalized for violating the rules.¹²⁰ This experience, repeated in many farm states, raises legitimate concerns about USDA's promises to be tough in enforcing the laws.¹²¹

Regardless of the disputes over the implementation of the soil conservation programs, the good news is the combination of incentives appears to be working. The USDA's Soil Conservation Service (SCS) inventories levels of soil loss every five years and recent inventories show the average rate of soil loss is declining in Iowa.¹²² In 1987 the average loss was 6.5 tons/acre, down from 8.2 in 1982 and 9.9 in 1977. The success of farmers in reducing soil loss should mean several things. First it will reduce pressure for enacting more onerous regulatory approaches and second it should help shore up the public perception of producers as stewards of the land. Most importantly it may indicate that the laws have motivated most farmers to recognize and accept a duty of stewardship.

3. *Farmer Sponsored Certification and Education*

A third mechanism for implementing stewardship is to create programs whereby producers voluntarily agree to comply with standards of performance, such as best management practices (BMPs) or "generally accepted agricultural practices" (GAAPs). For example, the Minnesota Turkey Growers recently developed BMPs concerning three subjects: locating and maintaining turkey farms, disposal of turkey manure, and handling dead turkeys.¹²³ Recently, the National Pork Producers Council launched what it calls a "pro-active" drive to improve environmental quality by urging members to support standardized BMPs for the pork industry.¹²⁴ These producer supported efforts are designed to motivate farmers to address potential environmental concerns, to limit pollution, and to prevent problems from resulting in more aggressive regulatory approaches. They are a natural outgrowth of the traditional reliance in American agriculture on education and voluntary actions to address resource protection issues. The producer-supported efforts parallel applicator certification and education re-

COUNTDOWN TO COMPLIANCE: IMPLEMENTATION OF THE RESOURCE CONSERVATION REQUIREMENTS OF FEDERAL FARM LAW, (1993).

120. *Id.*

121. See, e.g., Sonja Hilgren, *Riding Herd on Conservation: Ken Cook is a Burr in USDA's Saddle*, TOP PRODUCER, Mid-March 1992, at 15.

122. *The Good: Less of Iowa Goes South*, DES MOINES REG., July 20, 1992, at 12A.

123. Rod Smith, *Minnesota Turkey Growers Adopt Environmental Management*, FEEDSTUFFS, Oct. 14, 1991, at 18.

124. Steve Marbery, *NPPC Launches Pro-active Drive to Improve Environmental Quality*, FEEDSTUFFS, Mar. 23, 1992, at 1.

quirements found in federal and state pesticide laws.¹²⁵ Some states are now including producer education and certification programs in other laws. The new Arkansas liquid animal waste rules require all permit holders to provide "certification of satisfactory completion of formal education or training in the areas of waste management and odor control."¹²⁶ The law requires four hours of education for permit issuance and an annual refresher course.¹²⁷

In recent years there has been much clamor for reform in federal agricultural price and income support policies, including the original American proposal in the GATT Uruguay round to eliminate all trade distorting domestic subsidies within 10 years.¹²⁸ One concern about such suggestions, given current conservation programs, is what will be the mechanism to achieve resource protection goals if the need to maintain eligibility for farm program benefits no longer exists. While the United States's lack of success in promoting radical reform has delayed consideration of the issue, it is not unreasonable to believe farm program reform will remain on the political agenda. As the farming sector becomes smaller and public pressure to integrate environmental protection with agricultural practices becomes stronger, there may be real opportunities for using producer certification and education as a mechanism for implementing a duty of stewardship. Such an approach could offer an effective way of verifying the "professionalism" of producers and provide a modern basis for public funding of agricultural supports.¹²⁹ The idea to support farmers on the basis of

125. See, e.g., IOWA CODE § 206.5 and 7 U.S.C. § 136i(a), (1988), discussed in NEIL D. HAMILTON, WHAT FARMERS NEED TO KNOW ABOUT ENVIRONMENTAL LAW, 34-39 (Drake University 1990).

126. ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY, REGULATION NO. 5, LIQUID ANIMAL WASTE MANAGEMENT SYSTEMS, § 5(3)(a).

127. *Id.*

128. See, CLAYTON YEUTTER, USDA SUBMISSION OF THE UNITED STATES ON COMPREHENSIVE LONG-TERM AGRICULTURAL REFORM, Press Release #1390-89 (Oct. 24, 1989), (submitted to the Uruguay Round Agriculture Negotiating Group on October 25, 1989, Mutilateral Trade Policy Affairs Division, Foreign Agricultural Service, USDA).

129. One possibility is to develop a National Land Stewardship Act, a federally funded, locally administered system using soil and water conservation districts to certify farmers as soil stewards. The idea would use stewardship goals and the idea of "recoupling" to achieve environmental protection goals in developing a sustainable agricultural system and reforming federal economic support for American agriculture. The process for defining the content of "stewardship" and developing a mechanism for integrating it into various policies would be based on a system of education and certification of producers in a number of resource use areas. The program would use five delivery mechanisms for policy change:

- 1) providing financial incentives for certain actions;
- 2) conditioning eligibility for other benefits on compliance with a standard of resource protection;
- 3) mandating certain behavior through regulation and enforcement, (e.g. protection of wetlands);

how they farm and not necessarily what they grow can be characterized as an effort to "recouple" farm price support programs with stewardship, as contrasted with suggestions that support be "decoupled" from production. One idea is to pay farmers a stewardship fee for how

- 4) encouraging farmer education on stewardship, and
- 5) harnessing private market forces to promote conservation, (e.g. integrating "stewardship certification" into private economic transactions, such as landlord decisions on leasing).

The program would include a number of components:

1. Establishing a voluntary education and certification system for agricultural producers on the following topics: a) soil conservation, b) water quality protection, c) chemical application and use, d) integrated pest management, e) nutrient management and animal waste handling, f) livestock production and care, g) crop rotations, forage production and small grains, and h) irrigation water management. The program could be developed by the Cooperative Extension Service, working in conjunction with local soil and water conservation districts, the Soil Conservation Service and state environmental agencies.

2. Phasing education and certification requirements into various features of agricultural policy, including:

a) making farm program payments on the basis of how you farm; b) basing compliance with environmental protection laws on adoption of plans and completion of education and certification in various subject areas; c) regulating farm leasing practices to require tenants be certified in some or all farm leasing situations; d) conditioning federally subsidized irrigation water on certification and training in water management and irrigation technologies; e) providing crop insurance or disaster assistance programs to farmers with stewardship certification; f) basing eligibility for grazing permits on public lands on forage management certification; and g) financing beginning farmer loan programs, Farmers Home Administration (FmHA) lending, and other loans on certification; and providing subsidies or other tax breaks to lenders making loans to certified producers.

3. Developing an education and promotion campaign to build on the concept of stewardship as a basis for a new American farm policy. This effort would: a) emphasize the approach dealing with many of the policy issues facing agriculture; b) emphasize the education and research aspects, and use the extension service and land grant universities as allies to create a market and demand for educational services and products; c) promote the concept as an extension of ideas in 1985 and 1990 farm bills, and as an alternative to "command and control" environmental regulations; d) stress the stewardship ideal and the promotion of professionalism in agriculture; e) link sustainable agriculture research and national environmental consciousness, e.g. the idea of green growth, to preserve public support for agriculture; f) use stewardship to put agriculture on the offensive for environmental quality, and allow it to influence the environmental agenda; and h) promote the acceptability of the policy under international agricultural reforms in GATT.

The approach would shift emphasis of environmental protection efforts from the quality of the administrative enforcement system to the quality of our educational and certification system. It would help establish commonly shared minimum levels of understanding and performance in agriculture. Basing the concept on ideals of agricultural stewardship creates the opportunity to develop the three conditions necessary for public support of regulatory efforts: 1) the regulations address a problem the public recognizes and believes needs to be solved (e.g. soil erosion), 2) there is a logical, scientific basis for the solutions offered to address the problem, and 3) there is public acceptance of the methods of resolution.

they farm, an idea partially reflected in the WQIP.¹³⁰ The European Economic Community (EEC) is rapidly converting or "greening" the Common Agricultural Policy into an environmental policy which supports farmers largely on how they perform as caretakers of the countryside.¹³¹ Creating such a program in the United States will require the input and support of both the farm sector and agricultural lawyers.

4. *Harnessing the Economic Power of Research on Sustainable Agriculture*

The concept of sustainable agriculture is a major development in American agriculture which will have a direct effect on the legal approach chosen to address environmental concerns.¹³² Sustainable agriculture is defined in various ways but in its simplest form means agricultural practices which protect the environment while preserving the profitability of farmers.¹³³ Most federal and state interest in sustainable agriculture has been focused on research and implementing alternative farming practices which reduce impacts on the environment while resulting in cost savings or increased farm income.¹³⁴ Substituting natural methods of pest control, using animal wastes for fertilizer, developing alternative practices such as a useable test for nitrogen so farmers apply only what is needed, are examples of sustainable agriculture.¹³⁵

Sustainable agriculture could be a powerful influence on American agricultural policy. By focusing on how decisions affect the "sus-

130. *Pay a 'Stewardship Fee'*; DES MOINES REG., Sept. 24, 1991, at 8A.

131. *See, e.g.*, COUNCIL FOR THE PROTECTION OF RURAL ENGLAND, *CONSERVING THE COUNTRYSIDE: COSTING IT OUT*, Aug. 1989; Bridget Bloom, *Environmental Dimension Proposed for EC Schemes*, LONDON TIMES, Sept. 15, 1989, at 34.

132. Gregory Grajewski, et al., *Sustainable Agriculture: What's It All About?* AGRIC. OUTLOOK, May 1992, at 30.

133. The term is defined in the 1987 Iowa Groundwater Protection Act, which funded a research program at Iowa State University, the Leopold Center for Sustainable Agriculture, as "the appropriate use of crop and livestock systems and agricultural inputs supporting those activities which maintain economic and social viability while preserving the high productivity and quality of Iowa's land." IOWA CODE § 266.39(1)(1991). For a discussion of sustainable agriculture and its relation to legal institutions, see Neil D. Hamilton, *Sustainable Agriculture: The Role of the Attorney*, 20 ENVTL. L. REP. 10021 (Jan. 1990).

134. The negative impacts of federal farm policies on the environment and the potential value of sustainable agriculture were among the subjects addressed in NATIONAL RESEARCH COUNCIL, *ALTERNATIVE AGRICULTURE* (1989). The book set off an intense controversy in the agricultural community and gave a major boost in the national conscience to sustainable agriculture.

135. For an excellent discussion of the research comprising the content of sustainable agriculture, see, LEOPOLD CENTER FOR SUSTAINABLE AGRICULTURE, IOWA STATE UNIVERSITY, 1992 CONFERENCE PROCEEDINGS, *BUILDING BRIDGES: COOPERATIVE RESEARCH AND EDUCATION FOR IOWA AGRICULTURE* (1992).

tainability" of agriculture, decisions can be made which incorporate a concern for the environment. More importantly, by combining a concern for the environment with attention to the economics of farming, sustainable agriculture offers a way to harness the producer's natural concern for the economics of farming. The results from sustainable agriculture research funded by the Leopold Center on how to reduce the use of nitrogen fertilizer are already being seen in Iowa. Recent studies indicate the average rates of nitrogen fertilizer used per acre in Iowa have dropped from 145 lbs. in 1985 to 127 lbs. in 1990 without affecting yields, meaning Iowa farmers are saving \$80 million a year in reduced fertilizer costs while reducing the potential for excess nitrates to enter water supplies.¹³⁶

By merging economics and environmental stewardship, sustainable agriculture holds great potential for the United States. It may offer a way to reduce the tension between the environmental community and the farm sector, and help preserve consumer confidence in the quality of our food. It may provide a basis for justifying continued public funding of agricultural programs. If farmers adopt new practices to protect the environment, the negative environmental effects creating public pressure to regulate agriculture should subside. If this happens, increased reliance on laws and legal institutions to limit the effects of modern farming will diminish. American agriculture may enter a third stage of environmental awareness, a "sustainable agriculture," which respects the environment and in which laws no longer substitute for a land ethic.

V. WHAT ARE THE LIMITS TO PRIVATE PROPERTY?

One of the most fundamental issues in society is the delicate balance between private property and the power of the state to restrict the use of property to protect the public health and project societal values. The issue has both ethical and political implications for the form of society we create¹³⁷ and a constitutional dimension because of the Fifth amendment prohibition against taking private property for public use without compensation. Use and enjoyment of private property is a fundamental component of American life and a major factor in our economic freedom. But the quality of life and the success of the economy are greatly influenced by the actions of the state—such as environmental protection, land use planning, and protection of public safety all of which determine how land is used.

As society has developed, our understanding has evolved both as to

136. Dan Looker, *Iowa Farms' Nitrogen Use Drops*, DES MOINES REG. Dec. 6, 1991, at 1A, which reports findings by the Iowa Department of Natural Resources. During the period average rates of nitrogen use increased in Illinois.

137. Richard C. Collins, *Land Use Ethics and Property Rights*, 46 J. SOIL & WATER CONSERV. 417 (1991).

what is recognized as private property and what activities are seen as potentially injurious to the public. Perhaps there is no better example than the dramatic shift in policies on use of wetlands. From the nation's earliest history wetlands were considered undeveloped waste lands, swamps which should be drained for economic use, and drain them we did to create the fertile fields of Iowa and other states.¹³⁸ But in the last 20 years the important values of wetlands, for flood protection, water purification, wildlife habitat, and aquifer recharge have been recognized. Federal and state policies on draining wetlands have shifted dramatically, perhaps much faster than the public awareness of the value of wetlands. As a result, regulations to protect the limited remaining wetlands have unleashed a storm of protest by owners of protected wetlands who claim their private lands are being taken for public use and, therefore, compensation must be paid. But the issue of where to draw the line between regulations which merely restrict use of property and public actions which are truly "takings" requiring compensation has proven to be, by the U.S. Supreme Court's own admission, elusive of judicial resolution.¹³⁹ Continuing confusion about the judicial standards to apply in taking challenges, a growing number of Claims Court cases in which landowners have claimed compensation for environmental regulations,¹⁴⁰ and the shift in political makeup of the Supreme Court create a heightened awareness for resolving the taking issue.

A. The Relation of the Taking Issue to Agriculture and the Effect of *Lucas*

The agricultural community has a fundamental stake in how our nation addresses the taking issue. First, the discussion on stewardship and environmental protection illustrates the range of issues involving public regulation of agricultural land. Whether the issue is wetland protection, preserving habitat for endangered species, disposing of animal wastes, controlling soil erosion, or preventing water pollution,

138. For a discussion of wetland issues, see ENVIRONMENTAL PROTECTION AGENCY, AMERICA'S WETLANDS: OUR VITAL LINK BETWEEN LAND AND WATER, (Feb. 1988). For an excellent analysis of the current controversy over delineating wetlands, see Jon Kusler, *Wetlands Delineation: An Issue of Science or Politics*, ENV'T, Mar. 1992, at 7.

139. For an exceptional review of the taking issue and the question of how "expectations" influence attitudes towards property, see, Jerry L. Anderson, *Takings and Expectations: Toward a "Broader Vision" of Property Rights*, 37 KAN. L. REV. 529 (1989).

140. *Compare* Loveladies Harbor, Inc. v. United States, 21 Cl. Ct. 153 (finding a taking where Army Corps of Engineers denied permit to fill landowner's property)(1990) with *Ciampitti v. United States*, 22 Cl. Ct. 310 (finding no taking where Army Corps of Engineers denied permit to fill landowner's wet lands because not all economically viable use taken and permit denial did not interfere with investment-backed expectations)(1991).

important public goals can not be achieved without effecting the actions of private landowners. Judicial rulings on the "taking issue" will greatly affect the shape of future environmental regulations by defining the range of regulatory actions possible without compensation. Second, in recent years a growing and vocal "property rights" movement has emerged in the United States comprised primarily of politically conservative groups and individuals, who argue for a strict interpretation of the taking clause.¹⁴¹ This means if land use regulations reduce the value of the property or prevent the landowner from doing whatever is desired, they would be suspect as takings. Laws such as the endangered species act, wetland protections,¹⁴² and land-use controls such as zoning to protect historic landmarks have been the prime targets of the "property rights" movement. This movement has found support among the members and leadership of the conservative American Farm Bureau Federation upset with the impact of wetland policies on farmland.¹⁴³ The goal of the movement is a realignment of American property law designed to place private desires to develop or use land paramount to public welfare concerns, and require compensation to landowners whenever a regulation reduces the value of the property.

The taking issue was the subject of a recent wave of public attention when the Supreme Court in June 1992 decided *Lucas v. South Carolina Coastal Council*.¹⁴⁴ The case involved the alleged taking of \$1 million of beachfront lots by a 1988 South Carolina shore protection law. When the South Carolina Supreme Court reversed the trial

141. See, e.g., Keith Schneider, *Environmental Laws Face a Stiff Test from Landowners*, N.Y. TIMES, Jan. 20, 1992, at A1; and Jim Phillips, *It's My Property*, PROGRESSIVE FARMER, Feb. 1992, at 30. For an example of the literature of the movement, see the monthly "Land Rights Letter" which communicates the activities of such groups as the Defenders of Property Rights, the National Inholders Association and the Multiple-Use Land Alliance. The movement is related to, although not the same as, the "Wise Use" movement which promotes greater economic use of public land as a counter to increasing environmental activism. See, Kate O'Callaghan, *Whose Agenda for America?*, AUDUBON, Sept.-Oct. 1992, at 80.

142. For a discussion of takings and wetlands law, pre-*Lucas*, see Gerald Torres, *Wetlands and Agriculture: Environmental Regulation and the Limits of Private Property*, 34 KAN. L. REV. 539 (1986).

143. The role of the American Farm Bureau Federation and President Dean Kleckner in the property rights movement appears to be stimulated by the inherent political conservatism of the organization, as reflected in a desire to reduce government power at all levels. Wetland protection laws, such as swampbuster and § 404 of the Clean Water Act, have motivated the organization's lead on the issue. See, e.g., Darryl Jahn, *AFBF Delegates Call for Action to Protect Private Property Rights*, IOWA FARM BUREAU SPOKESMAN, Jan. 25, 1992, at 1; Rick Robinson, *Landowners Should Be Paid for Their Loss*, IOWA FARM BUREAU SPOKESMAN, Jan. 25, 1992, at 16; and Dean Kleckner, *Property Rights Assault Upsets Our Constitution*, IOWA FARM BUREAU SPOKESMAN, March 14, 1992, at 4.

144. *Lucas v. S.C. Coastal Council*, 112 S. Ct. 2886 (1992). See, David Kaplan and Bob Cohn, *Pay Me, or Get Off My Land*, NEWSWEEK, Mar. 9, 1992, at 70.

court's award of \$1.2 million in damages, the landowner appealed to the U.S. Supreme Court. The case was seen by property rights advocates as the opportunity for the Court's conservative majority to clear up the judicial confusion on the taking issue and make a strong stand for private property rights against "confiscatory" public regulations. The Court issued its opinion June 29, 1992, and the ruling is a mixed bag.¹⁴⁵ The majority held land use regulations such as the beachfront protection law in questions may be "regulatory" takings and held the state court erred in applying the "harmful or noxious use" principle to uphold the law. Instead the Court ruled the state had the burden to show the activity being regulated was equivalent to a common law nuisance, and must "identify background principles of nuisance and property law that prohibit the uses [Lucas] now intends in the circumstances in which the property is presently found."¹⁴⁶ However, the decision is premised on a trial court finding that the property had been rendered "valueless" which allowed the majority to apply the traditional rule that if all property value is destroyed by the regulation, it is similar to an actual physical confiscation and compensation must be paid. The Court did not rule the property had been taken, but instead remanded the case to the South Carolina Supreme Court to apply the heightened test in reviewing the legislation.¹⁴⁷

The case, hailed as a victory by property rights advocates, does represent a shift in the burden for state and local governments implementing property use regulations.¹⁴⁸ However the case is of limited precedential value because it rests on the finding that the law destroyed "all economically viable" use of the property. In most alleged takings the restriction does not remove all uses but may only prohibit what the owner sees as the "highest" use, generally the one with the greatest economic return. The Court did not answer questions about what level of diminution in value would equate to "all" use or how to measure the diminution in value when only part of a tract is restricted. Even on the issue of wetland regulations, which were a concern to many groups supporting the appeal, the Court left largely unanswered how a taking challenge would be resolved. While the court intimated that regulations requiring land to be left in a natural

145. *Lucas v. S.C. Coastal Council*, 112 S. Ct. 2886 (1992). See, e.g., *Supreme Court Leaves Both Sides Unsettled in Lucas Case*, FARMLAND PRESERVATION REPORT, July-Aug. 1992, at 5, and Eric Meyers, *Lucas: No Bright Line*, NATIONAL WETLANDS NEWSLETTER, July/Aug. 1991, at 9.

146. *Lucas v. S.C. Coastal Council*, 112 S. Ct. 2886, 2901-02 (1992).

147. On remand the South Carolina Supreme Court held that: (1) The Coastal Council did not have the ability to prohibit construction of a habitable structure, and (2) The landowner suffered a temporary taking. *Lucas v. S.C. Coastal Council*, 424 S.E. 2d 484 (1992).

148. Catherine Yang and Peter Hong, *The Grass is Looking Greener for Landowners*, BUS. WK., July 13, 1992, at 31.

state were suspect, the issues of alternative beneficial uses, the role of state common law property concepts on altering wetlands, and how to measure diminution when the land is in an undeveloped state, all remain to be analyzed in an agricultural wetland challenge. Even with *Lucas*, the taking issue has not been resolved. The true impact will not be known until state and federal courts apply the holding or the U.S. Supreme Court renders additional guidance.¹⁴⁹

B. Risks and Opportunities in "Resolving" the Taking Issue

Although judicial resolution of the taking issue is not complete, the tension it reflects between private property rights and public interests is still very important, especially for agriculture—the most land dependant sector of society. While constitutional protections for private property are of fundamental importance, it appears there are risks if the farm community stakes its response to public desires for environmental protection on an extremist political position which in essence is "if the public wants me to protect the environment, pay me." One risk is the position will be rejected by the courts. Court rulings such as the Iowa Supreme Court's rejection of a taking claim in upholding the state soil conservation law show that if agricultural practices cause adverse public effects, considerable precedent exists, both at common law and in statutes, for regulating the practices. Another risk is that the clamor about "property rights" and "takings" fails to recognize the important public benefits agriculture receives, either in the form of public sharing of conservation costs and more direct subsidies found in various farm programs and local property tax breaks such as homestead credits and special use valuations. By focusing on claims the public cannot limit use of private property, farmers and other landowners may risk a political and social backlash, such as on the first two questions considered in this article—what is agriculture and is there a right to farm? This backlash could cause the public and lawmakers to re-examine support for agriculture, especially when it is often public action which adds value to farm property.

A final risk is that by diverting the current policy debate on environmental protection to a referendum on "property rights" the agricultural community may miss an important opportunity to help society develop creative alternatives which accommodate both the public interest and land owner's desires. One of the best examples of this type of private-public compromise is the use of conservation easements. Conservation easements operate by having the public pay the landowner to agree to permanently protect the resource values identified in the easement. The purchase of conservation easements, especially on a voluntary basis, is an effective compromise between

149. See, e.g., *Reahard v. Lee County*, 978 F.2d 1212 (11th Cir. 1992).

regulatory approaches which attempt to force the landowner to do the same thing but without any compensation, and public acquisition of title to the property. Using conservation easements leaves the property in private ownership and available for other economic uses not incompatible with the easements while at the same time placing responsibility for funding on the public which reaps many of the benefits. Using conservation easements presents challenges in terms of landowner acceptance and agency implementation, but the legal innovation may be effective in achieving long-term environmental protection while sharing public and private costs.

The potential for using conservation easements to promote environmental protection in agriculture is illustrated by the Wetlands Reserve Program (WRP) implemented by the USDA.¹⁵⁰ The 1992 pilot program was only funded to acquire 50,000 acres of permanent easements for wetland restoration. When the agency announced the program, there was doubt whether many farmland owners were interested in selling a permanent interest in their property to the federal government. However, when the results of the signup period for landowners to express an intention to bid were released, USDA officials were surprised to find that over 2,700 farmers had expressed interest in bidding 466,000 acres into the program. While it is unclear how many landowners will develop an actual plan of operation and submit a final bid, the level of interest reveals the potential for using conservation easements. Unfortunately, the irony is that only one month after the signup, Congress voted to eliminate funding for the second year of the WRP.¹⁵¹

Only time will tell whether Congress will restore funding for the WRP for 1994 and whether the experiment in using conservation easements as part of federal soil conservation will succeed. Regardless of the fate of the WRP, the nation needs to continue searching for ways to accommodate economic activity on private land while protecting important resource values. Agricultural lawyers will play a central, perhaps starring role, in this drama. By helping society develop and implement innovative legal strategies, such as conservation easements, private-public cost-sharing of environmental protection, and promoting a private duty of stewardship, agricultural lawyers can help the nation resolve the taking issue.

150. FACTA, § 1237. The program was implemented in June 1992 as a 50,000 acre pilot program in 9 states. See 57 Fed. Reg. 23,908, (1992), which sets out the final program rules.

151. See, e.g., Kenneth Pins, *Senate Panel Kills Money for Popular Wetlands Reserve*, DES MOINES REG., July 22, 1992, at 4A. The Senate ultimately included \$55 million but the funds were removed in the conference committee. See, *Down the Drain*, DES MOINES REG., August 14, 1992, at 12A.

VI. DO FARM ANIMALS HAVE RIGHTS?

The issue of animals rights¹⁵² is one of the most controversial and emotional topics facing agriculture both in Europe and the United States.¹⁵³ It promises to become more contentious as animal rights activists organize more aggressive efforts to focus attention on consumption of meat and how they believe meat animals are raised.¹⁵⁴ For example, in April 1992 a coalition of groups, led by Jeremy Rifkin of the Foundation on Economic Trends, launched the "Beyond Beef Campaign" to cut world consumption of beef by 50% by 2002.¹⁵⁵ The campaign, based on Rifkin's book *Beyond Beef*, is premised on the notion that cattle are Earth's most destructive agent of environmental damage.¹⁵⁶ While not based directly on animal rights, the goal of reducing beef consumption through the guise of environmental policy,¹⁵⁷ is a more publicly palatable argument which may have the same impact as a frontal attack based on less publically acceptable animal rights theories.

A. The Idea of Animal Rights and Its Relation to Modern Agriculture

All farmers agree they have a duty to provide for the welfare of animals under their control.¹⁵⁸ The economic success of any farm raising or employing animals is determined by their health and productivity, so providing care, shelter, feed, and water are fundamental aspects of animal agriculture.¹⁵⁹ Legislation protecting the welfare of animals by requiring standards of care for their treatment have a long history in western culture.¹⁶⁰ However, the idea of "animal rights" is

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152. For a recently published look at of the American animals rights movement, see James M. Jasper & Dorothy Nelkin, *The Animal Rights Crusade: The Growth of a Moral Protest*, (1991).
 153. See, e.g., Diane Keaton, *Dividing Line: Agriculture Confronts the Politics of Animal Rights Activists*, CALIFORNIA FARMER, Aug. 4, 1990 at 10; and Anthony Phelps, *Debate Over Layer Cages Continues in Europe*, FEEDSTUFFS, May 22, 1989, at 9.
 154. See, e.g., Larry Waterfield, *Animal Rights Groups Plan Ongoing National Strategy*, DROVERS JOURNAL, July 13, 1989, at 2.
 155. Gordon S. Carlson, *Rifkin Campaign Aimed at Halving Beef Consumption*, FEEDSTUFFS, April 20, 1992, at 1.
 156. Jeremy Rifkin, *BEYOND BEEF: THE RISE AND FALL OF THE CATTLE CULTURE*, (1992).
 157. See, e.g., Larry Waterfield, *Cattle Production Methods Are on Hidden Agendas of Consumerists*, DROVERS JOURNAL, Jan. 13, 1989, at 5.
 158. For a discussion of farm groups efforts to respond to the issue, see Des Keller, *Animal Rights and Wrongs*, PROGRESSIVE FARMER, Nov. 1989, at 32.
 159. ANIMAL INDUSTRY FOUNDATION, *ANIMAL AGRICULTURE: MYTHS AND FACTS* (1988). AIF was formed by a coalition of agricultural businesses to serve as an information counterweight to the animal rights activists.
 160. See, e.g., Mary D. Daley, *Crime and Punishment in the Barnyard*, THE FURROW, Sept.-Oct. 1991, at 30, exploring protections for animal welfare existing in Irish common law centuries ago.

premised on animals having certain intrinsic rights which must be respected, including, most adherents would argue, the right not be eaten or used for the benefit of man.¹⁶¹ The controversy over animal rights has an ethical and moral dimension which makes its resolution particularly difficult.¹⁶² The issue is also one which lends itself to promotion of various legislative proposals, a tactic groups seeking to resolve the debate have followed. For example, in recent years bills have been introduced in Congress to regulate the practices used in producing veal calves and to grant standing to sue to animals or their representatives.¹⁶³ Animal rights activists, led by the clandestine Animal Liberation Front (ALF), have conducted campaigns of terrorism and vandalism against research facilities, university labs, and animal production facilities.¹⁶⁴ A number of states have responded by passing laws making it a crime to interfere with animal research or production.¹⁶⁵ On August 26, 1992, President Bush signed the Animal Enterprise Protection Act, which triggers federal prosecution in animal rights cases involving damages of more than \$10,000.¹⁶⁶

The fear of American farmers is that states will begin passing legislation, such as recently enacted in Sweden, to regulate animal production and grant legal rights to farm animals or their representatives.¹⁶⁷ In 1987 a group calling itself CEASE, the Massachusetts Coalition to End Animal Suffering and Exploitation gathered over 65,000 signa-

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161. For an excellent discussion of the philosophies and goals of the animal rights movement, and the current body of animal welfare laws applicable to farm animals, see Alice Devine, *An Overview of the Animal Rights Movement*, AGRIC. L. UPDATE, Apr. 1989, at 4, [hereinafter Devine].
 162. See, e.g., Robert Wright, *Are Animals People Too?* NEW REPUBLIC, Mar. 12, 1990, at 20.
 163. As examples of the types of legal responses animal rights activists have devised, see H.R. 84, 101st Cong., 1st Sess. (1989), a bill to prohibit certain practices in the raising of veal calves, and H.R. 2345, 101st Cong., 1st Sess. (1989), a bill to grant legal standing for animals or their representatives under the Animal Welfare Act.
 164. See, e.g., Julie Emmett, *Animal Rights Movement Continues to Strike, This Time in Pacific Northwest*, FEEDSTUFFS, June 22, 1991, at 23, which reports a recent action by ALF burning down a feed and equipment storage barn and destroying research files at the mink research facility at Oregon State University.
 165. For a discussion of the legislative responses to the research facility break-ins by animal rights activists, see Goldie Blumenstyk, *More States Enact Laws to Protect Labs From Attack by Animal-Right Activists; Scientists Laud Effort to Halt Vandalism*, CHRON. OF HIGHER EDUC., June 20, 1990, at 1.
 166. Animal Enterprise Protection Act of 1992, Pub. L. No. 102-346, 106 Stat. 928 (1992)(to be codified at 18 U.S.C. § 43). For a discussion of the earlier House version, H.R. 2407, 102nd Cong., 1st Sess. (1991), see *House Approves Penalties Against Destruction of Animal Research Projects*, IOWA FARM BUREAU SPOKESMAN, August 15, 1992, at 1.
 167. The Swedish law, the result of a campaign led by children's author Astrid Lindgren, is discussed in, Steve Lohr, *Swedish Farm Animals Get a Bill of Rights*, N.Y. TIMES, Oct. 25, 1988, at A1.

tures and placed an animal rights referendum on the state ballot.¹⁶⁸ The proposal would have amended the state constitution to require the Commissioner of Food and Agriculture to issue regulations on methods of caring for farm animals and prohibiting the use of inhumane practices, such as castrating calves without using anesthesia. A coalition of state and national agricultural organizations conducted a campaign to defeat the proposal, which received less than 30% of the vote. However, the incident alerted the agricultural community both to the tactics of animal rights activists and to the need to educate the general public about the methods used in modern livestock production.

B. Challenges and Opportunities for Agriculture from Animal Rights

The animal rights debate creates challenges and opportunities for the agricultural sector. One challenge is the economic impact of declining markets for meat and livestock products. Increased concerns about the linkage between diet and health have led to declining consumption of red meats and significant shifts between types of meat consumed. A related development is the increase in vegetarianism in the United States, part of which is attributable to animal right concerns.¹⁶⁹ But there are also opportunities in the current debate. By requiring livestock producers to focus on protecting the welfare of their animals and on how the public perceives production methods,¹⁷⁰ important steps can be taken to insure abuse of farm animals rarely occurs. Establishing codes for humane production and to police bad actors, as well as campaigns to educate the general public about modern agriculture, are how the agricultural community is responding.¹⁷¹

The animal rights issue will also require farmers to consider the impact adoption of new technologies may have on the welfare of their livestock. For example, one issue in the contentious debate over approval of bovine somatotropin, BST, a growth hormone which increases milk production by 15-20%, has focused on allegations the health of dairy cows receiving the drug suffers.¹⁷² The General Accounting Office recently urged the Food and Drug Administration to

168. For a discussion of the CEASE episode, see Devine, *supra* note 161 at 6.

169. See, e.g., Marian Burros, *Eating Well: A Vegetarian Future? It Could Come True*, N.Y. TIMES, July 8, 1992, at C3; and Douglass Lea, *Edging Towards Vegetarianism*, MOTHER EARTH NEWS, May-June 1990, at 44.

170. For an example of how animal rights concerns can affect producers, see, Rod Smith, *McDonald's Sends Survey to Egg Suppliers Asking Them to Explain Husbandry Practices*, FEEDSTUFFS, Oct. 9, 1989, at 1.

171. For a discussion of the National Cattlemen's Association's (NCA) efforts, see, Rod Smith, *NCA Animal Welfare Surveys to Lead to Proactive Programs*, FEEDSTUFFS, Aug. 21, 1989, at 29.

172. The consideration of BST is a story in itself. A recent development, in the long waited for FDA approval of the drug, is the decision to not require labeling of

withhold commercial approval of the drug due to concerns use of the hormone leads to increased incidence of mastitis, an inflammation of the cow's udder.¹⁷³ This in turn leads to increased use of antibiotics which could indirectly increase consumer exposure to antibiotics. While a controversy rages over use of hormones, some farmers have been able to find economic opportunities in increased public concerns about how farm animals are raised. The production of "humanely raised" meat and the marketing of "free range" chickens attest to the fact that while many consumers see no need to remove meat entirely from their diets, some care how the animals they eat were raised.

Taken to its extreme, the idea of animal rights threatens the very existence of much of world agriculture. The willingness of animal rights activists to seek legal answers for so fundamental a philosophical issue promises to make the subject important in years ahead. No one likes to be on the receiving end of epithets, but agricultural lawyers may have to risk being labeled "specieists" in working to help the farm community protect the freedom of consumers to eat and use live-stock products. Helping society devise answers to this debate will challenge the wisdom and patience of the farm sector and its advisors.

VII. SHOULD PLANT GENETIC RESOURCES BE SUBJECT TO LEGAL OWNERSHIP?

President Thomas Jefferson, in many ways the architect of the American system of family farms once said, "The greatest service which can be rendered any country is to add a useful plant to its culture."¹⁷⁴ An issue promising to irreversibly shape the development of agriculture production in the United States and abroad concerns the ownership and control of the plant and animal genetic resources Jefferson recognized as so important to the development of agriculture.¹⁷⁵ The issue was a source of international conflict at the 1992 United Nation's environmental conference in Rio de Janiero when United State's opposition to provisions on intellectual property rights in a proposed international treaty on biodiversity¹⁷⁶ brought legal control of plant genetics to the world's attention.¹⁷⁷ But even with this

milk produced using it. See, Gordon S. Carlson, *FDA Rejects BST Labeling for Milk: Guest*, FEEDSTUFFS, July 6, 1992, at 2.

173. *GAO Urges More Study of Milk Hormone*, DES MOINES REG., Aug. 11, 1992, at 8S.
174. See generally, THOMAS JEFFERSON'S FARM BOOK, (Edwin M. Betts ed., 1976).
175. For an excellent introduction to these issues, see LEANNA LAMOLA, DRAKE U. AGRIC. L. CTR., PLANT INTELLECTUAL PROPERTY, THE SEED INDUSTRY AND TECHNOLOGY TRANSFER, White Paper 92-1, (July 1992).
176. See, U.N. ENVIRONMENT PROGRAMME, CONVENTION ON BIOLOGICAL DIVERSITY, (June 5, 1992).
177. For a review of the conflicting views in the United States delegation on the treaty see, Paul Raeburn, *The Convention on Biological Diversity: Landmark Earth Summit Pact Opens Uncertain New Era For Use and Exchange of Genetic Re-*

recent publicity, surprisingly few farmers know a controversy exists which may shape what they raise and how they farm. More surprisingly, farmers are not directly involved in the debate and will probably have little influence on the outcome.¹⁷⁸

A. The Importance of Plant Genetic Resources to Agriculture

Questions concerning commercial access to and control over the world's plant genetic resources (PGR) and the use of genetic engineering, may be some of the most important agricultural law issues facing society. The subject has assumed a heightened importance as increased expectations are focused on biotechnology to unlock the power of PGR and provide the keys to feed a growing world population, cure the diseases plaguing mankind, and protect our environment. Urgency has been added as the public recognizes how destruction of tropical rainforests and other activities are eroding the genetic diversity which holds the promise for genetic engineering, often before it can be evaluated by scientists.¹⁷⁹ Concerns over genetic erosion, the loss of genetic diversity through extinction, have added new pressure to efforts to collect and conserve genetic materials. But with collection and conservation come questions of ownership and who will profit from any new improved varieties or products developed from these materials. As a result, access to plant genetic resources, the raw materials of genetic engineering, much of which exists in the developing countries, is an issue in the debate.

The ultimate issue for many is money and profit, but to others it is feeding humanity and seeking equity between the world's haves and have-nots.¹⁸⁰ The question is who will benefit from unleashing the power of the world's plant genes.¹⁸¹ Will it be the scientists, companies and countries who develop and market improved seeds and the products they yield, as well as the farmers who raise them? Will the nations and traditional farmers who argue they have developed and preserved the genetic resources over the centuries receive a portion of

sources DIVERSITY, Vol. 8, No. 2, 1992 at 4, and Steve Usdin, *Biotech Industry Played Key Role in U.S. Refusal to Sign BioConversion*, DIVERSITY, Vol. 8, No. 2, 1992, at 8.

178. For a more comprehensive discussion of ownership of plant genetic resources, see Neil D. Hamilton, *Who Owns Dinner: Evolving Legal Mechanisms for Ownership of Plant Genetic Resources*, 28 TULSA L.J. (symposium on international trade, forthcoming May, 1993).

179. Robert E. Rhoades, *The World's Food Supply at Risk*, NAT'L GEOGRAPHIC, Apr. 1991, at 74.

180. See, e.g., Heinrich von Loesch, *Gene Wars: The Double Helix is a Hot Potato*, CERES, Sept.-Oct. 1991, at 39.

181. For different perspectives on the issues, see CARY FOWLER & PAT MOONEY, *SHATTERING: FOOD, POLITICS, AND THE LOSS OF GENETIC DIVERSITY*, (1990), and SEEDS AND SOVEREIGNTY: THE USE AND CONTROL OF PLANT GENETIC RESOURCES, (Jack R. Kloppenburg, Jr., ed., 1988).

the profits developed from what they see as their national wealth? Who will decide who controls the wealth of nature and the results of the laboratory—patent lawyers, courts, diplomats, scientists, lawmakers or the marketplace? Should farmers have a say in the debate?

The debate and struggle over control of PGR is being waged at many levels—in international forums such as: the U.N. Food and Agriculture Organization (FAO), which has adopted an “International Undertaking on Plant Genetic Resources” based on the concept that plant genetic resources are the common heritage of mankind and incorporating both farms rights and national sovereignty;¹⁸² the Union for the Protection of New Varieties of Plants (UPOV) located in Geneva, which administers the international convention signed by many developed countries to protect interests of plant breeders;¹⁸³ and in the Uruguay round of the GATT negotiations, where the TRIP’s agreement (trade related intellectual property) has become a major controversy.¹⁸⁴ The issue is being debated in international scientific organizations and seed banks, at publicly funded international agricultural research centers (IARCs),¹⁸⁵ universities, and most certainly, in the board rooms of companies involved in plant breeding, seed production, and genetic engineering. On the legal front, the issue is facing officials in the Patent Office, Congressional committees, the USDA, and even in state legislatures. The debate has pitted developing countries in the South against their Northern friends, private plant breeders against publicly funded researchers, and small farm advocates against large multi-national corporations.¹⁸⁶ For the most part, at least until now, the issue has been the domain of a small group of interests—United States seed companies, many controlled by large international chemical and petroleum companies,¹⁸⁷ plant breeders,

182. See Harold J. Bordwin, *The Legal and Political Implications of the International Undertaking on Plant Genetic Resources*, 12 *ECOLOGY L.Q.* 1053 (1985).

183. See, John H. Barton, *The International Breeder’s Rights System and Crop Plant Innovation*, 216 *SCI.*, 1071 (1992) and John H. Barton, *Patenting Life*, *SCI. AM.* Mar. 1991, at 40.

184. See, e.g., *Uruguay Round of GATT Provides New Forum for Debating Germplasm Ownership Issues*, *DIVERSITY*, Vol. 6., nos. 3 & 4, 1990, at 39.

185. See John G. Hawkes, *CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH (CGIAR), STUDY PAPER NO. 3, PLANT GENETIC RESOURCES: THE IMPACT OF THE INTERNATIONAL AGRICULTURAL RESEARCH CENTERS*, (1985).

186. For an example of the concerns of small farm advocates, see Jack Doyle, *The Gene Revolution: Food Without Farmers?*, *PRAIRIE J.*, Vol. 2, No. 1, Spring 1991, at 8.

187. In late 1985, Imperial Chemical Industries, an international conglomerate headquartered in London, purchased Garst Seed Co. of Coon Rapids, Iowa, to give the company a foothold in the American seed industry and create the potential for movement into agricultural biotechnology. See, Timothy Harper, *Imperial Chemical Bets on Biotech and Garst for U.S. Growth*, *DES MOINES REG.*, May 18, 1986 at 1A. The continued trend toward large chemical and petroleum companies acquir-

patent attorneys, and diplomats.¹⁸⁸ With only few exceptions, the voices of farmers and agricultural groups, either in the United States or the developing world, have not been heard.

B. Identifying the Legal Issues in Control Over Plant Genetic Resources

While the involvement of farmers in the debate over control and ownership of plant genetic resources has been limited, arguably the most direct impact of the resolution of these issues will be felt on the Nation's farms. The outcome will be seen in what is raised; in the price of the seeds, plants and animals used to grow food; and in how commodities are produced and marketed. Many developed countries recognize various forms of legal rights in plant materials developed through the work of plant breeders.¹⁸⁹ In the United States a plant breeder may claim "breeders rights" to new varieties under the Plant Variety Protection Act (PVPA),¹⁹⁰ a plant patent on asexually reproducing plants under the 1930 Plant Patent Act,¹⁹¹ and an actual patent on a newly engineered plant, under a 1985 patent office decision.¹⁹² In addition, seed breeders, such as hybrid seed corn producers, may use the law of trade secrets to protect the identity of their parent lines.¹⁹³ The United States has signed the International Union for the Protection of New Varieties of Plants, or UPOV, created in 1961 to develop and refine an international system to recognize and protect the legal rights of plant breeders.¹⁹⁴ The United States has also allowed the patenting of living organisms developed through genetic engineering.¹⁹⁵

There are two components to the legal issues concerning intellec-

ing United States seed companies raises fears about the direction of agricultural research in the United States. See, George Anthan, *Chemical, Seed Firm Mergers Raise Farm Concern*, DES MOINES REG., August 28, 1989, at 1A.

188. For example, the Plant Biotechnology Committee of the American Intellectual Property Law Association had twenty-two members in 1991.
189. For a general discussion of these laws, see Edmund J. Sease, *From Microbes, to Corn Seeds, to Oysters, to Mice: Patentability of New Life Forms*, 38 DRAKE L. REV. 551 (1988-1989).
190. See, e.g., Scott Wegner, *The Plant Variety Protection Act: Has the Farmer Exemption Swallowed the Act?* AGRIC. L. UPDATE, April 1992, at 4.
191. 35 U.S.C. §§ 161-164 (1988).
192. *Ex Parte Hibberd*, 225 U.S.P.Q. 443 (B.P.A.I. 1985).
193. For a discussion of the extensive litigation over ownership of certain seed lines in Pioneer Hi-Bred International, Inc. v. Holden Foundation Seeds, Inc., 105 F.R.D. 76 (1985) see Jeffrey J. Wolf, Note, *The "Genetic Message" From the Cornfields of Iowa: Expanding the Law of Trade Secrets*, 38 DRAKE L. REV. 631 (1988-1989).
194. See, e.g., UPOV, SEMINAR ON THE NATURE OF AND RATIONALE FOR THE PROTECTION OF PLANT VARIETIES UNDER THE UPOV CONVENTION, (proceedings of Congress organized by UPOV in cooperation with the Government of Hungary, Budapest, Hungary, Sept. 19-21, 1990).
195. *Diamond v. Chakrabarty*, 447 U.S. 303, (1980). In 1988 the U.S. Patent Office awarded a patent on a mouse genetically engineered by Harvard scientists to

tual property rights and plant genetic resources. The first concerns the various forms of plant intellectual property rights which exist and the manner in which national and international legal regimes have developed to support legal claims. The second, which from the standpoint of farmers and their lawyers is probably more important, concerns the practical implementation questions which will accompany legal controls over the use of agricultural genetic resources. Identifying legal issues arising under each component, makes it possible to understand why plant intellectual property issues will have great impact on the future of agriculture. The issues include:

- Will developing nations require companies who collect plant genetic resources to sign "material transfer agreements," such as that recently entered between Merck Company and INBIO, a Costa Rican organization, to share the profits of commercial products developed using the genes?¹⁹⁶

- Will the International Agricultural Research Centers (IARCs), such as the International Rice Research Institute (IRRI) in the Phillipines, which helped lead the Green Revolution by breeding improved varieties for farmers in developing countries, be forced to seek legal protections for their discoveries in order to work with plant breeders in the developed world?¹⁹⁷ Will this move be compatible with the Centers' status as "trustees" for the genetic resources in their seed banks or will it interfere with their fiduciary obligation to poor farmers in the developing world?¹⁹⁸

- Will researchers at public universities be pressured (or required) to obtain legal protection for their discoveries, so the results can be li-

carry a cancer-promoting gene. See, e.g., Lisa J. Raines, *Biotechnology Group Says Right to Patent Animals is Needed*, FEEDSTUFFS, Apr. 24, 1989, at 36.

196. See, *INBio of Costa Rica and Merck Enter into Innovative Agreement to Collect Biological Samples While Protecting Rain Forest*, News Release by Merck & Co., Inc, Sept. 19, 1991 (on file with the *Nebraska Law Review*). Under the agreement, Merck, which has a long history of developing medicines from natural substances, e.g. Mevacor, will pay \$1 million to support the research staff of INBio, a private, non-profit organization formed in 1989 on the recommendation of the Costa Rican government, to carry out a long-term project to identify and classify the biodiversity of Costa Rica's natural areas and promote long-term protection through sustainable development. Under the terms of the agreement Merck will have the exclusive right to evaluate a fixed number of samples of natural materials for pharmaceutical or agricultural application. Merck will pay a royalty to INBio on the net sales of any commercialized product based on an INBio provided sample. The amount of the royalty will vary depending on the "level of contribution" of the natural material.
197. JOHN H. BARTON & WOLFGANG E. SIEBECK, CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH (CGIAR), ISSUES IN AGRICULTURE NO. 4, INTELLECTUAL PROPERTY ISSUES FOR THE INTERNATIONAL AGRICULTURAL RESEARCH CENTERS, (1992).
198. Wolfgang E. Siebeck & John H. Barton, *The Legal Status of CGIAR GERM-PLASM Collections and Related Issues*, (Dec. 31, 1991), (unpublished paper commissioned by the CGIAR on file with the *Nebraska Law Review*).

censed to private companies to generate funding for research programs?¹⁹⁹ Will farmers pay higher costs for the seeds produced from research partially funded with their taxes? Will the seeds farmers buy be labeled "variety not stated" so the farmer lacks sufficient information to avoid planting genetically uniform and potentially vulnerable fields?

- Will farmers have to pay a royalty on some seeds to fund an international mechanism compensating "farmer rights" in developing countries where the parent material was discovered? How will the amount of the "contribution" be determined and how will the concept of "farmers rights" be implemented when deciding how funds are allocated?

- Will farmers have to pay a royalty on each generation of transgenic animals they produce, rather than owning the parent animals?²⁰⁰

- Will farmers have the right to "plant back" seeds raised on their land from protected varieties, or sell such "saved seeds" to other farmers as they now can under the PVPA,²⁰¹ or will the "saved seed sale exemption" be removed by Congress on the rationale it is necessary to comply with the 1991 amendments to UPOV?²⁰²

199. See generally, Lamola, *supra* note 176.

200. In 1989 when Congress was considering the Transgenic Animal Patent Reform Act H.R. 1556, 101st Cong., 1st Sess. (1989) the Bush Administration opposed a provision to exempt farmers from paying royalties on successive generations. See, e.g., *Bush Administration Against Farm Exemption on Animal Patents*, AGRIC., Sept. 25, 1989, at 17 and Burke Healey, *Animal Patent Bill Needs Modification*, DROVERS J., Nov. 16, 1989, at 4.

201. The extent of the farmer "saved seed" sale provision of the PVPA, 7 U.S.C. 2543 (1988), was considered by the U.S. Court of Appeals for the D.C. Circuit in *Asgrow Seed Company v. Winterboer*, 982 F.2d 486 (8th Cir. 1992). The Iowa court decided in September 1991 that the Winterboers had violated Asgrow's variety protections on soybeans by selling thousands of bushels to other farmers. The court interpreted the saved seed provision of the PVPA narrowly to protect the interests of seed breeders and set a limit on the amount of seed which may be saved and possibly sold. The Federal Circuit held that the crop exemption from PVPA's infringement provision contains no ensuing crop limitation on the amount of seed savable by farmers who have harvested crops grown from protected seed. *Id.* at 491. See Neil D. Hamilton, *Scope of "Saved Seed" Farm Sale Provision*, AGRIC. L. UPDATE, Feb. 1992, at 1 and Don Muhm, *Farmers Fight for Rights to Seed*, DES MOINES REG., July 5, 1992, at J1.

202. On March 19, 1991, the members of UPOV approved revisions to the treaty, including an optional section (2) to Article 15, for member countries to allow farmers to save seed and plant them on their farms. UPOV, INTERNATIONAL CONVENTION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS, (Publication 221(E), 1991). This limited provision is much narrower than the existing United States farmer saved seed *and* sale provision in the PVPA. The American law has never been in conformity with the terms of UPOV on the issue of the farmer exemption. The new amendment will give the American seed industry, lead by the American Seed Trade Association, another opportunity to convince Congress to repeal the farmer sale provision, its goal since passage of the act in 1970. The argument will be that with the new UPOV amendments, for Congress to ratify

- Will efforts to preserve the world's genetic resources from erosion be successful? Will the public adequately fund *ex situ* seed storage facilities such as the USDA's National Seed Storage Laboratory (NSSL) in Ft. Collins, Colorado?²⁰³ Can private groups and non-governmental organizations, such as the nationally recognized Seed Savers Exchange, in Decorah, Iowa, fill an important role by preserving heirloom varieties of vegetable seeds no longer considered economically important by the seed industry?²⁰⁴
- Will new farming opportunities emerge for producing the "end use tailored varieties" seed companies are promoting as the future of agriculture? Will this mean most grain is produced under contract with seed breeders or the ultimate user?²⁰⁵ What effect will this have on traditional marketing and production relations? Will all farmers have access to contracts, or only the largest ones, helping fuel the "industrialization" of agriculture?
- Will consumers purchase foods produced with genetic engineering, such as the Flavr Savr tomato soon to be marketed?²⁰⁶ Will new agricultural opportunities be created to "pharm" patented transgenic animals²⁰⁷ to produce lower cost drugs and medicines²⁰⁸ and plants

the new treaty the PVPA must be amended to conform. However, because the UPOV convention does not have a mechanism to discipline current members whose laws do not conform to the treaty, the argument that the amended international agreement requires the United States to amend the law is specious.

- 203. In 1985 Jeremy Rifkin and the Foundation on Economic Trends sued the USDA alleging it had failed to comply with the terms of the National Environmental Protection Act of 1969, 42 U.S.C. §§ 4321 to 4370b, (1969), by failing to provide adequate funding for the operation of the National Plant Germplasm System, especially to provide adequate storage facilities in the National Seed Storage Laboratory. While the case was dismissed in January 1990, the suit focused public attention on the neglect of United States plant genetic conservation efforts and helped lead to funding of a new facility in Ft. Collins. See, e.g., *Rifkin Vows to Continue Germplasm Battle Despite Recent Court Decision*, DIVERSITY, Vol. 6, No. 1, 1990, at 22.
- 204. For a discussion of the Seed Savers, see Ellen Ruppel Shell, *Seeds in the Bank Could Stave Off Disaster on the Farm*, SMITHSONIAN, Jan. 1990, at 94. More information about Seed Savers may be obtained by writing: R.R. 3, Box 239, Decorah, Iowa 52101.
- 205. See David Wheat & Wade Wilson, *Tailoring Grains for a Perfect Fit*, FEEDSTUFFS, May 13, 1991, at 1.
- 206. See, e.g., Calgene, Inc.; Request for Advisory Opinion, 57 Fed. Reg. 22,772, (FDA 1992), (concerning how Calgene's request to market the Flavr Savr tomato, genetically engineered with an anti-sense copy of the polyglacturonase gene, to prevent ripe tomatoes from spoiling, will be handled under the FDA's new policy, released that same day, concerning market of genetically engineered foods).
- 207. See, Dianna A. Mark, *All Animals Are Equal, But Some Are Better Than Others: Patenting Transgenic Animals* 7 J. CONTEMP. HEALTH L. & POL'Y 245 (1991).
- 208. See Elyse Tanouye, *Genetically Engineered Pigs Are Said to Produce Anti-Clotting Human Protein*, WALL ST. J., Apr. 9, 1992, at B7, reporting on the work of a scientist at Virginia Polytechnical Institute (VPI) in genetically engineering pigs to produce human Protein C in their milk.

engineered to grow plastics?²⁰⁹ Or will social, environmental, or economic concerns limit how quickly the products of genetic engineering are commercialized?

- Will the genetically engineered seeds available to farmers be resistant to increased pesticide use or to the pests themselves?²¹⁰ How will the direction of the nation's research agenda on genetic engineering in agriculture be determined?²¹¹ At stake in the debate is whether the promise of genetic engineering to produce a new generation of "bi-pesticides" which harness the natural pest fighting forces found in nature will be realized²¹² or whether control over genetic engineering will be used to perpetuate agriculture's reliance on synthetic chemicals.²¹³

These examples illustrate the range and significance of the legal questions accompanying the debate over control and access to PGR. The legal dimensions of these issues are clear, as is the need for well informed lawyers.²¹⁴ Granting patents to reflect property ownership in genetic resources, especially when the genes are naturally occurring, raises significant issues about society's concept of intellectual property. Jefferson, who also wrote the nation's first patent law,²¹⁵

209. See Amal Kumar Naj, *Plant's Genes Are Engineered to Yield Plastics*, WALL ST. J., Apr. 24, 1992, at B1, reporting on the work of botanists at Michigan State to genetically engineer a wild relative of mustard to yield biodegradable plastics.

210. Whether genetic engineering will be used to develop pest resistant plants or to promote the increased use of a safer generation of pesticides has become a major conflict in the United States. See, e.g., George Anthan, *Altered Crops Allow More Herbicide Use*, DES MOINES REG., August 28, 1989, at 1A, and George Anthan, *Plant Geneticists Aim for Safer Herbicide Use*, DES MOINES REG., August 29, 1989, at 1A.

211. The controversy over research on herbicide resistant crops led Senate Agricultural Committee Chair Patrick Leahy to introduce legislation to prohibit using public funds for such research. See, George Anthan, *Congress to Debate Money for Farm Research*, DES MOINES REG., Dec. 7, 1991, at 5A.

212. For example, in 1992 the California EPA approved the use of a Mycogen product "MVP" which has been genetically engineered to utilize a toxin produced by *Bacillus Thuringiensis* (BT) to kill a range of caterpillars which threaten California crops. See Kevin Thompson, *Cal-EPA Approves First Genetically Engineered Bi-pesticide*, CALIFORNIA FARMER, April 1992, at 69.

213. For an indication of how the research is developed, see 57 Fed. Reg. 29,694 (1992) which contains USDA Animal Plant Health Inspection Service (APHIS) notices of issuance of permits to field test nineteen new products. Of the nineteen, eight are engineered to be herbicide resistant, five have been altered to express biological control or pest resistance, three have been altered to change the quality of the product and three involve basic research on genetic engineering.

214. The single most valuable resource for staying abreast of developments concerning the world's plant genetic resources is a quarterly publication DIVERSITY. The journal is billed as "a news journal for the international plant genetic resources community" and is full of timely and insightful articles and news stories, many on legal issues, concerning the use of plant genetics.

215. JACK DOYLE, *ALTERED HARVEST: AGRICULTURE, GENETICS, AND THE FATE OF THE WORLD'S FOOD SUPPLY*, 301 (1985).

was no doubt correct about the importance of adding new plants to our agricultural heritage, but the question is whether he would also have expected the person who "discovered" the plant (or the scientist who "engineered" the gene) to be granted a legal right to own it. A sobering thought on the subject comes from Otto Frankel, a respected authority on the world's plant genetic resources,²¹⁶ who warns, "[a] litigious world community insisting on sovereign rights to what evolved long before the beginnings of civilization is likely to lose in the long run what it tries to exploit in the short run."²¹⁷

VIII. CONCLUSION

America has long recognized the fundamental role agriculture plays in building society. In 1840, Daniel Webster warned that we should "never forget that the cultivation of the earth is the most important labor of man. . . . When tillage begins, other arts follow. The farmers, therefore, are the founders of human civilization."²¹⁸ The function of agricultural law is to protect and preserve the role of agriculture in society by creating relations that encourage both its economic prosperity and its physical sustainability, while satisfying the social obligations placed on it. The role of law in meeting this challenge is undeniable. The historic orientation of American agricultural law toward concentrating on the practical issues facing American farmers and agricultural businesses does not mean the law is not concerned with the theoretical and philosophical issues underpinning the relation of agriculture to society. As the study of agricultural law matures and as the full range of legal issues shaping agriculture are recognized, agricultural lawyers, as scholars and professionals, must devote more time and resources to addressing the fundamental questions facing society in considering the future of agriculture.

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216. Frankel is an honorary Research Fellow in the Commonwealth Scientific and Industrial Research Organization in Australia, and has written such leading works as, *GENETIC RESOURCES IN PLANTS: THEIR EXPLORATION & CONSERVATION* (1970) and *CROP GENETIC RESOURCES FOR TODAY AND TOMORROW* (1975).
217. *See, SEEDS AND SOVEREIGNTY: THE USE AND CONTROL OF PLANT GENETIC RESOURCES*, 44 (Jack R. Kloppenburg, Jr., ed., 1988).
218. *See, HARVEST: AN ANTHOLOGY OF FARM WRITING*, 101-02 (Wheeler McMillen, ed., 1964). Webster's comment came in an address given Jan. 14, 1840, at the State House in Boston.