

1987

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Recommended Citation

William Kennedy, *The Effect of Federal Policy on Farm Size*, 5 LAW & INEQ. 391 (1987).

Available at: <http://scholarship.law.umn.edu/lawineq/vol5/iss2/5>

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The Effect of Federal Policy on Farm Size

William Kennedy*

Introduction

American farms have decreased in number and increased in size over the last century, a trend which has negative consequences for the rural economy, rural quality of life, soil conservation, and preservation of a competitive agricultural market. This trend is accelerated by federal farm commodity programs and the federal agricultural research program, which direct benefits disproportionately to larger farms. This essay proposes that commodity payments be restructured so as to limit present advantages to large-scale farmers, and that research programs be redirected to be more responsive to the needs of smaller farms.

The Changing Structure of American Agriculture

In recent years, declining economic conditions in rural America have captured the nation's attention. The sight of foreclosure auctioneers selling off the possessions of life-long farmers has become commonplace. Once healthy rural communities are deteriorating as the farmers who kept them alive disappear. As the farm crisis takes its course, devastating statistics mount. In early 1987, 2,000 U.S. farms either failed or ceased operations each week.¹ Between 1981 and 1985, the agricultural implement manufacturing industry lost approximately 80,000 jobs.² Economists have thoroughly documented the economic circumstances which brought about the farm crisis of the 1980s: curtailed inflation (which lowered farmland value and farm prices), foreign competition, a strong dollar, and world inflation all coincided to put financial pressure on the farm sector.³

While the farm crisis has been difficult for many, the hardest hit have been smaller-scale farmers. Modern farms can be roughly

* J.D. 1988, University of Minnesota Law School.

1. Ward Sinclair, *Democrats Prepare to Force Farm Policy Showdown*, *The Washington Post*, Feb. 8, 1987, at A8, col. 1.

2. Danny Levitas, *Progressive Organizing*, 16 *Shmate* 7 (Fall 1986).

3. Jonathan Rauch, *The Great Farm Gamble*, *Nat'l J.*, Mar. 29, 1986, at 760.

grouped into three categories.⁴ First, there is the large farm, defined in this essay as those with annual sales over \$200,000.⁵ Although commonly labeled "corporate farms," it is still true that most large farms are run by families.⁶ The second type, the "family-sized farm" includes those family owned-and-operated farms with annual sales between \$40,000 and \$199,999. As the primary family income source, the family-sized farm generally requires full-time commitment.⁷ The final category is the "small farm." Small farm operators have annual sales of at least \$1,000 and derive a large percentage of their income from off-farm sources, such as jobs in nearby cities.⁸

In 1985, 20 percent of all family-sized farms had serious financial problems with debts totaling between 40 and 70 percent of their assets. Another 7.3 percent had debts from 70 to 100 percent of assets, and 6.3 percent had more debts than assets and thus were technically insolvent.⁹ Small farms are surviving, but this is largely due to a heavy reliance on off-farm income to subsidize the farm business.¹⁰ The financial difficulties of small and family-sized farmers, however, are not matched by those operating large farms, who, although suffering from the economic circumstances which brought on the farm crisis, are faring better.¹¹ Thus, while the farm sector as a whole is in dire financial straits, those actually being forced out of business are the smaller scale operations.

A look at history reveals that these developments are part of a larger trend which has been threatening the existence of small and family-sized farms for a long time. The last few decades have been marked by continued attrition and concentration in the agri-

4. These definitions are by no means universal. See Tesfa G. Ghebremedhin & William M. Johnson, *Small Farm Research and Policy Implications*, 17 S. J. of Agric. Econ. 47 (1985). Categorization by gross sales can be misleading. *Id.* at 47-48. Despite its imperfections, categorization by gross sales is most common and is seen by many to be the best method. Lee M. Day, *Research and the Family Farm: Implications for Agricultural Economics Research*, 63 Am. J. Agric. Econ. 997, 998 (1981).

5. David H. Harrington & Alden C. Manchester, Profile of the U.S. Farm Sector, Agric.-Food Pol'y Rev. 26 (Economic Research Service, U.S. Dep't of Agric. AER No. 530, 1985).

6. Congressional Budget Office, Congress of the United States, Diversity in Crop Farming: Its Meaning for Income-Support Policy 30 (1985).

7. Harrington, *supra* note 5, at 26.

8. *News and Views*, Crops and Soils Mag. 10-11 (Feb. 1985).

9. Econ. Research. Service, U.S. Dept. of Agric., Agricultural Informational Bulletin No. 492, A Summary Report on the Financial Condition of Family-Size Commercial Farms 4 (1984). The study defined family-sized farms as those with sales between \$50,000 and \$500,000. *Id.* at 4 n.1. [hereinafter *Summary Report*].

10. *Strategy for Survival of Small Farmers: International Implications* 126 (Thomas T. Williams ed. 1985).

11. Summary Report, *supra* note 9, at 1.

cultural sector. In 1930, there were 6.3 million farms in the United States.¹² As of 1970, however, the number had decreased to 2.9 million, and by 1984 there were only 2.3 million farms.¹³ Corresponding to this decrease in the number of farms has been an increase in the average size of farms. In 1930, the average farm was 130 acres. But by 1970 the average was 374 acres, and by 1984 it was up to 437 acres.¹⁴ In 1939 the largest five percent of farms accounted for 38.3 percent of total agricultural sales. In 1970 this figure was up to 46.6 percent and in 1982 it further increased to 50.1 percent.¹⁵ The farm crisis of the 1980s, then, while certainly hastening the failure of many small and family-sized farms, is not totally responsible for their plight. Instead, the farm crisis should be viewed as an acceleration of the secular trend which is leading to fewer and larger farms.

This decline in the number of small and family-sized farms raises the issue of whether the decline is beneficial or detrimental to society. It may be argued that the growing dominance of large farms is a result of their victory over smaller farms in a competitive struggle, and that this competitive process will ensure that the best system will win out in the end. From this perspective, the fact that family-sized farms are having financial difficulty indicates they are outmoded and no longer useful to society.

However, analyses such as these which consider only economic competitiveness look too narrowly at the farm situation and ignore the important effects that rural America has on society as a whole. As Allen Thompson stated:

The lack of consideration of the "external" effects of farm policy on the rest of the economic system has led to a systematic understating of the true costs of farm policies that have helped reduce the number of small farmers. A more proper perspective to take in researching the small-farm sector . . . is to weigh the social cost versus social benefit of a given policy.¹⁶

As Thompson suggests, there are several compelling reasons

12. Since 1850, the definition of "farm" has been changed gradually by the Bureau of Census to reflect inflation and expanding farm size. The definition in 1930 included agricultural operations with three or more acres or operations with less than three acres producing at least \$250 worth of agricultural goods for home use or sale. The current definition includes any place that has or would have \$1,000 in gross sales of farm products. David Brewster, *Some Historical Notes of the Farm Definition*, Econ. Research Service, U.S. Dep't of Agric., 29 Agric. Econ. Research 29 (1977).

13. Harrington, *supra* note 5, at 28.

14. *Id.* at 28.

15. This was a slight decrease from 1980. *Id.* at 27.

16. Allen R. Thompson, *Suggestions for Researching Small Farm Questions* 37 (1985).

why society ought to be interested in ensuring the continued livelihood of family-sized and small farms. These reasons extend far beyond mere charity arguments molded around sympathy for the endangered farmers. Most are relevant to the well-being of the consumer and society as a whole. Even so, at the top of the list comes the plight of the farmers and their families.

Economists and policy-makers must never forget that statistical decreases in the number of farms result in many real life painful partings between the former owner and the land. Sometimes the land has been in the family for generations, adding to the anguish and guilt farmers feel when they are not able to maintain its viability. The result can be deep depression and, occasionally, violence.¹⁷ Long-time farmers often are not trained for any other types of employment, which further adds to their difficulties.¹⁸ This human element is most important, but often overlooked.¹⁹

The displaced farmer is not the only one who suffers as the number of small and family-sized farms decreases. Walter Goldschmidt's often-cited research²⁰ shows that the farm structure²¹ affects the whole rural economy. In 1944, Goldschmidt conducted an extensive study of two California towns, Dinuba and Arvin, similar in almost all respects except that one was dominated by large farms and the other was dominated by small farms. Goldschmidt found that the economy in Dinuba, California, which was surrounded by small farms, was superior to that found in Arvin, California. Dinuba supported almost twice as many businesses and had 61 percent more retail trade than Arvin.²² Dinuba also supported about 20 percent more people per dollar volume of farm

17. The suicide rate for adult white male farmers in Minnesota, North Dakota, South Dakota, Montana, and Wisconsin varied from 41.3 to 57.5 per 100,000 between 1980 and 1985. This compares to the 1980 census rate of 31 per 100,000 for adult white males in the general population. *Suicide Rate For Farmers Fluctuates*, St. Paul Pioneer Press & Dispatch, March 16, 1987, at A1, col. 1. For a discussion of violent outbursts triggered by financial hardship of farmers, see *Deaths on the Iowa Prairie: 4 New Victims of Economy*, N.Y. Times, Dec. 11, 1985, at A1, col. 2.

18. Thompson, *supra* note 16, at 38.

19. Judith Bortner Heffernan & William Heffernan, *When Families Have To Give Up Farming*, 2 Rural Development Perspectives 28 (1986). This article reports on a study of forty families in north central Missouri who were forced to quit farming due to financial failure. The report found high occurrences of depression, withdrawal, decreases in self-esteem, loss of sleep and appetite, increased drinking and smoking, and aggression.

20. See Walter Goldschmidt, *As You Sow: Three Studies in the Social Consequences of Agribusiness* (1978).

21. The term "farm structure" has been defined in many ways. This essay will use the term to mean size distribution of farms and the amount of centralization. See Kenneth J. Meier and William P. Browne, *Interest Groups and Farm Structure*, in *Farms in Transition* 47 (1983).

22. Goldschmidt, *supra* note 20, at 282-83.

production and afforded a higher standard of living.²³ Furthermore, while almost two-thirds of Arvin's population were agricultural wage laborers, and thus not working for themselves, only one-third were agricultural wage laborers in Dinuba.²⁴

The healthy community found in Dinuba is evidence that small numbers of large-scale farmers do not invest in the local economy as much as large numbers of small-scale farmers. Large-scale farmers tend to bypass local establishments, buying instead from urban wholesalers or factory outlets.²⁵ Other studies back up these propositions. Research in Alabama compared two areas, one dominated by large and one by small farms. The latter area was found to have higher incomes, more tax revenues, more educational expenditures, and less substandard housing.²⁶ Another recent study adds further credence to the Goldschmidt findings. Economic models were used to project the consequences of various farm structures.²⁷ The study projected that the amount of income generated off the farm would be 15 percent less with a farm structure made up of all large farms than with a farm structure made up of large, medium, and small farms.²⁸

Goldschmidt's study also found that farm structure had effects beyond the economic health of the community, touching upon its social organization as well. Dinuba, the community surrounded by smaller farms, had a higher number of parks, civic organizations, youth groups, churches, and newspapers.²⁹ Dinuba also had a civic government elected by the local people, which gave citizens direct control over government.³⁰ Unincorporated Arvin, however, was run at the county level, and thus citizens had only indirect influence over decisions which affected them.³¹

This last finding should come as no surprise. The link between the democratic process and an electorate made up of small, independent farmers was noted as early as Thomas Jefferson's time. Jefferson envisioned the United States as a nation of farm-

23. *Id.* at 283.

24. *Id.*

25. Peggy Borgers, *The Hidden Link: Agricultural Structure and the Quality of Rural Life*, in *Federal Farm Policies: Their Effects on Low-Income Farmers and Rural Communities* 51 (Kenneth M. Coughlin ed. 1980).

26. Ginny Looney & Duna Norton, *The Case for Small Farms*, *Southern Changes* 25 (Dec. 1979).

27. Earl Heady & Steven Sonka, *Farm Size, Rural Community Income, and Consumer Welfare*, 56 *Am. J. Agric. Econ.* 541, 541 n.3 (1974).

28. The study defined large farms as those with sales over \$40,000. *Id.* at 537. These figures represent 1969, pre-inflation dollars. *Id.*

29. Goldschmidt, *supra* note 20, at 283-84.

30. *Id.* at 344.

31. *Id.* at 344-46.

ers who would preserve the democratic process through their independent thought and down-to-earth values.³² The governments of Dinuba and Arvin are evidence that Jefferson's ideas are still relevant today. Farmers who own and are fully responsible for the land they work care more about the governing bodies which affect it.

Ownership in fee simple also provides an incentive for farmers to take care of their land. If farmers know that they will be farming their land twenty years into the future, and that their children may farm it after that, they will be more likely to engage in erosion control and be wary of chemicals which may have long-term negative effects on the land. Large farms, however, typically use more hired help than smaller farms³³ and thus the people working the land have less incentive to take care of it.

Finally, the threat of an overly centralized agricultural market further emphasizes the need to avoid excessive concentration in agriculture. Although monopolization is not yet a significant problem in the farm sector, the possibility of a small number of farms gaining market control increases as the number of competitors decreases.

The demise of the small and family-sized farm, then, has many societal costs. In light of this conclusion, this essay examines the federal farm commodity programs and the agricultural research program, and addresses the question of whether these programs give smaller farms an equal chance of success. Finding that the two federal programs examined actually discriminate against the smaller farmer, this essay proposes changes which would make for a fairer and more economically sound policy.

Effects of Federal Programs on Farm Structure

Commodity Programs

Federal commodity programs provide for direct cash payments to farmers and government buy-outs of their crops.³⁴ There

32. Martin A. Larson, *Jefferson: Magnificent Populist* 42 (1981).

33. Experiment Station Committee on Organization and Policy, *Research and the Family Farm* 13 (Feb. 1981).

34. The current commodity programs are governed by the provisions of the Food Security Act, Pub. L. No. 99-198, 99 Stat. 1354 (1985). Currently the programs apply to milk, wool and mohair, wheat, corn, cotton, rice, peanuts, soybeans, sugar, and honey. *Id.* The Act is technically an amendment to longstanding legislation, primarily the Agricultural Adjustment Act of 1933 and the Agricultural Act of 1949. Harrington, *supra* note 5, at 254. Price supports have been the "mainstays of U.S. agricultural policy" since 1938. John L. Shover, *First Majority—Last Minority* 242 (1976). The Act authorizes \$85 billion for direct payments to farmers over a

are two commodity programs in which farmers can participate if they agree to set aside a percentage of their land to lie fallow.³⁵ The first program, provides government loans to the farmers enabling them to hold their crop for later sale. If participating farmers can sell the crop for more than the loan rate, they are free to do so, but if not, the government will keep the crop as payment for the loan. The loan rate (a set number of dollars per unit) therefore acts as a basement for farm prices because farmers can always "sell" their crop to the government if the market price is low.³⁶

The second program sets a target price for commodities and mandates the government to issue direct "deficiency payments" to participating farmers who sell their crops below the target price. Deficiency payments make up for the difference between the target price and either the market price or loan rate, whichever is more.³⁷

The distinguishing feature of both these programs is that payments are made in direct proportion to production. Thus, the more bushels a farmer grows, the more benefits he is eligible to receive. Indeed, empirical research shows that large farmers receive larger commodity payments than smaller farmers.³⁸ The commodity programs, then, are quite different from need-based programs such as Aid to Families with Dependent Children which only direct benefits to the needy.

Simple mathematics sum up this advantage to large farms: if commodity prices allow a profit of ten cents per bushel, a large farmer, who has more bushels to sell, will have a larger profit. Although there is a limit of \$50,000 per person on direct subsidies, difficulties in defining what constitutes an individual person make this ceiling easy to evade.³⁹ In any case, the ceiling is so high that for most commodities, it only affects the very largest farms.⁴⁰

five year period. *President Signs Huge Farm Bill, But Reluctantly*, N. Y. Times, Dec. 24, 1985, at A1, col. 5.

35. For a brief description of the two programs, see The Center for Rural Affairs, *Agricultural Price Supports*, in *Perspectives in the Structure of American Agriculture*, in 2 *Federal Farm Policies: Their Effects on Low-Income Farmers and Rural Communities 3-4* (Kenneth M. Coughlin ed. 1980).

36. See David Gale Johnson, *Farm Commodity Programs 7-8* (1973).

37. See Rauch, *supra* note 3, at 760.

38. Karin Leonard, Thesis: *A Profile and Economic Analysis of Small Farms in Minnesota, North Dakota and Iowa: Comparisons between Farm Size and among Participation in the U.S. Commodity Programs 118-19, 139* (1981).

39. James Gattuso, *Five Myths about the State of the American Farmer*, in 12 *The Backgrounder 569 n.26* (March 18, 1987) (available at The Heritage Foundation, Washington D.C.).

40. E. Phillip LeVeen, *A Case on Non-Support*, in *Federal Farm Policies: Their Effects on Low-Income Farmers and Rural Communities 6* (Kenneth M. Coughlin ed. 1980).

One major fault of the payment system used by the commodity programs is that although efficient farming is rewarded, smaller farms are not rewarded to the same extent as large-scale farms. The result is that large, inefficient farms can profit more from the programs than smaller, efficient farms. A comparison of the production of two farmers illustrates this point. Farmer A produces 1,000 bushels of wheat with input costs of \$4,000. Farmer B produces 10,000 bushels of wheat with input costs of \$45,000. Farmer A, then, is more efficient, producing at \$4 per bushel compared to B's \$4.50 per bushel. If the commodity price is \$5 per bushel, however, Farmer B gets \$50,000 which makes for a profit of \$5,000 (commodity payment minus input costs). Farmer A, however, only receives \$5,000 for a profit of \$1,000. Farmer B, though less efficient, receives more benefits than more efficient Farmer A.

By placing extra cash in the hands of large-scale farmers, commodity programs facilitate a process known as the treadmill effect.⁴¹ The treadmill effect begins when large-scale farmers accumulate cash, which they invest in their operations. This results in a switch to the use of more advanced technology, which makes it possible to produce their crops more cheaply. When enough large farmers make similar upgrades, the average cost of production goes down and market prices drop. As prices drop, the smaller-scale farmers, who lack the capital or economy of scale to invest in advanced technology, cannot get a high enough price for their crops to cover costs. Meanwhile, large-scale farmers may use some of their capital to bid for land expansion which allows for maximum utility of the new technology. Not being able to meet costs, smaller-scale farmers are tempted, and sometimes forced, to sell out to larger interests.

Despite the discrepancy in benefits, many family farmers do not support elimination or cut-backs in the commodity programs. The main reason for this apparent satisfaction with the present system is that family-farmers have grown dependent upon these programs. Since they are faced with the immediate problem of feeding their families, they see their government checks as the difference between bankruptcy and survival. As a result, they often side with the large-scale farmers in pushing for status quo commodity programs.⁴²

41. The treadmill analysis was developed by Willard Cochrane. See Willard W. Cochrane, *The City Man's Guide to the Farm Problem* 63 (1965). Although not explicitly referring to the effect of direct payment programs as the "treadmill effect," Cochrane explains how the ultimate benefactor is the consumer while the small farmer is disadvantaged by the process. *Id.*

42. Coughlin, *supra* note 25, at 8.

Recommendations for Change in Commodity Programs

The federal government should adopt a policy that allocates subsidies based on the most efficient production rates. Payments to farms of all sizes should be equal to the minimum production cost possible. For example, if the government determined that it was possible to produce wheat at \$4 per bushel, all farmers would receive \$4 for every bushel they sold to the government. Because this system makes it impossible to earn a profit from subsidies, large-scale farmers could not earn more profit than smaller-scale farmers while producing less efficiently, as is currently possible.

It may seem troubling that even the most efficient farmer cannot earn a profit under this system. Two points address this concern. First, although the proposed commodity prices would not allow for an economic profit, they would allow for recovery of production and living costs. Secondly, the proposal does not preclude economic profits altogether, it merely precludes earning a profit from the government. All farmers would maintain the option of selling on the free market if it was more beneficial to do so. Such a proposal would be politically attractive in these times of high federal budget deficits.

Experiment Station Research

The survival efforts of small and family-sized farms are also hampered by government-sponsored agricultural researchers, who concentrate on projects which aid only large-scale farmers. The federal government funds agricultural research through state experiment stations, established by the Hatch Act of 1887⁴³ The experiment stations are part of a triad of programs which make up the land grant college complex.⁴⁴ The other two components of the system are the colleges of agriculture, responsible for agricultural education, and the extension services, responsible for disseminating the fruits of research and education. Approximately one-third of all agricultural research done in the United States is conducted in the experiment stations.⁴⁵

In 1979, in response to criticism that the extension services were conducting research more beneficial to large farmers than to small farmers, a survey was taken of production research at 10 percent of the experiment stations to determine the nature of the

43. Hatch Act, ch. 314, 24 Stat. 440 (1887) (current version at 7 U.S.C. § 361 (1980)).

44. Jim Hightower, *Hard Tomatoes, Hard Times* 195 (1973).

45. Experiment Station Committee on Organization and Policy, *supra* note 33, at 9.

research conducted.⁴⁶ The results appear to rebut the criticism, showing that, of research that could be classified as directed towards a particular farm size, 7.3 percent was directed towards small farms, 4.8 percent towards moderate-sized farms, and 3.2 percent towards large farms.⁴⁷ A total of 81.4 percent of the research was either size-neutral or basic research. Those who conducted the study assert, however, that the results of the survey are misleading because they do not take into account the economic environment in which research results are implemented.⁴⁸ Indeed, the survey did not consider that, for a variety of reasons, family-sized and small farms often cannot use the fruits of the research. Many smaller farms are unable to economically justify the adoption of certain types of technology on small units.⁴⁹ Large farms, however, are able to adopt the new technology. This begins the treadmill effect, which leads to a concentration in farm size. Thus, much of the "basic research" and "size-neutral research" which together constituted over 81 percent of the research, in reality benefitted and helped to create larger farms. The task force conducting the study concluded:

Even though . . . the bulk of research directly applicable to farming is of a size-neutral nature, we conclude that because of the economic environment in which new knowledge is applied, the research in the agricultural experiment stations has contributed to the concentration of production in the larger farm-size classes.⁵⁰

The large farm bias is aggravated by those experiment station researchers who cater to the needs of business concerns. Chemical, drug, and oil companies are frequent contributors to the experiment stations, which allow their research agendas to be influenced by these donations.⁵¹ As a result, research agendas typically include the development of insect control, weed control, plant and animal biology, and biochemical efficiency.⁵² Smaller-scale farmers, however, have a heavy reliance on labor, as opposed to capital inputs,⁵³ and therefore do not benefit proportionally from such research. Large farms, which rely heavily on such inputs, are the main beneficiaries. Thus, through making strategic donations to

46. *Id.*

47. *Id.* at 7.

48. *Id.* at ii.

49. Ghebremedhin, *supra* note 4, at 49.

50. Experiment Station Committee on Organization and Policy, *supra* note 33, at ii.

51. For a general discussion of the link between big business and research agendas at agricultural experiment stations, see Hightower, *supra* note 44, at 97 (1973).

52. *Id.*

53. Williams, *supra* note 10, at 125.

experiment stations, input manufacturers are able to redirect otherwise federally-funded research towards obtaining technology which is most beneficial to large farms.

The alliance between state experiment stations and businesses, such as Minnesota Mining and Manufacturing, Dow Chemicals, and Monsanto, is the subject of an eight-year, yet unresolved, lawsuit against the experiment station at the University of California, Davis.⁵⁴ The Davis experiment station, which is the largest in the United States, is accused of violating the Hatch Act by being overly responsive to the research desires of contributing agribusinesses. The Hatch Act requires, among other things, that research projects must "have for their purpose the development and improvement of the rural home and rural life and the maximum contribution by agriculture to the welfare of the consumer."⁵⁵ Although private grants only make up approximately six percent of the experiment station's budget,⁵⁶ detractors allege that the grants greatly influence the station's decisions on which projects to research. Contributors can exert leverage on research decisions because, unlike federal funds, their funds will only be available if projects undertaken meet their needs. The California Auditor General concurred in these conclusions, stating: "[I]f you look at the goals of the University's research program, and the expenditure of money toward those goals, it looks like the principal areas relate to those gifts."⁵⁷

This focus on large farm research facilitates the treadmill effect by providing free technology which is disproportionately useful to large farms. Federal monies going to agricultural research, then, have the same impact as commodity programs in that they give large farms an advantage over smaller farms in the competitive struggle. If small, family-sized, and large farms are to be given an equal chance to compete, this policy must be changed.

Recommendations for Change in Experiment Station Research

Federal research must be conducted with the goal of assisting farms of all sizes in becoming as efficient as possible. Not only will this increase the net productivity of all farms, but it will ensure that all farms are able to compete on an equal footing. To equalize

54. See Ann Critterden, *Farm Research Aims Disputed*, N.Y. Times, Dec. 3, 1980, at D1, col. 3.

55. 7 U.S.C. § 361b (1980).

56. Critterden, *supra* note 54, at D6, col. 5.

57. *Id.*

the current imbalance, more federal research must be aimed at finding ways to increase efficiency and quality on small and family-sized farms. Specifically, researchers should work on ways to adopt farm machinery to fit a lower budget and handle a smaller acreage. Research should not be limited to the development of farm inputs, because this research typically aids large farmers more than small. For example, family-sized and small-scale farmers could benefit from further development of the network of Farmers' Markets, where farmers can sell goods directly to the consumer. Also, a substantial amount of research needs to be done on energy use on the small farm.⁵⁸

Most importantly, researchers must actively seek out small and family-farm needs and use their skills to address these needs. The need for this approach is illustrated by the efforts of David Miskell, a small farmer who has carved out a living for himself by raising vegetables on a three-acre Vermont farm.⁵⁹ He sells his produce to restaurants and gourmet stores in New England. His success is based on using sophisticated vegetable farming techniques which he learned during two years spent in France and the Netherlands. For example, through planting early and using plastic to protect his tomatoes from the cold, he is able to offer the first fresh tomatoes of the year, establishing loyal customers for the rest of the season. Despite his hard work, his experiments have been less scientific than he would like. He encourages the government to get more involved in small farm research, and to conduct more research on the farm, as opposed to experimenting in the university environment.

Conclusion

The current farm crisis has only accelerated the trend toward the demise of the small and family-sized farm. Because there are heavy social costs associated with the decimation of these farms, federal farm policy must, at a minimum, give smaller farms an equal chance in the competitive process. The current commodity programs, which reward both efficiency and size, instead of just efficiency, artificially subsidize large farming. In addition, research programs ignore the actual needs of smaller farms and allow themselves to be influenced by corporate contributions, further stacking the deck against the small and family-sized farm. Both these programs facilitate the treadmill effect and squeeze out

58. Frederick H. Buttell, *Energy and Small Farms* 46 (1980). For summary of suggested research projects, see *id.* at 46.

59. United Press International Release February 10, 1984 (available on NEXIS).

smaller farms largely at taxpayer expense. To solve these problems, commodity payments should be limited to the lowest possible production costs. This will prevent large farms which are less efficient from outprofiting more efficient small farms. It is further proposed that research be distributed more evenly. By ending the large farm subsidy, small and family-sized farms will have a fighting chance to compete.

