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## **FARMLAND PRESERVATION PROGRAMS**

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### **Abstract**

The preservation of farmland is an important issue in most areas of the U.S. and all states have enacted legislation to promote this activity. This article reviews the various policy tools for preserving farmland. Use valuation of farmland for property tax purposes is the most common remedy but it is not effective where there are strong incentives to convert land to nonfarm uses because of high land values. The purchase of development rights has become an important method in areas facing severe pressures.

JEL: Q15, Q20, Q24, Q28

Paper presented at the Seventh International Symposium on Society and Resource Management, University of Missouri, Columbia, May 25-27, 1998. Dale Colyer is Professor of Agricultural and Resource Economics, Division of Resource Management, West Virginia University. Contributions of Larry Libby and Tim Phipps, who reviewed an earlier version of this paper, are gratefully acknowledged.

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# FARMLAND PRESERVATION PROGRAMS

## Introduction

This paper contains a discussion and evaluation of the issues, policies and programs used to help preserve agricultural and other open space uses of rural land. The focus is on programs used in the northeastern region of the United States, but the concepts have been used and are applicable to other areas and countries.<sup>1</sup> Agricultural and related land uses have been subject to acute pressures due to urbanization, population growth, transportation, and industrial activities which have consumed substantial amounts of once rural lands. This topic became prominent in the 1970s as states in the Northeast, particularly, began to develop programs for preserving farmland (Colyer 1976; Conklin 1980). In the latter half of that decade it also took on national significance as the U.S. Congress and Ford and Carter administrations (through the Department of Agriculture) focused considerable attention to the issue of loss of prime farmland (see, for example, Cutler 1977; Knebel 1976; USDA 1975; U.S. Senate 1979).

The pressures on agricultural land have been of two types: 1) a push due to unfavorable shifts in cost/price relationships which reduce net returns from agriculture and which tend to cause farmers to terminate their farming operations because of low returns, and 2) a pull caused by rising land values due to development which induce land owners to sell to realize large capital gains. The northeastern region of the U.S., which has less land use flexibility than other areas because of higher population densities, has been a leader in developing and implementing policies and programs designed to overcome both forces and to help preserve agriculture and related open spaces land uses. Several of these programs have been costly in terms of public sector resources but have received broad public support including the passage bond issues and taxes to defray their costs; farmland preservation activities, it should be noted, implicitly assume that the “highest” use, i.e., the one that generates the largest private economic rents, is not necessarily the “best” use. Thus, farmland and other open space have taken on some of the characteristics of public goods (see Libby 1997). In addition to public programs, nonprofit private sector organizations—such as the American Farmland Trust, Nature Conservancy, and other national and local organizations—carry out farmland and open space preservation activities.<sup>2</sup>

## Rationale for Concern

A number of reasons have been cited as justifying the need for farmland preservation and for

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<sup>1</sup> The focus is on the Northeast because that area has been a leader in developing programs for farmland preservation and because there has been long term research programs on the topic by Land Grant Universities and other organizations and agencies to develop and evaluate such programs and activities.

<sup>2</sup>It should be noted that many programs and policies affect agriculture, both positively and negatively. These include agricultural subsidies, highway and infrastructure construction, industrial and economic development programs, technology (research), income tax codes, environmental regulation, endangered species, wetland protection, food and drug laws and regulations, etc. While important, examination of such activities is beyond the scope of this paper.

developing public policies and programs to enhance that activity.<sup>3</sup> One is to preserve the production base for agriculture—Libby (1997) calls this reason food security, a reason that may not seem to be important in the United States because the country has long had surplus food production capacity. Many individuals and organizations, such as the American Farmland Trust, continue to be concerned about this issue (e.g., see Berton 1995).<sup>4</sup> It also can be noted that this excess production capacity has enabled the agricultural sector to be a large net exporter of food and fiber products, a situation that could be threatened if too much land is diverted to other uses, although some analysts still believe that a potential problem exists for the United States (see, e.g., Pimental and Giampietro 1994). Generally, however, the U.S. can expect to be able to produce sufficient food supplies for its relatively slowly growing population. There is some concern, perhaps unjustified, about the capacity of the earth to produce enough food to feed the expected doubling of its human population during the next several decades. Thus, while some analysts believe that it will be essential to retain and use every available acre of productive land to meet those future needs, others are convinced that technological advances will, as in the past, enable production to keep pace with growth.<sup>5</sup> Libby (1997, p. 3) refers to this as risk management over time, since there is uncertainty in both the future levels of food needs and the capability of technology to keep pace with those needs. The consequences (and costs) of not having enough land to produce food for the population could be much larger than those of keeping “too” much land in agriculture.

A second reason is the amenity values that people receive from the existence of open space, such as those which Libby (1997) refers to as nonowner services, especially from land used for farming, together with their willingness to pay to preserve farmland and other open space activities. This is verified indirectly by the willingness of citizens of several states to tax themselves to help assure preservation of farming activities; this aspect will be discussed more fully in the following section of this paper. In addition studies using contingent valuation methods have demonstrated a willingness to pay for the continuation of farming (see, for example, Beasley, Workman and Williams 1986; Foster, Halstead and Stevens 1982; Kline and Wichelns 1986). Other studies that have examined amenity values include Bergstrom, Dillman and Stoll (1985), Brookshire, Randall and Stoll (1980), Halstead (1984), Lopez, Altobello, and Shah (1994), Lopez, Shah and Altobello (1994), McConnell (1989), and Young and Allen (1986).<sup>6</sup> The Kline and Wichelns (1996) study

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<sup>3</sup>Gardner (1977, pp. 1028-29) listed the following as reasons that have been advanced for justifying agricultural land preservation programs: “(a) ‘sufficient’ food and fiber to meet the nutritional requirements of a growing national and world population; (b) local economic benefits that derive from a viable agricultural industry; (c) open space and other environmental amenities that accrue chiefly to urban residents; and (d) more efficient, orderly, and fiscally sound urban development.”

<sup>4</sup>Feder (1997), in the *New York Times*, reported that USDA officials still point to need to preserve the production capacity of agriculture for, at least, its contribution to export earnings.

<sup>5</sup>Predictions of eminent worldwide starvation, made periodically since Malthus first postulated that situation early in the 19<sup>th</sup> century, have failed to materialize due to the capability of the sector develop new technologies that have increased land and labor productivity. Works by Cohen (1995), Crosson and Anderson (1994), McCalla (1994), Pimental and Giampietro (1994), and Plaut (1980) are only a few of the many publications on this topic.

<sup>6</sup>Bockstael (1984) discussed issues in the philosophy and measurement of amenities associated with natural resources and the environment—see also the discussion by Opaluch (1984).

indicated that Rhode Island residents rated amenities from farmland as high as or higher than other open space uses, but these were based more on environmental than food production concerns; they also placed higher value on parcels that contributed to wildlife habitat and groundwater resources.<sup>7</sup>

A third justification is for environmental benefits, including wildlife habitat and biodiversity, that can be derived from agricultural and other open space activities. It should be noted that agricultural activities can contribute to undesirable environmental effects when poor production, waste disposal, or tillage practices are used. However, as Miranowski and Carson (1993, p.7) state: “Land, air, and water have absorptive and regenerative capacities that degrade inorganic as well as organic residues.” People tend to place high values on these factors, as indicated by the Kline and Wichelns (1996) study (see, also, Legg and Portugal 1997).

Another reason used to promote farmland retention programs is the need to maintain a critical mass of agricultural production activities to support essential agricultural supply and marketing enterprises. This also contributes to the economic viability of rural communities and enhances the quality of life in those communities. Blaine (1997, p. 7) cites a report of the Ohio Farmland Preservation Task Force as indicating that, if current farmland conversion trends continue, “economically viable farm communities will cease to exist in thirty-nine Ohio counties by 2027.” California, as one of the more rapidly growing states and largest agricultural producer, also faces the issue of viable farm communities (Berton 1995).

Farmland preservation programs also are advanced as contributing to a more orderly process of planning and urbanization, primarily because they can help prevent urban sprawl and leapfrog developments. Unplanned and uncoordinated development activities in rural areas produce, it is argued, “economic inefficiencies as well as substantial social and environmental costs” (Blaine 1997, p. 5). Often, the costs of providing services to the increased numbers of residents far exceed the extra tax revenue that such developments generate. In addition, the intermixing of rural residential developments and farming frequently results in conflicts and lawsuits over the nuisance activities of farmers, making it difficult to carry out essential farming activities.

It ought to be noted that not all conversions of farmland to other uses have the same implications for future food supplies since, in some cases, land changed to other uses can be converted back for agricultural production activities. Parks, golf courses, forests, and even some housing developments (e.g., log lot developments) are examples. Changing many industrial, transportation and related uses to farmland, however, would be difficult and expensive; in some cases where the soil has been polluted by industrial wastes or the topsoil removed, reconversion would be nearly impossible.

### **Preservation Programs**

Public (and private) programs to preserve farmland are advocated because it is believed that the operation of free real estate markets do not always properly allocate land to its best use, i.e., that the use that can pay the highest price for the land is not necessarily the best use—thus, the concept of highest and best use is called into question by the belief that the highest valued use as determined

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<sup>7</sup>The value of rural amenities is also a major issue in Europe (Muheim and Salant 1994). See, also Cahill and Jones (1998) and Vail, Hasund and Drake (1994).

by the market is not necessarily the best use. This is due, primarily, to the failure of markets to take the public goods aspects (amenity and other nonmarket values) of farmland uses into account. Farmers are not able to capture the financial rewards from such amenities and, thus, these amenities do not affect the income flow that is capitalized to determine the value of the land for farming operations (see Gardner, 1977, for a thorough discussion of this issue).<sup>8</sup> Another factor that could contribute to the undervaluation of land for farm use is a failure to adequately consider future needs, since discounting procedures used in valuation cause returns received in distant years to have little impact on current values or decisions, a situation that could be important if the prices of agriculture products rise relative to other prices at some point in the future.

Farmland preservation activities in the United States, and elsewhere, are carried out by both the public and private sectors. The public sector has a substantial number of tools that can be used to influence land use including farmland preservation, although the effectiveness of each varies considerably. These include planning and zoning (and other uses of police power to regulate land use), use-value assessment, purchase of development rights, transfer and/or trading of such rights, conservation easements, right-to-farm laws, agricultural districts, subsidies, and related public policies. The range of activities of the private sector is more limited and generally operates through the purchase (or donation) of land, development rights, and easements, although private interests can affect public policy decisions through lobbying and public education activities. Thus, both public and private sector activities to preserve agricultural land are being examined in this paper.

## **Planning and Zoning**

Land use regulation under the police power of the state was one of the first approaches used in attempts to preserve farming activities in areas with urbanizing influences. These continue to be valuable tools in many areas, although often ineffective in the longer run since development forces frequently are able to prevail in attempts to change planning and zoning rules to allow more intensive uses. Planning and zoning, originally developed to control and regulate land use activities in large urban areas, have been extended to encompass rural areas in counties or other administrative units (see Roberts, 1982 for a thorough examination of using land use regulations to preserve farmland). The approaches have included the development of exclusive agricultural zoning in some jurisdictions, large lot zoning, cluster development, subdivision regulations, and moratoriums on construction, as well as conventional planning and zoning.

While planning, zoning and related land use regulations have helped to preserve farming activities in some areas, generally they have not been overly effective as tools in preventing development in many rural areas. A major factor in this failure is a widespread resistance to planning and zoning activities by farmers and other residents in rural areas, who tend to be hostile

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<sup>8</sup>One way to help overcome the inability of farmland owners to capture the benefits of these public goods aspects of their property is to devise mechanism to charge the beneficiaries for the utility they obtain from their utilization of the amenities. Generally, however, this is not possible due to the nature of the public goods. Thus, an alternative is to provide the suppliers (landowners) of the amenities with payment for keeping them available (not converting the land to other, noncompatible, uses. This procedure is referred to by Hanley et al. (1998) as the “producer gets principle. Such environmental and cultural payments have been suggested under a proposed “common agricultural and rural policy for Europe (Agrifocus 1998)..

to attempts to place restrictions on what they believe to be a right to use *their* land in any way they want, at least until threatened by uses they consider undesirable. Other farmers and rural land owners may oppose regulations that restrict development because they want to be able to cash in by selling their land for a high price when they retire, or decide for any reason to dispose of or develop their real estate holdings. Thus, in the absence of zoning or other regulations, it is relatively easy for developers to acquire land and convert it into housing subdivisions that may be many miles from other housing units or major employment centers; improved roads make commuting relatively easy and inexpensive (lower taxes, housing, and other costs tend to offset the higher costs of transportation). It is only when these subdivisions begin to cost the farmers and other rural residents through the need for increased public services (education, fire, police, etc.) that they become aware of the disadvantages of the unplanned and uncoordinated development.

A second reason that planning and zoning tend to be less effective than their advocates think they should be, is that the regulations generally are not permanent; they can be changed by the local Planning and Zoning Board at the petition of developers for changes or variances, etc. When a locality has a good development plan and the local board is strongly opposed to uncontrolled, strip, or leapfrog development activities, planning and zoning can be effective (the existence of state—or other larger area—planning, zoning or other regulations may be a more effective approach). Developers often have large budgets and can lobby effectively or wait long enough to secure changes in Board membership that will enable them to obtain a favorable ruling.<sup>9</sup>

Large lot zoning (1, 5, 10, 20 acres) is another approach that has been used to try to prevent conversion of land without preventing all development activities (and permitting land owners to receive higher prices for at least some of their land).<sup>10</sup> By raising the cost of development, large lot zoning is expected to both prevent excessive conversion of farmland to housing and prevent increased costs of public services since it would involve far fewer new residents in the developed area (Blaine 1996). The result, often, is development where the units are too large for residential use (“too large to mow”) but too small for farming, even by tenants since the fields would tend to be very small.

## **Preferential Taxation**

Property taxes generally are based on value (are *ad valorem*) and as real estate values rise the cost of property taxes tends to keep pace. This results in higher tax costs for farmers and can be a major influence making farming operations less profitable, a factor that contributes to the forces inducing farmers to sell their land. Preferential treatment of farmland through use-value assessment and related programs that provide relief from high rates of property taxes is one of the more commonly used approaches to preserving farmland. This approach was first adopted in Maryland

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<sup>9</sup> A developer in a situation proposing a housing development on a farm located beside a major highway but several miles from any other housing development, although relatively close to a major metropolitan area (Baltimore) told me that they were willing to wait up to ten years to get a zoning change to permit their development to proceed. (I was a consultant hired to evaluate the agricultural potential of the farm which had been purchased by the developers.)

<sup>10</sup> These, and some other developments that are restrictive, have been charged as being discriminatory since they tend to preclude the poorer and minorities.

in 1957 and since then has been adopted in one form or another by every state, although Michigan does not have a program at present<sup>11</sup> (Aiken 1989; Rodgers and Williams 1983; Wunderlich and Blackledge 1994). The basic concept is that farmland, especially where urban and industrial pressures exist, tends to be valued by the market for its nonfarm uses, which often considerably exceed its value for farming, based on the capitalized flow of net income from farm sales. Property taxes based on use-value assessments tend to be considerably lower than those based on market values, thereby increasing the profitability of farming and reducing the economic forces that tend to force farmers to sell. If there is a large gap between the use and market values, as generally exists near many urbanizing areas, a farmer's net income per acre can be increased very substantially as a result of lower property taxes.

Use-value assessment programs among the states vary considerably with respect to factors such as eligibility requirements, methods of determining use-values, and penalties for converting covered land to nonfarm uses (Aiken 1989; Cole 1996; Rodgers and Williams 1983). Eligibility generally depends on how the enabling legislation defines a farm, although some provide preferential taxation for forestry and other open spaces, too. Definitions of farms generally are based on size (in acres) and/or value of farm sales. In Delaware, for example, the minimum size is 10 acres and \$1,000 of gross farm income, but smaller sized units qualify if they have gross sales of at least \$10,000. New York has a requirement that, in addition to being at least 10 acres with \$10,000 income, the farm must be in an agricultural district; Maryland some other states have similar requirements.

The most common approach to determining use-value is to capitalize the net flow of rent, although it can be quite complex to determine this flow in a realistic method. This value is determined by the formula  $V=r/i$ , where  $V$  is the per acre use-value,  $r$  is the net revenue per acre, and  $i$  is the interest (discount) rate. Thus, both  $r$  and  $i$  are critical in determining the use-value. As reported by Cole (1996, pp. 3ff), in 1996 the capitalizations rate,  $i$ , for states in the northeast varied from 3 to more than 16 percent. A low interest rate results in relatively high price while a high interest rate results in a relatively low per acre value. Some states, e.g., West Virginia, use rental rates to determine net returns, while others use net returns as determined by the U.S. Department of Agriculture or some state agency for various crop and livestock enterprises. The values may be modified based on soil type or other factors which affect productivity. Many states impose penalties in the form of rollback taxes, conveyance taxes, interest charges, and/or a combination of penalties, if a parcel of land enrolled in a use-value assessment program is converted to a nonfarm use.

In addition to the impact on farmers net incomes and the rate of conversion of farmland, use-value assessment also affects incomes of local governments, agencies and schools—and states when they participate in property taxation (Glendenning, Cole and McKenzie 1988; Kelsey 1994, Morris et al. 1987). In a few states, local government units are compensated by the state for their losses, but generally the local governments, schools, etc. must either raise taxes on other property owners, find other sources of revenue, or reduce expenditures and/or services.

While the experience with preferential taxation of farmland has proven to be an attractive and

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<sup>11</sup> Michigan substantially revised its property tax procedures when it abolished the use of property taxes for school finance early in this decade. Michigan does have circuit breaker which permits some farmers to receive a tax credit on their state income taxes for property taxes paid on farm real estate.



widely adopted technique to reduce a farmer's costs and, thereby, mitigate one of the major causes of conversion of land to nonfarm uses, it has not been effective in the long run in preserving farmland, especially in areas with more intense pressures for development. Evaluations of use-value assessment programs indicate that they do have effects in delaying and reducing rates of conversion, but that the gains that can be made from development prove to be too attractive to many farmers, especially when they reach retirement age (see Anderson 1993; Cole 1996; Parks and Quimio 1996; Tavernier and Li 1995; Tavernier, Li and Temel 1996; Trembly et al. 1987). Parks and Quimio (p.22), for example, state: "Results suggest that nonagricultural considerations may overpower the economic incentives provided by such policies as farmland assessment."

### **Purchase of Development Rights**

The failure of preferential tax programs to preserve farmland has led to need to develop more effective procedures for preserving farmland. The purchase of development rights (PDR) programs have been a primary alternative, one that also has been widely used in the Northeastern states of the United States.<sup>12</sup> Land, as is well known, consists of a bundle of rights which can be owned as a single unit (fee simple ownership) or separated into the individual components with different owners.<sup>13</sup> The separation of mineral rights, including oil, gas, and coal, from the surface rights is one of the more common divisions; others include access, hunting and fishing, and increasingly development rights. The purchasers of, say, mineral or hunting rights generally use those rights, i.e., the coal is eventually mined and the hunting rights are used to seek game. Development rights, however, are purchased to assure that they are not used and, thus, the land from which they are separated will remain undeveloped often "in perpetuity." Goals for PDR programs as listed by Derr (1996, p. 9) are: 1) maintain a minimum critical mass of prime farmland; 2) encourage agricultural producers to expand their operations to a size that will minimize costs; 3) ensure that there will be sufficient business volume to maintain the agribusiness infrastructure; 4) provide for the adoption of appropriate technology; 5) serve as a source of internal credit; 6) facilitate the transfer of farmland as farmland; and 7) increase the long term profitability of an agricultural region.<sup>14</sup>

The basic concept of purchasing development rights (often through easements in the PDR programs) is relatively simple. The gap between the farm use value and the market value is considered to be a parcel's development value. The farm owner sells the right to develop the land for that difference (although the actual sale value may vary from program to program), although sometimes owners donate all or part of their development rights as a way to assure that their land remains in farming (and generally for the tax advantage of a charitable donation), especially to land trusts or other private sector organizations. Then a restriction is written into the deed for the land

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<sup>12</sup> These are frequently called purchase of agricultural conservation easements (PACE) but, while there can be differences, the general purposes and procedures are similar.

<sup>13</sup> Another alternative is outright purchase of the land with it then being leased back to the former owner or some other farmer. This is not a widely used practice although land is often purchased by public agencies to keep it in such open space uses as parks and game reserves.

<sup>14</sup> These goals, of course, are similar to those for other farmland preservation programs.

and recorded so that any future purchaser should know that the land cannot be developed. Unlike planning and zoning or preferential taxation, the use of PDR programs can be (are) carried out by private as well as public sector interests.

**Public Sector Programs:** As with most other U.S. farmland preservation activities the northeastern states have been the primary users of PDRs to preserve farmland, more than 84 percent of the area protected by and more than 86 of the expenditures on public sector PDRs through 1997 were in the Northeast (see Table 1). Most of the land protected in the Northeast is under statewide programs while large shares in the other regions are through local government programs. These programs have grown rapidly in recent years, increasing to a total of over 404,748 acres covered in the Northeast in 1997, which is nearly 212 percent of the area protected in 1991, 191,700 acres (Northeastern Farmland Update 1992).

The first state programs were initiated in Massachusetts and Maryland in 1977—there were earlier local programs, including a program initiated in Suffolk County New York in 1974 and one in King County, Washington in 1979 (AFT 1996b).<sup>15</sup> Connecticut, Delaware, Maine, Maryland, New Jersey, Pennsylvania, Rhode Island and Vermont also have state programs, although not all are currently active. Other states with PDR programs, usually for specific areas of the state, are California, Colorado, Kentucky, and North Carolina—the California and Kentucky state programs, however, had not protected any land through 1997.

In addition to state and local programs, Federal assistance for PDR programs was authorized by both the 1990 and 1996 farm bills which authorized funds for the USDA to participate with local governments in the purchase of development rights (Warman 1996). The 1996 act (The Federal Agricultural Improvement and Reform Act—FAIR) authorized \$35 million (\$17 million were appropriated) for farmland preservation purposes in the form of matching grants, and is a potentially large source of funds for such activities. Under this program, referred to as the Farmland Protection Program (FPP), the USDA publishes a request for proposals (RFP) in the Federal Register (and online) and applications by state or local government bodies can apply to receive a grant. They must match the Federal grant and have pending offers to purchase development rights to be eligible. In FY 1996, 37 entities in 17 states received \$14.5 million in matching grants under the FPP (AFT 1998)

PDR programs vary considerably with respect to length of time the protection endures, eligibility to participate, approaches to determining eligibility, application procedures, selecting parcels to be protected, determining the price to pay, financing of the operations, involvement of local governments in the process, and procedures for assuring compliance with the requirements for use of the land (Derr 1996: MacKenzie et al. 1987: Mackenzie et al. 1988).

- PDR programs are all voluntary; landowners must apply to participate and the application procedures vary considerably from program to program.
- Most of the development rights are purchased in perpetuity, although in some programs, they are purchased for specific lengths of time.
- Eligibility depends on various factors including location, development potential, threats of

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<sup>15</sup> While New York does not have a state wide program, local governments may carry out such activities as in the case of Suffolk County and, more recently the town of Pittsfield, near Rochester (Feder 1997).

conversion to nonfarm use, size of parcel, soil characteristics, other protected land in the immediate area, type and level of production, uniqueness of the land, participation in farmland protection programs, agricultural concentration and markets, and various other criteria.

- The value of the development rights is generally determined by appraising the land to determine its market and agricultural use values and, then, subtracting the use-value from the market value. However, some programs allow farmers to bid a lower price to have their parcel accepted. The purchasing authority in some programs may negotiate with the farmland owner to determine the final price.
- To finance the PDR programs states have used bond issues, general tax revenue, dedicated taxes such as land transfer fees or, in the case of Pennsylvania, a tax on cigarettes. They may or may not require that the local government, county, town, etc., contribute to the financing.
- Some states, e.g., Pennsylvania, require that local governments participate in the process, some permit such involvement, while others do not involve local governments to any significant degree.
- Programs may depend on recorded deed restrictions to assure compliance, but many states set up agencies or trusts to monitor compliance, use existing agencies such as their Departments of Agriculture, or leave the task to the local government units.

PDRs are very effective in the preservation of farmland since, once the development right is purchased by a public agency, it becomes very difficult to change the use (although forcing land to be farmed can be problematic if it becomes unprofitable to do so). Some programs set up procedures that allow changes that are in the public interest because restricting use in perpetuity can prevent changes that become desirable in the future. The primary disadvantage of PDR programs is that they tend to be very expensive in terms of both the cost of purchasing the rights and the transaction costs for carrying out the program; most programs have substantially more applications than they can fund. Also, since it is cheaper to buy the development rights before urbanization pressures become very intense many programs tend to concentrate in those areas. Thus, a landowner may be passing up potentially very large future gains by selling “too” early, although a land owner has no guarantee that the program will be available in the future when the development value is higher.

**Private Sector Programs:** Private sector organizations, typically land trusts, also are involved in agricultural land protection activities, including the purchase of development rights (easements) as well as fee simple purchases and/or resale with development restrictions, rental and leasing, land registries, acceptance of donations of land and development/conservation easements, educational and advisory activities, and cooperation with public sector programs—such as preacquisition when the public agency either does not have the funds or cannot act as expeditiously as needed (Bills and Weir 1991). Large national organizations such as the Nature Conservancy and American Farmland Trust (AFT) are well-known actors in land preservation activities; the AFT began acquiring farmland in 1983 (Wiebe, Tegene and Kuhn 1996, p. 11).

There also are a large number of state, regional and local land trust organizations, many of which are involved in farmland preservation activities. While many of these have been active for many years, a large number have been formed in recent years (Bills and Weir 1991, p. 2). They reported that of 741 land trusts listed by the Land Trust Alliance, 85 percent had been formed after

1965, with half formed after 1980. This latter group, however, tended to be more involved with farmland protection activities than those established prior to 1980, many of which were devoted to preservation of historic places. It should be noted, also, that most of the members, funds and land protected were concentrated in less than 20 percent of those organizations. Trust organizations in the Northeast that responded to a Cornell University survey reported more than 380,000 acres of protected land, but only 10 percent was farmland (Bills and Weir 1991). Some eighty-eight trusts reported carrying out farmland protection activities.

Land trusts provide an effective means of preserving agricultural lands, especially where public programs are not available or where they do not have adequate funds to buy essential properties quickly when development pressures become intensive and prompt action is needed. A problem for many trusts, especially those formed more recently, is a lack of resources—trusts generally depend on donations from their members and others and newer trusts tend to have few members. Thus, a substantial proportion of the lands they protect are for those where current owners have donated all or part of their development rights to the trust, either for tax purposes or from a desire to see their land remain in agriculture, or both. Many trusts are active in areas where public programs also operate and the two sectors often cooperate to jointly achieve their objectives. In Lancaster, Pennsylvania, for example, both are active, with Amish and Mennonite farmers, in many cases, utilizing the private trusts due to a reluctance to become involved with the public sector or to accept funds from government agencies (Blaine 1997; AFT 1996a).<sup>16</sup>

### **Transfer of Development Rights**

The transfer of development rights (TDR) from one parcel to another within a local jurisdiction is another program to help preserve. It is generally used with strong planning and zoning ordinances by local government units. In this approach all undeveloped land in the given jurisdiction has assigned rights to be developed with a certain density of housing units, but where zoned for agriculture these rights cannot be exercised. Owners of farmland, however, can sell their rights to those who have land in an area zoned for, say, residences who can develop their land more intensively by acquiring additional development rights. Major advantages of the program is that it is market driven and the transfer of the development rights is financed by the private sector, although the public sector might encounter substantial administrative costs for implementing, coordinating and supervising the system.

TDRs are a potentially useful technique which has been used by a number of local governments for preserving farmland; the American Farmland Trust (1988) lists 45 programs in 15 counties. Maryland and Pennsylvania, with nine and 13 programs respectively, are the leading states in the use of this tool. However, only 48,741 acres were reported as having received protection under those TDR programs and over three fourths of that total was in one county, Montgomery County Maryland.

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<sup>16</sup>The Lancaster county Agricultural Preserve Board is the local public agency for farmland preservation through the purchase of PDRs ,while the Lancaster Farmland Trust is a private sector organization concerned with the same activity.

## **Agricultural Districts**

Agricultural districts generally are units of more or less contiguous land which farmland owners, under state law, have formed to obtain benefits that enhance their farming activities and, therefore, to help preserve agriculture in the affected region. The concept was first developed in California in the mid-1960s as agricultural preserves and adopted by New York in 1971 (Bills 1996). Other Northeastern states with agricultural districts are Delaware, Maryland, New Jersey and Pennsylvania; Hawaii, Michigan, Ohio and Illinois are among the other states that have agricultural districts. Often, membership in a district is required to participate in use-value assessment and/or PDR programs. They may offer other benefits such as reduced regulation of activities, protection (some) from eminent domain proceedings, exemption from nuisance law suits, and benefits from state or local activities to enhance farming activities. Being in an agricultural district, however, does little directly to preserve farmland. It is viewed as a mechanism for “mobilizing local support for agriculture and bundling a package of initiatives and considerations that do affect, to some degree, the longer term viability of commercial farming” (Bills 1996, p. 16). Thus, agricultural district programs, especially statewide programs such as in Michigan and New York, can be important tools in efforts to preserve farmland.

## **Right-to-Farm Laws**

One of the problems faced by farmers in areas where residential development is occurring is the possibility of being sued for creating a nuisance as a result of carrying out normal farm operations which include the production or use of dust, odors, agricultural chemicals, animal waste disposal practices, soil amendments, water quality, etc. (see Wall, 1997, for a good discussion of this issue). Nuisance suits have been advocated as an approach to reducing pollution and other undesirable practices (Levi and Colyer 1972). However, an approach to mitigating the threat of such suits to the viability of farming is right-to-farm laws, which have been enacted by nearly all states (Bills 1996; Adelaja and Taslim 1997). These laws provide some degree of protection for farmers who are carrying out normal, approved, or best practices; they do not prevent a farmer from being sued but do provide a defense that can be used to contest a nuisance lawsuit. As for many other laws, right-to-farm laws vary considerably among the states with respect to the degree of protection, what activities are covered, the impacts of changes in size, technology, or practices, and other features. In no case is a farmer exempted from being liable for negligence or deliberately harmful practices that can be classified as nuisances. In some states, e.g., New York, the Commissioner (or Secretary) of Agriculture (or some other agency) is authorized to determine what practices are good, an approach that may offer more protection than if this is left up to the discretion of the courts in interpreting the intent of the laws.

## **Other Preservation Activities**

The procedures described above constitute a wide array of approaches to helping preserve farming activities and reduce or prevent farmland from being converted to nonfarm uses, but there are a number of other policies and programs used to assist in this process by individual states or communities. In New York, for example, new farm buildings may be exempted from property taxes.

New York also has enacted (in 1996) a law to provide tax credits to farmers for taxes paid to finance local schools (AFT 1997). Another local program, used in Davis, California, is a mitigation process under which developers who convert farmland must protect an equal amount through conservation easements. Another approach is to lessen the impacts of state inheritance and Federal estate taxes which can force heirs to sell all or part of farmland that they inherit to pay the taxes. Recent Federal legislation has increased the size of exemptions. Land where the development rights have been sold may be valued at the agricultural use-value for calculation of the taxes (even though the market value may still be higher than the use value).

## **Conclusions**

There are a variety of reasons for protecting farmland, especially for the better quality and/or unique soils, although these are also the types of land that are more easily developed. Several farmland protection programs have been developed and implemented by states and localities (and have received some Federal support). These have wide support from the public as evidenced by the willingness to create and finance such programs, often accompanied by tax increases in the case of purchasing development rights, or by shifting taxes from farmers to nonfarmers as under use-value assessment procedures. Surveys and contingent valuation studies also have indicated that the public tends to favor and place a high value on activities to preserve farmland (and other open space uses). Substantial levels of support through donations to or membership in national, regional and local land trusts and conservation organizations are further indications of the public's interest in and willingness to support farmland preservation.

A broad array of programs and policies have been adopted to reduce the rates of conversion of farmland to nonfarm uses. These include programs to reduce the cost effects that tend push farmers out of business due to low returns (use-value assessment, reductions in other taxes, right-to-farm laws), and programs to mitigate the pull effects of high prices (land purchase, purchase of development rights and conservation easements, land use regulations—although this approach tends to be controversial because of the taking issue). Agricultural districts, land use commissions, and informational and educational activities are also used to help achieve the objective of farmland retention. A number of approaches are combined, including joint public-private sector undertakings. The purchase of development rights appears the most effective long-term approach, but it is also the most expensive and current programs are constrained by limited funds despite the willingness of the public to support such activities.

Despite all the programs to preserve farmland, substantial amounts of prime farmland continue to be converted to residential, industrial, transportation, and other nonfarm uses. The profits to be made from the conversion of an acre of land tend to outweigh the benefits from preserving the land, at least in many of the political processes that ultimately determine how much land is converted. This seems to be especially true in periods of robust economic development, such as characterizes the current U.S. economy. This situation may best be summed up by a recent New York Times (1998) editorial reflecting on New Jersey's Governor Whitman's plan to protect, with PDRs, an additional one million acres of farmland over the next decade. The editorial noted that "Leaders of the Republican-controlled Legislature, where developers and construction unions are major contributors, have already begun grumbling about this proposal as a threat to job creation and economic growth (New York Times 1998, p. 14).

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Table 1. Farmland Protected by PDR Programs, by State and Region, 1997

State & Region	Acres	Expenditures	\$/Acre	Pct. of land	Pct. of Expend.
<b>Land Protected under Statewide Programs</b>					
Connecticut	25,566	74,825,100	2,926.74	5.22	8.37
Delaware	15,961	18,950,000	1,187.27	3.26	2.12
Maine	464	430,000	926.72	0.09	0.05
Maryland	128,031	140,637,690	1,098.47	26.16	15.72
Massachusetts	39,334	95,000,000	2,415.21	8.04	10.62
New Hampshire	11,732	10,449,008	890.64	2.40	1.17
New Jersey	34,972	167,826,221	4,798.87	7.15	18.76
Pennsylvania	91,813	186,000,000	2,025.86	18.76	20.79
Rhode Island	2,429	13,199,525	5,434.14	0.50	1.48
Vermont	54,446	29,071,276	533.95	11.13	3.25
NORTHEAST	404,748	736,388,820	1,819.38	82.71	82.33
Michigan	79	709,600	8,982.28	0.02	0.08
MIDWEST	79	709,600	8,982.28	0.02	0.08
Colorado	1,878	610,000	324.81	0.38	0.07
MOUNTAIN	1,878	610,000	324.81	0.38	0.07
ALL STATES	406,705	737,708,420	1,813.87	83.11	82.47
<b>Land Protected under Local Programs</b>					
New York	6,960	36,650,000	5265.80	1.42	4.10
Pennsylvania	137	1,100,000	8029.20	0.03	0.12
NORTHEAST	7,097	37,750,000	5319.15	1.45	4.22
Michigan	724	1,253,000	1730.66	0.15	0.14
Wisconsin	174	260,000	1494.25	0.04	0.03
MIDWEST	898	1,513,000	1684.86	0.18	0.17
Florida	12,826	10,500,000	818.65	2.62	1.17
North Carolina	1,236	1,896,965	1534.76	0.25	0.21
SOUTHEAST	14062	12396965	881.59	2.87	1.39
California	47,904	51,000,000	1064.63	9.79	5.70
Washington	12,691	54,113,724	4263.94	2.59	6.05
PACIFIC LOCAL	60,595	105,113,724	1734.69	12.38	11.75
TOTAL LOCAL	82,652	156,773,689	1896.79	16.89	17.53
GRAND TOTAL	489,357	894,482,109	1827.87	100.00	100.00

Source: Developed from data of the American Farmland Trust (electronic data base)

