

What the Public Values about Farm and Ranch Land

Workshop Summary



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FARM AND RANCH LAND**

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Executive Summary

Most Americans have little direct contact with farm or ranch land, yet evidence indicates that the public is interested in preserving these lands. Historically US agricultural policies have emphasized managing surpluses of agricultural commodities. The Federal government became a major player in farmland preservation with passage of the 2002 Farm Bill. This legislation included \$985 million in grants to state and local governments and private non-profit land trusts to preserve farmland over ten years. The Farm and Ranch Lands Protection Program (FRPP) is a joint Federal-local program, but one that comes with congressionally mandated goals. The Federal government has recently placed greater emphasis on accountability of public funds.

The policy issue of interest at this workshop was the choice of program design that will result in selecting the most appropriate farm or ranch land parcels for preservation. The premise was that: 1) economic research has an important contribution to make in maximizing the benefits of farm and ranch land preservation programs; and 2) since many program managers are not always aware of this information resource, it is important to facilitate exchange between leaders in the economics and program manager communities. Moreover, it was presumed that the understanding that experienced program managers could share would improve future economic research agendas.

During the workshop, speakers reviewed Federal, state and local experiences with US farmland protection policy, particularly the extensive and diverse state and local programs. Evidence of the effectiveness of farmland policy effectiveness revealed that rural zoning and easement purchase programs do decrease conversion of open lands, while special tax programs on open land just delay development. A literature review on the measurement of the amenity services provided examples of what people are willing to pay, or *would* be willing to pay if given the chance, for the openness of farmland, as well as recent evidence of the disamenity impacts associated with some farmland types. The economic value of open land services provided a point of departure for a discussion of including such values in farmland easement acquisition programs.

Workshop participants used a “straw man” framework to design a robust policy tool with the information, including the value of amenity services, necessary for program managers to select among land parcels in achieving highest return to the public dollar. Four conclusions emerged from regional – east, central and western – breakout discussion groups. First, no national index for ranking land parcels was possible, or even desirable, due to the fact that local conditions and policy environments, including the meaning of terms and policy goals, varied considerably. The regional groups emphasized that program criteria must be specific to needs unique to a place. Second, even if all regions could agree on a set of factors or characteristics for a national index, there is no single national set of priorities or weights. There was some resistance to quantifying all factors that distinguish one land parcel from another and little agreement on weighting even within the regional groups. Third, ambivalence exists about whether farmland protection programs are about saving land or farm enterprises. Finally, the funding source will affect the

priorities on land parcels acquired. The constituencies vary with governmental level and agency within a level and their preferences will inevitably be reflected in program rules.

Little consensus emerged from the regional groups concerning which criteria in the “straw man” framework should be used to set priorities for parcel selection and the weights for relevant criteria. The biggest operational challenge identified was a consistent and defensible measurement methodology. The elements discussed were: agricultural productivity; sustainable agricultural economy; preserving rural heritage; ecological services; growth management; scenic amenities; recreational opportunities; fiscal impacts; consistency with local policy; proximity to other protected land; and the land evaluation/site assessment (LESA) framework.

A presenter on the role of farmland preservation in local land use planning argued that in addition to the importance of farm profitability, there was a need for a strong land use regulatory framework. Such a framework re-enforces purchase of development rights and protects valuable farmland for which there are not enough funds to buy development rights. Key ingredients of successful county farmland programs identified included: an active commercial agricultural sector with more than \$50 million a year in farm product sales; careful land use planning, urban growth boundaries setting limits on the extension of public services over 20 years or more; preservation of more than 30,000 acres of farmland to date and a potential to add more acres; and land use planning and farmland tools act as a coordinated package.

The 2002 Farm Bill changed the Federal FRPP and efforts to partner with state, tribal and local governments or nongovernmental organizations. A speaker from USDA-Natural Resources Conservation Service (NRCS) described partners’ roles in: assisting the NRCS State Conservationist in the selection of parcels; providing matching funds; assisting in development of Federal program ranking criteria to select parcels, as a member of the State Technical Committee; and monitoring and enforcing conservation easements. Interested organizations may help develop FRPP ranking criteria for selecting parcels through the State Technical Committee.

A research agenda was developed through a reactor panel of regional academic and farmer representatives and facilitated group discussion. From the reactor panel, the questions for future research and policy for land use/resource management addressed five broad areas: baseline conditions; land types and location; establishing farmland preservation priorities; program provision; and institutional capacity.

I. Introduction

Mary Clare Ahearn, Economic Research Service, USDA

Most Americans live in cities and have little direct contact with farmland on a daily basis. However, evidence exists that the public has an interest in preserving farmland. For example, scores of initiatives have been on local ballots in the last several years that seek to protect open spaces, many of them having successfully passed. Why this is so is at first glance perplexing because the US is a country with ample farm and ranch land. In fact, historically most US agricultural policies have been focused on managing surpluses of agricultural commodities. Approximately 31% of the land in the contiguous states is in range land and 24% is in crop land. Another 29% is in forestry uses, 13% is in other rural uses, and only 3% is developed (USDA, ERS). However, we are also a country that has experienced rapid development of farm and ranch land in areas adjacent to urban areas, often leading to congestion and loss of prized amenities on land with potentially high levels of agricultural productivity. When development occurs, the land is virtually never reclaimed for agricultural uses.

Nationwide, nearly two million acres of farmland have been preserved through the purchase of conservation easements by governments and private land trusts. State and local governments alone have spent more than \$1.5 billion to purchase these easements. More than 20 states and 100 local governments have enacted programs to purchase agricultural conservation easements. The Federal government's involvement includes the 1981 Farmland Protection Policy Act that requires agencies to conduct reviews to prevent unnecessary conversion of farmland. More recently, the 1996 Farm Bill created the Federal Farmland Protection Program (FPP), which took a more proactive approach to protecting farmland and authorized \$35 million in grants through the NRCS of USDA to purchase agricultural conservation easements, in cooperation with state and local governments and private land trusts. The Farm and Ranch Lands Protection Program (FRPP), enacted as part of the 2002 Farm Bill, expanded the program more than ten-fold.

Publicly funded programs to protect farmland generally consider the preferences of the general public and produce total benefits that exceed program costs. The public policy challenge for farm land preservation is to provide the greatest public benefit per dollar of public expenditure. In an age of greater accountability for the use of public dollars, the pressure to meet this challenge will only increase.¹ However, farmland preservation programs provide an assortment of benefits and some programs specify particular amenities that are to be protected, e.g., soil quality, as in the FRPP, or are funded by particular constituencies to protect specific natural assets, as is commonly the case for land trusts. To most efficiently manage these programs, public program managers need information on how the public values the various benefits from these programs. One way to understand the public's preferences for the various amenities, and the approach adopted by most economists, is to specify their worth in dollar values. Dollar values not only

¹ For example, Executive Order 12291 deals with the necessity of quantifying program benefits and costs.

provide an ordinal ranking of the various amenities, but also allow for a comparison to the dollar costs of farmland preservation.

Workshop Goals

The workshop was selected as a 2003 Farm Foundation Showcase Project, which provided the major financial support of the workshop. Other co-sponsors are listed on the acknowledgments page. The workshop's overall goal was to identify and develop information that will be useful to managers of farm and ranch land preservation programs in their efforts to select parcels for preservation. A major emphasis of discussion was the usefulness of drawing upon the results of economic research to structure program criteria to improve targeting of farm and ranch land parcels for preservation. Economic research results have the potential to help maximize the social benefits per government preservation program dollar. More specifically, the objectives of the workshop were to:

- Identify characteristics of a useful land parcel ranking tool
- Develop a consensus on how the ranking tool should be described to users
- Develop a consensus on how such information should be disseminated
- Identify future research needs

The workshop had two premises: 1) that economic research has an important contribution to make in maximizing the benefits of farm and ranch land preservation programs; and 2) since many program managers are not always aware of this information resource, it was important for leaders in the economic research community and the program manager community to interact and discuss research and program management issues. Moreover, it was presumed that the understanding that experienced program managers could share would improve future economic research agendas. This workshop was unique in the opportunity it afforded to bring together researchers and program managers to communicate about a common important public policy issue. These two groups have little incentive to spend scarce funds to attend each other's professional meetings. The distribution of the 70 invited participants was: 18 state and local program managers, 6 representatives of nonprofit advocacy and educational groups, 9 representatives of land trusts or private consultants to land trusts, 21 state university researchers and/or extension experts, 6 Federal researchers, 9 Federal program managers, and 1 farmer. A list of speakers and program participants is provided at the end of this publication.

Strategy of Workshop Organization

The workshop began with several presentations intended to put all participants on a common footing. This included an overview of past and current efforts to conserve farmland, a review of the studies that have evaluated the relative effectiveness of various programs, followed by the synthesis of research on public preferences for farm and ranch land preservation. The purpose of this synthesis was to translate a technical body of economic literature in a way that will be useful to farm and ranch land preservation program managers.

These first presentations were the warm-up to the main work of the workshop, which was the discussion that took place in three breakout groups composed of both research economists and program managers from a variety of agencies. These

discussion groups were tasked with addressing objectives of the workshop regarding useful characteristics of a parcel ranking tool and how best to communicate that to wider audiences. The groups were provided with several common resources, including the economic research synthesis, a “straw man” based on an extensive listing of criteria that are considered in prominent existing ranking tools, the most recent criteria for the Farm and Ranch Land Protection Program published in the *Federal Register*, and the Environmental Benefit Index used in the parcel selection of the Conservation Reserve Program. The groups were also asked to consider the following questions in their discussion:

- Is there merit in providing a standard framework?
- On what can there be a consensus?
- Do the criteria allow for state and local uniqueness?
- How specific should the indicators be?

The groups were also asked to consider which indicators could be used to measure the ranking criteria. To be practical, measures of the indicators must be readily available in a community, such as through Land Evaluation/Site Assessment (LESA) or the National Resource Inventory (NRI). A second set of discussion groups addressed the form of a synthesis report as well as a dissemination strategy. Other related presentations placed farm and ranch land preservation in the context of smart growth, local land use planning, and the Federal farm and ranch land protection program.

Finally, the workshop concluded with a discussion of a proposed research agenda for the future. The setting was ideal for holding a research discussion because, first, it brought together distinct groups of experts with a common focus on farm and ranch land preservation. Second, the research priority setting discussion followed on the heels of the effort to evaluate the potential for incorporating economic research results into parcel ranking tools. Hence, the inadequacies of the current body of applied literature were very evident. The research priority discussion started with a presentation of a proposed future agenda. Two practitioners, a state program manager and a farmer, shared their evaluation of this proposed agenda. Then, the full group participated in the development of a comprehensive list of social science research priorities.

Expected Outcomes

The workshop’s goals will be met both through the experiences of the workshop participants and also through participants’ and others’ use of the workshop summary proceedings, full proceedings, and an educational brochure. More specifically, to the extent the workshop was successful, it is expected that managers of farm and ranch land preservation programs will adjust their program criteria appropriately based on the interactions and findings of the workshop. It is also expected that research economists and managers of research programs will adjust their priorities consistent with the core messages contained in the workshop discussion of research needs of farm and ranch land protection program administrators. The ultimate outcome is expected to be an increase in the benefit of farmland preservation programs per program dollar.

II. Summary of Workshop Presentations

Introduction

2.1 The Potential Contributions of Economics in Targeting Farm and Ranch Land Preservation Programs – Mary Clare Ahearn, Economic Research Service, USDA

In theory, markets efficiently allocate resources. Markets convey value, through the pricing of goods and services. The availability (or supply) of particular good and the demand for it determine its price. The scarcer a good is, the higher a price will be, if everything else is the same. Individual preferences drive demands and the relative security of a good, and determine how much an individual will consume of a good at various prices. These relationships are true for the purchase of land, too. Economists can use the information in a demand relationship to measure if an individual, or a community, is better off with or without a particular land purchase, using the concept of consumer surplus. Consumer surplus can be readily measured in the case of a market good. It is defined as the excess dollars, over the market price, that an individual would pay to consume the good. The most common measure of consumer surplus is called the “willingness-to-pay.”

Some goods, like land, contain a “bundle” of attributes that have value. Some of these attributes are captured in the marketplace while others are not. The attributes of farmland associated with agricultural productivity or development potential are likely to be captured in land price. However, the value that farmland contributes to groundwater recharge in an area, wildlife habitat, or scenic amenities are not likely included in its market price. When prices do not capture the value of all of the attributes, a “market failure” occurs. The result is that markets no longer provide efficient allocation of resources. The productive activities on land can also cause negative externalities, such as water pollution, that are not accounted for in the price of land or the price of the goods produced on the land. Economists call the benefits from goods, such as scenic amenities and wildlife habitat, “public goods.” So, how can collective preferences for farmland amenities be known when there is market failure? Economists again rely on the concept of consumer surplus (measured as willingness-to-pay), but in this case consumer surplus must be measured without observing the market relationship between prices and quantities.

The field of resource and environmental economics has developed a set of tools for estimating the value of public goods. These tools include contingent valuation, conjoint analysis, and hedonic pricing. The tool that is appropriate for a situation depends on the amenity, or benefit, being valued, and the degree of connection with actual markets. Economists have grouped benefits into the general categories of those with “use value,” such as the value of viewing scenic landscapes or the value of farmland in providing groundwater recharge, and those with “non-use” value. The latter can be defined as values that an individual may hold for a resource without actually using the resource. Recently, progress has been made in refining techniques to measure the value of individual attributes of public goods in addition to the overall value of the resource. For example, in the case of farm and ranch land, the attributes of soil quality, wildlife habitat, growth management, and scenic viewsheds can be assessed and measured.

Reference:

USDA, Economic Research Service. Land Use Briefing Room. <http://www.ers.usda.gov/Briefing/LandUse/majorlandusechapter.htm>, Dec. 2003.

2.2 Federal, State and Local Programs to Protect Farmland – Lawrence W. Libby, The Ohio State University

Farmland protection policy in the US is not a uniform, coherent national effort, but an assemblage of disparate state and local programs. Authority to guide or control land use change has been delegated by Congress to the states, and from there to local governments in most states. Policy has emerged incrementally as citizens in a particular place wrestle with the balance among private property rights, the interests of non-owners seeking a certain mix of land services, and the broader public interest. That balance differs over time and space; acceptable farmland policy changes as people feel greater growth pressure on farmland and at any point in time will vary depending on the cultural setting in different places. The basic tools available to all governments are nearly the same, though selection among them is a local matter.

Farmland protection policy is the rural or exurban element of metropolitan growth management. Active farmland is often mapped as the “hinterland” of a region available for future expansion where little is going on. But farmland protection policy has its own life and substance. It has evolved somewhat in parallel with growth management, with a power cluster of agencies, public and private interest groups, professions, and even academic disciplines that is different from the growth management cluster.

Federal Attention to Farmland Policy. There has always been a certain tension between Federal and state roles in land use policy. Several bills intended to enhance the Federal role were introduced in Congress in the early 1970s. In the late 1970s, concern for the nation’s farmland in the face of sprawling development led to the National Agricultural Land Study (NALS), which was issued in 1981. Its most enduring result may have been a spirited national debate on farmland issues, leading to greater state attention to these matters and to creation of a national-level farmland organization – the American Farmland Trust – that eventually added state-level offices. Farmland protection has been on the policy agenda ever since.

National farm legislation has given attention to conservation and farmland since the 1981 Farm Bill that included the Farmland Protection Policy Act. That law requires Federal agencies to consider their programs’ impacts on farmland. The 1996 Farm Bill included a Farmland Protection Program, with \$35 million appropriated for qualified state programs for purchase of farmland development rights. That program was expanded in the 2002 Farm Bill to include ranch lands, with nearly \$1 billion authorized over ten years. While far less money has actually been available, Federal dollars to augment state and local governments’ and non-profit land trusts’ purchases of easements make an important impact on those programs. Other Federal programs have significant, though largely unintended, impacts on farmland. These programs include subsidized credit for housing, water and sewer grants, tax

deductions that encourage new home development, transportation policy, air quality policy, and water policies. Federal oversight, or at least monitoring, of state and local land policy efforts would seem sensible. But a significant Federal role has not been palatable to state and local governments.

State and Local Farmland Programs. All states and most localities are doing something about protecting farmland and other open lands. They all employ some mix of taxing, spending, and regulation. Comprehensive planning exists in all states to varying degrees. Planning as a part of land use policy is basically a local function, authorized by the state. Much local planning in the US was conducted up till 1980 with Federal funds provided under Section 701 of the Federal Housing and Community Development Act of 1954. Many communities still rely on those original 701 plans, now 30 years old. Several states have reformed their enabling legislation for local planning and land use control.

Tax. Selective raising or lowering of taxes or fees can be employed as a policy instrument to encourage actions deemed to be socially desirable, or discourage those that are not. Maryland pioneered the taxation of farmland based on its agricultural value rather than market value. Now almost all states have use value assessment programs to reduce the farmer's cost of remaining in farming. Also, internal revenue codes provide income and estate tax incentives for donation of the development value of open land.

Any tax incentive is effective only to the extent that it influences the behavior of the land user or owner. Use value assessment programs do encourage farmers to continue operating longer than they might otherwise, but they are not binding and do not truly "preserve" farmland for the long haul. They do reduce the holding cost of land. However, the amenity services that the public prefers are available only as long as the farmland remains eligible for special tax treatment.

Zoning. Twenty-four states have zoning that is termed "agricultural," though in most cases it only relies on large minimum lot sizes to discourage development in districts identified as agricultural. In all but Hawaii, where state agricultural districts exist, zoning authority is delegated to local governments. Pennsylvania, Maryland, and California have county zoning ordinances that establish permitted uses that are consistent with active farming. These are the only true farmland protection zones that recognize farming as a land use to be retained in the public interest.

The big argument about agricultural zoning as a policy approach has been about fairness. The central fairness question usually comes back to the "takings issue." Does regulation deprive the land owner of virtually all economic value from the land and therefore constitute a regulatory taking under the US and most state constitutions? Courts have consistently upheld this policy tool as a legitimate legislative exercise of the police power in the public interest. Based on cases to date, agricultural zoning appears to be legally acceptable for farmland protection. However, this tool is not been frequently utilized to protect farmland.

Purchase. The spending power is the most direct way for government to influence private land use in the public interest. Government just buys the land use rights needed to assure a land use pattern that generates public benefit. About 24 states

have legislation specifically permitting government to purchase development rights to farmland, with procedures for assuring that the rights purchased do in fact contribute to the public interest, and setting priorities on specific parcels. The landowner voluntarily offers to sell or donate development rights, so the price received must adequately compensate the seller for their work.

Suffolk County, New York enacted the first easement purchase program in 1974, followed shortly thereafter by programs in several New England states. Federal funds have been available under the Farmland Protection Program as discussed above. There is diversity in prices paid for development rights among the states and in selection criteria exercised by the state agency purchasing the development rights.

Land trusts and other NGO's are significant in the easement acquisition picture. Only about half of the 170 land trusts responding to a recent national survey indicated a specific interest in farmland protection, but those that do are a significant factor within the states involved (Bailey and Libby). In many cases they work closely with the state agency. In other states, particularly in the West, land trusts rather than governments are the primary holders of farmland easements.

Farmland easement purchase programs are all voluntary for the landowner. But there is little room for price negotiation in most state programs. A price is determined through an appraisal process based on comparable sales, estimates based on land value with and without the easement in place, or a points-based system that sets value based on various land attributes.

Easements purchased under any of the state or local programs, or secured through donation to a land trust or unit of government are essentially permanent. Most programs have escape clauses for conditions that make continued farming absolutely untenable, but the process is difficult in all cases. Escape requires the owner to buy back the development rights at current prices, *if* there is sufficient reason to allow them to do so. Burden of proof on the landowner is substantial.

Thirty-year term easements are possible under the Federal Farmland Protection Program. A temporary leasing of development rights will not qualify for tax deduction under the Internal Revenue Code. Payment to the farmer is taxed as capital gain. With term easements, payment is taxed as ordinary income.

Directions in Farmland Protection Policy. Future farmland protection policy is likely to emphasize *both* more effective rural zoning to establish that farming is the "highest and best" use for some lands, and market-type devices that enable the farmer to realize the development value inherent in some open land. These may sound like inconsistent trends, but they simply reinforce the notion that purchase and other ways to return value to farmers must operate within a consistent regulatory structure.

Zoning can protect and even expand the opportunities for farmland owners and should not always be considered a loss of owner rights. Thoughtless development patterns can impose huge economic burdens on farm owners, increasing the cost of operation and clouding the future of land conversion, limiting options for many farmers. "Real" agricultural zoning must create conditions that support farm decisions, not just discourage development until the price is right. Statements of

legislative intent should establish the importance of farming as a land use, with a list of permitted uses appropriate to that purpose. Agricultural zoning, in conjunction with voluntary agricultural districts, can identify those areas with a real future in farming. These agricultural zones can then become sending areas for TDR programs or other expressions of land use priority. Agricultural zoning is legal and can be effective if properly administered. The record thus far with rural zoning is not impressive.

Landpooling and “agricultural preservation and development associations” are private enterprises that must function within a general structure of growth management institutions that protect the public interest. These market-based techniques acknowledge the development value of some farmlands and help the farmer participate in those gains. Landowners can form a company, partnership or cooperative to manage the services (e.g., residential or other development, hunting and wildlife services) from their pooled land and share revenues. By giving more structure to the development process, landpools may reduce local government service costs. Experience with landpooling for rural areas is limited to several cases in Europe and Australia. Landpooling cannot be the entire answer for protecting farmland in the US, but it has real potential to capture unmarketed amenities of open land while facilitating sensible development.

Reference:

Bailey, M. and L. Libby, “Agricultural Conservation Easements: The Role of Non-Governmental Organizations.” Columbus, Ohio: C. William Swank Program in Rural-Urban Policy. Available at <http://aede.osu.edu>.

2.3 Economic Valuation of Farm and Ranch Land Amenities: What Economists Have Learned About Public Values and Preferences – John C. Bergstrom, The University of Georgia, and Richard C. Ready, The Pennsylvania State University

Since their inception in the 1970s, US farmland protection policies have been justified in the public policy arena on the grounds that they provide market benefits (e.g., market commodity values) and nonmarket benefits (amenity values). The amenity benefits of farmland protection include public access use values (farm and ranch tours, local “pick-your-own fruits” and vegetables), use values that do not involve public access (countryside scenery viewing, prevention of undesirable development), and nonuse values (existence values of wildlife living on farm and ranch land, cultural heritage values, national food security). To learn more about farmland amenity benefits, including their existence, magnitude and factors influencing them, economists embarked in the early 1980s on research to assess amenity benefits using nonmarket valuation techniques.

The early studies used contingent valuation to estimate willingness-to-pay for the amenity benefits of farmland protection at the local town or county level. The states in which studies were conducted from 1982 to 1997 included Alaska, Colorado, Kentucky, Massachusetts, South Carolina, and New Brunswick province in Canada. In the early 2000s contingent valuation studies were used to estimate the total economic value (use and nonuse values) of farmland protection in Illinois and

Wyoming. Mean annual household willingness-to-pay estimated in the above studies ranges in 2003 dollars from \$.0002 per acre (South Carolina) to \$.0697 per acre (Kentucky) with an average willingness to pay across all studies of \$.0142 per acre.

In the late 1990s, economists began using an approach, called the hedonic price method, to implicitly measure a marketed product's characteristics, and thereby isolate the contribution of farmland amenity benefits to a residential land parcel's price. States where the hedonic price method has been utilized include Kentucky, Maryland, New York and Wyoming. These studies have used local, regional and statewide data sets to estimate farmland amenity use values reflected by the contribution of farmland to willingness-to-pay for residential property. Mean willingness-to-pay estimated in these studies range in 2003 dollars from \$35 per acre (Pennsylvania) to \$5,018 per acre (Maryland). The average willingness-to-pay across studies is equal to \$1,784 per acre when negative values are excluded.

In the early 2000s, economists' attention turned more towards using contingent choice to analyze the relationships between willingness-to-pay for farmland protection and specific farm and ranch land attributes. These studies have been conducted in Colorado, Delaware, Georgia, Ohio, Oregon, Maine, New York, and Rhode Island. Total economic values for farmland protection have been estimated using contingent choice for Maine, New York and Rhode Island. The values obtained range from \$.0006 per acre (Maine) to \$.4392 per acre (Rhode Island).

The contingent valuation, hedonic price method and contingent choice studies reviewed provide insight into the attributes of land that influence public preferences and values for farmland amenity benefits as reflected in willingness-to-pay for farm and ranch land protection. The results of these studies provide relatively strong evidence that preferences and values are sensitive to size of the acreage involved, regional scarcity of farmland, intensity of alternative development, public accessibility, and productivity of the land. There is some evidence that preferences and values are also sensitive to human food plants, active farming, and intensive agriculture. All of these relationships are positive with the exception of the negative relationship between public preferences and values and intensive agriculture. The studies provide limited and inconclusive evidence with respect to the effects on public preferences and values of the following factors: distance from residence to farmland; the relative value of pastureland and timberland; the relative value of unique landscape features such as scenic quality, ecosystem services, buildings, and specialty commodities; the effects of alternative property right structures (land ownership) and the effects of non-farmland amenity substitutes (public parks).

2.4 Effectiveness of Farm and Ranch Land Protection Programs: What Economic Studies Have to Say – Cynthia Nickerson, USDA, Economic Research Service

State and local governments, land trusts, and other non-governmental organizations have implemented programs to slow the conversion of agricultural lands to other uses. Several of these programs seek to protect farm or ranch land directly, such as by purchasing rights to develop the land (Purchase Development Rights programs), by using regulatory means to establish farming as a preferred land use (agricultural zoning), or by raising landowner incomes and land values through reductions in

property taxes (preferential tax programs that assess farmland based on agricultural use value). Still other programs indirectly protect agricultural land by controlling the pace and pattern of development (e.g., through impact fees, adequate public facilities ordinances, or similar measures). This presentation summarizes the findings of research on the effectiveness of programs, such as Purchase of Development Rights, agricultural zoning, and preferential taxation, that directly attempt to protect farm and ranch land. It does not evaluate whether the programs themselves, or the goals of the programs, are right or wrong.

Measuring Program Effectiveness. Farmland protection programs often have multiple goals. These include slowing the rate of farm and ranch land conversion, protecting prime soils, preserving agricultural land in large blocks, and providing income support to farmers. Because nearly all farmland protection programs share the goal of slowing farmland conversions – of farmland in general, or farmland with unique soils or other resources – this presentation summarizes what researchers have concluded about how well programs achieve this particular goal. By measuring effectiveness against existing goals we do not necessarily learn whether the programs are *efficient* or not; that is, whether they maximize the benefits obtained per public dollar spent.

Preferential tax assessment. Preferential tax assessment programs have been studied in the Mid-Atlantic states, the Northeast US, Michigan, and Sacramento County, California. In many places where these programs are in place, they do appear to slow farmland conversions. However, it also appears that at least in some places the effect is small and is counteracted by other forces such as capital gains, interest rates, and appreciation in land values. Even a study of New York's agricultural district program, which bolsters its use value taxation with several development-inhibiting features, concluded that the state's program was not likely to have any discernable effect on development patterns.

Agricultural Zoning. Several empirical studies examine the effects of agricultural zoning on land values. In general, they find that agricultural zoning lowers land values, at least in places where the zoned density is sufficiently low. One study found differing effects of exclusive agricultural zoning depending on location: it was found to increase land values for farmland parcels somewhat removed from urban areas, but to decrease values for locations closer to urban areas. Although lower land values can be expected to slow conversion rates, it is difficult to tell by how much and how quickly the effect occurs. A study in Illinois showed that it may take some time for a zoning change to have a significant impact on the local land market.

Oregon's land use planning program combines the use of urban growth boundaries and exclusive agricultural zones to protect farmland. One study found that the program has concentrated development within urban growth boundaries. Outside urban growth boundaries, though, the likelihood of conversion of land in exclusive farm use zones has not been significantly reduced. The authors of this study suggested that this finding could be due to individuals buying land in those zones for rural residences or second homes, or they were unable to detect a change in development patterns because little development was occurring before the land use law was enacted.

Purchase of Development Rights. The effectiveness of Purchase of Development Right programs on slowing farmland conversion rates has been studied less than other farmland protection programs. The findings of this limited body of research suggest these programs have had little effect on conversion rates of farmland. However, two studies found evidence that highly productive agricultural soils are likely to be preserved sooner in Maryland's state Purchase of Development Right program, which implies the program may be successful at slowing conversion of 'prime' farmland. One study also found evidence that one county's Purchase of Development Right program can increase conversion rates in neighboring counties that have more highways, but not in all time periods. Another study using Maryland data found that market-like Transfer of Development Right programs were less effective at preserving farmland than were Purchase of Development Right programs.

Conclusions. Overall, studies that have investigated whether farmland protection programs slow the conversion of farmland to developed uses suggest they may affect conversion rates, but they do not provide consistent evidence that they do in all places at all times. The limited evidence on PDR program effects on conversion rates is not promising, and may suggest that jurisdictions give higher priority to other program goals. Jurisdictions may need to alter parcel selection priorities in PDR programs, or combine different types of farmland protection programs, to achieve significant reductions in development rates of farmland.

2.5 Taking it to the Next Level: Information Requirements and the Political Challenges for the Future of Smart Growth, Parris Glendening, Smart Growth Leadership Institute (NOTE: this summary was written by proceedings editor Charles Abdalla.)

Time is not on our side. We must urgently address the loss of open space and the deterioration of urban areas and communities. Among the many alarming developments are the facts that the average household size is getting smaller while the average lot size is getting bigger in Maryland and most states. Maps developed by the Maryland Department of Planning illustrate parcel by parcel development over the last 100 years. These sprawling development patterns have occurred because the development playing field is tilted to support – even subsidize – sprawl. For example, the GI Bill and construction of the interstate highway system in the 1940s and 1950s were public policies that encouraged single-family home purchases and reliance on the automobile. Afterwards rapid suburbanization occurred and sprawling land use patterns emerged.

In the process of moving out of the cities, we overlooked a number of things: the natural resource impacts, including on the beauty of the country-side, abandonment of cities, increased congestion and the higher infrastructure costs resulting from sprawl paid by taxpayers. One major result of the outward migration is the growing recognition of the need for better-planned growth.

Smart Growth is about redirecting our economic energy back into our communities. It requires changing the rules, the regulations, and the tax structure to encourage infill development and re-use of abandoned buildings.

Original proposed site for social services center located five miles from downtown Easton, Maryland. Most of the center's clients did not have the transportation needed to reach this site.



Photos courtesy P. Glendening



Solving two problems at once in a smaller community: Abandoned natural gas plant site actually used to replace a social services center that had outgrown its capacity, adjacent to downtown area of Easton, on Maryland's Eastern Shore.

Regardless of where you reside, improved state land use policies are needed. By focusing at the state level, local governments and regions have a much better chance to plan for growth. In Maryland, the Smart Growth and Neighborhood Conservation Initiative began in 1997. Smart Growth is not meant to stop or even slow growth. Instead, it attempts to channel growth into existing communities and designated growth areas. Our goals for this program were: to protect and enhance existing towns and cities; identify and protect the best remaining farms and natural areas; and save taxpayer funds from the higher infrastructure and public service provision costs associated with sprawl. Moreover, what we said in our smart growth initiative was that the state would no longer pay developers, local government or anyone else to subsidize sprawl. The burden will be on these entities to show why they are driving up the costs of a development project. Alternately, they can invest in existing communities, partner with the state or be guided by new incentives toward better development patterns.

Our initiative designated existing incorporated municipalities and heavily developed urban areas as Smart Growth areas. In addition, counties within the state may

designate priority funding areas as long as these areas meet minimum state criteria, such as existence of public water and sewer or minimum density (3.5 residential units per acre).

Even before Smart Growth legislation, a number of land preservation programs were in place in Maryland. These included: the Conservation Reserve Enhancement Program (CREP), which the USDA has committed over \$200 million to provide incentives to farmers for reduce runoff, sediments and nutrients.

We are losing 50 acres of farmland every hour! In addition to the open space programs, Maryland has Greenprint and Rural Legacy programs. Greenprint grew from efforts to establish an agricultural belt around Maryland's upper Eastern Shore. A companion to Smart Growth legislation, called our Rural Legacy program, invited landowners, local governments, and land trusts to apply for state funds to permanently protect large contiguous undeveloped land tracts. Land targeted for protection included farms and forests threatened by development, buffers along water bodies, and cultural areas.

Collectively, Maryland's land preservation programs protected more than 310,000 acres of land from 1994 – 2002. This is more than one quarter of all land ever protected in the state. From 1998 – 2003, Maryland permanently preserved more land than was lost to development.

We cannot rest on our accomplishments. Growth is going to come to us regardless. And no state can afford to stop sprawl through easements or land purchases. The population of Maryland is expected to increase by one million by 2020. If that growth is not planned for, we are going to lose natural resources and overload our infrastructure.

Governments can help address the monumental challenges ahead by leading by example. For instance, they can locate buildings where people already are and resources can be saved by not having to make new investments in infrastructure. Similarly, rail and bus lines can be placed to allow workers to get to their jobs faster and more cheaply. And businesses must be located where jobs are most needed.

In Maryland, we have learned that tackling land development issues requires “leveling the playing field” with incentives so that local governments choose Smart Growth and infill redevelopment over sprawl. In the years following enactment of the Smart Growth and Neighborhood Conservation Initiative, programs with new incentives were added that: encouraged infill and redevelopment; helped employees buy homes near their jobs; gave developers tax credits to re-use existing structures, use transportation programs to help communities improve main streets. Maryland also used highway funds to invest wisely in appropriate highway development and mass transit and has a very successful voluntary Brownfields clean-up program. The ultimate goal of all of these tools is to encourage economic development in order to redevelop and revitalize downtown areas.

It is not possible to discuss smart growth without speaking of both design and density. When we speak of revitalization, infill and redevelopment, we must begin with better design. Planners, architects, and developers have been very helpful in

showing ways to build with density that is beautiful, convenient and appropriate to a neighborhood. Density, design and mixed use development must go hand in hand, both economically and socially.

Making use of existing buildings required a revision of Maryland's Building Rehabilitation Code. Outdated codes often prevent us from creating attractive and livable communities. Tax structures, zoning and building codes must be reviewed to filter out those parts that discourage infill development, and encourages higher density mixed used development.

Our patterns of land development have been 60 years in the making. A whole generation now knows only suburban sprawl. To overcome this inertia, we must develop a new culture, a new ethos, about land use. To achieve this we need to change the thinking of the next generation.

These efforts – policy initiatives, shifting state budget priorities, new overall approaches, and a new ethos – are having a dramatic effect on land use in Maryland and nation-wide. Most importantly, it must be recognized that there is no one “cure all” and that efforts to increase the quality of life must go hand in hand with efforts to increase economic prosperity.

2.6 A Mid-point Summary and Assessment of the Workshop – Lawrence W. Libby, The Ohio State University

This workshop brings together a unique mix of participants in the land policy community or “power cluster.” They include: specialists who measure farm and forestland amenity services; policy analysts interested in the use of non-market amenity measures in public decisions; managers of governmental programs that purchase agricultural easements; consultants; and farmers. Each participant group in the cluster plays a different role in the process and works with different reward systems and priorities. The workshop's value was a direct result of the mix of perspectives brought to the table and the networking.

The workshop's goal is to improve returns to public funds dedicated to the purchase of farm and forestland easements by improving information on how people value the services of those lands. Given limited public funds, program managers must acquire the land rights that yield the greatest net value to society. These lands provide many services – they are multi-functional – and people value may these services but are unable to purchase them in a market. Economists have estimated non-market values and we seek ways to bring that information into policy.

Observations from the Background Papers. The workshop started with presentations to put all participants on an even footing on the basics of farmland protection policy. First was an overview of the Federal, state and local experience with US farmland protection policy. While no coherent national farmland protection policy exists, the state and local programs are extensive and diverse. Improved documentation of policy results is needed to aid learning and make progress. The second paper examined the evidence of policy effectiveness. Studies reveal that rural zoning and easement purchase programs do decrease conversion of open lands, while special tax programs on open land just delay the development process.

Whether these programs really redirect the development pattern, however, is less clear. The third background paper focused on measurement of the amenity services of farmland. It reviewed the extensive literature on what people are willing to pay, or *would* be willing to pay if given the chance, for the openness of farmland. This discussion of the economic value of open land services is a point of departure for the workshop theme of including such information in farmland easement acquisition programs and in overall land use planning.

The opening session ended with presentation of a “straw man” framework for workshop participants to consider in designing a robust policy tool with the information, including the value of amenity services, necessary for program managers to select among land parcels in achieving highest returns to the public dollar. This “point of departure” for regional work sessions was distilled from several indices currently used at the Federal and state levels.

Insights from the Regional Break-out Sessions. Several conclusions may be drawn from the reports of program managers, consultants, conservation groups and academics meeting in three regional groups – east, central and western. Their assignment was to consider the straw man ranking tool and suggest changes.

First, and most important, was the consistent message from the three groups that *no national index for ranking land parcels was possible, or even desirable*. Participants felt conditions are too variable from place to place. The natural features and land types differ strikingly among the regions, and therefore the qualities sought in land to be protected are too diverse to fit within a single policy tool. And the policy environments, including the meaning of terms and policy goals, vary as well. Program managers from all regions noted that terms used to sell a program to voters are very different from the criteria needed to set priority on parcels to protect. For example, food supply and security is a policy goal that motivates support for farmland protection programs, but seldom translates into criteria for choosing among parcels. Soils and land quality are key in the Federal Farm and Range Land Protection Program, and are important for all state programs. But for individual state and local efforts, soil quality may in fact be considered less important than other criteria. For example, productivity of land is a function of technology and soils and property rights considerations are key of farmers are to support and engage farmland protection. Moreover, the regional groups agreed that program criteria must be specific to needs unique to a place and the Federal government give up trying to design a national framework.

Second, *even if all regions could agree on a set of factors or characteristics for a national index, there is no single national set of priorities or weights*. There was some resistance to trying to quantify all factors that distinguish one land parcel from another. There was little agreement on weighting even *within* the regional groups. There was of course no suggestion that the Federal agencies should or could run state and local programs, but the historical suspicion among levels of government on land use matters was revisited at this workshop.

Each regional group surfaced the general idea that “Washington seems to be trying to sell a particular framework and weighting scheme for selecting farm and range land parcels for protection programs.” They did not differentiate clearly among

USDA agencies or programs in that expression of concern. Workshop organizers from academia and government reassured all that no such effort to sell a certain scheme was involved.

Third, reports from the regional groups indicated *ambivalence as to whether farmland protection programs are about saving land or farm enterprises*. There was general agreement that the land is the base resource, passing through generations of farm operators. On the other hand, good land without a farmer does not constitute a farm. Part of the question turns on whether the business of operating a farm generates social benefit beyond the commodities produced, or whether those amenity values are attached only to the land itself and farming as a land use is not essential to those benefits. Farmland protection programs do consider gross farm income, farm estate planning, and the notion of a “critical mass” of farmed land, as the basis for an agricultural industry in setting priorities for easement acquisition. These programs articulate a public interest in securing the amenity services of actively farmed land.

A **fourth** conclusion from the regional groups was that *the particular funding source will affect the priorities on land parcels acquired*. Several state and local program managers were frustrated with the changes in USDA guidelines, including soil quality and proportion of impervious surface in an application parcel, that accompany Federal funds for easement purchase programs. Purchase programs that rely on local or state funding have their own limitations and priorities. The constituencies vary with governmental level and agency within a level and their preferences will inevitably be reflected in program rules.

Elements of the Framework for Choosing Priority Parcels of Farmland. The regional discussion groups each dealt with elements of the “straw man” framework for setting priorities on farmland to be protected. Afterwards, little consensus emerged on which elements should be retained, which added or eliminated, and weighting on each. All agreed that the biggest operational challenge was consistent and defensible measurement methodology. The elements discussed were:

Agricultural Productivity. There was general agreement that soil productivity needed to be part of all farmland protection priority schemes, but little agreement on weight relative to other factors.

Sustainable Agricultural Economy. This criterion brings farm viability as an important consideration. The notion of a critical mass of farming activity, size of parcel, contiguity with other preserved land, and economic returns to farming in the community are involved. Sustainability of farming also includes management skill of the operator. Indicators for this variable will differ by type of farm. Viability will often depend on the availability of off-farm employment.

Preserving the Rural Heritage. Farming can be part of the identity and character of many rural areas. This criterion may be wrapped closely with some programs’ goal of “saving the family farm.” Measuring this criterion and weighting it relative to other criteria will be a matter for state or local debate, and is increasingly important for Federal dollars.

Ecological Services. The capacity of various farmland parcels to generate or retain ecological functions is important in some states, less so in others. There has been good work on measuring the extent and value of these services for some lands.

Growth Management. Some local program managers say that using growth management as a rationale for farmland retention could kill those programs. It can be a politically sensitive criterion for selecting parcels for acquisition. In other places, however, people will support farmland preservation *because* it can direct growth away from important open lands.

Scenic Amenities. There will be little agreement on how important these services are compared to others. Non-market measurement research has contributed to this area by answering these questions: what are the attributes of farmed land that are valued by the public as part of rural scenery, which attributes are more important than others, and how much are they valued? Qualitative indicators of what landscape characteristics people prefer, from focus groups, advisory groups, hearings, testimony on legislative initiatives, and other sources, can contribute to decisions as well.

Recreational Opportunities. Farms can offer people the chance to experience farming activity, recreate, or view wildlife. These contacts between farm and non-farm people improve understanding at the rural-urban fringe. Not all farms and farmland have recreation potential and perhaps ability to offer such services should be considered in the framework for choosing parcels in a farmland protection program.

Fiscal Impacts. This element of a program framework refers to the costs and benefits of removing certain parcels from the supply of developable land and keeping them in farming. Workshop participants agreed that attention to the expected fiscal effects of permanently removing development potential should play some role in comparing parcels for farmland protection.

Consistency With Local Policy. This item was added to the strawman framework to express the importance of considering land use priorities established by local planning and zoning when choosing parcels for permanent conservation easements.

Proximity to Other Protected Land. Location of a parcel relative to other farmland already protected, or open lands protected for other purposes, was added to the framework by all of the regional groups. By protecting larger areas of farmland, the possibility of sustaining an active agricultural industry would be increased.

LESA. The Land Evaluation/Site Assessment framework developed by the Natural Resources Conservation Service (NRCS) considers soil suitability for various uses with local preferences for land use patterns. It is already part of the decision framework in many state and local programs. Recently, LESA was computerized for use a geographic information system (GIS) that allows examination of implications of environmental and demographic factors in relation to soil properties over a landscape in a visual way that helps set land use priorities.

Next Steps. The final discussion at this mid-workshop point dealt with how to advance the findings of the regional groups by assisting policymakers considering

farmland protection programs. The goal is to help state and local leaders understand:

- * the history and rationale cited for farmland protection,
- * the multi-functional nature of farmland, the kinds of decision tools available,
- * the criteria being used to choose among farmland parcels, and
- * the indicators of preference and value revealed by social science research.

To meet this goal, an educational brochure will be developed for national distribution both electronically and in hard copy for use in public meetings.

2.7 Farmland Preservation Planning in Local Land Use Planning: Costs, Planning and Effectiveness – Tom Daniels, University of Pennsylvania

Farmland preservation experts agree that the purchase of development rights alone cannot protect farmland over the long term. While farm profitability is key, a land use regulatory framework is needed. Its purpose would be to re-enforce the purchase of development rights and to protect valuable farmland for which there are not enough funds to buy development rights. Without a strong regulatory framework to protect farmland, farmland preservation programs run the risk of preserving bits and pieces of farmland that then are vulnerable to being surrounded by non-farm uses. And such land development patterns give rise to conflicts between farmers and non-farm neighbors. These outcomes can defeat the purpose of preserving the farmland in the first place.

The most successful county farmland preservation programs have five critical ingredients. First, these counties have active commercial agriculture that is generating more than \$50 million a year in the sale of farm products. In other words, there is an agricultural industry worth saving. Second, the most successful counties have done careful land use planning, indicating where development should or should not go. Beyond just drafting a comprehensive plan, these counties have adopted strong zoning ordinances to tightly limit the amount of non-farm development allowed in the countryside. In short, protecting the farmland base has driven the county's overall land use planning effort. Third, these counties have put in place "urban growth boundaries." These boundaries set limits on the extension of public sewer, water, highways, and schools over a 20-year period or longer. Fourth, the successful counties have each preserved more than 30,000 acres of farmland so far and have the potential to add many more acres. Fifth, the land use planning and farmland protection and preservation techniques form a coordinated package of policy tools.

So clearly there are important benefits from integrating farmland preservation into local planning. From a practical standpoint, how can this integration be accomplished? First, there must be leadership and some support from farmers. Second, a strong outreach and educational effort is needed to inform the public and politicians about the importance of local agriculture, farm support businesses, and the reasons to maintain farmland. Third, farmland protection and preservation must be stated as goals and objectives in the local comprehensive plan. The plan should

also discuss the importance of the farming industry to the local community. Fourth, money is required. Put farmland preservation to a vote, either by the elected officials or the public. When farmland preservation becomes a political campaign, you have to demonstrate the net fiscal benefits of farmland preservation over development, not just the aesthetic superiority.

Fifth, valuable farm land in important locations must be preserved. Land preservation is its own advertising. If you can get the leading farmers in the community to participate, many other farmers will follow. Sixth, agricultural zoning is not a prerequisite for farmland preservation. But sooner or later, agricultural zoning will be needed. Seventh, agricultural economic development must be tied in since the profitability of farming is key. Farming is a business and needs to change and adapt with changing times and technologies. Eighth, building trust between farmers and local government is essential. Also, increasing trust between local government and private land trusts is important to make farmland preservation a Public-Private partnership. And building trust between local government and citizens is important because the citizens as voters and taxpayers are a major funding source.

2.8 The Farm and Ranch Lands Protection Program: Partnering with State and Local Entities – Denise Coleman, Natural Resources Conservation Service, USDA

The purpose of the Farm and Ranch Lands Protection Program (FRPP) is to partner with state, tribal and local governments or nongovernmental organizations to purchase permanent conservation easements for the purpose of protecting topsoil by limiting nonagricultural uses of the land. The purpose, protecting topsoil, shapes the way the Federal program's easements are drafted and the program is implemented.

The 2002 Farm Bill changed the scope of the FRPP and in many ways changed the way the program operated. The following five points summarize the major changes. First, to be eligible for FRPP funding, farms and ranches must be privately owned and contain at least 50% of prime, unique, or statewide or locally important soil, or a historical or archaeological resource, listed on the National or State Register or formally determined eligible for inclusion on the National Register. Second, eligible land must be owned by landowners who certify that their Adjusted Gross Income does not exceed \$2.5 million. A waiver is granted to those landowners who derive 75% or more of their income from agricultural operations. Third, aside from eligibility requirements, the statute required appraisals be conducted on the property and a conservation plan be developed on all highly erodible lands enrolled under the Federal program. Fourth, the 2002 Farm Bill permitted that landowner donations up to 25% may count towards a cooperating entity's matching offer. Finally, non-governmental organizations, such as land trusts, are eligible to participate.

Since its inception in 1996, the FRPP has been popular with state and local governmental entities. The inclusion of nongovernmental organizations, such as land trusts, as eligible entities has doubled the number of states participating (Figure 1).

Since the 2002 Farm Bill, a final rule outlining FRPP policy and procedures has been published (7 CFR 1491). Also, several internal and external audits of the program have been conducted. The audits found that more oversight by the Natural

Resources Conservation Service was needed of the program in the areas of appraisals, title review, conservation easements, and cooperative agreements. As a result, new policy guidance was released.

The release of the final rule and audits outlined the following roles for the Federal government in FRPP. Working in partnership with cooperating entities, the Federal government must assure

in acquiring a right in the property that: 1) the land meets statutory eligibility requirements and is free and clear of title encumbrances; 2) the landowner is aware of the appraised fair market value of the conservation easement, eligible to receive US Department of Agriculture benefits; and develops and implements a conservation plan; and 3) the easement protects the topsoil, allows for the soils to be farmed for perpetuity, and is managed for perpetuity.

The role of state and local farmland protection programs, partnering with the Natural Resources Conservation Service through the FRPP, is to: 1) assist the NRCS State Conservationist in the selection of parcels; 2) provide the matching funds; 3) assist in developing Federal program ranking criteria to select parcels, as a member of the State Technical Committee; and 4) monitor and enforce conservation easements.

Interested organizations may help develop FRPP ranking criteria for selecting parcels through participation on the State Technical Committee. Up to 50% of the weight placed on selecting parcels may be based on criteria developed at the state level. Examples of criteria used by states include: proximity of parcel to other protected clusters and/or agricultural infrastructure, history of an eligible entity's commitment to assisting beginning farmers and ranchers, existence of a parcel in an agriculturally zoned area, or ability of the parcel to provide additional socioeconomic and cultural benefits. Additional socioeconomic benefits include, but are not limited to, migratory flyway proximity, priority water quality stream designations, and scenic designations.

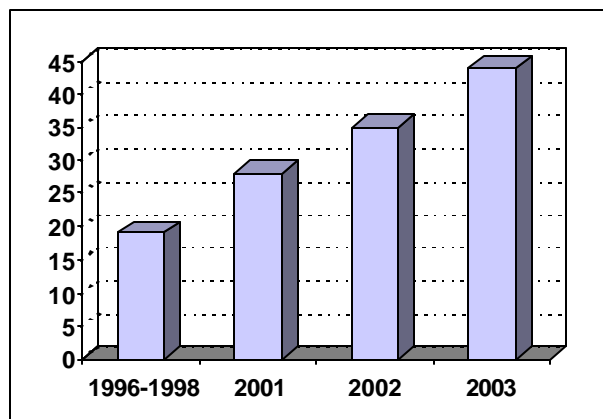
Additional information on the Farm and Ranch Lands Protection Program is available at: <http://www.nrcs.usda.gov/programs/frpp/>

III. Towards a Research Agenda

3.1 *Informing Future Farmland Preservation Efforts: Issues Germane to the West and Elsewhere* – Donald McLeod, University of Wyoming/USDA-CSREES

Land use policy requires invoking the necessity of issue identification and remedy development that are relevant to the respective locale. The western US offers unique challenges for farmland preservation that can generally be characterized as a matter of the public and private land interface. Some regional perspective is

Figure 1 – Number of States Participating in Farm and Ranch Lands Protection Program



provided here pertaining largely to the Great Basin and Intermountain portion of the western US. Research and policy questions are posed with relevance to land use and resource management in the western US.

Undeveloped agricultural lands offer private and public benefits. They provide food and fiber, contribute to local economies, and provide linkages to processing and marketing sectors. They also provide working landscapes, family farms, environmental services and aesthetic values. These various benefits from undeveloped farmland are referred to as its multifunctionality. Several research opportunities relate to maintaining agricultural multifunctionality or farmland amenity preservation.

Farmland Preservation and Related Issues in the West

The extent of public lands, type and scale of agriculture, the type of development and the rural/urban interface differ in the West compared to the places where much previous research on farmland preservation has been conducted (e.g., the Northeast US and Mid-Atlantic states). The West has vast amounts of public land, generally low production per acre compared to other regions, small towns distant from each other and is generally arid. It may have low state-wide population densities, such as in Nevada and Wyoming. The region, however, is experiencing high population growth in comparison to other regions. Growth rates within states vary widely across amenity-rich counties. Rural home and second home construction growth rates are relatively high throughout the region. Owner/operators of farmland in many states are on average aging while experiencing volatility in economic returns. Amenities associated with public lands as well as private lands are being impacted nationwide as rural lands are coming under development pressure.

Often development issues revolve around natural resource management concerns (McLeod et al., 2003; Rosenberger, 1998). Evidence from land use preference surveys in Wyoming and Colorado indicate the following:

- Preferences for working landscapes,
- The importance of preserving wildlife, recreational opportunities, and water quality and availability, and
- Concerns for water conflicts and limited public lands access.

These amenities are important in other regions of the US but with some slight differences. Each is elaborated upon below.

Wildland Fire and the Public/Private Interface

Millions of dollars are spent on fire fighting annually even as lives and homes are lost. Development is occurring rapidly at the wildland and urban interface. Resources are divided between fire preparedness and fire fighting, largely for protection of existing structures. The following questions have research relevance:

- Who is prepared to bear the liability for damages when people move to a hazardous location?
- What will damage reduction to residential structures cost?
- Are there strategies for internalizing the cost of damages to those who elect to move to the hazard (akin to federal flood insurance)?
- Has land use planning and/or farmland preservation programs contributed to reduction in forest fire damages?

- What is the value of agricultural lands as a resource buffer between wildland fires and rural home developments?
- What kinds of penalties, compensation or other mechanisms, such as land use planning and/or compensation to farmland operators who bear the impact of adjacent wildlands fires, will reduce damages?

Farmland may offer a cost-efficient means to deal with public/private wildfire damages management issues.

Negative Human/Wildlife Interactions

Wildlife is valued for a variety of uses and nonuses. Land fragmentation creates management problems and potential losses to those who manage and value wildlife resources. Fragmentation, when occurring near waterways or public lands, can create habitat islands.

- It is important to consider the potential management conflicts and associated transactions costs for agencies dealing with multiple land owners.
- It is also important to consider the contribution that wildlife resources make to local and regional economies.

Farmland can offer blocks of buffers between public land wildlife habitat and rural residential development. It may also provide land connections (migration routes) between different (seasonal) habitat components as well as private lands habitat. These buffers, connected lands, and on-site habitat may offer a cost-efficient means to deal with public/private wildlife management issues. Wildlife-friendly development design and home location may also provide partial remedies.

Access to Public Land Resources

Exurban development is occurring beyond the suburbs that border metropolitan or even incorporated areas. This typically large parcel “ranchette style” of land parcelization has many diverse impacts. Implications for research include the following:

- Exurban distant development may provide backside pressure in addition to that extending from towns and incorporated areas. How does this impact farm viability (e.g., farm recreation enterprises occurring on public lands)?
- Public lands grazers denied public grazing may feel more financial pressure to develop their private (deeded) ranch properties. What would be the impact on ranch land development, and associated amenities, if grazing leases are retired?
- Access is an important issue in conservation easement establishment and public lands management. One potential outcome of exurban development is that lands adjacent to National Parks, Forests and Scenic Rivers may be developed and exclusionary (trespass) management employed. If these lands are developed, then to what extent are benefits from recreating in these areas diminished? What are the public/private land management linkages as they pertain to recreation?
- Drilling and extraction for US energy needs may impact farmland amenities. What amenity tradeoffs may occur? What management challenges and solutions exist?

Water Conflicts

Water scarcity and increasing development has led to multi-dimensional conflicts among farmland water users and other interests (e.g., the Klamath Basin, Colorado River, and Platte River). De-irrigation of farmland (water rights sold and disconnected from other parcel property rights) is occurring. Several potential ramifications relevant to amenity preservation include the following:

- Laramie Plains and other wetlands in the west have been augmented by irrigation waters via conveyance and/or runoff. The no net wetland loss policy goal may compete with the call for in-stream flows for Endangered Species Act purposes. Fragmentary flows or un-consumed waters from farmlands may supplement in-stream flows demanded for water recreation and river habitat. How does the increase of residential interests complicate this management situation?
- Nonpoint source surface as well as groundwater pollution tradeoffs are implied between *farm runoff* (depending on input and cropping intensity as well as conservation activities), *energy extraction* and *residential effluent* as more hard surfaces and household/yard care/automotive chemicals as well as lightly regulated septic systems occur.
- Water may be a development constraint. Given fully appropriated Western water rights, what does water scarcity mean for farmland operations and associated levels of amenities?
- A full cost and benefit accounting of water consumption/effluent effects by use and location is needed.

Farmland Preservation – Part of the Solution

The theme arising from these four issues is that intact agricultural lands may be a cost saving means by which to address important resource management issues for the public benefit. Research is needed to determine the locations and types of agricultural lands, target those important lands, and determine a least cost compensation approach for resource management needs.

A Proposed Research Agenda

A set of questions is proposed for a research agenda with relevance to land use and resource management for the West and other regions of the US. The questions are organized into five broad areas: Baseline Conditions; Land Types and Location; Establishing Farmland Preservation Priorities; Program Provision; and Institutional Capacity. The questions pertain both to proposed research as well as to policy tasks.

Baseline Conditions

The following are key categories of information that should be considered to understand better the benchmark or current conditions where farmland amenities are at risk:

- What are the current growth management strategies?
- How are these strategies implemented?
- What indicators of rural growth and change might be pursued or developed?
- What are the opportunities for profitable farmland management?

- What are the relevant forecasts of future growth and change?
- How might simulation of change help communities and landowners get a sense of potential alternative growth paths and outcomes?

Land Types and Location

Developing a common language about farmland amenities should facilitate a better comprehension of trends and remedies.

- Spatial analysis is critical in indicating where land and water features occur. These efforts are important in defining how scenic views, watershed extent or whitetail deer habitat are measured. What are the appropriate universally recognized spatial unit measures for various amenity types?
- What is the appropriate distance to gauge relevant effects of parcel level land use changes?
- What is the appropriate spatial scale for a farmland amenity preservation program?
- How can spatial data be made more readily available for spatial analysis?

Establishing Farmland Preservation Priorities

This workshop has provided insights into how to think about identifying and quantifying which farmland amenities should be valued. There is a generation-old and growing body of literature on how farmland amenities are valued by the public (see Bergstrom and Ready, 2004; Hellerstein et al., 2003 for example). The tool used for amenity valuation and for policy alternatives depends on the land use and amenity preservation objectives to be addressed. Randall (2002) as well as Turner et al. (2003) offer strategies to develop improved environmental amenity benefits estimates.

- What advances have been made recently in valuation techniques?
- Estimating the benefit of amenities is expensive and time-consuming.
- How might values estimated in one place be applied in another (e.g., development of functional benefit transfers approaches)?
- How can tradeoffs be operationalized when choices are required between groups of amenities?

Program Provision

Amenity quantity or intensity and location are critical to determining the appropriate strategies to target amenity preservation efforts. The ability of existing institutions to grapple with land use issues and provide amenities the public desires is a key area for research. Given shrinking budgets, it is important to understand how to increase program effectiveness.

- Are there viable alternatives to property/sale/income tax mechanisms that could fund or provide compensation for amenity preservation programs?
- Are there forms of compensation in addition to cash payment and tax burden reduction that could appeal to farmland owners for program participation?
- Are cooperative solutions (among landowners and/or the public sector) possible? What mechanisms would provide for this? How?
- How might land use planning incorporate market incentives?

- Is it sensible to contemplate both “the carrot and the stick” approach for land preservation: rewards for doing the right thing; penalties otherwise?

Institutional Capacity

The details of program administration as well as the supporting educational and supporting institutions clearly influence the performance of policies.

- Is there a potential for program design(s) that includes cost savings?
- Private preservation efforts (Land Trusts) abound in the west and often exist where government efforts are incomplete (i.e., pent up supply of and demand for protection). To what extent are private efforts substitutes (competitors), complements and/or cooperators to public efforts?
- Do public conservation and preservation programs at different jurisdictional levels complement or compete with each other?
- What is the university system offering or could it be offering to practitioners?

Cataloguing and dissemination of what others (public and private) have learned is needed. Are there Cooperative Extension and/or Conservation District organizational, facilitation, and educational resources that would help address amenity preservation issues?

Summary of Research and Policy Tasks

Research Tasks

- Identify how ecosystems function, and their critical limits; this may be the important first step in prioritizing preservation efforts.
- Develop the ability to quantify the impacts of land use changes.
- Develop spatial analysis to generate policy-relevant research output.
- Find innovative ways to get researchers and practitioners to cooperate fundamentally to braid and not stack discipline specific approaches or perspectives.
- Improve benefit estimation techniques in order to provide a sense of the relations between sets of amenities as well as between individual resources.

Policy Tasks

- Develop land use planning as a framework to manage resources.
Purely voluntary participation may lead to mosaic or scattered development instead of managing for resources, as would *grouping of participants* via “cluster” rewards or restrictions as set out in a land use plan: rewards and penalties need to be researched.
- Find the means by which land trusts and public institutions, with current capacity, can leverage their resources into “bigger bang for the collective buck.”
- Are there alternative payment and compensation strategies besides
 - 1) public taxation and cash donation, as well as
 - 2) landowner tax breaks and cash payment?
- Numerous landowners would be excellent land stewards if they knew what responsibilities were expected of them by the public. How can individuals be motivated to do the right thing if they do not know what the right thing is?

Initial research outcomes and program provision do not adequately address the dynamic and intricate set of issues involving amenity preservation: efforts by all entities need to be related and ongoing.

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3.2 *Synthesis of Workshop Participant Input* – Stephan J. Goetz, The Northeast Regional Center for Rural Development, Charles Abdalla, The Pennsylvania State University, and Fen Hunt, Cooperative State Research, Education and Extension Service, USDA, with special thanks to Josh Duke, Joe Daubenmire, Frank Casey, Tom Daniels, Ralph Heimlich, J. Dixon Esseks, Mary C. Ahearn for their thoughtful comments provided on a draft of this synthesis.

Categories of Research Topics

1. Are we trying to save farmland or open space?

A useful line of inquiry would be, what practical differences are suggested between the two strategies? That is, what should local authorities do differently if saving farmland were the objective, versus saving open space?

2. Valuation Issues

- 2.1 Use "benefits transfers" valuation methods where necessary, or possible
- 2.2 Also need to consider aesthetics/non-economic values associated with farmland
- 2.3 Consider value-added and jobs created as a result of local farming activity
- 2.4 CAFOs (Concentrated Animal Feeding Operations) are valued differently than pastured cattle: analysts and practitioners need to be sensitive to scale issues
- 2.5 Farm equipment and buildings versus row crops; red silo versus blue; old vs. new barn: each is valued differently. How do we deal with this in practice?

2.6 What are the public finance costs and benefits of alternative land uses and programs?

2.7 Amenity of agriculture vs. disamenity (and benefit) of sub- and/or urbanization (need to also consider housing needs and environmental impacts of housing development – e.g., on water)

Additional research ideas: First, valuing the public benefit of ecosystem services provided by farms or ranches. These are non-market services that should be valued, especially if improved management practices lead to resource enhancements that have a public goods dimension. For example, Defenders is involved in two projects in Midwest farming areas (south-east Minnesota and mid-state Wisconsin) to value environmental goods being provided by farmers through alternative cropping systems and ecosystem restoration. Second, if producers are providing wildlife habitat for at-risk species, what is the public good value of that habitat and how can it be incorporated into incentive (easement or other) mechanisms?

One of the most useful things an organized research program could do in this area would be to promote standardization of approaches for doing and presenting valuation studies so that they can be summarized efficiently relative to one another and can more easily be encompassed in benefits transfer and meta-valuation studies. The natural tendency is for researchers to dream up ever more exotic “bells and whistles” to differentiate their studies from the pack in the competition for journal publication, which is exactly the wrong thing to do in developing a body of studies that have commonality that can be summarized and abstracted in benefits transfer and meta-valuation studies.

It is important to note that the differences between topics 2.1-2.5 and 2.6 and 2.7 are matters of accounting stance. Features in the landscape that may be valued by the public may nevertheless create negative fiscal impacts and may or may not exacerbate development disamenities.

I would recommend expanding point 2.7 (above). We need to understand better the values associated with amenities of agriculture and the disamenities of urban or developed uses. 2.7 also mentions that urban/developed uses may have benefits. This is important enough not to be parenthetical. My point (made in *Choices* magazine by G. Poe) is that we also need to understand the negative externalities associated with agricultural uses. These do vary with agricultural use, and given that parcel selection criteria favor certain uses, the net benefit or cost of agricultural land use is quite complex. It is important, nonetheless, for parcel selection. When I present my benefit estimates to nonacademic groups, they react quite negatively to my omitting the negative effects associated with agriculture and it is not persuasive to simply say – as I’ve heard many times – that though agricultural may be “bad,” say, for water quality, development is much worse. We need scientific evidence and measures!

3. Measurement Issues (physical vs. dollar values?)

3.1 Data collection needs are substantial

3.2 Parcels vs. whole working landscape: what is the appropriate unit for valuation?

3.3 Green payments to land owners: what gets counted and how?

Additional research ideas: This is an important topic because many of the economic studies that have been done have used dubious proxies for the impact of urbanization, such as change in population, change in property values, etc. None of these kinds of measures get at the fragmentation and disamenity created in the landscape by undesirable development patterns. We desperately need better measures of alternative development patterns that actually capture what is good and bad about development.

4. Land Use Dynamics and Impermanence

This needs to be enlarged into a topic focusing on what happens to agricultural enterprises in the face of development, not just the more limited notion of aggregate disinvestment. Some of the work done in USDA/ERS on metropolitan agriculture begins to get at the broader notion.

5. Program Design and Outreach (“process issues”)

- 5.1 How does one start a program from scratch, in communities with no prior history?
- 5.2 How may existing programs be refined to make them more effective?
- 5.3 What are the needs in terms of educating the public about these farmland-related programs?
- 5.4 How do we “market” the programs to different constituencies or stakeholders?
- 5.5 What alternatives exist to spending \$597 million of Federal taxpayer money (currently being spent on Federal farmland programs)?
- 5.6 Setting criteria and characteristics for parcel selection: how is this done objectively?
- 5.7 What are the experiences learned in various preservation models and from other countries?

Additional research ideas: There have been numerous case studies of “successful” and “unsuccessful” farmland preservation programs, individually, or on a comparative basis, but they have all failed to extract much in the way of useful lessons for newly emerging programs. Probably the most ignored “lessons” are when to begin growth management and farmland preservation programs (earlier than they usually get underway), the crucial need to integrate regulatory (zoning, growth control) and voluntary (PDR/TDR) approaches, and the potential role of state governments in guiding the efforts of localities in managing growth.

6. Operational Aspects

- 6.1 When is it enough land preserved, when is it too much?
- 6.2 When is it time to let a parcel “go”?
- 6.3 What difference, if any, does local as opposed to non-local ownership of the land make?
- 6.4 What happens when land comes out of a program; how are adjacent parcels impacted?

Additional research ideas: Many of these topics should be focused under an overarching concern with the goal of such programs since they are impossible to address without reference to goals. Far too many programs are launched with nebulous goals such as “preserving farmland” or “preserving 10,000 acres of

farmland” that don’t inform operational questions like those posed above. Realistic and useful goal setting for such programs is the first need in making the more mundane decisions workable.

7. Policy Issues

- 7.1 Public finance issues (who pays for the preservation of farmland?)
- 7.2 Purchase of conservation easement vs. rental payment: what are the relative costs and benefits to be considered?
- 7.3 Green payments for environmental services: how are these valued, implemented?
- 7.4 How can land preservation be combined with stewardship practices?
- 7.5 Opportunity costs of farm/ranch land not protected: how is that reflected in overall cost-benefit analyses?
- 7.6 Tradeoffs between agricultural viability and rural or environmental amenities: how are they handled?
- 7.7 What is the impact of world trade discussions (WTO – World Trade Organization) on farm/ranch land preservation?
- 7.8 What is the degree of compatibility among Federal farmland programs, and do any work at cross purposes with one another?
- 7.9 Public benefit vs. private land ownership: what are the legal and “institutional” (including taxation) issues?

Additional research ideas: This appears to be a catch-all category since most of the issues raised in these topic areas can be characterized as “policy issues.” Topics 7.1-7.5 and 7.9 seem to be concerned with financing and payment mechanisms and are all amenable to analysis using positive methods (i.e., what has been the experience in places that have tried these things?) and normative analysis (i.e., what differences between these approaches are we likely to see on a theoretical basis?).

Topics 7.6-7.8 deal with potential conflicts or complementarities between farmland preservation and other programmatic goals. One possible addition is the conflict between rural development programs and farmland preservation, which often merge into one another as rural counties come within the scope of outward metropolitan development.

Under 7.1, “Public Finance,” I recommend research that goes beyond the “costs of services” studies. They tend to compare the fiscal impacts of (1) no development by keeping the land in agricultural use to the consequences of (2) residential or other developed uses. Many or most of the households excluded from agricultural land in one part of the county or state will settle elsewhere in the jurisdiction and generate costs and revenues there. Therefore, I think that more realistic comparisons are among alternative sites for the same families seeking new home sites – probably upscale. One politically relevant comparison might be between (1) allowing large-lot home sites some distance from municipal boundaries and (2) locating the same households on somewhat smaller, but still upscale lots, within or right next to cities or towns.

I would like to see studies of how farms protected under conservation easements or other tools remain financially viable. It looks as though some protected parcels become just hobby farms. Others remain viable, but the development pressures in the

area are so weak that agri-businesses and other essential conditions for viability persist without much difficulty. I'd like to know how farming survives in areas that are approaching build-out or at least have had significant "impermanence syndrome" problems.

8. Program Performance, Effects, Impact

8.1 Focus on parcels vs. whole working landscapes or entire watersheds: what difference does it make?

8.2 What is the effect of preservation program on surrounding communities?

8.3 In what way do easement payments contribute to farm households (what is their relative importance for income)?

Additional research ideas: These topics cover only some of the potential performance criteria for a farmland preservation program. Perhaps a more comprehensive accounting of potential impacts should be developed and a standardized methodology, similar to that for valuation studies, espoused within which individual studies can be related to one another.

I would add the need to identify appropriate indicators to measure performance. Performance indicators are not only necessary at the program level, but also at the farm level, and should be physical as well as economic. For example, what indicators need to be measured in order to determine the impacts of a farmland conservation program on wildlife habitat, ecosystem services, etc.?

I believe that the benefits transfer topic under (topic 2) Valuation Issues is extremely important. This may have to be done on a regional basis and should include both the costs and benefits, public and private, of farm and ranchland conservation programs. More studies need to be done. Is there a meta-analysis research method for farmland similar to that used for wildlife species (Loomis and White's work)? If not, then some work in this area would be useful.

Other general comments from participants from the workshop's evaluations

Farmland preservation remains a national issue and one that is in need of further study as to the best way of going about the task.

Overall, I think the topics list is thorough. I want to clarify it is important for economists to do contingent valuation studies for farmland preservation programs that have been up and running. The public in these cases has a better understanding of what land preservation involves and generally what it may cost. I think it has been a leap of faith, and somewhat unrealistic for economists to do contingent valuation studies in places that do not have farmland preservation programs. I say this because I am well familiar with the misinformation about farmland preservation, some of it intentional by opponents to land preservation, some of it unintentional because of the intricacies that are involved, especially from the landowner's perspective.

There is another public finance issue that was not covered – that there should be correspondence between the beneficiaries of the public good and those who have the tax liability of providing it. Normally, this will vary by amenity. That is

because of the nature of public goods; they cannot be excludable or at least excludable for all in a specified population. For example, if the major amenity from farmland preservation is less traffic congestion in an area, then the beneficiaries of the program are those in the local area who have less traffic, and the program should be locally driven and financed by local taxes. Other public good amenities would have a different correspondence. This is a standard public finance principle, but is complicated for farmland because the land provides many different amenities, with differing beneficiaries. The policy issue here relates to the level of government that is financing it, too, as a matter of practicality.

Finally, there is a major process issue: What level of government should be providing funds and specifying criteria for farmland preservation? This was a strong undercurrent issue in the workshop. Some program managers were arguing for NRCS to establish a national advisory board, while others talked about establishing a national organization of program managers.

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