Appendix 1: Major Conservation Programs Related to Agriculture

USDA Programs

Agricultural Conservation Program—Initiated in 1936, ACP provided cost-sharing (up to $3,500 annually per farmer) and technical assistance to farmers who carried out approved conservation and environmental protection practices on agricultural land and farmsteads. During the past 20 years, outlays generally ran between $175 million and $200 million each year. The number of participants gradually declined from more than 300,000 annually in the mid-1970's to some 120,000 in the first half of the 1990's. Annual assistance per participant averaged approximately $1,600 from 1990 to 1994. Since the 1980s, an increasing amount and proportion of cost-sharing was directed to water quality practices. In 1994, 23 percent of ACP cost-sharing went for water quality practices, up from 7 percent in 1988. Authority for ACP terminated on October 1, 1996, when its functions were subsumed by EQIP.

Conservation Compliance, Sodbuster, and Swampbuster—Enacted through the Food Security Act of 1985. Farmers remain eligible for programs such as Commodity Credit Corporation price supports, CRP payments, farm storage facility loans, disaster payments, Federal Crop Insurance, and FmHA loans when they comply with measures of each. Conservation compliance requires those who farm highly erodible land (HEL) to implement a soil conservation plan. Sodbuster requires that HEL not being cropped have a conservation plan implemented if brought under production. Swampbuster requires farmers not to drain any wetland. All three provide water quality benefits, however, swampbuster also maintains wetland habitat.

Conservation Reserve Enhancement Program—CREP, authorized in the 1996 Farm Act and operated by FSA, is a State-Federal conservation partnership program targeted to address specific State and nationally significant water quality, soil erosion, and wildlife habitat issues related to agriculture. The program offers additional financial incentives beyond the CRP to encourage farmers and ranchers to enroll in 10-15 year contracts to retire land from production. CREP is funded through CCC.

Conservation Reserve Program—was initiated by Congress in Title XII of the Food Security Act of 1985, was extended by the Food, Agriculture, Conservation and Trade Act of 1990, and has been extended to 2002 by the Federal Agriculture Improvement and Reform Act of 1996. The CRP is a voluntary cropland retirement program with a maximum enrollment of 36.4 million acres. The program provides farmers an annual rental payment on land enrolled in a 10-15 year contract. Land is placed in a permanent cover. Parcels are selected based on the magnitude of the likely environmental gain relative to the rental payment. Environmental gains include habitat improvements, water quality impacts, soil productivity gains, air quality improvements, and carbon sequestration.

Conservation Technical Assistance—Since 1936, CTA, has provided technical assistance to farmers for planning and implementing soil and water conservation and water quality practices. Both farmers adopting practices under USDA conservation programs and other producers who ask for assistance in adopting approved NRCS practices can receive technical assistance. In recent years, CTA has prepared conservation plans for highly erodible lands to help farmers maintain eligibility for USDA program benefits.

Emergency Wetlands Reserve Program—The EWRP was established in 1993, using funds from the Emergency Watershed Protection Program authorized under emergency supplemental appropriations after the Midwest flood. The voluntary program helped landowners convert flood-damaged cropland to wetlands if the cost of the levee restoration and cropland renovation exceeded the value of the land. Approximately 89,500 acres have been enrolled in the EWRP through 1997 (Heimlich et al., 1998).

Environmental Quality Incentives Program—EQIP was established by the 1996 Farm Act to consolidate and better target the functions of the ACP, WQIP, GPCP, and Colorado River Basin Salinity Program. The objective of EQIP, like its predecessor programs, is to encourage farmers and ranchers to adopt practices that reduce environmental and resource problems by providing education, technical assistance, and financial assistance, targeted to watersheds, regions, or areas of special environmental sensitivity identified as priority areas. Contracts are for 5 to 10 years, and the annual payment limit is $10,000 per person, with a maximum of $50,000 per contract. In 1997, 56 percent of EQIP funds were allocated to water quality concerns, 23 percent to soil erosion, 11 percent to water quantity, and 4 percent to wildlife habitat (USDA, NRCS, 1998). EQIP is designed to consider all sources of conservation funding from CRP, WRP, other Federal programs, State or local programs, and nongovernmental partners. Proposed projects with greater funding from these sources receive more favorable scoring for EQIP funding.

Wildlife Habitat Incentives Program—The WHIP was created in 1996 to provide cost-sharing assistance to landowners for developing habitat for upland and wetland wildlife, threatened and endangered species, fish, and other types of wildlife. Participating landowners, with the assistance of the NRCS district office, develop plans that include schedules for installing wildlife habitat development practices and requirements for maintaining the habitat for the 5- or 10-year life of the agreement. Cost-share payments of up to 75 percent may be used to establish new practices, maintain or replace practices needed to meet the objectives of the program, and replace practices that fail for reasons beyond the landowner's control. Cooperating State wildlife agencies and nonprofit or private organizations may provide expertise or additional funding to help complete a project. About 90 percent of projects approved are for improvements to upland habitat, with the balance in riparian area, wetland, and aquatic improvements.

Water Quality Incentive Projects—The WQIP was created by the 1990 Food, Agriculture, Conservation and Trade Act, and was administered as an ACP practice. The goal of WQIP was to reduce agricultural pollutants through sound farm management practices that restore or enhance water resources compromised by agricultural nonpoint source pollution. Areas eligible for WQIP included: watersheds identified by States as being impaired by nonpoint source pollution under Section 319 of the Clean Water Act; areas identified by State agencies for environmental protection and so designated by the Governor; and areas where sinkholes conveyed runoff directly into ground water. A total of 242 projects were started during FY 1993-95. Eligible producers entered into 3- to 5-year agreements with USDA to implement approved management practices on their farms, as part of an overall water quality plan, in return for an incentive payment. In 1995, WQIP assistance was applied to over 800,000 acres. EQIP was consolidated into EQIP by the 1996 Farm Act.

Wetlands Reserve Program—Authorized by the Food, Agriculture, Conservation and Trade Act of 1990, the WRP provides an easement payment and covers wetland restoration costs for land permanently converted back to a wetland. As of July 2000, a total of 5,230 contracts had been accepted and over 915,000 acres enrolled (USDA, NRCS, 2000d). The WRP is primarily a habitat protection program but also serves as a water purification system.

Federal Programs Outside of USDA

Coastal Zone Act Reauthorization Amendments—CZARA, of 1990, added important nonpoint source water pollution requirements to the Coastal Zone Management Act. This is the first federally mandated program requiring specific measures to deal with agricultural nonpoint sources. CZARA requires that each of the 29 States and territories with an approved coastal zone management program submit to EPA and to the National Oceanic and Atmospheric Administration a program to "implement management measures for nonpoint source pollution to restore and protect coastal waters" (U.S. EPA, 1996). States can utilize voluntary incentives to get farmers to adopt economically achievable measures for controlling agricultural NPS pollution (education, technical assistance, and financial assistance) but must enforce adoption if voluntary approaches fail. Implementation of plans is not required to begin until 2004. In general, annual costs of CZARA management measures are estimated to be less than $5,000 per farm for most farm sizes (Heimlich and Barnard, 1995).

Endangered Species Act—The ESA of 1973 is the Nation's chief statute to conserve endangered or threatened species and their ecosystems. Farmers may not "take" a member of a species determined to be in danger of extinction. ("Take" is defined within the ESA as "to harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect" an endangered or threatened species or attempt to do so.) In some cases, habitat destruction might be prohibited under the ESA, or cropping practices or pesticide use may be restricted (Daugherty, 1997). More likely, farmers will be affected to the extent that they require a Federal permit (e.g., for filling wetlands) or depend on the use of Federal resources (e.g., irrigation water supplied by the Bureau of Reclamation or public grazing lands) because the agencies providing those services may be restricted from doing so by the act's requirement that Federal agencies help restore listed species.

Federal Insecticide, Fungicide, and Rodenticide Act—FIFRA of 1947 provides the legal basis under which pesticides are regulated. A pesticide can be restricted or banned if it poses unacceptable risks to human health or the environment. The re-registration process, mandated in 1988 for all active ingredients then on the market, has resulted in manufacturers' dropping many less profitable products rather than paying the registration fees.

Federal Water Pollution Control Act Amendments (Clean Water Act)—Enacted in 1972, the CWA has focused on reducing water quality impacts of point sources of pollution (factory discharge and municipal sewage). In recent years, attention has turned to nonpoint sources, primarily runoff from agricultural operations, and to an agricultural point source—confined animal feedlot operations (CAFO's). Currently, over 6,000 livestock operations are large enough to be classified as CAFO's under the Clean Water Act (EPA and USDA, 1998). The Clean Water Act requires that CAFO's obtain a permit to discharge. However, enforcement has been a problem, and many facilities lack permits (Westenbarger and Letson, 1995). To address nonpoint sources, EPA and USDA jointly developed a Clean Water Action Plan (CWAP), as requested by the White House. The initiatives of the CWAP, released in 1998, will bring better interagency coordination and cooperation to better farmers' efforts to address runoff problems in impaired watersheds.

Appendix 2: The U.S. Agricultural Sector Mathematical Programming Model (USMP)

Environmental and economic effects of various green payment program scenarios are derived as comparative static changes in the U.S. Regional Agricultural Sector Model (USMP). An agriculture sector spatial equilibrium model as described in McCarl and Spreen, USMP incorporates agricultural commodity supply, use, and policy measures (House). USMP has been applied to project the effects on U.S. national and regional agriculture of changes in export levels and variability (Miller et al.), trade agreements (Burfisher et al.), imports (Spinelli et al.), input taxes (Peters et al.), irrigation policy (Horner et al.), ethanol production (House et al.), wetlands policy (Heimlich et al., 1997a, Claassen et al., 1998), sustainable agriculture policy (Faeth), and various other policy and program scenarios.

USMP models production of 10 crops: corn, sorghum, oats, barley, wheat, rice, cotton, soybeans, hay, and silage. Sixteen primary livestock production enterprises are included, the principal being dairy, swine, beef cattle, and poultry. Coefficients in crop and livestock enterprise budgets were developed from USDA National Resources Inventory (NRI), Cropping Practices Survey (CPS), and Farm Costs and Returns Survey (FCRS) data. CPS and FCRS data are collected and analyzed by the Economic Research Service and National Agricultural Statistics Service of the U.S. Department of Agriculture. Several dozen processed and retail products are included in the model structure, the principal being dairy products, pork, fed and nonfed beef, poultry, soy meal and oil, livestock feeds, and corn milling products. Acreage, commodity supply/use, conservation reserve program acreage, prices, production practices, and so forth are validated exactly to USDA baseline projections for 2005 (USDA-WAOB) and corresponding geographic information. For example, USMP's base U.S. corn acreage planted in 2005 equals the USDA baseline projection and corn acreage in each model region/practice stratum is determined by share information from NRI and CPS regional data. On the demand side, domestic use, exports, ending stocks, and price levels for crop and livestock commodities and most processed or retail products are endogenously determined within the model structure with domestic consumption, commercial stock, export and other demand functions specified with elasticities from the FAPSIM econometric simulation model (Green and Price).

USMP models 45 regions and two soils within each region (highly erodible and non-highly erodible soil). For analysis of green payments, the primary strength of USMP lies in the specification of multiple combinations of crop rotations and production practices for each soil in each region. For example, in response to incentives for soil erosion reduction, producers may switch to rotations that include less erosive crops or increase residue cover through adoption of conservation tillage methods.

Appendix 3: Linking Environmental Indicators and ARMS data

Environmental indicators are linked spatially to farm-level economic data from ARMS. Environmental indicator values are averaged over space and assigned to counties using a geographic information system. ARMS data points located in a given county are associated to these average environmental indicators assigned to the county. This spatial association is valid to the extent that spatial variations in land resources and farms (e.g., variation in acreage, sales, crops, production practices) are interrelated. The development of ERS farm resource regions (the level at which results of our ARMS-environmental indicator link are reported) supports this assumption. Regions are based on relatively uniform farms and land resources, based on a cluster analysis of U.S. farm characteristics (Sommer and Hines, 1991), old USDA farm production regions, USDA land resource regions (USDA-SCS, 1981), and NASS crop reporting districts.

The distribution of farms by financial and income characteristics—used to define income support target groups and the ERS typology—is derived from data collected through USDA's Agricultural Resource Management Survey (ARMS) data. The ARMS is designed to capture the physical, financial, demographic, and managerial attributes of farm businesses and people engaged in farming. The survey is conducted annually by the Economic Research Service (ERS) and the National Agricultural Statistics Service (NASS).

Environmental indicator acreages for rainfall and wind erosion were estimated from the National Resource Inventory (NRI) point data files. NRI point data files are collected and maintained by the Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA) and contain detailed data on land use and condition, including estimates of rainfall and wind erosion, for each of more than 800,000 points nationwide. High-nitrogen-runoff acreage is estimated as cropland acreage in areas estimated by the SPARROW model (Smith et al., 1997) to have nitrogen yields (runoff per unit area of land) from commercial fertilizer application in excess of 1,000 kg/km^2/year.

Appendix 4: The ERS Farm Typology

Small Family Farms (sales less than $250,000)*

Limited-resource. Any small farm with gross sales less than $100,000, total farm assets less than $150,000, and total operator household income less than $20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.

Retirement. Small farms whose operators report they are retired (excludes limited-resource farms operated by retired farmers).

Residential/lifestyle. Small farms whose operators report a major occupation other than farming (excludes limited-resource farms with operators reporting a nonfarm major occupation).

Farming occupation, lower-sales. Small farms with sales less than $100,000 whose operators report farming as their major occupation (excludes limited-resource farms whose operators report farming as their major occupation).

Farming occupation, higher-sales. Small farms with sales between $100,000 and $249,999 whose operators report farming as their major occupation.

Other Farms

Large family farms. Farms with sales between $250,000 and $499,999.

Very large family farms. Farms with sales of $500,000 or more.

Nonfamily farms. Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

*The National Commission on Small Farms suggested the $250,000 cutoff for small farms.

Appendix 5: Two Indices for Targeting Nonmarket Impacts

Agriculture affects a wide variety of environmental resources including water, wildlife, and clean air, which, in turn, are important in producing a wide variety of environmental amenities or nonmarket goods and services including clean water for recreation, better bird watching, and healthy air to breath. People value improvements in environmental amenities.

It has long been understood that markets are not able to fully link those who supply improvements (in this case, the farmers) with those who benefit from the increase in amenities. Thus, without public action, individuals do not experience the level of environmental quality they would otherwise purchase.

What is the appropriate level of public action? One way to answer this question is to estimate the value that the public places on a change in the amenities and compare them with the associated costs of their provision through an agri-environmental program—much the same way consumers trade off costs and benefits.

In order to value changes in agricultural land use for policy analyses, both physical and economic relationships must be estimated. The fundamental steps involved in estimating the relationships relevant to valuing sediment and nitrogen impacts are:

1. the value the public places on an improvement in an environmental amenity;

➢ example: the value visitors place on a 10 percent increase in the clarity of beach water in August;

2. the change in the amenity associated with a change in sediment or nitrogen in the water;

➢ example: the change in clarity resulting from a 15 percent change in the water's sediment loading;

3. the change in sediment or nitrogen in the water due to a change in erosion or excess nitrogen on the field;

➢ example: the change in sediment loadings at a beach due to a 17 percent change in field erosion;

4. the change in erosion or excess nitrogen due to a change in agricultural practices;

➢ example: the change in field erosion due to adopting contour tillage by all corn producers of the relevant watershed(s).

Included in Step 3 is the fate-and-transport process when environmental impacts are not local. For example, nitrogen has its greatest impact on environmental amenities when it reaches coastal waters, especially estuarial zones (Bricker et al., 1999). Soil sediment impacts on shipping tend to be at downstream ports (Davis et al., 2000).

Details on how these relationships were estimated follow. While the focus is on valuing impacts of sediment and nitrogen, the reasoning applied in these cases is applicable to valuing other environmental amenities.

While the best available data and information are used, many uncertainties remain. However, the proposed measures are structured so that additional data and information can be incorporated, as they become available.

Sediment. The values the public places on reductions in soil erosion have been estimated for the following environmental amenities: municipal water use, industrial uses, irrigation ditch maintenance, road ditch maintenance, water storage, flooding, and soil productivity (Ribaudo et al., 1990; Ribaudo, 1986), freshwater-based recreation (Feather et al., 1999), and navigation (Davis et al., 2000). These are not all of the environmental amenities affected by sediment. Amenities not included are: increases in waterfowl populations, cleaner coastal and estuarine recreation areas, population survival of endangered species, and quality of commercial fisheries. Therefore, the value used here should be viewed as a minimum estimate.

These studies have, directly or indirectly, attempted to account for steps 2 and 3—amenity response to sediment and the fate-and-transport process. All have relied on the USLE (Universal Soil-Loss Equation) to determine the current level of soil erosion within a watershed. Each then either uses this measure of erosion as a water-quality indicator or as a link to changes in water quality. For example, Feather et al. (1999) estimated recreational behavior based on (among other things) geographic variation in erosion within watersheds as given by the USLE. Davis et al. (2000) estimated cost as a function of total upstream erosion, as measured by the USLE. Ribaudo used a slightly different approach. His models estimate values based on water quality but then linked changes in water quality to changes in erosion, as measured by the USLE.

Finally, changes in erosion following any change in farmland use (step 4) are commonly measured using the USLE. With this tool, the field-level measures of soil erosion changes can be derived from field-level data detailing changes in farmland use.

Annual values of a 1-ton reduction in soil erosion will differ across fields in the country because both the physical impacts on amenities and economic values of changes in the amenities vary (fig. 9, p. 34). This variation in the field-level value of a reduction in soil erosion emphasizes the advantages of environmental targeting.

Nitrogen. The value the public places on a reduction of nitrogen to estuaries includes impacts on boating, swimming, and recreational fishing (Hellerstein and Breneman, 2000). These are not all of the activities affected by the water quality impacts of nitrogen. Research has focused on these activities because they appear to be especially significant (Bockstael et al., 1986). However, other impacts, such as impacts to bird watchers, water views, and commercial fisheries, are also likely to be significant. Experts are still studying the impacts of nitrogen in our waters. For example, nitrogen's impact on the 5,000-7,000 square mile zone of hypoxia in the northern Gulf of Mexico may be having significant impacts on environmental amenities. Hypoxia is a deficiency in breathable oxygen (< 2.0 mg/l of dissolved oxygen) sufficient to cause damage to living tissue and death. While the link between hypoxia in the northern Gulf and nitrogen loadings from the Mississippi River is recognized (Rabalais et al., 1996), the impact of hypoxia on wildlife, and thus the need for concern, continues to be debated. Nitrogen inflows to the Chesapeake Bay and other bays and coastal areas may also be affecting environmental amenities. If nitrogen does have high-valued impacts in these areas, then the nitrogen amenity value employed here is biased downward in the associated watersheds.

As in the studies that valued changes in sediment impacts on amenities, an indirect measure of the amenity was used. In this case, studies assumed that the change in amenities in an estuary is proportional to the change in nitrogen delivered to the estuary—an indirect approach to estimating fate and transport relationships.

The link between field-level nitrogen and nitrogen inflow to each estuary is estimated in two steps. In the first step, the USGS SPARROW (SPAtially Referenced Regressions On Watershed Attributes) model (Smith et al., 1997) provides nitrogen delivery ratios between a stream's edge and the estuary for all watersheds. This 'water-based' delivery ratio accounts for nitrogen loss as it moves downstream. The delivery ratio for a watershed is the fraction of a pound of nitrogen that will make it from the stream's edge to the estuary. As a geographic foundation, the SPARROW model uses the 2,112 eight-digit hydrologic cataloging units (HUCs) or watersheds representative of the 48 States. The model is based on empirical evidence that stream depth is a critical factor in preventing nitrogen absorption by the environment. Thus the proximity of agricultural land to major rivers and streams is a critical determinant of the portion of nitrogen that reaches the estuary (Alexander et al., 2000; Smith et al., 2000).

The second step in linking field-level nitrogen to estuary nitrogen accounts for the fate-and-transport of nitrogen from the field to the stream's edge for each estuary. This delivery ratio accounts for nitrogen losses as nitrogen moves from the field to the water (Hellerstein and Breneman). This "field-to-stream" delivery ratio is approximated by dividing the pounds of agricultural nitrogen reaching a stream's edge by the pounds of the excess nitrogen (nitrogen not absorbed by the crop) associated with crop production within each watershed. Stream-edge (agricultural) nitrogen for each HUC comes from the USGS SPARROW model. Field-level, excess nitrogen estimates come from the EPIC model (USDA, ARS, 1990). The product of the field-to-stream and stream-to-estuary delivery ratios for each watershed produces a "field-to-estuary" delivery ratio for each watershed. The field-to-estuary delivery ratio estimates the portion of a pound of excess nitrogen on a field within a watershed that is likely to reach the downstream estuary.

Variations in the stream-to-estuary delivery ratios, along with variations across estuaries in the value of the environmental impact of a pound of nitrogen, result in variations in the field-level value of a pound of excess nitrogen (fig. 10, p. 35). This variation in the field-level values also illustrates the advantages of environmental targeting for control of excess agricultural nitrogen.

With changes in nitrogen application rates, cropping mix, tillage practice, etc., will come changes in excess nitrogen. The EPIC model is able to estimate the change in excess nitrogen based on changes in agricultural practices that follow a change in agricultural policy. The EPIC model also accounts for other losses of nitrogen (e.g., the atmosphere) and thus provides an estimate of nitrogen in water reaching the field's edge (step 4).

Appendix 6: ERS Farm Resource Regions

The U.S. farm sector is highly diverse. Farms vary widely in terms of resource base, products produced, production practices, and financial performance. The Economic Research Service (ERS) developed the nine new farm resource regions to more accurately depict geographic variation and facilitate the reporting and interpretation of farm sector data and research results.

County clusters, based on the types of commodities produced, have shown that a few commodities tend to dominate farm production in specific geographic areas that cut across State boundaries. The climate, soil, water, and topography in these geographic areas tend to determine the dominant crop and livestock enterprises. In developing the new regions, ERS recognized the limitations of using State boundaries and that new information technology makes finer resolution practical.

The new ERS regions are derived from four sources: (1) the Farm Production Regions—Corn Belt, Northern Plains, etc., (2) a cluster analysis of U.S. farm characteristics (Sommer and Hines, 1991), (3) the USDA Land Resource Regions, and the National Agricultural Statistics Service's (NASS) Crop Reporting Districts. The ERS regions were constructed by identifying areas where similar farm types (in terms of commodity production) intersected with areas of similar physiographic, soil, and climatic traits, as reflected in USDA's Land Resource Regions. Final boundaries were drawn to conform with NASS Crop Reporting Districts, which are aggregates of counties.

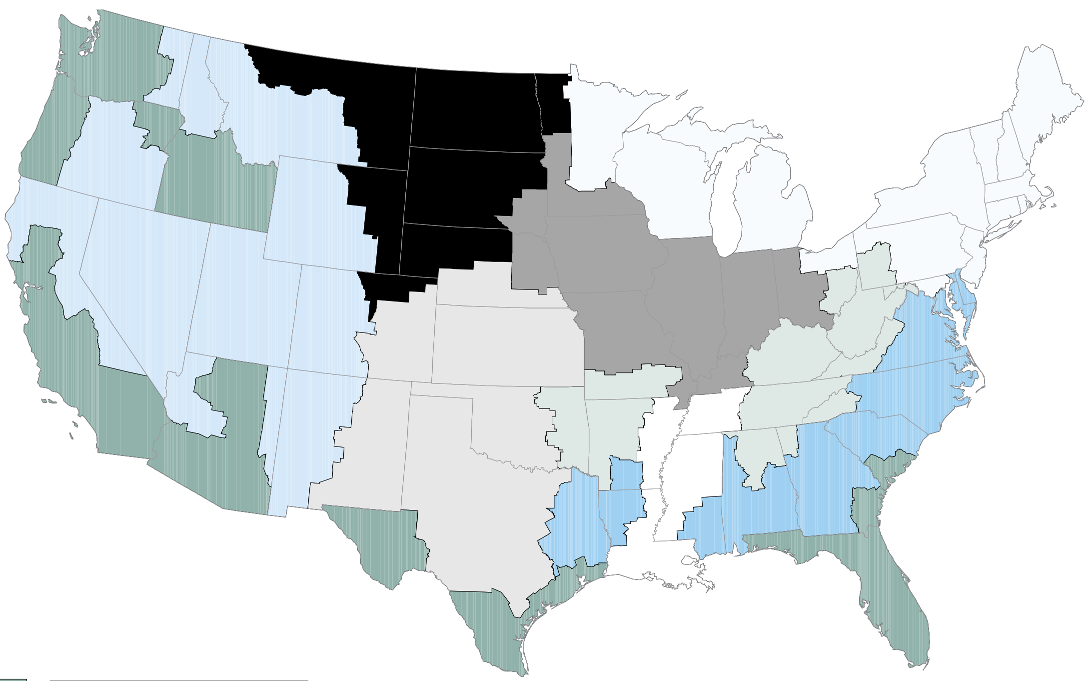
The farm resource regions are no longer constrained to follow State boundaries and are not necessarily contiguous. Contiguous areas within single States are

Basin and Range
- Largest share of nonfamily farms, smallest share of U.S. cropland.
- 4% of farms, 4% of value of production, 4% of cropland.
- Cattle, wheat, and sorghum farms.

Northern Great Plains
- Largest farms and smallest population.
- 5% of farms, 6% of value of production, 17% of cropland.
- Wheat, cattle, and sheep farms.

Heartland
- Most farms (22%), highest value of production, (23%), and most cropland (27%).
- Cash grain and cattle farms.

Northern Crescent
- Most populous region.
- 15% of farms, 15% of value of production, 9% of cropland.
- Dairy, general crop, and cash grain farms.



Fruitful Rim
- Largest share of large and very large family farms and nonfamily farms.
- 10% of farms, 22% of value of production, 8% of cropland.
- Fruit, vegetable, nursery, and cotton farms.

Prairie Gateway
- Second in wheat, oat, barley, rice, and cotton production.
- 13% of farms, 12% of value of production, 17% of cropland.
- Cattle, wheat, sorghum, cotton, and rice farms.

Mississippi Portal
- Higher proportions of both small and larger farms than elsewhere.
- 5% of farms, 4% of value of production, 5% of cropland.
- Cotton, rice, poultry, and hog farms.

Southern Seaboard
- Mix of small and larger farms.
- 11% of farms, 9% of value of production, 6% of cropland.
- Part-time cattle, general field crop, and poultry farms.

Eastern Uplands
- Most small farms of any region.
- 15% of farms, 5% of value of production, and 6% of cropland.
- Part-time cattle, tobacco, and poultry farms.

sometimes split up among multiple regions. For example, farms in the old Appalachian region (Tennessee, Kentucky, North Carolina and Virginia) vary widely in topography, soil, and commodities produced. In the new ERS farm resource regions, these four States are split among four different regions: the Heartland, Mississippi Portal, Eastern Uplands, and Southern Seaboard. Three regions—the Eastern Uplands, Fruitful Rim, and Southern Seaboard—are discontiguous. The Fruitful Rim, which covers parts of nine States from Florida to Washington, is an extreme example of the spatial separation that can exist between farms that produce similar commodities under similar conditions.