

**RISK ASSESSMENT FOR THE  
EQIP PROGRAM**

December 10, 2002

## EXECUTIVE SUMMARY

The Environmental Quality Incentives Program (EQIP) authorizes the Secretary of Agriculture to provide technical, financial, and educational assistance for a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals while optimizing environmental benefits.

The EQIP is an ongoing program. The 2002 Farm Bill made some changes to it as authorized in 1996, however the purpose of EQIP remains the same – to mitigate the risks of degradation of the natural resources. EQIP produces environmental benefits and reduces risks to human health, human safety, and the environment.

Major changes in the reauthorized EQIP include funding of \$5.8 billion for 2002 to 2007, cost sharing of up to 75 percent of the costs of certain conservation practices and total cost-share and incentive payments limitations of up to \$450,000 per person for the funding period. Incentive payments may now be provided for up to three years to encourage producers to carry out management practices they may not otherwise use without the program incentive. This now includes Confined Animal Feeding Operations (CAFO). Limited resource producers and beginning farmers and ranchers may be eligible for up to 90 percent cost-sharing.

Farmers and ranchers are also now eligible for assistance to cost-share development of a comprehensive nutrient management plan by a certified provider. One to 10 year contracts can be offered that provide incentive payments and cost sharing for implementing conservation practices in a conservation plan of operations. All of these changes enhance the performance of EQIP to reduce the risk of degradation of the natural resources.

Conservation practices are intended to reduce the risk of the degradation of natural resources. The number and /or extent of practices applied or installed on the land is a quantifying indicator of the program's performance. Data regarding the number of practices implemented and funded through EQIP have been collected that gives an indication of the magnitude of risk reduction that EQIP provided that mitigates stressors identified in earlier ecological and environmental risk assessments.

EQIP funding will increase under the proposed rule. This will allow more NRCS practices to be installed to reduce the risk of environmental degradation due to production agriculture. The Benefit-Cost Analysis estimates that over the life of the program an additional 0.9 million acres will be treated with practices to reduce rill and sheet erosion; 2.3 million additional acres will be treated to reduce risks associated with wind erosion; 8.5 million additional acres will be treated with non-waste nutrient management plans; an additional 9.6 million acres treated to reduce non-irrigation water use; 3.1 million acres treated to increase grazing productivity and finally an additional 4.1 million acres will be treated with practices to improve wildlife habitat. These additional practices will reduce risk of environmental degradation from production agriculture well beyond the amount of risk reduction observed in the current, less-well funded version of EQIP.

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# EQIP REGULATORY RISK ASSESSMENT

## I. BACKGROUND and PURPOSE

The Environmental Quality Incentives Program (EQIP) provides agricultural producers with technical and financial assistance for implementing conservation practices addressing soil, water, air, wildlife and related natural resource concerns. The program was initiated in 1996 to reduce environmental degradation associated with production agriculture.

The Environmental Quality Incentives Program (EQIP) is re-authorized by the 2002 Farm Bill to:

- carry out a single U.S. Department of Agriculture (USDA) conservation program, promote agricultural production and environmental quality as compatible national goals, and to optimize environmental benefits:
- on private lands with farmers and ranchers,
- on a voluntary basis,
- using local, State, tribal, and Federal partnerships,
- provide flexible technical, educational, and financial assistance,
- assist farmers and ranchers in complying with Federal, State, and tribal environmental laws, including the highly erodible land and wetland conservation provisions, and
- encourage environmental enhancement.

## II. LEGISLATIVE AUTHORITIES

The EQIP, 16 USC 3839 aa, et seq., was initially authorized by the Federal Agriculture Improvement and Reform Act of 1996, Public Law 104-127, and was recently amended by the Farm Security and Rural Investment Act of 2002.

## III. SCOPE

The program is available to all eligible producers in the United States, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

## IV. OBJECTIVES

The objectives of EQIP are to promote agricultural production and environmental quality as compatible national goals, and to optimize environmental benefits, by:

1. assisting producers in complying with local, State and national regulatory requirements concerning--
  - soil, water, and air quality;
  - wildlife habitat; and

- surface and ground water conservation.
2. Avoiding, to the maximum extent practicable, the need for resource and regulatory programs by assisting producers in protecting soil, water, air, and related natural resources and meeting environmental quality criteria established by Federal, State, tribal, and local agencies;
  3. Providing flexible assistance to producers to install and maintain conservation practices that enhance soil, water, related natural resources (including grazing land and wetland), and wildlife habitat while sustaining production of food and fiber;
  4. Assisting producers to make beneficial, cost effective changes to cropping systems, grazing management, nutrient management associated with livestock, pest or irrigation management, or other practices on agricultural land;
  5. Consolidating and streamlining conservation planning and regulatory compliance procedures to reduce administrative burdens on producers and the cost of achieving environmental goals.

## V. OVERVIEW

EQIP offers one to ten year contracts that provide incentive payments and cost sharing for implementing conservation practices in a conservation plan of operations. Persons engaged in livestock or agricultural production on eligible land may participate in EQIP. EQIP activities are carried out according to a plan that identifies the appropriate conservation practice or practices that will address the resource concerns and reduce the risk of degradation of those resources (Table 1). The practices are subject to NRCS technical standards adapted for local conditions. The local conservation district approves the plan.

Table 1. EQIP Resource Concerns <sup>1</sup>  
Resource Concern

Soil Erosion and Sediment Control - Agriculture
Water Use - Water Management - Irrigation
Water Use - Water Management - Irrigation/Salinity
Water Use - Water Management - Non-Irrigation
Soil, Water and Air Quality - Animal Waste Management
Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.
Grazing Land
Wetlands / Fish and Wildlife
Forest Land
Other
<sup>1</sup> Resource Concerns identified in Natural Resource Conservation Service Strategic Plan

Cost sharing may pay up to 75 percent of the costs of certain conservation practices. Incentive payments may be provided for up to three years to encourage producers to carry out management practices they may not otherwise use without the program incentive. However,

limited resource producers and beginning farmers and ranchers may be eligible for up to 90 percent cost-sharing. Total cost-share and incentive payments are limited to \$450,000 per person.

### **How EQIP Works:**

The program utilizes the principle of locally-led conservation whereby the State Technical Committee and Local Work Groups, convened by the conservation district, advise the Natural Resources Conservation Service at the state and local level regarding the primary resource issues needing attention. State funds are allocated to the county level by the State Conservationist based on guidance from the locally-led conservation committees or work groups. The State Conservationist also determines which and at what rate conservation practices are eligible for financial assistance. Authority is delegated to the local NRCS representative, the Designated Conservationist, who, with the advice of the Local Work Group, can further refine conservation practice eligibility.

Eligibility: Both the land and the producer must be eligible to participate. Eligible land is agricultural land (including cropland, grass land, rangeland, pasture, private non-industrial forest land, and other land on which crops or livestock are produced), including agricultural land that poses a threat to soil, water or related resources by reason of the soil types, terrain, climatic, soil, topographic, flood, or saline characteristics, or other factors or natural hazards. Producer eligibility is limited to those farmers and ranchers who are engaged in livestock or crop production on eligible land.

Conservation Planning: EQIP activities will be carried out according to an EQIP plan of operations. This plan addresses the conservation and environmental purposes to be achieved through application of 1 or more practices.

Application and Evaluation: Contract applications will be accepted throughout the year. NRCS evaluates applications using a locally developed ranking process. Higher priorities are given to applications that optimize environmental benefits, address national conservation priorities, and incorporate cost effective practices.

Contracts: EQIP offers 1 to 10 year contracts that provide incentive payments and cost sharing for installation of conservation practices.

Practice Payments: Cost sharing may pay up to 75 percent of the costs of certain structural conservation practices important to improving and maintaining the health of natural resources in the area. Incentive payments may be made to encourage a producer to adopt land management practices such as nutrient management, manure management, integrated pest management, irrigation water management, and wildlife habitat management that they may not otherwise use without the program incentive. Producers may receive incentive payments for up to three years. Farmers and ranchers are also eligible for additional assistance to cost-share development of a comprehensive nutrient management plan by a certified provider.

Limited resource farmers, ranchers and beginning farmers may be eligible for up to 90 percent of the cost of conservation practices.



Program Delivery: EQIP utilizes the state technical committee, tribal representatives and local working groups, convened by conservation districts, to implement the program to address identified needs and concerns. NRCS administers EQIP.

Funding - Funding for EQIP comes from the Federal Government's Commodity Credit Corporation. EQIP is authorized at \$5.8 billion over five years starting at \$400 million in fiscal year 2002, increasing to \$1.3 billion in fiscal year 2007.

The proposed new EQIP program also provides for:

Conservation Innovation Grants - For each fiscal year 2003 through 2007, EQIP funds may be used to pay the Federal share of competitive grants. These grants are intended to stimulate innovative approaches to leveraging Federal investment in environmental enhancement and protection.

## **VI. RISK ASSESSMENT**

This regulatory risk assessment compares the risk of deleterious effects to the environment from agricultural production with and without implementation of the new EQIP program. EQIP is designed to reduce risks to the environment due to agricultural production. The risk assessment is divided into three parts. First, the environmental background for EQIP is described in section A. Next, the framework for this risk assessment is described in section B. Finally, the risk assessment conclusions are given in section C.

### **A. Background**

Because production agriculture utilizes and transforms natural resources, it also impacts these natural resources. For example, disturbing the soil to produce crops, grazing animals on pasture or range lands, adding nutrients to the soil and altering water supply rates through irrigation all affect natural resources. The specific conservation practices employed within EQIP are the result of decades of experience in natural resource conservation by the Soil Conservation Service (SCS), the Farm Service Agency (FSA) and NRCS. In addition, NRCS developed a Conservation Practice Physical Effects (CPPE) matrix for each conservation practice considered in EQIP. These matrices qualitatively describe the positive or negative effect of the practice on key components of the environment such as water quality, air quality, soil quality, and wildlife habitat. The CPPE concept is currently undergoing further evolution and refinement as new science and technologies become available. Network diagrams are being developed to illustrate the multiple effects of the NRCS practices on the environment.

### **B. Risk Assessment Framework**

#### **1. Endpoint Identification**

Endpoints are those components of the agroecosystem that, when altered, cause changes of ecological or societal importance. Endpoints are components that may be adversely affected by a stressor created by production agriculture. Relevant endpoints were selected from resource concerns identified by NRCS and in the legislative mandate given by Congress. Available data were insufficient for the analysis of some of the endpoints and these data gaps were identified.

In this assessment, endpoints are the natural resources that are at risk of degradation because of natural and human-mediated processes arising from production agriculture. Five broad endpoints are analyzed: soil quality, water quality, air quality, water quantity and wildlife habitat.

### **a. Soil Quality**

Soil is critical to agricultural production. Soil quality is a measure of the capacity of a specific kind of soil to function to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation. Physical, chemical and biological characteristics of soil are important indicators of soil quality. Physical characteristics include the structure and depth of the soil, infiltration and bulk density and water holding capacity. Chemical characteristics include electroconductivity, extractable amounts of important nutrients such as nitrogen, phosphorus and potassium and chemical contaminants such as pesticides. Biological characteristics include the amount of organic matter incorporated into the soil, as well as the biomass of soil arthropods and microbes.

The NRCS CPPE Worksheets evaluate several indicators of soil quality: soil tilth, soil compaction, soil contamination by fertilizers, salts, organics, and pesticides, and erosion.

### **b. Water Quality**

Water uncontaminated by excess nutrients, pesticides and salinity is also critical to agricultural production. Water quality can be inferred through examination of physical, chemical and biological components of the aquatic environment. Physical characteristics of the aquatic environment include water temperature, clarity and flow rate. Chemical characteristics include nutrient concentration, salinity, conductivity, and contaminant concentrations, such as pesticides or heavy metals. Biological characteristics include phytoplankton biomass, as well as biomass of invertebrates and fish. Improving water quality will improve compliance with the Clean Water Act's fishable and swimmable water quality standard.

The NRCS CPPE worksheets evaluate the effect of a practice on both ground and surface water quality. Contamination by pesticides, nutrients and organics, salinity, heavy metals, suspended particles, and pathogens is assessed as well as temperature and low oxygen concentrations.

### **c. Air Quality**

The quality air environment can affect humans and animals in the airshed. Air quality can be evaluated through examination of airborne suspended particle load, amount of greenhouse gases and priority pollutants, smoke and contamination by toxic materials, such as pesticides.

The NRCS CPPE worksheets evaluate the effect of a practice on air quality by estimating the practice's effect on airborne particulate materials and smoke, visibility, chemical drift, odor and fungi, molds and pollen.

#### **d. Water Quantity**

Agricultural production is dependant upon the availability of adequate water resources to support crops. Lack of water at the appropriate time can reduce crop value. Water quantity is negatively affected by agricultural practices that increase the amount of runoff from land as well as practices that inefficiently use water.

The NRCS CPPE worksheets evaluate a practice's effect on high runoff and flooding, excess subsurface water, soil moisture as well as irrigation practices.

#### **e. Wildlife Habitat**

Wildlife habitat is necessary for maintenance of healthy populations of non-agricultural, wild organisms ranging from upland game birds and ducks to large mammals. The NRCS CPPE worksheets evaluate a practice's effect on three indicators of wildlife habitat – cover habitat, food, and water sources.

### **2. Stressors**

Stressors are those items or activities that cause degradation of the endpoints. In this assessment, stressors are assumed to be agricultural production activities. EQIP directly addresses these stressors by providing cost share funds for implementing individual conservation practices, or systems comprised of individual conservation practices, to eliminate, mitigate or reduce the effects of stressors on the natural resource endpoints.

#### **a. Soil Erosion**

Erosion, resulting from water or wind, is a major stressor on soil and air quality. Reduction in soil depth, loss of organic matter and physical instability resulting from erosion create poor quality soils. Wind erosion, through suspension of particulate material and entrainment of toxic substances, leads to reduced air quality. Particulate material suspended in the air can lead to non-attainment of EPA Clean Air Act standards.

#### **b. Activities that Create Soil Compaction**

The use of farm machinery and the grazing of animals can compact soil. Soil compaction increases runoff and decreases infiltration by reducing soil porosity. Soil compaction reduces both soil and water quality. Soils with inadequate infiltration are prone to higher maximum runoff events that occur over shorter time periods than similar soils with porosity.

#### **c. Runoff from Agricultural Lands**

Runoff from cropland, pasture or rangeland or animal feeding operations is a significant stressor on water quality. Nutrients, suspended sediments, pathogens, and toxic substances are transported from the agricultural operations to surface water resources through runoff following rain storms or snow melt.

#### **d. Infiltration into Groundwater**

Infiltration into groundwater can transport nutrients, pathogens and toxic substances into groundwater. The salinity of groundwater resources can be changed due to infiltration from agricultural areas.

#### **e. Use of Pesticides**

Pesticide use can result in the transport of residues into surface water through runoff, into groundwater through infiltration and into the air through chemical spray drift.

#### **f. Use of Fertilizers**

Excess fertilizers can be transported into surface water resources through runoff or into groundwater resources through infiltration.

#### **g. Loss of Habitat**

Loss of habitat is an important stressor on wildlife. Wildlife require specific types of habitat for shelter and food. Agricultural production can create a patchwork of required habitats with no access route between the various types. Agricultural production may also result in habitat loss when suitable wildlife habitat is converted into agricultural production.

### **3. Risks Associated with Production Agriculture**

Production agriculture can exacerbate the effect of stressors on soil, water and air quality, water quantity and wildlife habitat. Tilling the soil can lead to erosion. Irrigation can also lead to erosion, as well as increased soil and surface water salinity. The use of fertilizers could result in nutrient enrichment of surface waters. Growing the same crop continuously on the same land may reduce available soil nutrients. Harvesting the entire plant, not leaving any residue behind, can reduce the organic matter in soil and may lead to increased erosion while the land is fallow. Concentrating animals into feed lots may lead to increased runoff of animal waste and pathogens into surface waters. All of these agricultural practices increase the likelihood of degradation of one or more of the endpoints of concern – soil, water and air quality, water quantity and wildlife habitat.

### **4. Risk Reduction Strategies**

Conservation practices are methodologies, structures, facilities and modified farming practices that mitigate the effects of stressors, reduce the risk of degradation of natural resources and produce environmental benefits. NRCS developed a set of conservation practices designed to reduce negative impacts of production agriculture on natural resources.

#### **a. Existing NRCS Practices**

Some agricultural activities can act as stressors on soil, water and air quality, water quantity and wildlife habitat. NRCS conservation practices are designed to reduce the degradation associated with these agriculture activities (Appendix A). The practices mitigate the

risk that an agriculturally-mediated stressor will negatively affect one of the endpoints. Certain practices are targeted are specific types of eligible lands under EQIP (Appendix B.) Several of these conservation practices may be implemented on the same land. NRCS conservation practices often affect more than one component of the environment. For instance, holding soil in place may improve not only soil quality, but water quality, air quality, and forage quality as well.

Some practices reduce risk of degradation of one endpoint, while increasing the risk of degradation of another. An example is planting grass on a bare, eroding hillside (Critical Area Planting). When the grass is in place, both water-borne and wind-borne soil erosion is reduced, water infiltration rates increase, water loss due to evaporation goes down, downstream water quality improves, especially during rain events, and plant production goes up. All of these results reduce the likelihood of environmental degradation to soil, water and air quality. At the same time, the amount of water runoff decreases negatively affecting the quantity of water available downstream.

There are over 250 different NRCS conservation practices targeted at 10 resource concerns. The majority of these practices concern irrigation, non-irrigation water use, animal waste management, soil erosion and application of fertilizers, pesticides, herbicides. These 257 individual practices are grouped by resource concern in Appendix C.

Resource Concern	Number of Practices
Soil Erosion and Sediment Control – Agriculture	40
Water Use - Water Management – Irrigation	41
Water Use - Water Management - Irrigation/Salinity	3
Water Use - Water Management - Non-Irrigation	36
Soil, Water and Air Quality - Animal Waste Management	35
Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.	41
Grazing Land	9
Wetlands / Fish and Wildlife	20
Forest Land	10
Other	22
Total for all Resource Concerns	257

### **b. Changes to EQIP**

There are several changes to EQIP that will have significant effects on the outcome of the program and on the stressors it is designed to mitigate.

#### *Greater funding leads to more conservation practices*

An important legislated change is that program funding has been dramatically increased to \$5.8 billion from 2002 through 2007. Clearly, greater overall numbers of NRCS practices will be applied to a larger portion of the environment bringing a greater reduction of the risk of degradation of natural resources.

### *Larger producers eligible for more conservation practices*

The elimination of the bidding down process will enable will allow more producers who own larger tracts of land and could not afford to finance high dollar practices to make use of the program. Larger producers are expected to install larger structures or more practices than they could under previous program funding. Legislated payment limitations have changed, with some conditions, from \$50,000 per person per contract, to \$450,000 per person for all contracts from 2002 to 2007. The higher cap will enable high cost solutions on critical problem areas that were not feasible before. Because the new cap is nine times larger than the previous cap, it will enable cost sharing for the installation of practices on larger acreages controlled by a single producer that was too expensive before.

The \$450,000 cap does not preclude smaller dollar cost sharing. The higher cap simply offers a more flexible set of options for resource managers and state decision makers to choose from. State conservationists will now be able to pick and choose among alternative applicants so that an optimum amount of reduction in degradation of natural resources takes place. Having a more flexible set of options to choose will result in more optimizing of environmental benefits.

### *Risk Reduction to Water Quality*

Large confined feeding operations will be eligible for cost share assistance under the new provisions. Total water quality benefits should increase, as new funding opportunities for improved waste treatment facilities become available. The \$450K cap should increase the likelihood that contracts for larger facilities will be completed. When more contracts are completed, more practices are installed. When more practices are installed, more environmental benefits are realized.

### *More Funding to Beginning Farmers and Ranchers*

Under the new program, the maximum direct Federal share of the cost-share payments to a Limited Resource Producer (LRP) or Beginning Farmer and Rancher may be up to 90 percent. This change will increase the number of potential applicants and increases the potential for greater optimizing of environmental benefits. Assisting Limited Resource Producers or Beginning Farmers and Ranchers in installing conservation practices relieves some economic constraints on this group of producers while demonstrating the benefits of conservation. Fostering a heritage of conservation efforts will result in more environmental benefits being realized.

### *EQIP no longer limited to priority areas*

Under the new program rules, EQIP is aimed at achieving optimal environmental benefits, rather than at achieving maximum environmental benefit for dollar spent. The two goals are not mutually exclusive. Not limiting EQIP funding to priority areas will enable a greater number of producers to qualify for EQIP funding. In other words, with the advice of state technical committees, state conservationists can still choose to fund areas that they feel have priority, but are not limited to those areas and can fund additional sites that will optimize the reduction of degradation of the area under their control.

Changes to EQIP will likely result in more practices being installed, as well as more practices installed on larger AFO/CAFO operations. The new EQIP provisions target producers who need to develop Comprehensive Nutrient Management Plans (CNMPs) in compliance with the Clean

Water Act. This should reduce risk from stressors such as runoff of nutrients, pesticides and sediments impacting water quality.

### **C. Risk Reduction by Proposed EQIP Program**

The proposed rule will operate EQIP at a higher funding level than the current level. This will allow more NRCS practices to be installed to reduce the risk of environmental degradation due to production agriculture. The Benefit-Cost Analysis estimates that over the life of the program an additional 0.9 million acres will be treated with practices to reduce rill and sheet erosion; 2.3 million additional acres will be treated to reduce risks associated with wind erosion; 8.5 million additional acres will be treated with non-waste nutrient management plans; an additional 9.6 million acres treated to reduce non-irrigation water use; 3.1 million acres treated to increase grazing productivity and finally an additional 4.1 million acres will be treated with practices to improve wildlife habitat. These additional practices will reduce risk of environmental degradation from production agriculture well beyond the amount of risk reduction observed in the current, less-well funded version of EQIP.

Several alternatives for allocating EQIP funds were considered in the Benefit – Cost Analysis. The risk reduction associated with these alternatives is discussed below.

#### **1. Alternative 1: Alternative to AFO/CAFO Funding**

Even with the additional funding for EQIP (\$5 billion), there are insufficient resources to install conservation practices on all animal feeding operations (AFO) and confined animal feeding operations (CAFO). One way to prioritize funding for AFO/CAFO is to allocate funds based on the size of the operation. A key change in the new EQIP legislative language is that the program should “optimize environmental benefits”. This means getting the most environmental benefit for the least cost. Because much of the time spent in providing technical assistance to a landowner is often nearly the same, regardless of size, the per unit cost of providing assistance is lower on large operations with larger acreages or greater numbers of AU. If the amount of risk reduction per practice funded is equivalent between the large and small facilities, because per unit cost is lower for larger operations, more risk mitigation could result from targeting those operations first.

Another element to keep in mind when considering the risk reducing benefits from targeting medium size AFO’s is not the output or waste treatment that is affected but the amount of land required to provide the feed that is used by the AFO. Many of the medium size and larger operations grow a significant portion of feed or hay, requiring these lands to also implement appropriate conservation practices. The most obvious example of such a practice or system would be a nutrient plan for the entire operation.

#### **2. Alternative 2: Payment Limits Between \$50,000 and \$450,000**

The total payment limit for EQIP funding could range between \$50,000 (the current limit) to \$450,000. The data for this discussion and its derivation are taken from the 2002 EQIP Benefit Cost Analysis (See Alternative 2: Payment Limits Between \$50,000 and \$450,000).

The legislated maximum cost share payment is \$450,000. Eighty-three percent of the larger operations (>1000 animal units) would be eligible for cost share funding at this level of payment. If targeting the larger operations first could result in greater risk reduction, increasing the total payment limit to the \$450,000 will allow more of the large operations to install practices. Increasing the total payment limit thus would reduce risk more effectively if the assumption that the amount of risk reduction per installed practice is equivalent between large and small AFO/CAFO facilities. Operations may engage in installing conservation practices where the cost share would be more than \$450,000, but this is the limit that the government would subsidize.

### **3. Alternative 3: Alternative Application Evaluation Procedures to Ensure Cost-Effective, Environmentally-targeted Fund Allocation.**

This alternative incorporates or provides flexibility to the individual states to provide funding to install those practices that optimize the reduction of risk of degradation for their unique settings. More NRCS practices could be installed over a wider geographic area by lifting the restriction on environmentally-targeted areas.

## **V. CONCLUSIONS**

The proposed rule will operate EQIP at a higher funding level than the current level. This will allow more NRCS practices to be installed to reduce the risk of environmental degradation due to production agriculture. The Benefit-Cost Analysis estimates that over the life of the program an additional 0.9 million acres will be treated with practices to reduce rill and sheet erosion; 2.3 million additional acres will be treated to reduce risks associated with wind erosion; 8.5 million additional acres will be treated with non-waste nutrient management plans; an additional 9.6 million acres treated to reduce non-irrigation water use; 3.1 million acres treated to increase grazing productivity and finally an additional 4.1 million acres will be treated with practices to improve wildlife habitat. These additional practices will reduce risk of environmental degradation from production agriculture well beyond the amount of risk reduction obtainable from current conservation programs of USDA. The degree of risk reduction will depend on both the number of risk reduction practices put in place, the mix of practices, and the point of application. Although some practices reducing the risk to one endpoint may increase the risk of degradation of another, site-specific planning and evaluations of practices will inform local decision makers of these increased risks.



## **VI. REFERENCES**

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National Handbook of Conservation Practices. United States Department of Agriculture. Natural Resources Conservation Service.

Natural Resources Conservation Service Strategic Plan, 2000-2005. September 2000. United States Department of Agriculture. Natural Resources Conservation Service.

**Appendix A. Endpoints, Stressors and NRCS Risk Mitigation Practices**

<b>APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
Soil Quality	Runoff	Transport of Nutrients Off-site	Reduce nutrients transported off-site by reducing runoff	Conservation Crop Rotation (328) Contour Buffer Strips (332) Contour Farming (330) Cover and Green Manure (340) Nutrient Management (590) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Terrace (600)

**APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Transport of Sediment Off-site (Erosion)	Reduce sediment transport off-site by reducing runoff	Contour Buffer Strips (332) Contour Farming (330) Cover and Green Manure (340) Critical Area Planting (342) Irrigation Water Conveyance (430) Irrigation Water Management (449) Nutrient Management (590) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Residue Management, Seasonal (344) Riparian Forest Buffer (391) Terrace (600)
		Change in landscape due to Gully Formation	Reduce gully erosion by reducing runoff	Grassed waterway (412) Cover and Green Manure (340) Diversion (362) Grade Stabilization Structure (410) Riparian Forest Buffer (391)
		Streambank Erosion	Reduce streambank erosion by reducing runoff	Diversion (362) Riparian Forest Buffer (391) Filter Strip (393) Grade Stabilization Structure (410)

<b>APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
	Nutrient uptake by plants (crops)	Decreased fertility, loss of nitrogen	Alternate crops to add lost nitrogen	Conservation Crop Rotation (328) Cover Crop (340) Nutrient Management (590)
	Removal of Plant (Crop) Residue	Decreased organic matter	Alternate crops to add organic matter and crop residue	Conservation Crop Rotation (328) Cover Crop (340)
			Reduction of loss of organic matter	Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C)
		Reduced tillth	Reduce erosion (water and wind) and increase organic matter	Conservation Crop Rotation (328) Cover and Green Manure (340) Contour Buffer Strips (332) Residue Management, Seasonal (344)
	Soil Compaction	Soil Compaction	Decrease soil compaction	Contour Buffer Strips (332) Cover and Green Manure (340) Residue Management, Seasonal (344)
	Soil Contamination	Pesticide Use	Decrease pesticide concentrations in soil	Conservation Crop Rotation (328) Cover and Green Manure (340) Pest Management (595) Diversion (362)
		Fertilizer Use	Decrease excess fertilizer in soil	Cover and Green Manure (340) Diversion (362)
		Organic Use	Decrease excess organics in soil	Cover and Green Manure (340) Diversion (362)

<b>APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Salt	Decrease salt concentration	Contour Farming (330) Cover and Green Manure (340)
	Wind erosion	Reduced soil and loss of area supporting crops	Reduce erosion and loss of cropland	Cover and Green Manure (340) Diversion (362) Grassed waterway (412) Residue Management, Seasonal (344)
Water Quality	Runoff	Amount of Peak Runoff (Flooding)	Increase time of travel and infiltration	Conservation Crop Rotation (328) Contour Farming (330) Contour Buffer Strips (332) Cover and Green Manure (340) Diversion (362) Grassed waterway (412) Terrace (600)
		Transport of Nutrients into Surface Waters (Eutrophication)	Decrease nutrients in runoff	Conservation Crop Rotation (328) Contour Buffer Strips (332) Cover and Green Manure (340) Filter Strip (393) Grassed waterway (412) Nutrient Management (590) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Terrace (600)

**APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Transport of Sediment into Surface Waters (Sedimentation)	Decrease runoff and amount of sediments in runoff	Conservation Crop Rotation (328) Contour Buffer Strips (332) Contour Farming (330) Cover and Green Manure (340) Critical Area Planting (342) Diversion (362) Filter Strip (393) Grade Stabilization Structure (410) Grassed waterway (412) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Terrace (600)
			Decrease magnitude of peak runoff events and channel erosion	Contour Farming (330) Cover and Green Manure (340) Diversion (362) Grade Stabilization Structure (410) Riparian Forest Buffer (391)
		Transport of pesticides into surface waters	Decrease pesticides in runoff	Conservation Crop Rotation (328) Contour Buffer Strips (332) Contour Farming (330) Cover and Green Manure (340) Filter Strip (393) Grassed waterway (412) Pest Management (595) Terrace (600)

<b>APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Transport of Pathogens	Decrease pathogens in runoff	Filter Strip (393) Cover and Green Manure (340) Grassed waterway (412)
		Contaminants entering Surface Water	Decrease contaminants (pesticides, pathogens) in surface water	Wetland Restoration (657) Wetland Wildlife Habitat Management (644)
	Infiltration to Groundwater	Pesticides infiltrating Into groundwater	Decrease pesticides leaching to groundwater	Pest Management (595) Cover and Green Manure (340)
		Nutrients infiltrating Into groundwater	Decrease nutrients leaching to groundwater	Cover and Green Manure (340)
		Salts infiltrating Into groundwater	Decrease salts leaching to groundwater	
		Heavy metals infiltrating into groundwater	Decrease heavy metals leaching to groundwater	
		Pathogens infiltrating into groundwater	Decrease pathogens leaching to groundwater	Cover and Green Manure (340)
Air Quality	Wind Erosion	Airborne Particulates	Reduce airborne particulates	Conservation Crop Rotation (328) Cover and Green Manure (340) Critical Area Planting (342) Filter Strip (393) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Residue Management, Seasonal (344) Windbreak/Shelterbelt (380/650)

**APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
	Use of Farm equipment (internal combustion engines)	Greenhouse Gases and Priority pollutants	Reduce fossil fuel emissions	Grade Stabilization Structure (410)
	Pesticide application	Spray Drift or Volatilization	Reduction in Pesticide volatilization or drift	Pest Management (595) Windbreak/Shelterbelt (380/650)
	Burning	Airborne Particulate material and smoke	Reduction in burning causing airborne particulates and smoke	
	Odor	Odor	Decrease odors	Contour Buffer Strips (332)
Wildlife Habitat	Habitat Loss for Terrestrial Species	Inadequate food sources	Increase wildlife food sources	Contour Buffer Strips (332) Cover and Green Manure (340) Diversion (362) Riparian Forest Buffer (391) Filter Strip (393) Grassed waterway (412) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Upland Wildlife Habitat Management (645)



<b>APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Inadequate cover	Increase wildlife cover	Contour Buffer Strips (332) Cover and Green Manure (340) Diversion (362) Riparian Forest Buffer (391) Filter Strip (393) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Upland Wildlife Habitat Management (645) Windbreak/Shelterbelt (380/650)
		Inadequate reproductive sites		Upland Wildlife Habitat Management (645) Wetland Restoration (657) Wetland Wildlife Habitat Management (644)
		Inadequate water sources		Riparian Forest Buffer (391)
		Loss of access to food/cover or reproductive sites	Increase wildlife corridors	
	Aquatic Habitat Loss	Inadequate food/cover	Reduce loss or increase fish and aquatic wildlife habitat	Filter Strip (393) Grade Stabilization Structure (410) Nutrient Management (590) Wetland Restoration (657) Wetland Wildlife Habitat Management (644)

**APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Loss of habitat due to decreased flow or other flow alteration	Decrease peak flow, increase infiltration and subsurface flow to water bodies	Conservation Crop Rotation (328) Contour Farming (330) Cover Crop (340) Diversion (362) Grassed waterway (412) Irrigation water management (449) Terrace (600)
Water Quantity	Runoff	Amount of Runoff (Flooding)	Decrease short duration, high runoff events	Conservation Crop Rotation (328) Contour Farming (330) Cover and Green Manure (340) Diversion (362) Grade Stabilization Structure (410) Grassed waterway (412) Irrigation water management (449) Terrace (600)
				Soil Moisture
			Decrease evaporation	Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C)
			Increase amount of snow trapped – increase soil moisture	Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C)

**APPENDIX A. Endpoints, Stressors and Cropland Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
	Ground water recharge	Loss of infiltration	Increase infiltration by slowing runoff	Contour Buffer Strips (332) Contour Farming (330) Filter Strip (393) Grassed waterway (412) Residue Management, Mulch-till (329B) Residue Management, No Till / Strip Till (329A) Residue Management, Ridge-Till (329C) Terrace (600)
			Increase infiltration by creating/restoring wetland	Wetland Restoration (657) Wetland Wildlife Habitat Management (644)

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
Soil Quality	Runoff	Transport of Nutrients Off-site	Reduce nutrients transported off-site by reducing runoff	Brush Management (314) Prescribed Burning (338) Critical Area Planting (342) Fence (382) Forage Harvest Management (511) Rangeland Planting (550) Use Exclusion (472)
		Transport of Sediment Off-site (Erosion)	Reduce sediment transport off-site by reducing runoff	Brush Management (314) Prescribed Burning (338) Critical Area Planting (342) Pasture and Hay Planting (512) Pipeline (516) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)
		Change in landscape due to Gully Formation	Reduce gully erosion by reducing runoff	Prescribed Burning (338) Critical Area Planting (342) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Pipeline (516) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Streambank Erosion	Reduce streambank erosion by reducing runoff	Brush Management (314) Prescribed Burning (338) Critical Area Planting (342) Fence (382) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)
	Nutrient uptake by plants (crops)	Decreased fertility, loss of nitrogen	Alternate crops to add lost nitrogen	
	Removal of Plant (Crop) Residue	Decreased organic matter	Alternate crops to add organic matter and crop residue	
			Reduction of loss of organic matter	
		Reduced tillth	Reduce erosion (water and wind) and increase organic matter	Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)
Soil Compaction	Soil Compaction	Reduce soil compaction	Forage Harvest Management (511) Pasture and Hay Planting (512) Pipeline (516) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)	

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
	Soil Contamination	Pesticide Use	Decrease pesticide concentrations in soil	Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550)
		Fertilizer Use	Decrease excess fertilizers in soil	Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550)
		Organic Use	Decrease excess organics in soil	Forage Harvest Management (511) Prescribed Grazing (528) Rangeland Planting (550)
		Salt	Decrease salt concentration	Prescribed Grazing (528) Rangeland Planting (550)
	Wind erosion	Reduced soil and loss of area supporting crops	Reduce erosion and loss of cropland	Brush Management (314) Prescribed Burning (338) Critical Area Planting (342) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
Water Quality	Runoff	Amount of Peak Runoff (Flooding)	Increase time of travel and infiltration	Brush Management (314) Prescribed Burning (338) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Use Exclusion (472)
		Transport of Nutrients into Surface Waters (Eutrophication)	Decrease nutrients in runoff	Brush Management (314) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550) Watering Facility (614)
		Transport of Sediment into Surface Waters (Sedimentation)	Decrease runoff and amount of sediments in runoff	Brush Management (314) Prescribed Burning (338) Critical Area Planting (342) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472) Watering Facility (614)

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
			Decrease magnitude of peak runoff events and channel erosion	Brush Management (314) Prescribed Burning (338) Critical Area Planting (342) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550)
		Transport of pesticides into surface waters	Decrease pesticides in runoff	Brush Management (314) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550)
		Transport of Pathogens	Decrease pathogens in runoff	Brush Management (314) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472) Watering Facility (614)



**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Transport of cations and anions to surface waters, increasing salinity	Decrease in salinity	Forage Harvest Management (511) Pasture and Hay Planting (512) Rangeland Planting (550)
	Infiltration to Groundwater	Pesticides infiltrating Into groundwater	Decrease pesticides leaching to groundwater	Forage Harvest Management (511) Pasture and Hay Planting (512) Rangeland Planting (550)
		Nutrients infiltrating Into groundwater	Decrease nutrients leaching to groundwater	Forage Harvest Management (511) Pasture and Hay Planting (512)
		Cations and anions increasing salinity infiltrating into groundwater	Decrease salinity of waters infiltrating to groundwater	Pasture and Hay Planting (512)
		Heavy metals infiltrating into groundwater	Decrease heavy metals leaching to groundwater	
		Pathogens infiltrating into groundwater	Decrease pathogens leaching to groundwater	Pasture and Hay Planting (512)

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
Air Quality	Wind Erosion	Airborne Particulates	Reduce airborne particulates	Brush Management (314) Critical Area Planting (342) Forage Harvest Management (511) Pasture and Hay Planting (512) Pipeline (516) Prescribed Grazing (528) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)
	Use of Farm equipment (internal combustion engines)	Greenhouse Gases and Priority pollutants	Reduce fossil fuel emissions	
	Pesticide application	Spray Drift or Volatilization	Reduction in Pesticide volatilization or drift	Forage Harvest Management (511)
	Burning	Airborne Particulate material and smoke	Reduction in burning causing airborne particulates and smoke	Brush Management (314) Prescribed Burning (338)
	Odor	Odor	Decrease odor from manure	

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
Wildlife Habitat	Habitat Loss for Terrestrial Species	Inadequate food sources	Increase wildlife food sources	Brush Management (314) Prescribed Burning (338) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Pipeline (516) Pond (378) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)
		Inadequate cover	Increase wildlife cover	Brush Management (314) Prescribed Burning (338) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Pipeline (516) Pond (378) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)
		Inadequate reproductive sites		Pond (378)
		Inadequate water sources		Pipeline (516) Pond (378) Spring Development (574) Watering Facility (614)
		Loss of access to food/cover or reproductive sites	Increase wildlife corridors	Animal Trails and Walkways (575)

**APPENDIX A. Endpoints, Stressors and Grazing Lands Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
	Aquatic Habitat Loss	Inadequate food/cover	Reduce loss or increase fish and aquatic wildlife habitat	Critical Area Planting (342) Pond (378) Watering Facility (614)

		Loss of habitat due to decreased flow or other flow alteration	Decrease peak flow, increase infiltration and subsurface flow to water bodies	Forage Harvest Management (511) Pasture and Hay Planting (512)
Water Quantity	Runoff	Amount of Runoff (Flooding)	Decrease short duration, high runoff events	Brush Management (314) Fence (382) Forage Harvest Management (511) Pasture and Hay Planting (512) Pasture and Hay Planting (512) Pipeline (516) Prescribed Grazing (528) Rangeland Planting (550) Use Exclusion (472)
				Brush Management (314) Fence (382) Forage Harvest Management (511) Rangeland Planting (550) Use Exclusion (472)
	Soil Moisture	Decreased Soil Moisture, desiccation	Increase soil moisture and water use efficiency	Decrease evaporation
				Increase amount of snow trapped – increase soil moisture
	Ground water recharge	Loss of infiltration		Increase infiltration by slowing runoff
				Increase infiltration by creating/restoring wetland



**APPENDIX A. Endpoints, Stressors and Animal Feeding Operations Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
Soil Quality	Runoff	Transport of Nutrients Off-site	Reduce nutrients transported off-site by reducing runoff	Manure Transfer (634) – facilitating Waste Utilization (633)
		Transport of Sediment Off-site (Erosion)	Reduce sediment transport off-site by reducing runoff	Heavy Use Area Protection (561) Manure Transfer (634) – facilitating Roof Runoff Structure (558) Waste Utilization (633)
		Change in landscape due to Gully Formation	Reduce gully erosion by reducing runoff	Heavy Use Area Protection (561) Roof Runoff Structure (558) Waste Utilization (633)
		Streambank Erosion	Reduce streambank erosion by reducing runoff	
	Nutrient uptake by plants (crops)	Decreased fertility, loss of nitrogen	Alternate crops to add lost nitrogen	
	Removal of Plant (Crop) Residue	Decreased organic matter	Alternate crops to add organic matter and crop residue	
			Reduction of loss of organic matter	Manure Transfer (634) - facilitating
		Reduced tilth	Reduce erosion (water and wind) and increase organic matter	Manure Transfer (634) – facilitating Waste Utilization (633)
	Soil Compaction	Soil Compaction	Reduce Soil Compaction	Waste Utilization (633)
	Soil Contamination	Pesticide Use	Decrease pesticide concentrations in soil	Manure Transfer (634) – facilitating Waste Utilization (633)

<b>APPENDIX A. Endpoints, Stressors and Animal Feeding Operations Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Fertilizer Use	Decrease excess fertilizers in soil	Manure Transfer (634) – facilitating Waste Storage Facility (313) Waste Utilization (633)
		Organic Use	Decrease excess organics in soil	Manure Transfer (634) – facilitating Waste Storage Facility (313) Waste Utilization (633)
		Salt	Decrease salt concentration	Manure Transfer (634) - facilitating
	Wind erosion	Reduced soil and loss of area supporting crops	Reduce erosion and loss of cropland	Manure Transfer (634) - facilitating
Water Quality	Runoff	Amount of Peak Runoff (Flooding)	Increase time of travel and infiltration	Manure Transfer (634) – facilitating Roof Runoff Structure (558)
		Transport of Nutrients into Surface Waters (Eutrophication)	Decrease nutrients in runoff	Composting Facility (317) Manure Transfer (634) – facilitating Roof Runoff Structure (558) Waste Storage Facility (313) Waste Treatment Lagoon (359) Waste Utilization (633)

**APPENDIX A. Endpoints, Stressors and Animal Feeding Operations Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Transport of Sediment into Surface Waters (Sedimentation)	Decrease runoff and amount of sediments in runoff	Heavy Use Area Protection (561) Manure Transfer (634) – facilitating Roof Runoff Structure (558) Waste Storage Facility (313) Waste Treatment Lagoon (359) Waste Utilization (633)
			Decrease magnitude of peak runoff events and channel erosion	
		Transport of pesticides into surface waters	Decrease pesticides in runoff	Manure Transfer (634) – facilitating Roof Runoff Structure (558) Waste Storage Facility (313) Waste Treatment Lagoon (359) Waste Utilization (633)
		Transport of Pathogens	Decrease pathogens in runoff	Composting Facility (317) Manure Transfer (634) – facilitating Roof Runoff Structure (558) Waste Storage Facility (313) Waste Treatment Lagoon (359) Waste Utilization (633)



<b>APPENDIX A. Endpoints, Stressors and Animal Feeding Operations Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
		Transport of cations and anions to surface waters, increasing salinity	Decrease in salinity	Roof Runoff Structure (558) Waste Storage Facility (313) Waste Treatment Lagoon (359)
	Infiltration to Groundwater	Pesticides infiltrating Into groundwater	Decrease pesticides leaching to groundwater	Manure Transfer (634) – facilitating Waste Storage Facility (313) Waste Utilization (633)
		Nutrients infiltrating Into groundwater	Decrease nutrients leaching to groundwater	Composting Facility (317) Manure Transfer (634) – facilitating Waste Storage Facility (313) Waste Utilization (633)
		Salts infiltrating Into groundwater	Decrease salts leaching to groundwater	Manure Transfer (634) – facilitating Waste Storage Facility (313) Waste Utilization (633)
		Heavy metals infiltrating into groundwater	Decrease heavy metals leaching to groundwater	Manure Transfer (634) – facilitating Waste Storage Facility (313)
		Pathogens infiltrating into groundwater	Decrease pathogens leaching to groundwater	Composting Facility (317) Manure Transfer (634) – facilitating Waste Storage Facility (313) Waste Utilization (633)
Air Quality	Wind Erosion	Airborne Particulates	Reduce airborne particulates	Heavy Use Area Protection (561)

**APPENDIX A. Endpoints, Stressors and Animal Feeding Operations Risk Mitigation Practices**

<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
	Use of Farm equipment (internal combustion engines)	Greenhouse Gases and Priority pollutants	Reduce fossil fuel emissions	
	Pesticide application	Spray Drift or Volatilization	Reduction in Pesticide volatilization or drift	
	Burning	Airborne Particulate material and smoke	Reduction in burning causing airborne particulates and smoke	
	Odors	Odors	Decrease manure odors	Composting Facility (317) Waste Utilization (633) [Increase odor]
Wildlife Habitat	Habitat Loss for Terrestrial Species	Inadequate food sources	Increase wildlife food sources	Waste Utilization (633)
		Inadequate cover	Increase wildlife cover	Waste Utilization (633)
		Inadequate reproductive sites		
		Inadequate water sources		
		Loss of access to food/cover or reproductive sites	Increase wildlife corridors	
	Aquatic Habitat Loss	Inadequate food/cover	Reduce loss or increase fish and aquatic wildlife habitat	Waste Storage Facility (313)
		Loss of habitat due to decreased flow or other flow alteration	Decrease peak flow, increase infiltration and subsurface flow to water bodies	Roof Runoff Structure (558)
Water Quantity	Runoff	Amount of Runoff (Flooding)	Decrease short duration, high runoff events	Roof Runoff Structure (558)
	Soil Moisture	Decreased Soil Moisture, desiccation	Increase soil moisture and water use efficiency	

<b>APPENDIX A. Endpoints, Stressors and Animal Feeding Operations Risk Mitigation Practices</b>				
<b>Endpoint</b>	<b>Primary Stressor</b>	<b>Secondary Stressor</b>	<b>Mitigation Strategy</b>	<b>Conservation Practices that Mitigate Risk</b>
			Decrease evaporation	
			Increase amount of snow trapped – increase soil moisture	
	Ground water recharge	Loss of infiltration	Increase infiltration by slowing runoff	Roof Runoff Structure (558)
			Increase infiltration by creating/restoring wetland	

Water Quantity	Runoff	Amount of Runoff (Flooding)	Decrease short duration, high runoff events	
	Soil Moisture	Decreased Soil Moisture, desiccation	Increase soil moisture and water use efficiency	
			Decrease evaporation	
			Increase amount of snow trapped – increase soil moisture	
	Ground water recharge	Loss of infiltration	Increase infiltration by slowing runoff	
			Increase infiltration by creating/restoring wetland	

## APPENDIX B. Practices Grouped by Type of Operation

### Environmental Quality Incentives Program Animal Feeding Operations Practices

1. Composting Facility	(317)
2. Heavy Use Area Protection	(561)
3. Manure Transfer	(634)
4. Roof Runoff Structure ( <i>Barnyard</i> )	(558)
5. Waste Storage Facility	(313)
6. Waste Treatment Lagoon	(359)
7. Waste Utilization	(633)

### Cropland Practices

1. Conservation Crop Rotation	(328)
2. Contour Buffer Strips (Herbaceous)	(332)
3. Contour Farming	(330)
4. Cover Crop	(340)
5. Critical Area Planting	(342)*
6. Diversion	(362)
7. Filter Strip	(393)
8. Grade Stabilization Structure	(410)
9. Grassed Waterway	(412)
10. Irrigation Water Conveyance ( <i>AA-EE</i> )	(430)
11. Irrigation Water Management	(449)
12. Nutrient Management	(590)*
13. Pest Management	(595)*
14. Residue Management, Mulch Till	(329B)
15. Residue Management, No Till/Strip Till	(329A)
16. Residue Management, Ridge Till	(329C)
17. Residue Management, Seasonal	(344)
18. Riparian Forest Buffers	(391)*
19. Terrace	(600)
20. Upland Wildlife Habitat Management	(645)*
21. Wetland Restoration	(657)
22. Wildlife Wetland Habitat Management	(644)
23. Windbreak/Shelterbelt Establishment	(380)*

\* shared with other programs

## Grazing Lands Practices

1. Animal Trails and Walkways	(575)
2. Brush Management	(314) *
3. Critical Area Planting	(342)*
4. Fence	(382)*
5. Forage Harvest Management	(511)
6. Pasture/Hayland Planting	(512)*
7. Pipeline	(516)*
8. Pond	(378)
9. Prescribed Burning	(338)*
10. Prescribed Grazing	(528A)*
11. Range Planting	(550)*
12. Spring Development	(574)*
13. Use Exclusion	(472)*
14. Watering Facility	(614)*

\* shared with other programs

### Appendix C. NRCS Practices by Resource Concern

Code	Practice Name & Unit(s)	Resource Concern
311	Alley Cropping (ac.)	Soil Erosion and Sediment Control - Agriculture
324	Deep Tillage-(ac.)	Soil Erosion and Sediment Control - Agriculture
327	Conservation Cover-(ac.)	Soil Erosion and Sediment Control - Agriculture
328	Conservation Crop Rotation-(ac.)	Soil Erosion and Sediment Control - Agriculture
330	Contour Farming-(ac.)	Soil Erosion and Sediment Control - Agriculture
331	Contour Orchard and Other Fruit Area-(ac.)	Soil Erosion and Sediment Control - Agriculture
332	Contour Buffer Strips-(ac.)	Soil Erosion and Sediment Control - Agriculture
340	Cover Crop-(ac.)	Soil Erosion and Sediment Control - Agriculture
344	Residue Management, Seasonal-(ac.)	Soil Erosion and Sediment Control - Agriculture
462	Precision Land Forming-(ac.)	Soil Erosion and Sediment Control - Agriculture
484	Mulching-(ac.)	Soil Erosion and Sediment Control - Agriculture
557	Row Arrangement-(ac.)	Soil Erosion and Sediment Control - Agriculture
560	Access Road-(ft.)	Soil Erosion and Sediment Control - Agriculture
572	Spoil Spreading-(ft.)	Soil Erosion and Sediment Control - Agriculture
585	Contour Stripcropping-(ac.)	Soil Erosion and Sediment Control - Agriculture
586	Stripcropping, Field-(ac.)	Soil Erosion and Sediment Control - Agriculture
601	Vegetative Barrier-(ft.)	Soil Erosion and Sediment Control - Agriculture
609	Surface Roughening-(ac.)	Soil Erosion and Sediment Control - Agriculture
726	Slope Roughening-(ac.)	Soil Erosion and Sediment Control - Agriculture

733	Cross Slope Farming-(ac.)	Soil Erosion and Sediment Control - Agriculture
734	Vegetative Barrier-(ft.)	Soil Erosion and Sediment Control - Agriculture
741	Vegetative Buffer Strips-(ac.)	Soil Erosion and Sediment Control - Agriculture
742	Cut Bank Stabilization-(ac.)	Soil Erosion and Sediment Control - Agriculture
747	Root Plowing-(ac.)	Soil Erosion and Sediment Control - Agriculture
750	Cross Slope Block Farming-(ac.)	Soil Erosion and Sediment Control - Agriculture
758	Strip - Intercropping-(ac.)	Soil Erosion and Sediment Control - Agriculture
761	Agro Tillage-(ac.)	Soil Erosion and Sediment Control - Agriculture
775	Restoration of Compacted Soils-(ac.)	Soil Erosion and Sediment Control - Agriculture
777	Residue Management - Direct Seed-(ac.)	Soil Erosion and Sediment Control - Agriculture
778	Long Term No-Till-(ac.)	Soil Erosion and Sediment Control - Agriculture
782	Nursey Substrate-(ac.)	Soil Erosion and Sediment Control - Agriculture
	Nutrient Management-(ac.)	Soil Erosion and Sediment Control - Agriculture
	Riparian Forest Buffer-(ac.)	Soil Erosion and Sediment Control - Agriculture
327A	Conservation Cover-(ac.)	Soil Erosion and Sediment Control - Agriculture
329A	Residue Management, No-till & Strip Till-(ac.)	Soil Erosion and Sediment Control - Agriculture
329B	Residue Management, Mulch till-(ac.)	Soil Erosion and Sediment Control - Agriculture
329C	Residue Management, Ridge Till-(ac.)	Soil Erosion and Sediment Control - Agriculture

589A	Cross Wind Ridges-(ac.)	Soil Erosion and Sediment Control - Agriculture
589B	Cross Wind Stripcropping-(ac.)	Soil Erosion and Sediment Control - Agriculture
589C	Cross Wind Trap Strips-(ac.)	Soil Erosion and Sediment Control - Agriculture
320	Irrigation Canal or Lateral-(ft.)	Water Use - Water Management - Irrigation
378	Pond-(no.)	Water Use - Water Management - Irrigation
388	Irrigation Field Ditch-(ft.)	Water Use - Water Management - Irrigation
428	Irrigation Water Conveyance-(ft.)	Water Use - Water Management - Irrigation
436	Irrigation Storage Reservoir-(ac.)	Water Use - Water Management - Irrigation
441	Irrigation System-Microirrigation-(ac.)	Water Use - Water Management - Irrigation
442	Irrigation System-Sprinkler-(ac.)	Water Use - Water Management - Irrigation
443	Irrigation System-Surface & Subsurface-(no.)	Water Use - Water Management - Irrigation
447	Irrigation System-Tailwater Recovery-(no.)	Water Use - Water Management - Irrigation
449	Irrigation Water Management-(ac.)	Water Use - Water Management - Irrigation
450	Anion Polyacrylamide (PAM) Erosion Control-(ac.)	Water Use - Water Management - Irrigation
464	Irrigation Land Leveling-(ac.)	Water Use - Water Management - Irrigation
516	Pipeline-(ft.)	Water Use - Water Management - Irrigation
532	Pumped Well Drain-(no.)	Water Use - Water Management - Irrigation
533	Pumping Plant for Water Control-(no.)	Water Use - Water Management - Irrigation
554	Regulating Water in Drainage Systems-(ac.)	Water Use - Water Management - Irrigation



642	Water Well-(no.)	Water Use - Water Management - Irrigation
716	Anion Polyacrylamide (PAM) Erosion Control-(ac.)	Water Use - Water Management - Irrigation
718	Low Energy Precision Application Irrigation System-(ac.)	Water Use - Water Management - Irrigation
743	Improved Water Application-(ac.)	Water Use - Water Management - Irrigation
746	Rice Water Control-(ac.)	Water Use - Water Management - Irrigation
754	Irrigation System, Subirrigation- (ac.)	Water Use - Water Management - Irrigation
760	Surface Wetting-(ac.)	Water Use - Water Management - Irrigation
428A	Irrigation Water Conveyance - Ditch and Canal Lining - Nonreinforced Concrete-(ft.)	Water Use - Water Management - Irrigation
428B	Irrigation Water Conveyance - Ditch and Canal Lining - Flexible Membrane-(ft.)	Water Use - Water Management - Irrigation
428C	Irrigation Water Conveyance - Ditch and Canal Lining - Galvanized Steel-(ft.)	Water Use - Water Management - Irrigation
430A A	Irrigation Water Conveyance - Pipeline - Aluminum Tubing-(ft.)	Water Use - Water Management - Irrigation
430B B	Irrigation Water Conveyance - Pipeline - Asbestos-Cement-(ft.)	Water Use - Water Management - Irrigation

430C C	Irrigation Water Conveyance - Pipeline - Nonreinforced Concrete-(ft.)	Water Use - Water Management - Irrigation
430D D	Irrigation Water Conveyance - Pipeline - High-pressure, Underground, Plastic-(ft.)	Water Use - Water Management - Irrigation
430E E	Irrigation Water Conveyance - Pipeline - Low-pressure, Underground, Plastic-(ft.)	Water Use - Water Management - Irrigation
430F F	Irrigation Water Conveyance - Pipeline - Steel-(ft.)	Water Use - Water Management - Irrigation
430G G	Irrigation Water Conveyance - Pipeline - Reinforced Plastic Mortar-(ft.)	Water Use - Water Management - Irrigation
430H H	Irrigation Water Conveyance - Pipeline - Rigid Gated Pipeline-(ft.)	Water Use - Water Management - Irrigation
521A	Pond Sealing or Lining - Flexible Membrane-(no.)	Water Use - Water Management - Irrigation
521B	Pond Sealing or Lining - Soil dispersant-(no.)	Water Use - Water Management - Irrigation
521C	Pond Sealing or Lining - Bentonite Sealant-(no.)	Water Use - Water Management - Irrigation

521D	Pond Sealing or Lining-Cationic Emulsion - Waterborne Sealant-(no.)	Water Use - Water Management - Irrigation
521E	Pond Sealing or Lining-Asphalt - Sealed Fabric Liner-(no.)	Water Use - Water Management - Irrigation
552A	Irrigation Pit-(no.)	Water Use - Water Management - Irrigation
552B	Irrigation Regulating Reservoir-(no.)	Water Use - Water Management - Irrigation
571	Soil Salinity Management-Nonirrigated-(ac.)	Water Use - Water Management - Irrigation/Salinity
610	Toxic Salt Reduction-(ac.)	Water Use - Water Management - Irrigation/Salinity
738	Soil Salinity Control-(ac.)	Water Use - Water Management - Irrigation/Salinity
310	Bedding-(ac.)	Water Use - Water Management - Non-Irrigation
326	Clearing & Snagging-(ft.)	Water Use - Water Management - Non-Irrigation
335	Controlled Drainage-(ac.)	Water Use - Water Management - Non-Irrigation
348	Dam, Diversion-(no.)	Water Use - Water Management - Non-Irrigation
349	Dam, Multiple Purpose-(no.)	Water Use - Water Management - Non-Irrigation
356	Dike-(ft.)	Water Use - Water Management - Non-Irrigation
362	Diversion-(ft.)	Water Use - Water Management - Non-Irrigation
400	Floodwater Diversion-(ft.)	Water Use - Water Management - Non-Irrigation
402	Dam, Floodwater Retarding-(no.)	Water Use - Water Management - Non-Irrigation
404	Floodway-(ft.)	Water Use - Water Management - Non-Irrigation
410	Grade Stabilization Structure-(no.)	Water Use - Water Management - Non-Irrigation

412	Grassed Waterway-(ac.)	Water Use - Water Management - Non-Irrigation
423	Hillside Ditch-(ft.)	Water Use - Water Management - Non-Irrigation
466	Land Smoothing-(ac.)	Water Use - Water Management - Non-Irrigation
468	Lined Waterway or Outlet-(ft.)	Water Use - Water Management - Non-Irrigation
482	Mole Drain-(ft.)	Water Use - Water Management - Non-Irrigation
555	Rock Barrier-(ft.)	Water Use - Water Management - Non-Irrigation
582	Open Channel-(ft.)	Water Use - Water Management - Non-Irrigation
587	Structure for Water Control	Water Use - Water Management - Non-Irrigation
600	Terrace-(ft.)	Water Use - Water Management - Non-Irrigation
606	Subsurface Drain-(ft.)	Water Use - Water Management - Non-Irrigation
607	Surface Drainage, Field Ditch-(ft.)	Water Use - Water Management - Non-Irrigation
608	Surface Drainage, Main or Lateral-(ft.)	Water Use - Water Management - Non-Irrigation
620	Underground Outlet-(ft.)	Water Use - Water Management - Non-Irrigation
636	Water Harvesting Catchment-(no.)	Water Use - Water Management - Non-Irrigation
638	Water & Sediment Control Basin-(no.)	Water Use - Water Management - Non-Irrigation
640	Waterspreading-(ac.)	Water Use - Water Management - Non-Irrigation
641	Water Table Control-(ac.)	Water Use - Water Management - Non-Irrigation
706	Artificial Groundwater Recharge System-(no.)	Water Use - Water Management - Non-Irrigation
708	Cistern-(no.)	Water Use - Water Management - Non-Irrigation

714	Floodproofing-(no.)	Water Use - Water Management - Non-Irrigation
727	Snow Harvesting-(ac.)	Water Use - Water Management - Non-Irrigation
739	Hillside Bench-(ac.)	Water Use - Water Management - Non-Irrigation
753	Infiltration Ditches-(ft.)	Water Use - Water Management - Non-Irrigation
756	Surface Flooding of Organic Soils-(ac.)	Water Use - Water Management - Non-Irrigation
	Terrace-(ft.)	Water Use - Water Management - Non-Irrigation
312	Waste Management System-(no.)	Soil, Water and Air Quality - Animal Waste Management
313	Waste Storage Facility-(no.)	Soil, Water and Air Quality - Animal Waste Management
317	Composting Facility-(no.)	Soil, Water and Air Quality - Animal Waste Management
359	Waste Treatment Lagoon-(no.)	Soil, Water and Air Quality - Animal Waste Management
360	Closure of Waste Impoundments-(no.)	Soil, Water and Air Quality - Animal Waste Management
382	Fence-(ft.)	Soil, Water and Air Quality - Animal Waste Management
397	Commercial Fishponds-(ac.)	Soil, Water and Air Quality - Animal Waste Management
472	Use Exclusion-(ac.)	Soil, Water and Air Quality - Animal Waste Management
558	Roof Runoff Management-(no.)	Soil, Water and Air Quality - Animal Waste Management
561	Heavy Use Area Protection-(ac.)	Soil, Water and Air Quality - Animal Waste Management
570	Runoff Management System-(no.)	Soil, Water and Air Quality - Animal Waste Management
574	Spring Development-(no.)	Soil, Water and Air Quality - Animal Waste Management
575	Animal Trails and Walkways-(ft.)	Soil, Water and Air Quality - Animal Waste Management
590	Nutrient Management-(ac.)	Soil, Water and Air Quality - Animal Waste Management

614	Watering Facility-(no.)	Soil, Water and Air Quality - Animal Waste Management
633	Waste Utilization-(ac.)	Soil, Water and Air Quality - Animal Waste Management
634	Manure Transfer-(no.)	Soil, Water and Air Quality - Animal Waste Management
707	Barnyard Runoff Management-(no.)	Soil, Water and Air Quality - Animal Waste Management
709	Closure of Abandoned Waste trt. Lagoon & Waste Storage Pond-(no.)	Soil, Water and Air Quality - Animal Waste Management
711	Controlled Livestock Lounging Area-(ac.)	Soil, Water and Air Quality - Animal Waste Management
719	Milking Center Wastewater Treatment System-(no.)	Soil, Water and Air Quality - Animal Waste Management
723	Roof Gutter-(ft.)	Soil, Water and Air Quality - Animal Waste Management
724	Roofing for Runoff Control-(sq. ft.)	Soil, Water and Air Quality - Animal Waste Management
728	Stream Crossing-(no.)	Soil, Water and Air Quality - Animal Waste Management
730	Controlled Stream Access for Livestock Watering-(no.)	Soil, Water and Air Quality - Animal Waste Management
732	Waste Water Irrigation-(ac.)	Soil, Water and Air Quality - Animal Waste Management
735	Covered Anaerobic Lagoon-(no.)	Soil, Water and Air Quality - Animal Waste Management
736	Methane Production & Recovery / Complete Mix Digester-(no.)	Soil, Water and Air Quality - Animal Waste Management
737	Methane Production & Recovery / Plug Flow Digester-(no.)	Soil, Water and Air Quality - Animal Waste Management

749	Waste Field Storage Area-(no.)	Soil, Water and Air Quality - Animal Waste Management
757	Livestock Use Area Protection-(ac.)	Soil, Water and Air Quality - Animal Waste Management
765	Silage Leachate Collection and Transfer-(no.)	Soil, Water and Air Quality - Animal Waste Management
774	Poultry Mortality Freezers-(no.)	Soil, Water and Air Quality - Animal Waste Management
780	Filter Strip (Waste Treatment)-(no.)	Soil, Water and Air Quality - Animal Waste Management
	Waste Storage Pond-(no.)	Soil, Water and Air Quality - Animal Waste Management
322	Channel Vegetation-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
342	Critical Area Planting-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
350	Sediment Basin-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
351	Well Decommissioning-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
380	Windbreak/Shelterbelt Establishment-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
386	Field Border-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
390	Riparian Herbaceous Cover (ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
391	Riparian Forest Buffer-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
393	Filter Strip-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)

511	Forage Harvest Management-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
580	Streambank & Shoreline Protection-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
584	Stream Channel Stabilization-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
595	Pest Management-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
630	Vertical Drain-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
650	Windbreak/Shelterbelt Renovation-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
701	Agricultural Fuel Containment Facility-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
702	Agrochemical Mixing Facility-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
703	Agrochemical Mixing Station, Portable-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
705	Air Management-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
720	Pollution Retention Reservoir-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
725	Sinkhole and Sinkhole Area Treatment-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
729	Thermokarst Stabilization-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
731	Well Testing-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)



745	Stream Corridore Improvement-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
748	Record Keeping-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
751	Integrated Crop Management System-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
752	Farm*A*Syst Evaluation-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
755	Well Plugging-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
759	Riparian Buffers - Vegetative-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
764	Rinsate Management-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
768	Vegetated Sinkhole Buffer-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
769	Incinerator-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
770	Snow Fence-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
771	Temporary Steel Windbreak-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
998	Agrochemical Containment Facility-(no.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
	Integrated Crop Management System-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
342A	Critical Area Planting-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)

391a	Riparian Forest Buffer-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
393A	Filter Strip-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
422A	Herbaceous Wind Barriers-(ft.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
595A	Pest Management-(ac.)	Soil, Water and Air Quality - Other (chemical fertilizer, pesticide, herbicide, global climate change, soil compaction, etc.)
314	Brush Management-(ac.)	Grazing Land
512	Pasture & Hayland Planting-(ac.)	Grazing Land
548	Grazing Land Mechanical Treatment-(ac.)	Grazing Land
550	Range Planting-(ac.)	Grazing Land
717	Livestock Shade Structure-(no.)	Grazing Land
721	Rangeland Fertilization-(ac.)	Grazing Land
762	Planned Grazing System-(ac.)	Grazing Land
	Pasture & Hayland Mgt.-(ac.)	Grazing Land
528A	Prescribed Grazing-(ac.)	Grazing Land
338	Prescribed Burning-(ac.)	Wetlands / Fish and Wildlife
395	Stream Habitat Improvement and Management-(ft.)	Wetlands / Fish and Wildlife
396	Fish Passage-(no.)	Wetlands / Fish and Wildlife
398	Fish Raceway or Tank--(ft.)	Wetlands / Fish and Wildlife
399	Fishpond Management-(no.)	Wetlands / Fish and Wildlife

422	Hedgerow Planting-(ft.)	Wetlands / Fish and Wildlife
643	Restoration And Management of Declining Habitats-(ac.)	Wetlands / Fish and Wildlife
644	Wetland Wildlife Habitat Management-(ac.)	Wetlands / Fish and Wildlife
645	Upland Wildlife Habitat Management-(ac.)	Wetlands / Fish and Wildlife
646	Shallow Water Management for Wildlife-(ac.)	Wetlands / Fish and Wildlife
647	Early Successional Habitat Development/Management-(ac.)	Wetlands / Fish and Wildlife
648	Wildlife Watering Facility-(no.)	Wetlands / Fish and Wildlife
656	Constructed Wetland-(ac.)	Wetlands / Fish and Wildlife
657	Wetland Restoration-(ac.)	Wetlands / Fish and Wildlife
658	Wetland Creation-(ac.)	Wetlands / Fish and Wildlife
659	Wetland Enhancement-(ac.)	Wetlands / Fish and Wildlife
710	Coastal Wetland Vegetation Establishment-(ac.)	Wetlands / Fish and Wildlife
766	Ecosystem Restoration-(ac.)	Wetlands / Fish and Wildlife
767	Native Plant Community Restoration and Management-(ac.)	Wetlands / Fish and Wildlife
772	Fish Barrier/Weir-(no.)	Wetlands / Fish and Wildlife
490	Forest Site Preparation-(ac.)	Forest Land

612	Tree/Shrub Establishment-(ac.)	Forest Land
655	Forest Trails & Landings-(ac.)	Forest Land
660	Tree/Shrub Pruning-(ac.)	Forest Land
666	Forest Stand Improvement-(ac.)	Forest Land
704	Agroforestry Planting-(ac.)	Forest Land
722	Road/Landing Removal-(ac.)	Forest Land
763	Woodland Pruning-(ac.)	Forest Land
	Forest Land Erosion Control System-(no.)	Forest Land
660A	Tree/Shrub Pruning-(ac.)	Forest Land
394	Firebreak-(ft.)	Other
432	Dry Hydrant-(no)	Other
451	Land Reclamation, Fire Control-(no.)	Other
453	Land Reclamation, Landslide Treatment-(no.)	Other
454	Land Reclamation, Subsidence Treatment-(ac.)	Other
455	Land Reclamation, Toxic Discharge control-(no.)	Other
456	Land Reclamation, Highwall Treatment-(no.)	Other
457	Mine Shaft & Adit Closing-(no.)	Other
460	Land Clearing-(ac.)	Other
500	Obstruction Removal-(ac.)	Other

543	Land Reconstruction, Abandoned Mined Land-(ac.)	Other
544	Land Reconstruction, Currently Mined Land-(ac.)	Other
562	Recreation Area Improvement-(ac.)	Other
566	Recreation Land Grading & Shaping-(ac.)	Other
568	Recreation Trail & Walkway-(ft.)	Other
712	Drafting Basin-(no.)	Other
713	Dune Stabilization-(ac.)	Other
715	Furrow Diking-(ac.)	Other
744	Land Grading-(ac.)	Other
773	Land Resconstruction, Brine Damanged Areas-(ac.)	Other
779	Livestock Cooling Pond-(no.)	Other
781	Evaporate Cooling Pads-(no.)	Other