AGRICULTURAL MANAGEMENT ASSISTANCE PROGRAM

Finding of No Significant Impact
November 2002
Finding of No Significant Impact

The National Environmental Policy Act (NEPA) requires Federal agencies to prepare an Environmental Impact Statement (EIS) for major Federal actions significantly affecting the quality of the human environment. I have determined, based upon the reasons provided below, that there will be no significant individual or cumulative impacts on the quality of the human environment as a result of implementing the Agricultural Management Assistance (AMA) Program, particularly when focusing on the significant adverse impacts which NEPA is intended to help decision makers avoid and mitigate against. Therefore, an EIS is not required.

As discussed in the Environmental Assessment (EA), attached hereto and made a part hereof, Congress has authorized the AMA to be implemented in only the 15 states identified in the legislation (EA, p.1). Funding for conservation practices is authorized at $20 million per year in fiscal years 2003 through 2007 and at $10 million per year in other years (EA, p. 2). At $20 million per year, approximately 280,000 acres will be treated each year (EA, p. 6). Particularly on a National level, this level of treatment does not provide an opportunity to have more than a minimal impact on the quality of the human environment. This is the case when considering impacts that may be both beneficial and adverse.

NRCS has in the past and will continue to document the results of an environmental evaluation on a site-specific level and, as stated in the EA, will consult with the appropriate organizations to avoid, mitigate or reduce adverse impacts on protected resources (EA, p. 8). NRCS will comply with requirements protecting unique geographic features and other resources, as well as NRCS policies protecting natural and cultural resources (EA, p. 8). Thus, there is no threat of a violation of any Federal, State or local law or other requirements for the protection of the environment as a result of implementing the AMA. There is no impact on public health or safety identified in this EA or otherwise expected. Furthermore, there is no effect identified that might be considered highly controversial or uncertain or that might involve unique or unknown risks. Neither the proposed action nor any of the alternatives is likely to establish a precedent for future actions other than the future implementation of the types of conservation practices that must be used to accomplish the purposes of this program.

Implementation of the AMA is not sufficiently related to other actions that either individually or cumulatively is likely to result in significant impacts. To the extent other NRCS actions authorized by the AMA may result in significant effects to the quality of the human environment, a State or area-wide EA or EIS may be prepared separately from this National EA.

Based on the information presented in the attached AMA EA, I find that the proposed action is not a major Federal action significantly affecting the quality of the human environment. Therefore, an EIS will not be prepared.

/S/
BRUCE I. KNIGHT
Chief, Natural Resources Conservation Service
U.S. Department of Agriculture
AGRICULTURAL MANAGEMENT ASSISTANCE PROGRAM

Programmatic Environmental Assessment
November, 2002
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BACKGROUND

I. Introduction

The Natural Resources Conservation Service (NRCS) is promulgating a regulation to implement the conservation provisions of the Agricultural Management Assistance (AMA) Program, authorized by Section 524(b) of the Federal Crop Insurance Act, 7 U.S.C. 1524(b), as amended by Section 133 of the Agricultural Risk Protection Act of 2000, Public Law (P.L.) 106-224, and Section 2501 of the Farm Security and Rural Investment Act of 2002, P.L. 107-171. The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies prepare Environmental Impact Statements (EIS) for major federal actions significantly affecting the quality of the human environment. In addition, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts 1500-1508) require Federal agencies to prepare Environmental Assessments (EA) to assist them in determining whether they need to prepare an EIS for actions that have not been categorically excluded from NEPA.

NRCS regulations implementing the provisions of NEPA state that an EIS is normally required for "broad Federal assistance programs administered by NRCS when the environmental evaluation indicates there may be significant cumulative impacts on the human environment." 7 CFR 650.7 (a)(3). The environmental evaluation process indicated that it is unlikely there will be significant cumulative impacts on the quality of the human environment as a result of implementing the AMA program, particularly when focusing on the significant adverse impacts which NEPA is intended to help decision makers avoid and mitigate against. However, NRCS nonetheless developed this EA to further review the effects of the proposed program and to assist in determining whether implementing the AMA program conservation provisions will significantly affect the quality of the human environment such that NRCS must prepare an EIS. The proposed action under consideration here involves rulemaking, and no site-specific or ground-disturbing actions will occur as an immediate result of implementing the proposal. Additional environmental review at subsequent stages of program implementation will be undertaken consistent with NEPA requirements.

II. AMA Program Statutory Requirements

The AMA program is a voluntary program providing financial assistance to agricultural producers in selected states. The statute, as amended by the Farm Security and Rural Investment Act of 2002, authorizes the Secretary to provide financial assistance to producers in Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming.

A producer may use the financial assistance NRCS provides through the AMA program to:

1. construct or improve watershed management structures or irrigation structures;
2. plant trees to form windbreaks or to improve water quality;
3. mitigate financial risk through resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming; and
4. conduct other related activities.

The total amount of all AMA payments made to a person (as defined in section 1001(5) of the Food and Security Act (7 U.S.C. 1308(5)), may not exceed $50,000 for any year. The AMA program is funded through the Commodity Credit Corporation (CCC) and in fiscal years 2003 through 2007, the CCC is to make available $20,000,000 to carry out the AMA program. In other fiscal years, the CCC is to make available $10,000,000 to carry out the AMA program. Some portion of this amount, as determined by the Secretary, will be made available to NRCS to implement the conservation provisions of the AMA.

**NEED FOR ACTION**

The need to which NRCS is responding in the proposed action is the need to provide financial assistance to producers to implement the following types of conservation practices in the 15 states identified in the AMA authorizing legislation:

- construction or improvement of watershed management structures or irrigation structures;
- tree planting to form windbreaks or to improve water quality;
- conservation practices which mitigate financial risk, including soil erosion control, integrated pest management, or transition to organic farming and
- other related conservation practices.

In implementing the program, there is a need to allow for flexibility to ensure the program addresses local agricultural and natural resource needs and conditions, as well as a need to keep administrative costs of the program to a minimum, and program requirements as consistent as possible with the requirements of other NRCS conservation programs. Consistency will simplify participation by eligible farmers and ranchers who enroll in other NRCS programs.

**ALTERNATIVES**

I. **Alternative 1, Proposed Action**

The proposed action is to implement the AMA program according to the provisions of a final rule which consists of the following elements:

- The Chief of NRCS, on behalf of CCC, will determine the funds available to particular States to implement the program.
- The NRCS State Conservationist, in consultation with the State Technical Committee, will determine eligible practices using a locally led process.
- There will be a continuous signup period, with ranking cutoff dates as determined by the State Conservationist in consultation with the State Technical Committee.
- The State Conservationist, in consultation with the State Technical Committee, will select applications based on State-developed ranking criteria and a ranking
process that takes into account local and state priorities. The State Conservationist may also delegate the selection of applications to the local designated conservationist who will work in consultation with the local USDA Work Group.

A conservation plan is required for the area covered by the AMA program cost-share agreement and becomes the basis for developing the cost-share agreement. The conservation plan must be acceptable to NRCS; be approved by the local conservation district; be signed by the participant, designated conservationist, and the conservation district; and clearly identify the conservation practices that will be cost-shared with AMA program funds, as well as the practices that must be carried out but for which no AMA program payments will be made.

- AMA program contracts shall be for a duration of 3 to 10 years.
- The Federal share of cost-share payments to a participant shall be 75 percent of the actual cost of an eligible practice. Cost-share payments shall not be made to a participant who has applied or initiated application of a conservation practice before contract approval.

II. Alternative 2, No Action

This alternative represents conditions that would occur if no action were taken to implement the AMA program.

IMPACTS

I. Introduction

This section describes potential impacts of implementing the AMA program as described above in “Alternatives” under the section titled “Alternative 1, Proposed Action.” Promulgation of the rule itself will not directly result in impacts to the quality of the human environment; however, the conservation practices implemented using AMA program funds will have an effect on the quality of the human environment.

The AMA program was first authorized when Section 524(b) of the Federal Crop Insurance Act, 7 U.S.C. 524(b), was amended by Section 133 of the Agricultural Risk Protection Act of 2000, P.L. 106-224. In fiscal year (FY) 2001, the AMA program was implemented under a Federal Register Notice at 66 FR 30400 (June 6, 2001). (See Appendix A.) In FY 2002, the AMA program was implemented under a Federal Register Notice at 67 FR 11459 (March 14, 2002). (See Appendix B.) The statute authorizing the AMA program was subsequently amended by Section 2501 of the Farm Security and Rural Investment Act of 2002, P.L. 107-171. This amendment increased the funding available for the program from $10 million to $20 million in fiscal years 2003 through 2007. Before the 2002 amendment, the legislation gave the Secretary of Agriculture discretion to implement the program in 10 to 15 states in which participation in Federal crop insurance has historically been low. The Secretary therefore designated the following states as eligible to participate in the AMA program:
In the 2002 amendment, Congress removed the Secretary’s discretion and made the program applicable to producers in these same 15 States.

Because the substantive provisions of the program were not affected by the 2002 amendment to the Federal Crop Insurance Act, the elements of the proposed action are substantially the same provisions as those in the Federal Register Notices announcing the availability of funds. Thus, actions taken under the 2001 program are an indicator of what is likely to occur when the program is implemented under the proposed action and are discussed below in reference to the impacts of Alternative 1, “Proposed Action”.

II. Alternative 1, "Proposed Action"

This section of the EA provides an overview of what conservation practices will most likely be implemented within the 15 States eligible to participate in the AMA program, and projects the number of acres likely to be treated and the physical effects of the most frequently implemented AMA program practices.

When the AMA program was implemented in FY 2001, $7 million was available for NRCS to implement its AMA program authorities¹, and more applications were received than there were funds available. Of the applications submitted, only 32.7 percent were funded and resulted in contracts. Table 1 shows the number of applications received, the number of contracts funded, and the acres actually enrolled in the AMA program, by state.

¹ Other USDA agencies are responsible for implementing portions of the AMA program that do not involve implementing agricultural conservation measures. Thus, NRCS does not receive the full amount of authorized funding for AMA.
### Table 1: AMA Fiscal Year 2001 Participation

<table>
<thead>
<tr>
<th>AMA State</th>
<th>Total Number of Applications Received</th>
<th>Number of Contracts Funded</th>
<th>Acres Enrolled in the AMA Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>32</td>
<td>19</td>
<td>373</td>
</tr>
<tr>
<td>Delaware</td>
<td>21</td>
<td>12</td>
<td>340</td>
</tr>
<tr>
<td>Maine</td>
<td>169</td>
<td>28</td>
<td>1,535</td>
</tr>
<tr>
<td>Maryland</td>
<td>37</td>
<td>17</td>
<td>1,170</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>140</td>
<td>24</td>
<td>372</td>
</tr>
<tr>
<td>Nevada</td>
<td>42</td>
<td>6</td>
<td>648</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>26</td>
<td>2</td>
<td>765</td>
</tr>
<tr>
<td>New Jersey</td>
<td>22</td>
<td>22</td>
<td>246</td>
</tr>
<tr>
<td>New York</td>
<td>382</td>
<td>172</td>
<td>6,524</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>234</td>
<td>56</td>
<td>2,050</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>6</td>
<td>3</td>
<td>31</td>
</tr>
<tr>
<td>Utah</td>
<td>19</td>
<td>12</td>
<td>8,413</td>
</tr>
<tr>
<td>Vermont</td>
<td>63</td>
<td>12</td>
<td>2,076</td>
</tr>
<tr>
<td>West Virginia</td>
<td>255</td>
<td>109</td>
<td>6,741</td>
</tr>
<tr>
<td>Wyoming</td>
<td>207</td>
<td>47</td>
<td>108,430</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,655</strong></td>
<td><strong>541</strong></td>
<td><strong>139,714</strong></td>
</tr>
</tbody>
</table>

Clearly, the demand for program funds exceeded available amounts in most states. Based on the information in Table 1, it appears likely that States such as Pennsylvania, Wyoming, New York, Maine, and West Virginia will have the highest demand for funds based on the number of unfunded program applications.

Table 2 shows the percentage of applications received and contracts funded for each State participating in the AMA program. For example, Connecticut had 32 applications, which represents 1.9 percent of the 1,655 total applications received across all 15 states. Connecticut funded 19 of those applications, which represents 3.5 percent of the total applications funded by all 15 states combined. The table also shows by state the percent of applications received that were funded. For example, Connecticut was able to fund contracts for 59 percent of the applications it received in FY 2001. Finally, Table 2 shows the percent of total acres enrolled in the program for each state. Of the 139,714 total acres enrolled in the AMA program in FY 2001, Connecticut’s 373 acres represent 0.27 percent.
New York, West Virginia, and Pennsylvania had the highest percentages of applications received and contracts funded even though they also have a high number of unfunded applications, and Wyoming, Utah, West Virginia and New York had the highest percentages of acres enrolled in the FY 2001 AMA program. Combined, New York, West Virginia, Pennsylvania, Wyoming and Utah are considered representative of both Eastern and Western resource concerns because those states together account for 73 percent of all contracts funded and 95 percent of all acres enrolled. Moreover, these same States are among those with the greatest number of unfunded applications based on the 1991 program (see Table 1). Therefore, the conservation practices implemented in New York, West Virginia, Pennsylvania, Wyoming and Utah are also considered to be representative of the types of practices implemented most frequently by all 15 states eligible to participate in the AMA program and most likely to be implemented in future years of the program. The conservation practices these states most commonly used in the AMA program are identified in Table 3.

Overall, NRCS received about 70 percent of available AMA program funds to implement conservation practices. The average cost to implement these practices was $50 per acre. Therefore, assuming a similar trend continues, NRCS can expect to receive about $14 million per year in fiscal years 2003 through 2007, resulting in conservation practices installed on about 280,000 acres in each of those years. Most of the practices installed will be those identified in Table 3.
NRCS developed network diagrams depicting the chain of natural resource effects resulting from the application of each practice listed in Table 3. (See Appendix C.) Each of the diagrams first identifies the typical setting to which the practice is applied. This includes identification of the predominating land use and the resource concerns that trigger use of the practice. The diagrams then identify the practice used to address the resource concerns. Following identification of the practice, there is a description of the physical activities that are carried out to implement the practice. From there, the diagrams depict the occurrence of the direct, indirect and cumulative effects of the practice. Effects are qualified with a "+" or a "-" which denotes an increase ("+") or decrease ("-"") in the effect. Pluses and minuses do not equate to good and bad or positive and negative. Only the general effects that are considered to be the most important ones from a national perspective are illustrated. In addition to the network diagrams, a photo and summary description about how each of these practices is intended to be used and the general effects of using the practice is found in Appendix C.

The effects of the practices may vary somewhat depending on the local ecosystem(s), methods of practice installations, and presence of special resources of concern in a particular state, such as the presence of a coastal zone, endangered or threatened species, historic or cultural resources, and the like. While effects on these resources may be described in general terms at the national level, they can be described more specifically at the state and local level where actions can also be planned to ensure adverse effects are avoided, minimized and

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2 Practice numbers are assigned by NRCS for eases of reference and are found in the NRCS National Handbook of Conservation Practices.
mitigated as appropriate. This is particularly true for endangered and threatened species, historic preservation, historic and cultural resources, essential fish habitat and other resources that are protected by special authorities that require consultation. NRCS will consult on a state or site-specific level as needed and appropriate, to ensure AMA program actions do not adversely affect endangered or threatened species, essential fish habitat, cultural resources, or any other protected resources and will implement practices in a manner that is consistent with the NRCS policy to avoid, mitigate or minimize adverse effects to the extent feasible.

For example, to ensure compliance with the Endangered Species Act, State Conservationists will invite representatives of the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), as applicable, to all State Technical Committee meetings and encourage their involvement in the development of program criteria within the State. NRCS will also conduct additional programmatic consultations with FWS and NMFS at the State level as needed to ensure AMA program implementation is not likely to adversely affect species listed as endangered or threatened or species proposed for listing as endangered or threatened or designated critical habitat. Such consultation will also be used to identify ways the AMA program might further the conservation of protected species and identify situations in which no site-specific consultation would be needed. Site-specific consultation will also be conducted as needed to avoid adversely affecting any protected species or habitat.

To ensure compliance with the National Historic Preservation Act and associated authorities, NRCS State Offices will follow the procedures outlined in the Advisory Council on Historic Preservation’s (ACHP) regulations (36 CFR Part 800) or, in accordance with NRCS’ alternate procedures (nationwide Programmatic Agreement), invite State Historic Preservation Officers (SHPO’s) and federally recognized Tribes (or their designated Tribal Historic Preservation Officers) to enter into consultation agreements that highlight and focus review and consultation on those resources and locations that are of special concern to these parties. In addition, if no state-level agreements are developed with the SHPO’s or Tribes, and/or if other consulting parties are identified, they will be afforded, as appropriate, an opportunity to advise the NRCS State Office during project-specific planning about their historic and cultural resource concerns so that they may be taken into account in accordance with the ACHP regulations. Similar processes will be followed, as needed and appropriate, to address other special requirements for the protection of the environment.

The practices implemented most frequently under the AMA program are most often used to support livestock operations, particularly grazing operations, and production of irrigated hay, both for grazing and for harvest as a crop for later use as livestock feed. Grazing lands include a myriad of land uses: rangelands, pasturelands, haylands, grazed forest lands, grazed croplands, and naturalized pastures. Conservation practices to support livestock operations are designed to reduce soil erosion, provide feed and water for livestock production; enhance wildlife food and habitat; enhance plant biodiversity; protect air, soil, and water resources; provide a basis for diversification of farm income; and reduce runoff that may carry manure and other contaminants

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3 In addition to situations in which NRCS determined there would be no effect on protected species or habitat, site-specific consultation should not be needed when NRCS and FWS or NMFS agree a category of proposed actions is not likely to adversely affect a protected species or habitat and NRCS obtains an incidental take statement based on that agreement.
to receiving waters. They perform these functions by creating channels, covering the soil with increased live vegetation, creating barriers, planting crops or other vegetation with specialized characteristics, or adjusting the techniques used to apply fertilizers or pesticides.

In addition to the primary effects mentioned above, other effects, both positive and negative, may occur. Soil condition may be improved, resulting in increased nutrient cycling, organic matter, and carbon sequestration. Livestock feed, soil organic matter, and biodiversity may increase. Plant growth and condition is improved when erosion is controlled on steep slopes and around feed areas. The increase in plant cover protects streams, ponds, and other water supplies from sediment and other possible contaminants, as well as providing food for livestock and wildlife. Nutrient cycling may be improved, and the corresponding need for purchased nutrients may decrease. Aesthetics may be improved. Snow trapping may occur, saline seeps may be reduced, and water use efficiency by crops may be improved. Many of the practices will decrease runoff while correspondingly increasing infiltration, which may result in both positive and negative effects, such as the tradeoff between increased groundwater infiltration and reduced surface flows. In the case of converting hay grown for use as a crop to a grazing operation, the total costs and fuel used to produce the crop will eventually be decreased because the animals, instead of the operator, harvest the feed.

Controlled access to sensitive areas should lead to a reduction in contaminants, pathogens, and sediments in receiving waters, as well as protection and productivity of desired plant species. Reduced runoff and erosion from other practices should also lead to reduced loss of soluble and sediment-bound contaminants to receiving water bodies, and snow trapping should lead to increased water storage, leading to healthier crops in many cases. Reduced need for nutrient applications will reduce farmer costs, leading to increased net income. Development of water facilities and mechanisms for providing source water for livestock leads to an increase in animal health and production. These same practices may interfere with natural water flow and/or enhance saltwater intrusion and possibly allow potential contaminants into water bodies. Some wildlife species may also be negatively affected, though some practices, such as field borders, also improve wildlife habitat and thus lead to increased wildlife. These and other indirect effects vary, depending on the particular conditions of each site.

Indirect effects can lead to cumulative effects such as income stability for producers and communities, and overall improvements in water quality, habitat suitability and human and animal health. These effects occur when the practice is applied within the same region on many farms or fields.

While program activities do have positive impacts on the environment, the limitations in the program funding results in site-specific outputs. These outputs do have positive cumulative impacts on the environment, but they seldom result in measurable or quantifiable environmental outcomes. For example, in a watershed that has identified water quality impairments because of nutrients as the resource of concern, the AMA program does not provide enough technical and financial assistance to plan and implement the appropriate conservation practices comprehensively throughout the watershed so that the water quality can show measurable improvements in a short time frame. However, the conservation practices that the program can provide funding to plan and implement, do provide positive environmental benefits for the
specific field or treatment area on which they are implemented when they are implemented according to NRCS policies and conservation practice standards and specifications, with due consideration to unique, site-specific conditions. When AMA program practices are implemented together with other conservation programs, they will lead to improvements in the condition and sustainability of natural resources and the communities that depend on these resources for their livelihood.

III. Alternative 2, "No Action"

If the AMA program were not implemented, farmers and ranchers participating in the program would most likely not be able to implement these conservation practices on their own. Agricultural producers typically do not have a good understanding of the science-based technology on which conservation systems are developed. They rely on the program technical assistance to provide them with the necessary education and information required to make sound decisions about which suite of practices to implement in order to address identified resource concerns. They very often also lack the economic resources to implement the potentially expensive structural conservation practices that are often required to adequately protect natural resources. Without the program financial assistance, most of the conservation practices needed would not be implemented. Consequently, without the technical and financial assistance provided by the program, agricultural producers would face environmental and/or financial risks to their operations that those who participate in the program would not.

While the cumulative total of environmental benefits of the AMA program may be difficult to measure on a National basis due to the program being limited to 15 states, the program does have an influence on the environmental health of the land on which it is implemented. The program technical assistance provides the agricultural producer with sound knowledge of what is needed to protect and enhance the natural resources in a holistic approach. This holistic approach teaches the producer not only what conservation practices are necessary to address the identified resource concern(s), but also teaches them why they are needed, how to implement and maintain them, and their impacts on other natural resources on the landscape. If there is no program, the opportunity to receive this extremely valuable technical assistance is reduced.
List of Persons and Agencies Consulted

Natural Resources Conservation Service

EA Preparers:

Andrée DuVarney, National Environmental Specialist, NRCS, Washington, D.C.
Carl Hutcherson, Regional Program Specialist, South Central Region, NRCS, Fort Worth, Texas
Wally Turner, National AMA Program Manager, NRCS, Washington, D.C.
Dave Mason, National AMA Program Manager, NRCS, Washington, D.C.

Network Diagramming Assistance

Carolyn Adams, Director, Watershed Science Institute, NRCS, Raleigh, NC
Barry H. Rosen, Ph.D., WSSI-Raleigh, NC
Barry L. Kintzer, P.E., National Environmental Engineer, CED, Washington, DC
Carl Hutcherson, Regional Program Specialist, South Central Region, Fort Worth, TX
Jerry Lemunyon, Conservation Agronomist, RAD, Ft. Worth
David C. Moffit, Environmental Engineer, NWMC-Ft. Worth, TX
Kathryn Staley, Fish Biologist, WHMI-Corvallis, OR
Ron Harris, Natural Resource Specialist, AHCWPd, Beltsville, MD
Steffanie Aschmann, Agroecologist, WSSI-Lincoln, NE
David Anderson, Agricultural Engineer, WSSI-Lincoln, NE
Dennis Carman, Agricultural Engineer, NWMC-Little Rock, AR
Doug Seibel, Engineer, Quality Assurance Staff, Washington, DC
Charlie Rewa, Wildlife Biologist, WHMI-Patuxent, MD
Lyn Townsend, Forest Ecologist, WSSI-Portland, Oregon
Bruce Wight, Lead Agroforester, Cooperating Scientist, National Agroforestry Center, Lincoln, Nebraska
Bill Kuenstler, Agronomist, National Cartography and Geospatial Center, Ft. Worth, TX
Arnold King, National Technical Coordinator, Cooperating Scientist, Ft. Worth, TX
Jerry Lemunyon, Conservation Agronomist, RAD-Ft. Worth, TX
Ron Harris, Natural Resource Specialist, AHCWPd, Beltsville, MD
Kerry Robinson, Hydraulic Engineer, WSSI-Raleigh, NC
Betty McQuaid, Ph.D., WSSI-Raleigh, NC
Jim Cropper, Ph.D., Forage Management Specialist, GLTI, University Park, PA
Arnold Norman, Ecosystem Management Specialist, GLTI, Ft. Worth, TX
George Peacock, Range Management Specialist, GLTI, Ft. Worth, TX
Ken Spaeth, Ph.D., Range Hydrology Specialist, GLTI, Boise, ID
Elvis Graves, liaison to EPA, EPA, North Carolina
Jeff Schmidt, Community Assistance Coordinator, BLM/NRCS, AZ
John Beyer, State Air Quality Specialist/NRI Coordinator, Fresno, CA
Roel Vining, Cooperating Scientist, Purdue University, IN
John Brenner, Cooperating Scientist, Fort Collins, CO
Beth Sauerhaft, National Ecological Climatologist, NRCS, Washington, DC
APPENDICES

Appendix A – Federal Register Notice Announcing Availability of Agricultural Management Assistance Program Funds, 66 FR 30400 (June 6, 2001)

Appendix B – Federal Register Notice Announcing Availability of Agricultural Management Assistance Program Funds, 67 FR 11459 (March 14, 2002)

Appendix C – AMA Practice Photos, Descriptions and Network Diagrams
Appendix A

Federal Register Notice Announcing Availability of Agricultural Management Assistance Program Funds, 66 FR 30400 (June 6, 2001)

[Federal Register: June 6, 2001 (Volume 66, Number 109)]
[Notices]
[Page 30400-30402]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr06jn01-40]

[[Page 30400]]

DEPARTMENT OF AGRICULTURE

Commodity Credit Corporation

Agricultural Management Assistance

AGENCY: Commodity Credit Corporation, United States Department of Agriculture.

ACTION: Notice of availability of program funds for agricultural management assistance.

SUMMARY: This notice announces the availability of funds for Agricultural Management Assistance (AMA) to implement Section 524(b) of the Federal Crop Insurance Act, 7 U.S.C. 1524(b), as added by Section 133 of the Agricultural Risk Protection Act of 2000, Public Law 106-224. The Commodity Credit Corporation (CCC) administers the funds under the general supervision of a Vice President of the CCC who is the Chief of the Natural Resources Conservation Service (NRCS). CCC is announcing the availability of funds under Section 524(b) of the Federal Crop Insurance Act. Section 524(b) authorizes the Secretary of Agriculture to use $10 million of CCC funds annually for cost share assistance to producers in 15 States in which participation in the Federal Crop Insurance Program is historically low. The 15 States include Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming. The cost share assistance will encourage and assist producers in the selected States to adopt natural resources conservation practices and investment strategies that will reduce or mitigate risks to their agricultural enterprises.

DATES: Fund will be available from June 6, 2001 to September 30, 2001.

ADDRESSES: Address all comments to: Conservation Operations Division,
Background

Section 524(b) of the Federal Crop Insurance Act, 7 U.S.C. 1524(b), was added by Section 133 of the Agricultural Risk Protection Act of 2000, (Pub. L. 106-224, June 22, 2000). Section 524(b) authorizes the Secretary of Agriculture (Secretary) to use $10 million of CCC funds for cost share assistance in 15 States where participation in the Federal Crop Insurance program is historically low. The 15 States designated by the Secretary are Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming. The Risk Management Agency (RMA), Agricultural Marketing Service (AMS), and NRCS will administer the funds in such amounts per agency as determined by the Secretary.

Section 524(b)(2)(A), (B), and (C), provides for cost-share assistance to producers to: construct or improve water management structures or irrigation structures; plant trees for windbreaks or improve water quality; and mitigate risks through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming.

Section 524(b)(2)(D) and (E), provides for cost-share assistance to producers to: enter into futures, hedging, or options contracts in a manner designed to help reduce production, price, or revenue risk; and enter into agricultural trade options as a hedging transaction to reduce production, price, or revenue risk.

This notice deals with the funding administered by NRCS, approximately $6 million, to carry out the conservation provisions of Section 524(b)(2)(A), (B), and (C).

The Chief of NRCS, on behalf of CCC, will determine the funds available to the States for financial and technical assistance in a fiscal year.

The NRCS State Conservationist, in consultation with the State Technical Committee, will determine eligible practices using a locally led process. Eligible conservation practices will be those practices that improve soil or water management or water quality, or mitigate financial risk through resource conservation. AMA does not provide for incentive payments.

There will be a continuous signup period, with ranking cutoff dates as determined by the State Conservationist in consultation with the State Technical Committee.

The State Conservationist, in consultation with the State Technical Committee, will select applications based on State-developed ranking criteria and a ranking process, taking into account local and state priorities. The State Conservationist may also delegate the selection of applications to the local designated conservationist who will work...
in consultation with the local USDA Work Group.

AMA Requirements

CCC will accept applications throughout the year. The State Conservationist, in consultation with the State Technical Committee, will widely distribute information on the availability of assistance and the State-specific goals. Information will be provided that explains the process to request assistance.

Applicants must own or control the land for which assistance is being sought and agree to implement specific eligible conservation practices on the land. The applicants must meet the definition of "person" as set out in Section 1001(5), of the Food Security Act, 7 U.S.C. 1308(5), as determined by the Farm Service Agency (FSA). Any cooperative association of producers that markets commodities for producers shall not be considered to be a person eligible for payment. The status of an individual or entity on the date of the application shall be the basis on which the determination of the number of persons involved in the farming operation is made. There will be a 5 to 10 year cost share agreement period to install eligible practices. Cost share practices need to be maintained for the life of the practice. The maximum payment to any one person under the AMA program is $50,000 for any fiscal year.

The Federal share of cost-share payments shall be 75 percent of the cost of an eligible practice(s), based on percent of actual cost, percent of actual cost with not-to-exceed limits, flat rates, or average costs. Producers will be paid upon certification of the completion of the approved practice(s). Producers may contribute to the application of a cost-share practice through in-kind contributions. Eligible in-kind contributions include: personal labor; use of personal equipment; donated labor or materials; and use of on-hand or used materials that meet the requirements for the practice to be installed. In no instance shall the total financial contributions for an eligible practice from all public and private entity sources exceed 100 percent of the actual cost of the practice. Cost-share payments will not be made to a participant who has applied or initiated the application of a conservation practice prior to approval of the cost share agreement.

Eligible participants must have control of the land for the life of the cost share agreement period. An exception may be made by the Chief of NRCS in the case of land allotted by the Bureau of Indian Affairs (BIA), tribal land, or other instances in which the Chief of NRCS determines that there is sufficient assurance of control; or the applicant is a tenant of the land involved in agricultural production and the applicant provides CCC with the written concurrence of the landowner in order to apply an eligible practice(s).

Eligible land includes land used as agricultural land on which NRCS determines that assistance is needed to construct or improve watershed management structures or irrigation structures; plant trees to form windbreaks or to improve water quality; or to mitigate financial risk through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming. Additionally, land may only be considered for enrollment in AMA if NRCS determines that the land is privately-owned or publicly-owned where the land is under private
control for the length of the cost share agreement and is included in the participant's operating unit. The conservation practices installed on public land must contribute to an improvement in the identified natural resource concern as well as benefit private land. The applicant must provide CCC with written authorization from the government landowner to apply the conservation practices. Land that is Federally recognized Tribal, BIA allotted, or Indian trust land may be considered for enrollment in AMA.

Applicants must submit an application (CCC-1200 form) to CCC to be considered for participation in AMA. Any producer who has eligible land may obtain and submit an application for participation in AMA at a USDA service center. Producers who are members of a joint operation shall file a single application for the joint operation. A NRCS conservationist will work with the applicant to collect the information necessary to evaluate the application using the State-developed ranking criteria.

Conservation Plan Requirement

A conservation plan is required for the area to be included in the AMA cost share agreement and becomes the basis for developing the cost share agreement. The conservation plan must be acceptable to NRCS; be approved by the local conservation district; be signed by the participant, designated conservationist, and the conservation district; and clearly identify the conservation practices that will be cost shared with AMA funds and the non-cost shared practices needed in the conservation plan.

Cost Share Agreement Requirements

Participants will enter into a cost share agreement agreeing to implement eligible conservation practices. An AMA cost share agreement will incorporate by reference all portions of a unit applicable to AMA and be for a duration of 5 to 10 years.

Cost share agreements will incorporate all provisions as required by law or statute, including requirements to not conduct any practices on the farm or ranch unit of concern that would tend to defeat the purposes of the cost share agreement; refund to CCC any AMA payments received with interest, and forfeit any future payments under AMA, on the violation of a term or condition of the cost share agreement; refund all AMA payments received on the transfer of the right and interest of the producer in land subject to the cost share agreement, unless the transferee of the right and interest agrees to assume all obligations of the cost share agreement; and supply information as required by CCC to determine compliance with the cost share agreement and requirements of AMA. The participant and NRCS must certify that a conservation practice is completed in accordance with the cost share agreement before CCC will approve any cost-share payments.

With respect to land under an AMA cost share agreement which is inherited during the cost share agreement period, the $50,000 per fiscal year limitation to any person will not apply to the extent that the payments from any cost share agreements on the inherited land cause an heir, who was party to an AMA cost share agreement on other lands prior to the inheritance, to exceed the annual limit.

With regard to cost share agreements on tribal land, Indian trust land, or BIA allotted land, payments exceeding $50,000 per fiscal year limitation may be made to the tribal venture if an official of the BIA
or tribal official certifies in writing that no one person directly or indirectly will receive more than the fiscal year limitation.

Conservation Practice Operation and Maintenance

The cost share agreement will provide for the operation and maintenance of the conservation practices applied under the cost share agreement. The participant will operate and maintain the conservation practices for their intended purposes as agreed-to as part of the cost share agreement, and form CCC-1245, Practice Approval and Payment Application.

Additional Requirements and Information

Additional requirements and information pertaining to the AMA program relating to cost share agreements, administrative requirements, and other matters can be found on CCC form CCC-1200, Conservation Program Contract, and the appendix to form CCC-1200, both of which are available at local USDA service centers.

Civil Rights

NRCS and CCC have collected civil rights data on farmers/ranchers participating in conservation programs. Based on past participation, it is estimated that the funding being made available with this notice will not negatively or disproportionately affect minorities, women, or persons with disabilities who are program beneficiaries or applicants for program benefits in NRCS or CCC assisted programs.

Environmental Evaluation

This assistance, administered by NRCS, will be funded at a level for 2001 as determined by the Secretary. Depending on the level of funding, and based on the participation in existing soil and water conservation programs, it is estimated that this assistance could result in approximately 200 cost share agreements in the 15 States. On each farm or ranch, during the conservation planning process, the environmental effects of any proposed actions are evaluated on a case by case basis. That evaluation is used to determine whether further environmental analysis is required. Accordingly, neither an Environmental Assessment nor an Environmental Impact Statement has been prepared for this notice.

Thomas A. Weber,
Deputy Chief for Programs, Natural Resources Conservation Service.
Federal Register Notice Announcing Availability of Agricultural Management Assistance Program Funds, 67 FR 11459 (March 14, 2002)

[Federal Register: March 14, 2002 (Volume 67, Number 50)]
[Notices]
[Page 11459-11461]

From the Federal Register Online via GPO Access [wais.access.gpo.gov]
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-----------------------------------------------------------------------
DEPARTMENT OF AGRICULTURE

Commodity Credit Corporation

Agricultural Management Assistance

AGENCY: Commodity Credit Corporation, United States Department of Agriculture.

ACTION: Notice of availability of program funds for Agricultural Management Assistance.

-----------------------------------------------------------------------
SUMMARY: This notice announces the availability of funds for Agricultural Management Assistance (AMA) to implement Section 524(b) of the Federal Crop Insurance Act, 7 U.S.C. 1524(b), as added by Section 133 of the Agricultural Risk Protection Act of 2000, Public Law 106-224. The Commodity Credit Corporation (CCC) administers the funds under the general supervision of a Vice President of the CCC who is the Chief of the Natural Resources Conservation Service (NRCS). CCC is announcing the availability of funds under Section 524(b) of the Federal Crop Insurance Act. Section 524(b) authorizes the Secretary of Agriculture to use $10 million of CCC funds annually for cost-share assistance to producers in 15 States in which participation in the Federal Crop Insurance Program is historically low. The 15 States include Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming. The cost-share assistance will encourage and assist producers in the selected States to adopt natural resources conservation practices and investment strategies that will reduce or mitigate risks to their agricultural enterprises.

SUPPLEMENTARY INFORMATION:

Background

Section 524(b) of the Federal Crop Insurance Act, 7 U.S.C. 1524(b), was added by Section 133 of the Agricultural Risk Protection Act of 2000, (Pub. L. 106-224, June 22, 2000). Section 524(b) authorizes the Secretary of Agriculture (Secretary) to use $10 million of CCC funds for cost-share assistance in 15 States where participation in the Federal Crop Insurance program is historically low. The 15 States designated by the Secretary are Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming. The Risk Management Agency (RMA), Agricultural Marketing Service (AMS), and NRCS will administer the funds in such amounts per agency as determined by the Secretary.

Section 524(b)(2)(A), (B), and (C), provides for cost-share assistance to producers to: construct or improve water management structures or irrigation structures; plant trees for windbreaks or improve water quality; and mitigate risks through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming.

Section 524(b)(2)(D) and (E), provides for cost-share assistance to producers to: enter into futures, hedging, or options contracts in a manner designed to help reduce production, price, or revenue risk; and enter into agricultural trade options as a hedging transaction to reduce production, price, or revenue risk.

This notice deals with the funding administered by NRCS, approximately $7 million in fiscal year 2002, to carry out the conservation provisions of Section 524(b)(2)(A), (B), and (C).

The Chief of NRCS, on behalf of CCC, will determine the funds available to the States for financial and technical assistance.

The NRCS State Conservationist, in consultation with the State Technical Committee, will determine eligible practices using a locally led process. Eligible conservation practices will be those practices that improve soil or water management or water quality, or mitigate financial risk through resource conservation. AMA does not provide for incentive payments.

There will be a continuous signup period, with ranking cutoff dates as determined by the State Conservationist in consultation with the State Technical Committee.

The State Conservationist, in consultation with the State Technical Committee, will select applications based on State-developed ranking criteria and a ranking process, taking into account local and state priorities. The State Conservationist may also delegate the selection of applications to the local designated conservationist who will work
AMA Requirements

CCC will accept applications throughout the year. The State Conservationist, in consultation with the State Technical Committee, will widely distribute information on the availability of assistance and the State-specific goals. Information will be provided that explains the process to request assistance.

Applicants must own or control the land for which assistance is being sought and agree to implement specific eligible conservation practices on the land. The applicants must meet the definition of "person" as set out in Section 1001(5), of the Food Security Act, 7 U.S.C. 1308(5), as determined by the Farm Service Agency (FSA). Any cooperative association of producers that markets commodities for producers shall not be considered to be a person eligible for payment. The status of an individual or entity on the date of the application shall be the basis on which the determination of the number of persons involved in the farming operation is made. There will be a 5 to 10 year cost-share agreement period to install eligible practices. Cost-share practices need to be maintained for the life of the practice. The maximum payment to any one person under the AMA program is $50,000 for any fiscal year.

The Federal share of cost-share payments shall be 75 percent of the cost of an eligible practice(s), based on percent of actual cost, percent of actual cost with not-to-exceed limits, flat rates, or average costs. Producers will be paid upon certification of the completion of the approved practice(s). Producers may contribute to the application of a cost-share practice through in-kind contributions. Eligible in-kind contributions include: personal labor; use of personal equipment; donated labor or materials; and use of on-hand or used materials that meet the requirements for the practice to be installed. In no instance shall the total financial contributions for an eligible practice from all public and private entity sources exceed 100 percent of the actual cost of the practice. Cost-share payments will not be made to a participant who has applied or initiated the application of a conservation practice prior to approval of the cost-share agreement.

Eligible participants must have control of the land for the life of the cost-share agreement period. An exception may be made by the Chief of NRCS in the case of land allotted by the Bureau of Indian Affairs (BIA), tribal land, or other instances in which the Chief of NRCS determines that there is sufficient assurance of control; or the applicant is a tenant of the land involved in agricultural production and the applicant provides CCC with the written concurrence of the landowner in order to apply an eligible practice(s).

Eligible land includes land used as agricultural land on which NRCS determines that assistance is needed to construct or improve watershed management structures or irrigation structures; plant trees to form windbreaks or to improve water quality; or to mitigate financial risk through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming. Additionally, land may only be considered for enrollment in AMA if NRCS determines that the land is privately-owned or publicly-
owned where the land is under private control for the length of the cost-share agreement and is included in the participant's operating unit. The conservation practices installed on public land must contribute to an improvement in the identified natural resource concern as well as benefit private land. The applicant must provide CCC with written authorization from the government landowner to apply the conservation practices. Land that is Federally recognized Tribal, BIA allotted, or Indian trust land may be considered for enrollment in AMA.

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Conservation Plan Requirement

A conservation plan is required for the area to be included in the AMA cost-share agreement and becomes the basis for developing the cost-share agreement. The conservation plan must be acceptable to NRCS; be approved by the local conservation district; be signed by the participant, designated conservationist, and the conservation district; and clearly identify the conservation practices that will be cost-shared with AMA funds and the non-cost shared practices needed in the conservation plan.

Cost-Share Agreement Requirements

Participants will enter into a cost-share agreement agreeing to implement eligible conservation practices. An AMA cost-share agreement will incorporate by reference all portions of a unit applicable to AMA and be for a duration of 5 to 10 years.

Cost-share agreements will incorporate all provisions as required by law or statute, including requirements to not conduct any practices on the farm or ranch unit of concern that would tend to defeat the purposes of the cost-share agreement; refund to CCC any AMA payments received with interest, and forfeit any future payments under AMA, on the violation of a term or condition of the cost-share agreement; refund all AMA payments received on the transfer of the right and interest of the producer in land subject to the cost-share agreement, unless the transferee of the right and interest agrees to assume all obligations of the cost-share agreement; and supply information as required by CCC to determine compliance with the cost-share agreement and requirements of AMA. The participant and NRCS must certify that a conservation practice is completed in accordance with the cost-share agreement before CCC will approve any cost-share payments.

With respect to land under an AMA cost-share agreement which is inherited during the cost-share agreement period, the $50,000 per fiscal year limitation to any person will not apply to the extent that the payments from any cost-share agreements on the inherited land cause an heir, who was party to an AMA cost-share agreement on other lands prior to the inheritance, to exceed the annual limit.

With regard to cost-share agreements on tribal land, Indian trust land, or BIA allotted land, payments exceeding $50,000 per fiscal year limitation may be made to the tribal venture if an official of the BIA
or tribal official certifies in writing that no one person directly or indirectly will receive more than the fiscal year limitation.

Conservation Practice Operation and Maintenance

The cost-share agreement will provide for the operation and maintenance of the conservation practices applied under the cost-share agreement. The participant will operate and maintain the conservation practices for their intended purposes as agreed-to as part of the cost-share agreement, and form CCC-1245, Practice Approval and Payment Application.

Additional Requirements and Information

Additional requirements and information pertaining to the AMA program relating to cost-share agreements, administrative requirements, and other matters can be found on CCC form CCC-1200, Conservation Program Contract, and the appendix to form CCC-1200, both of which are available at local USDA service centers.

Civil Rights

NRCS and CCC have collected civil rights data on farmers/ranchers participating in conservation programs. Based on past participation, it is estimated that the funding being made available with this notice will not negatively or disproportionately affect minorities, women, or persons with disabilities who are program beneficiaries or applicants for program benefits in NRCS or CCC assisted programs.

Environmental Evaluation

This assistance, administered by NRCS, will be funded at a level for 2002 as determined by the Secretary. Depending on the level of funding, and based on the participation in existing soil and water conservation programs, it is estimated that this assistance could result in approximately 230 cost-share agreements in the 15 States. On each farm or ranch, during the conservation planning process, the environmental effects of any proposed actions are evaluated on a case by case basis. That evaluation is used to determine whether further environmental analysis is required. Accordingly, neither an Environmental Assessment nor an Environmental Impact Statement has been prepared for this notice.

Thomas A. Weber,
Deputy Chief for Programs, Natural Resources Conservation Service.

[FR Doc. 02-6171 Filed 3-13-02; 8:45 am]
BILLING CODE 3410-16-P
## AMA PRACTICE EFFECTS: PRACTICE PHOTO, DESCRIPTION AND NETWORK DIAGRAMS

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ANIMAL TRAILS AND WALKWAYS

PRACTICE INTRODUCTION

Animal trails and walkways provide a travel lane through difficult or ecologically sensitive terrain.

PRACTICE INFORMATION

This practice is installed on grazing lands as part of a conservation plan to accomplish one or more of the following:
1. Improve access to forage, water and/or shelter.
2. Improve grazing efficiency and distribution.
3. Divert travel away from ecologically sensitive and/or erosive sites.

Trails or walkways are often needed where animal movement is impeded or restricted because of steep rough terrain, rock outcrops, dense vegetation, water, etc.

Detailed design criteria is available on the NRCS national practice standard. To familiarize you with the general concept, the following practice criteria is provided:
1. The structures will be wide enough for livestock movement and vehicles.
2. Soil erosion will be minimized during construction.
3. Supporting structures for water management will be provided.
4. Walkways will be constructed based on normal high water levels.
5. Walkway borrow pits will be staggered to provide access to grazing areas on either side of the structure.

The following page identifies the effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
Animal Trails and Walkways Practice
Version 5.29.02

Initial Setting: Grazing lands where improvement in access to forage, water, and shelter; diversion from ecological sites; and travel through difficult areas is needed

Start

1. Grade and shape of walkway & establish support structures
2. Establish cover on trails and walkways

D.1 (-) Access to ecologically sensitive areas, erosive areas, or water bodies
D.2 (+) Access of livestock to forage, constructed water sources & shelter, and/or handling/milking facilities
D.3 (+) Grazing efficiency and distribution

I.1 (+) Wildlife species diversity
I.3 (-) Overall cost to farmers
I.4 (+) Plant condition and productivity
I.5 (+) Livestock productivity
I.2 (-) Contaminants, pathogens, nutrients, and sediment to surface water

C.1 (+) Aquatic health for humans, domestic & wild animals
C.2 (+) Health of humans, domestic & wild animals
C.3 (+) Income and income stability (individuals & community)

LEGEND
- Associated practice
- #. Created by practice
- D.# Direct effect
- I.# Indirect effect
- C.# Cumulative effect

pathway
(+ increase; (- decrease)
CONTOUR BUFFER STRIPS

PRACTICE INTRODUCTION

CONTOUR BUFFER STRIPS
Contour buffer strips are strips of perennial grass alternated with wider cultivated strips that are farmed on the contour.

PRACTICE INFORMATION
The benefits of farming on the contour with the added protection from the grass strips make contour buffer strips an effective and cost efficient conservation practice.

Contour buffer strips slow runoff water and trap sediment. Consequently, soil erosion is general reduced significantly by this practice. Sediments, nutrients, pesticides, and other potential pollutants are filtered out as water flows through the grass strips. The grass strips also provide food and cover for wildlife.

The practice is not well suited for undulating terrain with steep irregular slopes where contouring is impractical.

The effectiveness of contour buffer strips is dependent on several variables such as steepness, soil type, crops grown, strip widths, management, and climatic factors.

Standards and specifications containing minimum requirements, including maintenance, are included in the USDA/NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
COVER CROP

PRACTICE INTRODUCTION

COVER CROP
Growing a crop of grass, small grain or legumes primarily for seasonal protection and soil improvement.

PRACTICE INFORMATION
Cover and green manure crops are grown on cropland, orchards, vineyards, and certain recreation and wildlife areas where seasonal benefits of a cover crop are needed. These crops are usually plowed under or desiccated to accommodate the primary crop being produced on the site.

This practice is used to control erosion, add fertility and organic material to the soil, improve soil tilth, and increase infiltration and aeration of the soil. In orchards, this practice is also used to increase populations of bees for pollination purposes.

In addition, cover and green manure crops have beneficial effects on water quantity and quality.

Cover crops have a filtering effect on movement of sediment, pathogens, and dissolved and sediment-attached pollutants.

Additional information including standards and specifications for establishment and management of this practice are on file in the local NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
CRITICAL AREA PLANTING

PRACTICE INTRODUCTION

CRITICAL AREA PLANTING
Planting vegetation on critically eroding areas that require extraordinary treatment.

PRACTICE INFORMATION
This practice is used on highly erodible areas that cannot be stabilized by ordinary planting techniques and if left untreated may cause severe erosion or sediment damage. Examples of critical areas include the following:

1. Dams, dikes, levees, and other construction sites with very steep slopes.
2. Mine spoil and surface mined land with poor quality soil and possibly chemical problems.
3. Agriculture land with severe gullies requiring specialized planting techniques and management.

Erosion control is the primary consideration for plant material selection. However, a broad choice of grass, trees, shrubs, and vines are usually available and adapted for most sites. Wildlife and beautification are additional considerations that influence planning decisions on a site needing this practice.

The following decisions must be made when planning this practice:
1. Function or use of the site following establishment.
2. Species of plants to establish
3. Methods and rates of planting
4. Fertilizer, lime, and soil amendments necessary for establishment and growth of the plants.
5. Mulching requirements
6. Planting site preparation
7. Irrigation requirement
8. Site management following establishment of the vegetation.

Additional information including standards and specifications are available in the NRCS Field Office Technical Guide.
Critical Area Planting Practice
Version 5.29.2002

Initial setting: Any area requiring treatment for erosion that can be controlled by vegetative plantings.

Start

1. Establish vegetation on disturbed areas

   D.1 (+) Restore riparian areas
   D.2 (+) Protect banks and shorelines of ponds and reservoirs; critically eroding areas
   D.3 (+) Restore vegetation on gullies and blow out areas
   D.4 Air quality
      (-) Particulates
      (+) Visibility
      (-) Greenhouse gas

I.1 (-) Water/wind erosion

   I.2 (-) Sediment in surface waters
   I.3 (-) Airborne particles
   I.4 (+) Air quality of the air shed

C.1 (+) Aquatic health for humans, domestic & wild animals
C.2 (+) Health of humans, domestic & wild animals

LEGEND

Associated practice
# Created by practice
D. Direct effect
I. Indirect effect
C. Cumulative effect

pathway
(+): increase; (-): decrease
DIVERSION

PRACTICE INTRODUCTION

DIVERSION
A channel constructed across the slope with a supporting ridge on the lower side.

PRACTICE INFORMATION
This practice applies to all types of diversions except floodwater diversions (400) and diversion dams (348). The general purpose of this type of diversion is to divert excess water from one area for use or safe disposal in other areas.

This practice applies to sites where:
1. Runoff damages cropland, grazing land, farmsteads, feedlots, or conservation practices such as terraces or stripcropping.
2. Surface flow and/or shallow subsurface flow caused by seepage is causing damage on sloping cropland.
3. Runoff is excessive and available for use on nearby sites.
4. A diversion is required as part of a pollution abatement system.
5. A diversion is required to control erosion and runoff on urban or developing areas and construction or mining sites.

The channel may be parabolic, V-shaped, or trapezoidal. The channel grades may be uniform or variable as long as the velocity is nonerosive considering the soil and planned vegetation or lining. The location of the diversion shall be determined by outlet conditions, topography, land use, farming operations, and soil type. Diversion layout in a cultivated field should be as compatible as practical with modern farm equipment.

Diversions must have a safe and stable outlet with adequate capacity. The outlet may be a grassed waterway, paved area, vegetated area, a grade stabilization structure, a stable watercourse, underground outlet, or a combination of these structures. The outlet must be able to convey the runoff to a point where outflow will not cause damage. If the outlet is a vegetated area, the vegetation must be established before constructing the diversion.

Additional information including design criteria and specifications are on file in the local NRCS Field Office Technical Guide.
FENCE

PRACTICE INTRODUCTION

A fence is a constructed barrier to livestock, wildlife, or people.

PRACTICE INFORMATION

This practice may be applied to any area where livestock and/or wildlife control is needed, or where access to people is to be regulated.

A wide variety of types of fencing has developed. However, fencing material and construction quality is always designed and installed to assure the fence will meet the intended purpose and longevity requirements of the project.

The standard fence is constructed of either barbed or smooth wire suspended by posts with support structures. Other types include woven wire for small animals, electric fence as a cost efficient alternative, and suspension fences which are designed with heavy but widely spaced posts and support structures. Designs for most types of fences are available at the local NRCS field office.

Things to consider when planning a fence include the following:
1. For ease of maintenance purposes avoid as much irregular terrain as possible.
2. Wildlife movement needs should be considered.
3. State and local laws may apply to boundary fences.
4. Consider livestock handling, watering and feeding requirements when locating fences.
5. Consider soil erosion potential and feasibility of fence construction when planning fences on steep or irregular terrain.

Additional information including designs and construction specifications are available in the local NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
**Fence Practice**

Version 5.29.02

- **I.11 (+) Vegetation loss**
  - (from animal trailing along fence interior area)
- **Fence (382)**
  - 1. Disturb soil & erect structure
- **Prescribed Grazing (528A)**
- **Use Exclusion (472)**
  - Perimeter fence around a larger management unit

**LEGEND**

- Associated practice
- #. Created by practice
- D.# Direct effect
- I.# Indirect effect
- C.# Cumulative effect
- (+) increase; (-) decrease

**Pathway**

- **Interior fence in a pasture management unit**

**Initial setting:** Any area where livestock movement is restricted due to presence of sensitive or hazardous areas; and/or for forage allocation; controlled grazing; and watering
FILTER STRIP

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 393

FILTER STRIP
A filter strip is an area of vegetation established for the purpose of removing sediment, organic material, and other pollutants from runoff and waste water.

PRACTICE INFORMATION
Filter strips are generally located at the lower edge(s) of a field. This will vary somewhat with land use, topography and objectives.

A filter strip removes pollutants from runoff before the material enters a body of water. It also serves as a buffer between water and the fields above the water so that pesticides and other chemicals are not applied directly adjacent or into the water body. Filter strips also reduce sedimentation of streams, lakes and other bodies of water.

Plant species selected for planting in a filter strip requires careful planning. There may be multiple objectives that can be accomplished by proper plant selection.

In addition to the above functions, filter strips can be designed to provide one or more of the following secondary benefits:

1. Improved fish and wildlife habitat.
2. Improved aesthetics
3. Improved equipment operations such as field access and turn rows or head lands.
4. Improved recreation opportunities.
5. Improved livestock forage source.

Specifications for design and installation of this practice are contained in the USDA/NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
Filter Strip
5/30/02

Initial Setting: Cropland, forestland, grazing land containing runoff to sensitive areas

Filter Strip (393)

1. Area of permanent vegetation that accepts sheet flow
   - D.1 (+) Filtration
   - D.3 (+) Ponding of runoff water
   - D.4 (+) Infiltration
   - I.1 (-) Sediment and particulate contaminants (including pathogens) to sensitive areas
   - I.2 (-) Maintenance of drainage ditches and other structures
   - C.1 (+) Preservation of infrastructure. Reduced community maintenance costs.
   - C.3 (+) Fishable and swimmable waters. Reduced health and safety issues for humans, domestic and wild animals.

2. Cropland removed from production
   - D.5 (+) Forage production
   - D.7 (-) Airborne particulate matter (-) Chemical drift
   - I.8 (+) Nutrient absorption by organisms
   - I.9 (+) Quality of wildlife habitat
   - C.2 (+) Quality of receiving waters
   - C.3 (+) Fishable and swimmable waters. Reduced health and safety issues for humans, domestic and wild animals.
   - C.4 (+) Air quality of the airshed
   - C.5 (+/-) Income and income stability (individuals & community)
   - C.6 (+) Habitat suitability, health to humans and domestic and wild animals
   - C.8 (+) Crop production
   - I.10 (+) Beneficial insects
   - I.12 (+) Wildlife food
   - I.13 (+) Biodiversity

3. Ponding of runoff water
   - I.3 (-) Dissolved contaminants (including nutrients) to sensitive areas

4. Infiltration
   - I.4 (+) Soil Quality
   - I.6 (-) Greenhouse gas emissions
   - I.7 (+) Crop biomass/carbon sequestration

5. Filtration
   - I.8 (+) Nutrient absorption by organisms

6. Forage production
   - D.5 (+) Forage production

7. Airborne particulate matter (-) Chemical drift
   - D.7 (-) Airborne particulate matter (-) Chemical drift

8. Net return to farmer
   - I.12 (-) Net return to farmer

9. Nutrient absorption by organisms
   - I.8 (+) Nutrient absorption by organisms

10. Fishable and swimmable waters. Reduced health and safety issues for humans, domestic and wild animals.
    - C.3 (+) Fishable and swimmable waters. Reduced health and safety issues for humans, domestic and wild animals.

11. Preservation of infrastructure. Reduced community maintenance costs.
    - C.1 (+) Preservation of infrastructure. Reduced community maintenance costs.

12. Area of permanent vegetation that accepts sheet flow
    - D.1 (+) Filtration

LEGEND

- Associated practice
- #. Created by practice
- D.# Direct effect
- I.# Indirect effect
- C.# Cumulative effect
- (+) increase; (-) decrease
IRRIGATION SYSTEM, MICRO-IRRIGATION (TRICKLE)

PRACTICE INTRODUCTION

IRRIGATION SYSTEM, MICRO-IRRIGATION
Micro-irrigation is an irrigation system for distribution of water directly to the plant root zone by means of surface or subsurface applicators. A trickle system is a planned system in which all necessary components have been installed for efficient application of irrigation water directly to the root zone of the plants by means of emitters, orifices, or porous tubing.

PRACTICE INFORMATION
Microirrigation systems, including subsurface drip irrigation, consists of bubblers, drip or trickle emitters and tapes, or spray or spinners.

Trickle irrigation refers to irrigation water being applied by means small diameter pipes and very low volume orifices or emitters that apply the water directly to the plant root zone. This method of irrigation is very efficient and is normally utilized on a commercial basis when water is in short supply or very expensive. Microirrigation is suited to orchard and row crops, windbreaks, greenhouse crops, and residential and commercial landscape systems and on steep slopes where other methods would cause excessive erosion or on areas where other application devices interfere with cultural operations. The trickle method of irrigation in particular, is suited more for orchards, vineyards, and specialty crops. This method is also well suited for home gardens and systems are often automated with electric solenoids and timers. However, as water shortages develop trickle irrigation has potential for most field crops.

A trickle irrigation system must be designed as an integral part of a conservation plan based on the capabilities of the natural resources and the needs of the farm enterprise. The planned system must be suited to the site conditions and the crops to be grown.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
Irrigation System, Micro-Irrigation Practice

1. Installation of surface or subsurface irrigation system for plant roots
   - D.1 (+) Infrastructure & operational costs
     - I.1 (+) Cost to farmer
     - I.2 (+) Agribusiness
     - I.3 (+) Economic benefit to farmer
   - C.1 (+) Income stability (individuals & community)

2. Proper timing, rate, and amount of water
   - D.2 (+) Application efficiency of nutrients, pesticides, and amendments
   - D.3 (-) Infiltration and evaporation losses
   - D.4 (+) Plant growth & productivity (see 590)
   - D.5 (-) Water quantity
   - D.6 (-) Erosion associated with practice
   - I.4 (-) Groundwater recharge
   - I.5 (-) Leaching of nutrients
   - I.6 (+) Meeting water quality standards
   - C.2 (+) Aquatic health for humans, domestic & wild animals
   - C.3 (+) Stream fauna, e.g., fish, invertebrates

Initial Settings: Installation of a suitable irrigation system

LEGEND
- Associated practice
- #. Created by practice
- D.# Direct effect
- I.# Indirect effect
- C.# Cumulative effect

pathway
(+): increase; (-): decrease
PASTURE AND HAY PLANTING

PRACTICE INTRODUCTION

Establish native or introduced forage species.

PRACTICE INFORMATION

This practice may be applied on cropland, hayland, pastureland, or other agriculture lands where forage production is planned.

This practice is used for on or more of the following purposes:
1. Provide forage for livestock and/or wildlife.
2. Improve or maintain livestock nutrition and/or health.
3. Provide additional forage to fill gaps in a year long forage management program.
4. Provide emergency forage.
5. Reduce soil erosion, improve aesthetics, provide wildlife food and cover, improve water quality, and other environmental benefits.

Plant species recommendations for this practice are based on the following considerations:
1. Climatic conditions such as annual rainfall, growing season days, humidity, and temperature extremes.
2. Site conditions including soil series, soil condition, flooding hazards, drainage, salinity, inherent fertility, slope, toxic elements, and other attributes associated with the specific site.
3. Plant resistance to pests common to the site.
4. Period of growth (cool vs. warm season)
5. Others

Recommended species, seeding dates, seeding rates, seedbed preparation requirements, planting methods, and other technical requirements are provided in the local NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
Pasture and Hay Planting Practice
Version 5.29.02

Initial setting: Desired but absent forage species are established, or new forage species or better varieties are introduced.

1. Forage crops adapted to local climate and soils with best resistance to stand reducing diseases and/or insects are established as needed.

D.1 (+) Improve or maintain livestock nutrition and/or health

D.2 (+) Plant productivity and condition

D.3 (+) Improve soil cover

D.4 Air quality
- Particulates
- (+) Greenhouse gas
+ Visibility

I.1 (+) Quality/quantity of commodities

I.2 (+) Provide alternative forage crops for grazing or machine harvest

I.3 (+) Weed suppression

I.4 (+) Improve soil quality

I.5 (+) Upland wildlife habitat

I.6 (+) Carbon storage

I.7 (+) Reduce runoff and soil erosion

I.8 (+) Improve water quality

C.1 (+) Income and income stability (individuals & community)

C.2 (+) Maintain or enhance long term soil productivity

C.3 (+) Health for human, domestic & wild animals

C.4 (+) Aquatic health of humans, domestic & wild animals

C.5 (+) Air quality of the air shed

LEGEND
Associated practice #. Created by practice

D.# Direct effect

I.# Indirect effect

C.# Cumulative effect

pathway (+) increase; (-) decrease
PIPELINE

PRACTICE INTRODUCTION

DEFINITION
The NRCS pipeline practice is used when a pipeline is needed to convey water for livestock, recreation or wildlife.

PRACTICE INFORMATION
The purpose of this practice is simply to convey water from the source of supply to the point (s) of use. The objective is usually to decentralize the location of drinking or water storage facilities. The practice is applicable where water needs to be piped to another location (s) for management purposes, to conserve the supply, or for reasons of sanitation.

Pipelines installed under this practice are generally for livestock management purposes. A single water source can provide livestock water to several locations and be very effective in improving management of a grazing unit.

Pipelines are also used on recreation and wildlife lands to provide or distribute drinking water facilities for humans as well as wildlife.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
Initial Setting: Any area where conveyance of water from a source of supply is needed.

1. Install and reseed if necessary

D.1 (+) Provide &/or improve water quantity and quality

I.1 (-) Volume of downstream flow
I.2 (+) Wildlife habitat
I.2 (-) Wildlife habitat

I.3 (+) Plant productivity and condition

C.1 (+) Health of domestic & wild animals
C.1 (-) Health of domestic & wild animals

C.2 (+) Income and income stability (individuals & community)

I.4 (-) Cost for farmer (long-term)

C.1 (-) Health of domestic & wild animals

I.1 (-) Volume of downstream flow

I.2 (+) Wildlife habitat
I.2 (-) Wildlife habitat

I.3 (+) Plant productivity and condition

C.1 (+) Health of domestic & wild animals
C.1 (-) Health of domestic & wild animals

C.2 (+) Income and income stability (individuals & community)

I.4 (-) Cost for farmer (long-term)

I.2 (+) Wildlife habitat
I.2 (-) Wildlife habitat

I.3 (+) Plant productivity and condition

C.1 (+) Health of domestic & wild animals
C.1 (-) Health of domestic & wild animals

C.2 (+) Income and income stability (individuals & community)

I.4 (-) Cost for farmer (long-term)
POND

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 378

POND
A pond is a water impoundment made by constructing a dam or by excavating a pit or dugout.

PRACTICE INFORMATION
If a dam is constructed, the pond is referred to as an embankment pond; if the pond storage is achieved solely by excavating material, the pond is referred to as an excavated pond.
The purpose of this type of pond is to provide water for livestock, recreation, and fish and wildlife. Other uses include providing a water supply for things such as fire control and crop or orchard spraying.

The NRCS POND standard applies under the following conditions:
1. If a dam is constructed, failure will not result in loss of life, damage to homes, commercial buildings, main highways, railroads, or interruption of public utilities.
2. The product of the storage (acre feet) times the effective height of the dam is less than 3000.
3. The effective height of the dam is 35 ft. or less.

Design and installation of a pond requires the following conditions:
1. The site must be such that runoff from the design storm can pass safely through a natural or constructed spillway. The spillway(s) may be the principal spillway, emergency spillway, or combination of both.
2. The drainage area must be protected from erosion that would significantly reduce the expected life of the structure.
3. The drainage area must be large enough so that surface runoff and groundwater flow will normally maintain an adequate supply of water in the pond.
4. The water quality must be suitable for the intended use of the water.
5. The topography and soil must be suitable for the structure.

Additional information including design criteria and specifications are filed in the local NRCS Field Office Technical Guide.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
Pond Practice
Version 5.29.02

Initial Setting: Any area where water is needed for livestock, fish, wildlife, recreation, fire control, and/or irrigation

Start

Pond (378)

1. Excavate a pit or construct embankment/dam

D.1 (+) Provide &/or improve water quantity and quality for livestock and wildlife

D.2 (+) Aquatic habitat

I.1 (-) Overall cost for operator

I.1 (+) Income and income stability (individuals & community)

C.1 (+) Income and income stability (individuals & community)

C.2 (-) Health of humans, domestic & wildlife

C.2 (+) Health of humans, domestic & wildlife

C.2 (-) Health of humans, domestic & wildlife

I.2 (-) Nature & function of wetlands

I.2 (+) Leaching of salts to aquifer

I.3 (-) Volume of downstream flow

I.3 (+) Volume of downstream flow

I.4 (+) Plant productivity and condition

I.5 (-) Wildlife habitat

I.5 (+) Wildlife habitat

I.6 (+) Livestock condition and productivity

I.6 (+) Livestock condition and productivity

I.6 (-) Livestock condition and productivity

Critical Area Planting (342)

Prescribed Grazing (528A)

Fence (382)

LEGEND

D.# Direct effect

I.# Indirect effect

C.# Cumulative effect

# Created by practice

pathway

(+): increase; (-): decrease
RANGE PLANTING

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 550

RANGE PLANTING
Range planting is establishment of adapted perennial vegetation.

PRACTICE INFORMATION
This practice applies to rangeland, native or naturalized pasture, grazed forest or other suitable land areas where the principle method of vegetation management is grazing.

Vegetation types might be grasses, legumes, shrubs, forbs, shrubs and trees.

The practice applies where desirable vegetation is below the acceptable level for natural reseeding to occur, or where the potential for enhancement of the vegetation by grazing management is unsatisfactory.

Species, cultivars or varieties selected must be compatible with management objectives and adapted to climatic conditions, soil, landscape position, and range site. In addition, the selected species for planting must provide adequate cover for erosion control. Plants selected for establishment should also contribute to wildlife and aesthetics when opportunities exist and are in line with planning objectives.

Plant establishment requires the following:
1. Proper seedbed preparation
2. Observe recommended planting dates
3. Plant at the recommended rate or spacing
4. Use quality seed and plant material
5. Apply recommended soil amendments and fertilizer
6. Control weeds and grazing during establishment period

Other conservation practices such as Brush Management, and Grazing Land Mechanical Treatment may be needed to promote establishment and management of a successful range planting.

Additional information including practice specifications can be obtained from your local NRCS field office or USDA service center.
Initial setting: Rangelands, native pasture, grazed forest where improvement or establishment of perennial vegetation is desired and grazing is the principal methods of vegetation management.
SPRING DEVELOPMENT

PRACTICE INTRODUCTION

SPRING DEVELOPMENT
Spring Development is improving springs and seeps by excavating, cleaning, capping, or providing collection and storage facilities.

PRACTICE INFORMATION
The purpose of the practice is to improve distribution of water for livestock, recreation and wildlife. The practice also applies to irrigation when the quantity and quality are suitable for irrigating crops.

Spring development involves cleaning and/or enlarging the discharge opening of the spring. Other appurtenances might be needed such as a collection device to channel the water, and a spring box to provide a small amount of storage as well as a sediment trap and connection point for an outlet pipe (s). The outlet pipe (s) may then lead to a storage facility (s) such as a trough or tank.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.
Spring Development Practice
Version 5.29.02

Initial Setting: Any area where water is needed and a spring or seep is present.

1. Clean, enlarge discharge area

D.1 (+) Provide &/or improve water quantity, quality, and distribution for livestock and wildlife

D.2 (+) Provide water for irrigation

I.1 (-) Overall cost to operator

I.2 (-) Nature & function of ecological sites

I.3 (+) Plant productivity & condition

I.4 (+) Livestock condition and productivity

I.5 (+) Volume of downstream flow

I.5 (-) Volume of downstream flow

I.6 (+) Wildlife habitat

I.6 (-) Wildlife habitat

C.1 (+) Income and income stability (individuals & community)

C.2 (+) Health of humans, domestic & wild animals

C.2 (-) Health of humans, domestic & wild animals

C.3 (+) Health of humans, domestic & wild animals

C.3 (-) Health of humans, domestic & wild animals

LEGEND

Associated practice

# Created by practice

D.# Direct effect

I.# Indirect effect

C.# Cumulative effect

(+) increase; (-) decrease
WASTE STORAGE FACILITY

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 313

WASTE STORAGE FACILITY
A waste storage facility is a waste impoundment made by constructing an embankment, excavating a pit or dugout, or by fabricating a structure.

PRACTICE INFORMATION
A waste storage facility is a component of a complete agricultural waste management system. The purpose of the practice is to provide temporary storage of waste material generated by production and/or processing of agricultural products. The waste material may be animal manure, wastewater, or contaminated runoff.

An operation and maintenance plan is developed to specify requirements for emptying the storage facility. The plan specifies timing, rates, and volume of waste applications. For ponds, the plan also includes requirements for timely removal of waste material to accommodate subsequent storms.

Design criteria for this practice includes:
- Site location
- Design storage volume
- Storage period
- Inlet structures
- Safety features
- Pond criteria
- Emptying facilities
- Fabricated structure criteria

Additional information including detailed design criteria and specifications is in the local NRCS Field Office Technical Guide.
The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.
Water Well Practice
Version 5.29.02

Start

Initial Setting: Any land use having an aquifer suitable for a water source

1. Dig, drill, etc. hole to aquifer

D.1 (+) Provide &/or improve water quantity, quality, and distribution for livestock & wildlife

I.1 (-) Potential entry for groundwater contamination-nutrients, pathogens, pesticides

C.1 (+) Aquatic health of humans, domestic & wild animals

D.2 (+) Irrigation water

I.3 (-) Volume of downstream flow

I.2 (+) Plant productivity & condition

I.3 (+) Volume of downstream flow

I.4 (+) Wildlife habitat

I.4 (-) Wildlife habitat

I.5 (-) Overall cost for operator

C.3 (+) Income and income stability (individuals & community)

C.2 (+) Health of humans, domestic & wild animals

C.2 (-) Health of humans, domestic & wild animals

Pathway

(+): increase; (-): decrease

LEGEND

D. #: Direct effect
I. #: Indirect effect
C. #: Cumulative effect

# Created by practice
WATERING FACILITY (TROUGH OR TANK)

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 614

WATERING FACILITY
A trough or tank is installed as a livestock watering facility.

PRACTICE INFORMATION
A watering trough or tank provides livestock with drinking water at planned locations that will protect vegetative cover through proper distribution of grazing or other management techniques. The water source (s) may be a well, spring, stream, pond or other sources including water hauling in some situations.

In addition to providing livestock water, troughs are sometimes installed to keep cattle out of streams and other surface water areas where water quality is a concern.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.
WINDBREAK/SHELTERBELT ESTABLISHMENT

PRACTICE INTRODUCTION

Windbreaks and shelterbelts are single or multiple rows of trees or shrubs planted for environmental purposes.

PRACTICE INFORMATION

This practice can be used in any area where woody plants are suited. The species, location, layout, and density of the planting depends on the purpose and planned function of the practice.

In areas where natural precipitation is too low for establishment of suitable woody species, moisture conservation or supplemental irrigation should be planned.

The effectiveness of a windbreak or shelterbelt is dependent on the height of the mature plants. Therefore, this is a long term proposition that may take 20 years to become fully functional.

This is a multipurpose practice that will serve one or more of the following functions:

1. Reduce wind erosion
2. Protect growing plants
3. Manage snow
4. Provide shelter for structures and livestock
5. Provide wildlife food and cover
6. Provide tree or shrub products
7. Provide living screens
8. Improve aesthetics
9. Improve moisture use efficiency

Additional information including standards and specifications for this practice are available in the NRCS Field Office Technical Guide.
Windbreak/Shelterbelt Establishment and Renovation Practices

Version 5.28.2002

Initial Setting: Cropland or forage land. Field concerns are wind erosion, plant stress and lack of any woody habitat and products. Sites may be irrigated. Sites also include decadent windbreaks/shelterbelts which have little or no functionality for intended purposes.

1. Wood fiber in established plants
   - D.1 (+) Initial wood fiber growth rate
   - I.1 (-) Later wood fiber growth rate and plant health
   - O&M - periodic tree removal to maintain growth

2. Woody plant root systems, litter & soil OM
   - D.2 (+) Carbon storage
   - I.2 Harvested wood fiber (manufactured wood products) and other tree/understory-related products including renewable biomass/fuel
   - I.3 (+) Landowner net income; contractor income

3. Canopy cover and vertical vegetative structure from established plants
   - D.3 (+) Shade and habitat
   - D.4 (+) Aesthetics

4. Canopy cover and vertical vegetative structure from established plants
   - D.5 (-) Wind velocity
   - D.6 (-) Microclimate extremes
   - D.7 (-) Non-woody crop and forage land
   - D.8 (-) Non-woody crop and forage production

5. Recreation opportunities
   - I.5 (+) Recreation opportunities
   - I.6 (+) Non-woody crop & forage production; quality & production of livestock; water conservation if irrigated

6. Recreation business & support infrastructure
   - I.7 (+) Pesticide drift
   - I.8 (+) Non-woody crop & forage production; quality & production of livestock; water conservation if irrigated

7. Recreation business & support infrastructure
   - C.1 (-) Greenhouse gases
   - C.2 (+) Local business and support infrastructure
   - C.3 (+) Recreation business & support infrastructure

8. Recreation business & support infrastructure
   - C.4 (+) Quality of receiving waters and airsheds
   - C.5 (+) Related health of humans and animals; (-) associated costs
   - C.6 (+) Income & income stability (individuals & community)

9. Recreation business & support infrastructure
   - C.7 (+) Income & income stability (individuals & community)
   - C.8 (+) Non-woody crop & forage production; quality & production of livestock; water conservation if irrigated

LEGEND

# Created by practice
D.# Direct effect
I.# Indirect effect
C.# Cumulative effect

(pathway) (+) increase; (-) decrease