ENVIRONMENTAL ASSESSMENT

EQIP – IRRIGATED CROPLAND CURRY AND ROOSEVELT COUNTIES

2002

INTRODUCTION

This environmental assessment (EA) is being prepared by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) to comply with the requirements of the National Environmental Policy Act of 1969 and implementing regulations at 40 CFR Parts 1500-1508. The EA will assist NRCS in determining whether the proposed action will have a significant impact on the quality of the human environment and therefore requires preparation of an Environmental Impact Statement.

NEED FOR PROPOSED ACTION

Purpose and Need for Action: The purpose and need for the Irrigated Cropland, Curry and Roosevelt Counties Geographical Priority Area (GPA) is to protect ground water quantity and quality, increase irrigation efficiency, reduce soil loss from wind erosion, maintain soil productivity and improve upland wildlife habitat.

Background:

The Ogallala Aquifer encompasses an area of approximately 176,940 square miles in eight Great Plains states. The total volume of water in storage in the Aquifer as of 1980 was three billion two hundred and seventy million acre feet, of which, forty eight million acre feet are located in the High Plains of New Mexico. Fifty three percent of the irrigated acreage in New Mexico is located in this aquifer. Curry and Roosevelt Counties rank number one and two respectively, in the number of acres under irrigation, and the future of the agricultural industry in these counties is dependent on a continued supply of irrigation water.

This GPA covers approximately 250,000 acres, all non-federal land, and there are approximately 275 producers in the project area. The soils located in the project area have all been determined to be highly erodible. Major crops include wheat, corn, milo, peanuts, potatoes, and alfalfa.

Intensive sprinkler irrigation is a relatively new technology with the first center pivot systems put into operation in the GPA area in 1965. At that time, energy was cheap and water was abundant. Sprinkler irrigation was introduced not to save water or energy, but to enable farmers to till land with slopes unsuited for surface irrigation. Irrigation wells were relatively shallow with depths of 80 to 120 feet and well production of 1000 to 1500 gallons per minute. Irrigation efficiencies for surface systems averaged 35 to 40 percent due to field length and soil textures, which range from loams to loamy fine sands. The introduction of pivot sprinklers increased efficiencies to 50 to 60 percent and allowed the

area farmers to till soils in the sand hill area. The irrigated area grew to approximately 143,000 acres in Roosevelt County and 225,000 acres in Curry County. This increased demand on the Ogallala Aquifer, combined with low irrigation efficiencies and increased energy costs, resulted in an increased rate of depletion of the aquifer and reduced well output. The need for a comprehensive water conservation program was recognized. Producers have discovered that conservation can best be achieved by utilizing the most efficient pumping and delivery systems available, scheduling irrigation to meet but not exceed crop requirements, and conserving soil moisture through improved crop residue management. Irrigation efficiencies on Low Energy, Precision Application (LEPA) systems have been measured by the Experiment Station located in Bushland, Texas at 95 percent. This is a water savings of 25 to 30 percent over the next best systems available. The same system has shown a 15 per cent savings on energy costs.

ALTERNATIVES:

Alternative 1: No Action.

Alternative 2: Proposed Action: Use NRCS Environmental Quality Incentives Program (EQIP) authorities to assist irrigated farmers within the Irrigated Cropland Curry and Roosevelt Counties GPA with the installation of management systems and facilitating practices that will reduce soil erosion from wind, reduce soil compaction, increase irrigation efficiency, protect groundwater and improve upland wildlife habitat. Management and facilitating practices may include all or any of the following: Conservation Cropping Sequence, Residue Management –seasonal, Residue Management-mulch till, Residue Management-no till, Irrigation Water Management, Irrigation System-Sprinkler (LEPA), Field and Farmstead Windbreak, Upland Wildlife Habitat Management, Nutrient Management, Pest Management, Irrigation Pipeline, Range Planting, Field Border, Irrigation System-Trickle, Wildlife Water Facilities, Tree and Shrub Planting, and Ripping or sub-soiling.

SCOPING OF ISSUES FOR UNIQUE AND PROTECTED RESOURCES IN THE AREA:

NRCS conducted a review of the area to identify unique and protected resources and other special issues of concern. Members of the public had an opportunity to provide comments and identify concerns during local workgroup meetings sponsored by the Central Curry and Roosevelt Soil and Water Conservation Districts (SWCDs) held on April 5, 2001. Resource concerns and management objectives including practices to meet those objectives were developed at this meeting. No controversy about the need for action or the actions themselves was raised during these meetings, and no resource concerns were identified during the meeting by NRCS or other attendees other than those discussed in this EA.

Threatened and Endangered Species and Species of Concern: A record search shows there are three species within the GPA that are listed as endangered (Black-footed Ferret, Interior least tern, and the Whooping Crane), three listed as threatened (Bald

Eagle, Mountain Plover, and Pecos Blunt Nosed Shiner), and two listed as candidate species (Lesser Prairie Chicken, and Black-tailed Prairie Dog). NRCS has determined that none of these will be effected by any alternatives or action considered in this EA.

Cultural Resources and Historic Properties: NRCS completed a search of cultural resource records and determined that 131 sites are present within the boundaries of the GPA. The sites range from paleo indian to historic ranches. The area covered by the GPA is all disturbed by farming activities, but prior to installation of any practices determined to be undertakings, a cultural resources consultation will be conducted as required by Section 106 of the National Historic Preservation Act. Cultural resource sites will be identified and avoided.

Wetlands: There are no perennial streams or rivers within the GPA. Wetlands within the GPA consist of shallow depressions known as playas. Those areas catch and contain floodwater for short periods of time and will not be affected by practices completed through this GPA. Playas located on the cropland area will not be filled or drained, and farming practices will occur when conditions allow. The Food Security Act of 1985 and amendments will be followed in guiding NRCS projects near wetlands.

IMPACTS AND EFFECTS OF ALTERNATIVES

Table l compares the overall effects of each of the alternatives discussed below.

Alternative 1. No Action

Producers in the GPA will install approximately 5 LEPA systems per year either on their own or with low cost loan assistance through the Roosevelt County Electric Cooperative and Roosevelt SWCD. In order to meet water requirements, additional wells will be drilled further impacting the depletion of the aquifer. The average on farm irrigation efficiency will remain at approximately 60 percent. Ground water protection will be reduced as few if any chemigation backflow valves will be installed to prevent chemical contamination of the aquifer. There will be no field borders installed to reduce erosion from offsite areas under this option. While residue management-seasonal is a common practice used to protect soil from wind erosion, without the added values of increased irrigation efficiency offered by LEPA and drip irrigation systems, the amount of residue produced is reduced by 20 percent. Range seeding will be implemented on 250 acres without the proposed action, which will reduce erosion on cropland and benefit wildlife habitat.

Alternative 2. Proposed Action

There are approximately 250,000 acres of cropland within this GPA, of which, approximately 50,000 acres could benefit from improved management techniques and associated facilitating practices. Increased irrigation efficiencies, ground water

protection, reduced soil erosion from wind and improved wildlife habitat will benefit not only the agricultural producers, but the general public as well.

This alternative includes management practices, such as conservation crop rotation, residue management, contour farming, irrigation water management, nutrient management, pest management, chiseling and subsoiling, and upland wildlife habitat management. Additionally, facilitating practices such as chemigation backflow valves, field borders, irrigation system-trickle, irrigation system-sprinkler (LEPA), irrigation pipelines, range seeding, tree and shrub planting, and windbreak/shelterbelt establishment.

Chiseling and subsoiling consists of loosening the soil, without inverting and with a minimum of mixing of the surface soil, to shatter restrictive layers below normal plow depth that inhibit water movement or root development. There will be approximately 31,000 acres that will utilize either chiseling or subsoiling. This will not be significantly different than the no action alternative. This is a management practice and will not be a cost shared item.

Chemigation backflow valves are valves placed near the well or pivot to prevent the backflow of chemicals into the groundwater. It is expected that 250 valves will be installed to prevent the contamination of groundwater from applied chemicals through the sprinkler. This compares to the expected 50 or less installed without the project.

Conservation crop rotation is growing crops in a recurring sequence on the same field. While every farm in the GPA has a conservation crop rotation, the increased irrigation efficiency and added crop residues from implementation of the proposed action will allow for greater producer flexibility in determining what crop sequence to follow.

Field borders are strips of perennial vegetation established at the edge of a field by planting or by converting it from trees to herbaceous vegetation or shrubs. It is expected that 250 acres will be placed into field borders with the proposed action. Field borders will reduce erosion that is started offsite from turn rows and county roads.

Irrigation system-trickle is a planned irrigation system in which all necessary facilities are installed for efficiently applying water directly to the root zone of plants by means of applicators (orifices, emitters, porous tubing, perforated pipe) operated under low pressure. The applicators can be placed on or below the surface of the ground. It is estimated that 75 acres of drip irrigation system will be installed in the GPA. Without the proposed action, there will be approximately 10 acres of drip systems installed.

Irrigation system-sprinkler (LEPA) is an irrigation system in which all necessary facilities are installed for efficiently applying water by means of perforated pipes or nozzles operated under pressure. It is expected that 250 LEPA sprinkler systems will be installed under the proposal during the 5 years the GPA is active. These systems will save an average of 10 acre inches of water per year on 31,250 acres. Without the proposal, there will be an estimated 30 LEPA systems installed over the same time frame.

Irrigation water conveyance, consisting of low-pressure, underground, plastic pipelines are installed to distribute and prevent the loss of water, to make possible the proper management of irrigation water and to reduce water conveyance losses. It is expected that 66,000 linear feet of irrigation pipeline will be installed during the 5 years of GPA activity. Without the proposal, there will an estimated 6,600 feet installed.

Irrigation water management is determining and controlling the rate, amount and timing of irrigation water in a planned and efficient manner. With the proposed action, 31,250 acres of irrigation water management will be applied through the installation of LEPA or drip irrigation systems. LEPA systems have an irrigation efficiency of 90-95 percent, while drip systems are similar in efficiencies. Without the proposal, 6,250 acres of irrigation water management will be applied. Without drip or LEPA systems, water requirements cannot be met because of the decreased water output.

Nutrient management is managing the amount, form, placement and timing of applications of plant nutrients. It is expected that 25,000 acres of nutrient management will be applied with the proposal, which will ensure more efficient application of nutrients on cropland, which will also benefit water quality on these acres. This compares to less than 1,000 acres without the proposal.

Pest management is managing agricultural pest infestations (including weeds, insects and diseases) to reduce adverse effects on plant growth, crop production, and environmental resources. There will be 25,000 acres of pest management applied under the proposal, which will result in more efficient application of pesticides according to label guidelines and EPA regulations in the GPA. This compares to less than 1,000 acres without the proposal.

Residue management-seasonal is managing the amount, orientation and distribution of crop and other plant residues on the soil surface during part of the year, while growing crops in a clean tilled seedbed. This will increase residue production 20 percent over the no action proposal with LEPA and drip irrigation.

Residue management-mulch till is managing the amount, orientation, and distribution of crop and other plant residues on the soil surface year-round, while growing crops where the entire field surface is tilled prior to planting. It is expected that 22,000 acres of mulch till will be implemented in the 5 years of the GPA. This will increase soil moisture by approximately 10 percent on these acres, and reducing production costs due to the fact that there will be fewer mechanical operations across the field. Included with this practice will be tillage operations such as chiseling, use of sweep plows and deep ripping.

Residue management-no till is managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round, while growing crops in narrow slots or tilled strips in previously untilled soil and residue. It is expected that approximately 1,500 acres of no till will be applied during the 5 years of the GPA. The soil moisture saved by the additional residue in most cases will save at least one irrigation during the growing season, saving an additional two acre inches of water per acre.

Range seeding is the establishment of adapted perennial vegetation such as grasses, forbs, legumes, shrubs and trees. The expected acreage to be sown to permanent vegetation during the 5 years of the GPA is 1,750 acres, which will improve wildlife habitat and reduce effects of wind erosion.

Tree and Shrub Establishment is the establishing of woody plants by planting seedlings or cuttings, direct seeding, or natural regeneration. This practice will be applied on an estimated 25 acres to improve wildlife habitat management under the proposed action. Without the proposed action, it is estimated that less than 10 acres of tree and shrub plantings will occur.

Wildlife Upland Habitat Management is creating, maintaining, or enhancing areas, including wetland, for food and cover for upland wildlife. Wildlife upland habitat management will be improved on an estimated 31,000 acres with the proposal. Although similar acreage will have the same effects without the proposal, the addition of wildlife waterings and tree and shrub establishment in the proposed action will provide much better habitat improvement. The water establishment and tree and shrub plantings will be almost non existent outside the proposed action.

Windbreak/Shelterbelt Establishment is linear plantings of single or multiple rows of trees or shrubs established for environmental purposes. Farmstead and field windbreaks/shelterbelts will be established on an estimated 25 acres in the proposed action. This will reduce wind erosion effects on farmsteads and cropland, as well as providing for increased benefits for wildlife species. This compares to approximately 10 acres without the proposed action.

All practices planned and completed through this EQIP program will be in compliance with current NRCS standards and specifications.

The estimated cost for implementation of this alternative is estimated to be $2,000,000 for the five-year program.

Table 1: Cumulative Impacts of Alternative 2

Practice	Treatment with NRCS EQIP Assistance Alone	Treatment by Landowner Initiative, Other Agency Assistance and NRCS Cumulatively
Chiseling/Subsoiling	31,000 acres	31,000 acres
Conservation Cropping Rotation	50,000 acres	50,000 acres
Chemigation Backflow valves	250 each	300 each
Field Borders	250 acres	250 acres
Irrigation System – Drip	75 acres	85 acres

Practice	Treatment with NRCS EQIP Assistance Alone	Treatment by Landowner Initiative, Other Agency Assistance and NRCS Cumulatively
Irrigation System-LEPA	250 each	280 each
Irrigation Pipeline	66,000 linear feet	72,600 linear feet
Irrigation Water Management	31,000 acres	37,200 acres
Nutrient Management	25,000 acres	26,000 acres
Pest Management	25,000 acres	26,000 acres
Range Seeding	1,750 acres	2,000 acres
Residue Management-seasonal	7,500 acres	12,000 acres
Residue Management-mulch till	22,000 acres	25,000 acres
Residue Management-no till	1,500 acres	15,000 acres
Tree and Shrub Planting	25 acres	35 acres
Wildlife Upland Habitat Management	31,000 acres	35,000 acres
Wildlife water development	5 each	15 each
Windbreak/Shelterbelt	25 acres	35 acres

Table 2 compares the impacts of alternative 1 and 2.

Table 2. Comparison of Alternatives

Alternatives	No Action	Proposed Action EQIP GPA
Water Saved/Acre feet	3,000 ac. ft.	26,000 ac. ft.
Irrigation System Efficiency (%)	65%	90-95%
Chemigation valves Installed –water quality	50 each	250 each
Change in wildlife habitat rating (pheasant and dove)	.5 index	.7 index

PERSONS AND AGENCIES CONSULTED

Local Work Group Meeting. See list of persons/agencies invited to attend and minutes from meeting. See attached as Appendix A and B, respectively.
Central Curry Soil and Water Conservation District
Curry County Farm Service Agency Committee
Roosevelt Soil and Water Conservation District
Roosevelt County Farm Service Agency Committee

REFERENCES:

NRCS Field Office Technical Guide, Section III, Quality Criteria

NRCS Field Office Technical Guide, Section IV, Standards and Specifications.

FINDING OF NO SIGNIFICANT IMPACT
FOR THE IMPLEMENTATION OF EQIP
IN THE IRRIGATED CROPLAND
CURRY AND ROOSEVELT COUNTIESGPA

INTRODUCTION

The Irrigated Cropland Curry and Roosevelt Counties GPA is a federally assisted action under the Environmental Quality Incentives Program (EQIP), with assistance from the Natural Resources Conservation Service (NRCS). An environmental assessment was undertaken in connection with the development of the proposed action. This assessment was conducted in consultation with Local, State, and Federal agencies. Data developed during the assessment are available, upon request, from:

U. S. Department of Agriculture
Natural Resources Conservation Service
Portales Field Office
Portales, New Mexico

The Environmental Assessment (EA) is attached for reference.

DETERMINATION OF SIGNIFICANCE

Table 1. Determination of Significance of Proposed Action.

CONTEXT	INTENSITY	REASONS FOR NON SIGNIFICANCE
Water Quantity- Irrigation Water Mgmt.	36,000 acre inches of water saved.	Water savings will only be on the acreage with LEPA/DRIP.
Water Quality – Chemigation Valves installation.	250 wells protected.	1500 total irrigation wells in project area.
Residue Management	31,000 acres of cropland protected from wind erosion.	Small acreage compared to project area.
Range Planting	1,750 acres protected from wind erosion and providing habitat for wildlife.	Small acreage compared to project area.

Other considerations related to context and intensity are discussed as follows: Farms are similar in the proposed area and are not unique to other irrigated farms in the state. No issues or concerns have been expressed at any public meetings, so controversy is small. Results of similar actions are known from past experience in the area, thus uncertainty and risk is low. Precedence for future action will be very limited because nearly all farmers interested in the proposal are going to participate in the first or second round. There will be no impact to National Register of Historic Places or cultural resources because the total proposed area has previously been disturbed by farming activity and any discovery will be avoided. No national, local, state or tribal laws will be violated by this action.

Finding of No Significant Impact:

This finding is based on the evidence presented in the environmental assessment of impacts and alternatives for this geographical priority area. Based on the assessment and the reasons given in Table 1, I find that the alternatives analyzed in the EA will have no significant impact on the quality of the human environment. Therefore, an environmental impact statement will not be prepared.

ROSENDO TREVINO State Conservationist	December 6, 2001 Date