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Conservation Reserve Enhancement Program
FY2020 Annual Report

Nebraska II-Platte Republican Resource Area

The Conservation Reserve Enhancement Program (CREP) is partnership between state agencies and the U.S. Department of Agriculture, Farm Service Agency. Through these partnerships, CREP provides financial incentives to farm landowners willing to voluntarily implement conservation measures on sensitive land in lieu of continued agricultural production. Conservation practices implemented under CREP (e.g., stream buffers, conservation plantings, restored wetlands) contribute to improved water quality, reduced water losses, increased water storage, and increased habitat quantity and quality for a variety of wildlife species; but are targeted towards specific State or nationally significant conservation concerns. Under the terms of CREP agreements, partners are required to submit annual reports that summarize progress towards meeting CREP agreement goals. This is the FY2020 report for the Nebraska II-Platte Republican Resource Area CREP Partnership.

Introduction

The original agreement between the USDA, CCC, and the State of Nebraska initiated the Nebraska Platte-Republican Resources Area CREP for the improvement of water quantity and quality, and the enhancement of wildlife habitat in designated areas of the Platte and Republican River basins. The MOA was signed by Floyd D. Gabler, Deputy Under Secretary for Farm and Foreign Agricultural Services for the USDA and Nebraska Governor Dave Heineman on March 19, 2005. Several amendments were made to that MOA. In June of 2016, a new MOA was signed by Brad Pfaff, Deputy Administrator for Farm Programs of the Farm Service Agency, and Nebraska Governor, Pete Ricketts. This MOA took the place of the previous MOA and its amendments. The new MOA allows for reenrollment of existing contracts.

The overall goals of the Nebraska Platte-Republican Resources Area CREP are to significantly reduce the amount of irrigation water consumptive use and agricultural chemicals and sediment entering waters of the State from agricultural lands and transportation corridors. The reduction of ground and surface water use for irrigation and reduction of non-point source contaminants, through establishment of permanent vegetative cover, will also enhance associated wildlife habitat, both terrestrial and aquatic. These goals are to be accomplished by terminating all irrigation practices on a maximum of 100,000 acres of land located in the State Conservation Priority Area for Water Quality (the "Priority Area"). The Priority Area includes land adjacent to the Republican River, the Platte River, and their tributaries.

From April 4, 2005, until September 30, 2020, there were 829 applications for new participation filed, with a high percentage of original offers received in 2005. From October 1, 2019, until September 30, 2020, there were 39 new applications and 197 reenrollment applications filed. The 197 reenrollments were out of a possible 270 which were set to expire after midnight on September 30, 2020. This is the highest percentage of reenrollments since reenrollments were authorized in 2016.

FY2020 Summary

CREP Acreage Cap: 100,000
Acres Re-enrolled in 2020: 19,495
New Acres Enrolled in 2020: 4,587
Total Acres Currently Enrolled: 40,609

Federal Commitments

Federal CRP Rental Payments: $6,230,000

Federal Signup Incentive Payments: $2,685

Federal Practice Incentive Payments: $0
Federal Cost-Share Payments: $5,946

Other Federal Incentive Payments: $0

Non-Federal Commitments

Non-Federal Financial Commitments Contributing Partner Descriptions: The Nebraska Platte-Republican Resources Area CREP (CREP) is coordinated by the Nebraska Department of Natural Resources (NeDNR, Department) in cooperation with the USDA Farm Service Agency (FSA). The NeDNR has 13 partner agencies who contribute financially and comprise the CREP Steering Committee. The partner agencies consist of 7 natural resources districts (NRD), 4 Irrigation/Public Power Districts, a sister state agency and a state commission. The NRDs are: Central Platte NRD, Lower Republican NRD, Middle Republican NRD, Upper Republican NRD, North Platte NRD, Twin Platte NRD, Tri-Basin NRD. The irrigation/public power districts are: Nebraska Bostwick Irrigation District (NBID), The Central Nebraska Public Power & Irrigation District (CNPPID), Nebraska Public Power District, Pathfinder Irrigation District, all of whom own and operate irrigation canals in the Platte and Republican River Basins. The partnering state agency is the Nebraska Department of Agriculture. The Nebraska Game & Parks Commission is the other state partnering agency.

The NRDs have been successful in working with state and local partners including Nebraska State agencies, Universities, and UNL Extension, to research groundbreaking technology, cropping strategies, and input practices that best address local management needs. This research has been used to engage producers and stakeholders and demonstrate both the economic and conservation impacts of best management practices. Several NRDs have developed their own programs and networks that work to demonstrate efficiency impacts and offer producers real-time data and information to assist in making effective conservation-minded management decisions. While there are special Water Quality and Quantity Management Areas where certain practices are required, many of the most effective practices being implemented by producers across the state are done so voluntarily. Utilizing NRD funds to leverage state and federal

dollars, local boards have been able to provide cost-share incentives to producers for innovative, research-driven advances in irrigation management. These programs utilize local funds raised through taxes and fees, which are leveraged with matching funds from state and federal partners.

The NRDs facilitate implementation of conservation practices on farms utilizing practices that are authorized by various programs including: Nebraska Natural Resources Water Quality Fund, Nebraska Soil and Water Conservation Fund, Nebraska Water Sustainability Fund. They work directly with agricultural producers at the local level.

The irrigation/public power districts are involved with conservation activities and recently have focused on canal system efficiency improvements to reduce waste and system loss. They have also taken advantage of the Nebraska Water Sustainability Fund to improve their systems as well as funding their own system improvements.

The payments made directly to CRP participants can be divided into three categories of action. The Department of Natural Resources reimburses 50% of the cost of vegetative cover to establish the approved practice(s) under contract. The second category is payments from the State for participation in the Buffer Strip Program administered by the Nebraska Department of Agriculture. Finally, direct payments were made by the Upper Republican Natural Resources District to establish a permanent conservation easement which would take effect at the termination of the CREP contract period. These activities all contribute to improvement to streamflow quantity, quality and wildlife habitat availability.

All partnering agencies contribute personnel and equipment to conduct the activities of administering the CREP program, their conservation activities, data collection and dissemination, education, office and field services, steering committee meetings, compliance checks and myriad other activities.

Non-Federal Financial Commitments: $3,493,928

Non-Federal Financial Commitments Directly to CRP Participants: $532,003

Total Non-Federal In-kind Support: $1,349,582

Total Non-Federal In-kind Support Directly to CRP Participants: $30,199

Breakdown of Non-Federal In-kind Support

1: NeDNR CREP Program Staff Labor & Expenses - The Nebraska Department of Natural Resources administers and coordinates the CREP program. It provides the coordinator, support staff, field operations and associated expenses. Processing water use contracts, coordinating and collaborating with state and local Farm Service Agency professionals, local natural resources districts and irrigation districts are some of the activities undertaken in this role. They work for and directly with the agricultural producers to implement advise and complete contract applications. The CREP Steering Committee is organized and convened by the Department in collaboration with the State FSA Office. The Department of Natural Resources reimburses 50% of the cost of vegetative cover to establish the approved practice(s) under contract. – $45,651

2: Natural Resources Water Quality Fund - The Natural Resources Water Quality Fund was established by the Nebraska Legislature in 2001 to provide funds to natural resources districts (NRD's) for support of their water quality programs. The source of these funds are a portion of pesticide registration fees and pesticide applicators license fees collected by the Nebraska Department of Agriculture. The NeDNR serves as the administrative body for passing funds for this program through to NRD's. Funds are allocated among the NRD's and administered locally based on rules and regulations established by the Nebraska Natural Resources Commission. The NRD's are able to extend the reach of the program by providing additional money to carry out activities which include: (1) the purchase, installation, maintenance, and use of ground water sampling and testing equipment; (2) the purchase, installation, maintenance, and use of surface water sampling and testing equipment; (3) education and information programs related to water quality issues; (4) administration of ground water quality management areas; (5) purchase, installation, and maintenance of special monitoring wells and related equipment; (6) flow meters and other equipment required in ground water management areas ; (7) source water protection programs and activities; (8) preparation and updating of ground water management plans; (9) implementation of water quality "best management" practices in both rural and urban areas, including programs which cost-share expenses of landowners and operators in installing or using such practices; (10) soil sampling and testing programs for soils in and below the crop root zone. They work for and directly with the agricultural producers to implement the programs. – $596,696

3: Nebraska Soil & Water Conservation Fund - The Soil and Water Conservation Fund was created in 1977 to provide financial assistance to private landowners for installation of soil and water conservation practices. Various conservation practices are eligible for cost-share assistance of up to 75 percent. The Nebraska Natural Resources Commission (Commission) determines the list of eligible practices, establishes operating procedures, and annually allocates the funds among all of the 23 natural resources districts (NRD's). The United States Department of Agriculture - Natural Resources Conservation Service (NRCS) provides technical assistance needed in planning and verifying proper installation of conservation measures. The NRDs are responsible for the administration of the program at the local level, including accepting applications from landowners, setting priorities and working with the landowners and contractors to complete the practices and prepare the necessary documentation for submittal to the Department of Natural Resources. Among the eligible practices for cost-share assistance are terraces, terrace outlets, irrigation reuse pits, grade stabilization structures, dams, diversions, grassed waterways, control basins, pasture and range seeding, planned grazing systems, and irrigation water management. – $430,681

4: Nebraska Water Sustainability Fund (WSF) - This fund is a source of financial support to help local project sponsors achieve the goals set out in Neb. Rev. Stat. § 2-1506. The Nebraska Natural Resources Commission (NRC) oversees WSF operations including application review, scoring & ranking, and awarding funding to successful applicants. The Department of Natural Resources (NeDNR) administers the WSF fund by initially reviewing the newly filed applications and forwarding those that meet minimum statutory requirements to the NRC. Once the NRC awards funding to a project, NeDNR enters into a contract with the project sponsor, receives and reviews reimbursement requests, disperses funds and

monitors project progress. The NRC reserves ten percent for projects requesting $250,000 or less. For 2020 the projects that were funded in the CREP program area were to retrofit automated gates in two irrigation district's canal systems to increase efficiency and reduce waste. Less water is needed be diverted to deliver an equivalent number of acre-inches of water to patrons of each system. – $102,794

5: Irrigation System Efficiency Improvement - The Pathfinder Irrigation District funded two water saving projects in the CREP delivery area in 2020. They have a long-term project to convert open ditch irrigation laterals to buried pipe to reduce the amount of water it takes to deliver an equivalent number of acre-inches to patron's irrigated fields. Similarly, they conducted a water saving project to seal the main canal with clay and silt to reduce loss on route to irrigated parcels. – $143,560

Other Non-Federal Commitments or Support:

There are 4 additional types of Non-Federal In-Kind support to report in this section as the software only allowed for the entry of 5 types of Non-Federal In-Kind support in the previous section.

1) Nebraska Buffer Strip Program - This program is administered from fees assessed on registered pesticides. Cropland adjacent to perennial and seasonal streams, ponds, and wetlands can be enrolled in buffer strips, which are designed to filter agrichemicals such as fertilizers and pesticides. Two kinds of buffer strips are eligible - filter strips, which are narrow strips of grass; and riparian forest buffer strips containing trees and grass. The minimum widths are 20 and 55 feet, respectively; the maximum widths are 120 and 180 feet, respectively. The program is designed to be used in conjunction with the USDA Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), or other programs, however it can be used by itself, as well. These strips are placed next to seasonal or permanent streams, wetlands and ponds. These practices provide protection between cropland and waterbodies by helping to stabilize the environment and filter agrichemicals such as fertilizers and pesticides. Contracts run from 5 to 10 years. This program contributed $30,588 toward In-Kind support.

2) State Recreation Area (SRA) Management in CREP Area - These SRAs provide critical infrastructure related to water quantity and quality issues and provide outdoor recreation opportunities within the CREP area. The in-kind contributions consist of maintenance and upkeep of facilities for outdoor recreation including hunting and fishing which are enhanced by the water quality and quantity improvements and wildlife enhancements from the CREP program. This program contributed $589,613.31 toward In-Kind support.

3) CREP Partner Water Quality and Quantity Program Administration - This type of contribution includes staff time and expenses for reviews of pending water use contracts, compliance checks, meetings related to CREP and administration of water quantity, quality and habitat improvement programs within the CREP area. These programs are administered by the Natural Resources Districts (NRD) and surface water Irrigation Districts. Some of these NRDs have active programs to read, record and report water meter data in support of

water allocation programs and to inform producers who are actively engaged in efficient irrigation management. NRD staff also make seasonal groundwater level measurements which are used in the management of allocation programs designed to maximize groundwater aquifer life. Groundwater aquifers are directly tied to Nebraska streams, providing a significant amount of the base flow in streams. Conservation of groundwater results in reductions to stream depletion by groundwater pumping. The NRDs provide staff to work directly with agricultural producers to assist them in developing and implementing best management practices. They take advantage of numerous federal, state and local conservation programs and cooperate with program administrators in the other branches of government. The personnel and equipment are funded by the districts. This program contributed $948,681.37 toward In-Kind support.

4) Natural Resources District Conservation Programs - The Lower Republican Natural Resources District offers water quantity/quality cost share money to improve irrigation water management, create wildlife habitat and reduce soil erosion on cropland. Direct payments were made by the Upper Republican Natural Resources District to establish a permanent conservation easement which would take effect at the termination of the CREP contract period. These activities all contribute to improvement to streamflow quantity, quality and wildlife habitat availability. These programs contributed $575,463.33 toward In-Kind support.

The sum of this section should be added to the total Non-Federal In-Kind support.

Total Other Non-Federal Commitments or Support: $2,144,346

Other Non-Federal Commitments or Support Directly to CRP Participants: $501,804

GOALS

Goal 1: Reduce the application of water for cropland irrigation in the project area by 125,000 acre-feet annually from 2004 irrigated usage levels.

Progress: The estimated consumptive use savings for curtailing irrigation on the CREP program acres for the 2020 irrigation season is 41,560 acre-feet. The implied irrigation efficiency within Goal 1 and Goal 2 is 0.68. Therefore, the expected reduction in application of water for 2020 is 61,120 acre-feet. This is 49% of the goal. For the 2020 irrigation season, there were approximately 45% of the maximum acres enrolled in the program. The progress is in line with the level of participation. The Nebraska Legislature passed a bill in 2017 that makes re-enrollment of irrigated land under a surface water appropriation more likely, because the number of years that a surface water appropriation may be protected from cancellation for nonuse was increased from 15 to 30 years. This paved the way for 15-year contracts to be renewed for another 15 years without placing the water appropriation in jeopardy.

Difficulties: The success of fully achieving this goal is directly related to the percentage of enrollment. It would likely be met if all the possible acres were enrolled. The $50,000 payment limit per entity can be problematic for reenrollment. There are no incentive payments for re-enrollments. The payment cap also can be a deterrent for new sign-up because PIP has been interpreted as an annual rental payment, subject to the $50,000 cap. Other programs that offer more flexibility such as dryland farming or incentivized reduction in application of irrigation water can appear more attractive to some producers.

Goal 2: Increase surface and ground water retention by a target amount of 85,000 acre-feet of water annually within the project area reservoirs, groundwater tables and streams.

Progress: The retention of surface and groundwater is dependent and synonymous with the reduction in consumptive use. Consumptive use of irrigation water is lost to the lakes, streams and groundwater aquifer through the activity of irrigation. The estimated retention (consumptive use) from all sources is 41,560 acre-feet for 2020. That is 49% of the goal. As stated in the summary for Goal 1, this is in line and correlated with the overall level of participation. Goal 1 and Goal 2 are closely related. The Nebraska Legislature passed a bill in 2017 that makes re-enrollment of irrigated land under a surface water appropriation more likely, because the number of years that a surface water appropriation may be protected from cancellation for nonuse was increased from 15 to 30 years. This paved the way for 15-year contracts to be renewed for another 15 years without placing the water appropriation in jeopardy.

Difficulties: Just as with Goal 1, the success of fully achieving this Goal 2 is directly related to the percentage of enrollment. It would likely be met if all the possible acres were enrolled. The $50,000 payment limit per entity can be problematic for reenrollment. There are no incentive payments for re-enrollments. The payment cap also can be a deterrent for new sign-up because PIP has been interpreted as an annual rental payment, subject to the $50,000 cap.

Goal 3: Provide up to 85,000 additional acres of native grassland habitat for wildlife in the project area, increasing the populations of pheasants and other ground nesting birds by 25 percent in the area.

Progress: Under the MOA 85,000 acres may be put into the following practices: Permanent Native Grasses CP2, Permanent Wildlife Habitat CP4D, and Rare and Declining Habitat CP25. In addition, practice Wildlife Food Plot CP12 may be used in conjunction with any of the three primary practices. Currently all but 155.8 acres of the enrolled acres in the CREP program are in these practices. Therefore, the practices are attractive to producers. Monitoring of wildlife populations in the Platte-Republican Basins CREP area continues to be completed by the Nebraska Game and Parks Commission (NGPC) using standard game surveys. The primary impact on wildlife in the CREP area at this point has been the original enrollment of >46,000 acres of formerly cropped irrigated fields into appropriate wildlife cover.

The bulk of the CREP acres were enrolled in the spring of 2005 and were planted to perennial cover in the fall of 2005 and spring of 2006. The NGPC has graphed several species' survey data showing prevalence since 2005. The survey data provides a baseline for detecting changes in populations that can be attributed, at least in part, to the CREP enrollment. Annual variations in wildlife populations are very common, and in Nebraska, are typically tied to weather conditions. Surveyed wildlife populations in the CREP area are compared to those across the state in order to better understand the relative impact of CREP habitat enrollments on Nebraska wildlife populations of interest.

Pheasants rebounded in the PR CREP area, while bobwhite quail continued to decline. All surveyed species in the CREP area though are faring better than the statewide average. Without suitable habitat like that provided by CREP acres, this may not have been the case.

Difficulties: It is difficult to determine a baseline from which to calculate a 25% improvement. The surveys do show that the species used to gage the success of the program do show better populations within the CREP areas. 2020 weather in CREP area of Nebraska was close to average, with drought increasing later in the summer and continuing into fall. The unprecedented weather evets of 2019 gave way to more average precipitation and temperatures in the project area. Areas of the state such as the northeast and panhandle were in drought for much of 2020. The majority of indices in this report show a downward trend from last year, most likely reflecting these weather influences and the lingering effects of the harsh winter and spring conditions in 2019.

Goal 4: Provide up to 15,000 additional acres of conservation buffers and restored wetlands.

Progress: There are Sign-up Incentive Payments (SIP) and Practice Incentive Payments (PIP) for applicable practices Filter Strips CP21, Riparian Buffer CP22, Wetland Restoration CP23 and Wetland Restoration/Non-Floodplain CP23A to encourage achieving this goal. Cover establishment is reimbursed with a 50/50 share between the USDA and State Partner to further incentivize participation. The 15,000-acre target is further broken down to 10,000 acres for CP21 and CP22, and 5,000 acres for CP23 and CP23A. Currently there is only one contract for 155.8 acres of CP23 practice. It is unusual in that it has irrigated land situated partly in a wetland area.

Difficulties: Irrigation systems are expensive investments and it could be that eligibility of the land is an issue. Perhaps irrigated crop ground is unlikely to qualify as a filter strip, wetland restoration etc., due to a preference for field locations more conducive to irrigation, such as flatter terrain and no wetlands.

Goal 5: Seek to reduce the application of triazine products by approximately 93,000 pounds annually, when fully enrolled, from existing application rates in the project area.

Progress: Under the terms of the program, lands included under contract must be replanted to native grasses and, therefore, would not be treated with herbicides. The average amounts of application associated triazine compounds is 1.3 pounds per acre. Therefore, the amount of triazine that likely would have been applied to the contracted acres, had they remained as irrigated cropland is approximately 58,500 lbs. The goal has only partially been met. This is in part due to 45% participation rate for total enrolled acres.

Difficulties: The success of fully achieving this goal is directly related to the percentage of enrollment. It would likely be met if all the possible acres were enrolled.

Goal 6: Seek to reduce leaching of nitrate compounds into project area streams and groundwater by 5,900,000 pounds annually, when fully enrolled, from the 2004 application rates.

Progress: Under the terms of the program, lands included under contract must be replanted to native grasses and, therefore, would not be fertilized. The average amounts of application associated nitrogen is 200 pounds per acre. Therefore, the amount of nitrogen that likely would have been applied to the contracted acres, had they remained as irrigated cropland is approximately 9,000,000 lbs. It is likely the goal has been met.

Difficulties: As the Natural Resources Districts (NRDs) continue to focus upon education about and regulation of nitrogen use, the amount of reduction could decrease with successful nitrogen management programs. In other words, the baseline will probably go down over time.

Goal 7: Seek to reduce the application of phosphate products by approximately 2,440,000 pounds annually, when fully enrolled, from 2004 application rates in the project area.

Progress: Under the terms of the program, lands included under contract must be replanted to native grasses and, therefore, would not be fertilized. The average amounts of application associated phosphate is 20 pounds per acre. Therefore, the amount of phosphate that likely would have been applied to the contracted acres, had they remained as irrigated cropland is approximately 900,000 lbs. The goal was not met and is one of the furthest from being met.

Difficulties: This goal should be evaluated to see if the original basis and input assumptions are reasonable.

Goal 8: Assist community public water supplies (surface and groundwater) by reducing nitrogen and phosphorus levels from agricultural activities.

Progress: Nebraska's Natural Resources Districts (NRDs) are the primary regulator of nonpoint source pollution in groundwater. NRDs develop and implement groundwater quality managements plans that describe monitoring, assessment, and thresholds triggering regulatory measures. There are many examples throughout the state of increased regulatory measures to protect and restore community public water supplies. NRDs partner with local communities, agricultural producers, and the private sector to leverage resources to protect water quality. Education and outreach is offered and cost-share is available for best management practices that help producers reduce water use and fertilizer application. Nitrate levels are annually measured and monitored and trigger levels for regulations have been implemented in several NRDs.

The Nebraska Department of Environment and Energy (NDEE) administers the Wellhead Protection Program and state Nonpoint Source Management program. Together, these programs offer planning and financial assistance to public water systems interested in protecting and restoring their water supplies. Recently, NDEE is funding nonpoint source planning efforts specific to community water system wellhead (source water) protection areas. Once these community-based plans are approved by EPA, implementation is eligible for federal Clean Water Act Section 319 nonpoint source funds. Eight such plans are currently approved and in development.

Difficulties: Phosphorus is not a drinking water human health concern and generally not monitored in groundwater. It does impact harmful algal blooms – surface water systems, particularly lakes. There are only 3 lake water based public water systems in Nebraska, none of which are within the CREP program area. Phosphorus has not been identified as a significant problem for our state.

Goal 9: Provide educational assistance to project area irrigators to develop a more efficient use of applied water, nutrients, and herbicides.

Progress: The Natural Resources Districts (NRDs) have been successful in working with state and local partners including NeDNR, the Nebraska Department of Environment and

Energy (NDEE), Universities, and UNL Extension, to research groundbreaking technology, cropping strategies, and input practices that best address local management needs. This research has been used to engage producers and stakeholders and demonstrate both the economic and conservation impacts of best management practices.

Several NRDs have developed their own programs and networks that work to demonstrate efficiency impacts and offer producers real-time data and information to assist in making effective conservation-minded management decisions. While there are special Water Quality and Quantity Management Areas where certain practices are required, many of the most effective practices being implemented by producers across the state are done so voluntarily. Utilizing NRD funds to leverage state and federal dollars, local boards have been able to provide cost-share incentives to producers for innovative, research-driven advances in irrigation management.

A few examples of some of the programs offered or required by NRDs are: NRD-level cost-share programs offering technical assistance of 0-100% on purchase of soil moisture sensing equipment; required flow meters on groundwater wells over specified capacity; allocate a certain number of inches that can be pumped over a certain number of years; Require soil sampling for water quality indicators. In addition to support from extension offices, NRDs, and NRCS district conservationists, locally driven producer groups, such as the Nebraska Water Balance Alliance, have worked to provide producer seminars and education events on technologies and practices that can be adopted by producers to improve irrigation management.

A recent example of a creative program to engage producers in adoption of new technologies is the testing Ag Performance Solutions (TAPS) program (taps.unl.edu). This program provides opportunities for producers to virtually compete against each other as well as UNL scientists for (1) most profitable farm, (2) highest input (water and nitrogen) use efficiency, and (3) greatest grain yield. The goal of the competition is to promote efficiency and profitability while giving a chance to learn from those who grow corn profitably. The competition is supported by UNL Extension, NRDs, non-profit organizations, and agricultural industries, among others.

Difficulties: Agricultural producers in Nebraska play an important role in the overall economy of the State. Irrigation is more important for productivity of farms toward the western part of the state (CREP area), which is more arid than the eastern portion. It can be challenging to modify a system of production upon which so much depends.

Goal 10: Monitor the aquatic communities and associated habitat parameters in project area reservoirs and rivers to determine biological relationships.

Progress: The fisheries program with Nebraska Game & Parks Commission (NGPC) has been involved in an on-going limnological assessment at Harlan County Reservoir during the entire Nebraska CREP program timeframe. NGPC has a consistent data base of abiotic, zooplankton and larval fish collection results. For the Platte River basin the NGPC conducts standardized annual fish monitoring surveys that on the reservoirs.

Difficulties: The CREP partners had proposed to develop a more detailed evaluation method, but that proposal was not supported by federal review because the acres signed-up were not in a concentrated area along any tributary stream that could reasonably expect to see a measurable aquatic community change. The sign-up area is very large, so the projects are spread apart.

Goal 11: For irrigation purposes, reduce the total consumption of fossil fuels by 350,000 gallons and electricity use by 10 million kilowatt hours.

Progress: The Nebraska Department of Energy's data indicates that approximately 55 percent of all irrigation pumps are powered by electricity, and 45 percent are powered by fossil fuels. Nebraska Public Power District, one of the Nebraska Platte/Republican CREP partners, provided information from a 2001 Report – "Estimated Irrigation Costs" by Roger Selley, University of Nebraska at Lincoln. Using assumptions based upon that report, the following method has been employed each year to estimate the energy savings from the CREP program in Nebraska. The representative distribution system is a 135 acre center pivot pumping 800 gallons per minute and applying 9.5 acre-inches per acre with a lift of 100 feet at 60 percent efficiency, the annual electric usage is 45,966 kilowatt hours, and fossil fuels (diesel, propane and gasoline) average 4,600 gallons. The formulas used below are (electric consumption = acres x .55 x (46,000 kilowatt hours/135 acres)) and (fossil fuel consumption = acres x .45 x (4,600 gallons/135 acres)). Using this method, the 2020 estimated electrical energy savings would have been 8,585,671 kilowatt hours. The estimated fossil fuels savings would have been 702,464 gallons. It appears the fossil fuel goal is likely met. The electrical energy savings was about 85% met.

Difficulties: Hard data on site-specific energy sources for irrigation projects is not readily available.

Field Reviews

Field Reviews: The Department of Natural Resources and the local natural resources districts cooperated in a monitoring program to assure non-use of water under contract. This monitoring is in addition to monitoring done by the FSA under their CREP requirements. Ten percent of all contracts having surface water appropriations, and ten percent of all contracts with lands served by groundwater were reviewed. The Department's review consisted of field investigations to determine whether lands had been irrigated and whether it was planted to a cover crop. The natural resources districts reported on whether there was any use of water from the wells included under the water use contracts.

Field Review Findings: None of the field reviews conducted by Department or Natural Resources District staff found a violation of the contract with the landowners.

Were Findings Reported to FSA? No

Outreach Activities

Outreach Activity 1: Social media is being used to promote CREP, which is helpful during the limitations of with direct public contact during the pandemic.

Outreach Activity 2: FSA and NeDNR independently reached out to expiring contractors to encourage re-enrollment.

Outreach Activity 3: Program documents and presentations are made available and prominently featured on our website at https://dnr.nebraska.gov/surface-water/crep .

Outreach Activity 4: A steering committee meeting was held on February 26, 2020 to promote the program and coordinate re-enrollment efforts.

Outreach Activity 5: COVID-19 pandemic limitations curtailed Nebraska State Fair participation, which is an annual event in which we present CREP materials at a staff booth in a high traffic pavilion.

Outreach Activity 6: COVID-19 pandemic limitations curtailed Husker Harvest Days participation, which is also an annual event in which we present CREP materials at a staff booth in a high traffic pavilion. Husker Harvest Days is one of the largest agricultural expositions in the United States.

Success Stories

Currently, CREP fields are providing high quality wildlife habitat with a diverse mix of grasses, forbs, and legumes. These fields are providing key grassland habitats, which are required for strong pheasant populations. The reduction of non-CREP CRP acres may be having an effect on these wildlife indices. Extreme weather events such as heavy rainfall appear to be happening more frequently which may have a long-term detrimental effect on many of the surveyed species. Landowners, hunters, and natural resource enthusiasts continue to report good wildlife use of CREP fields. CREP enrollments are contributing to success of these populations, and with appropriate management will continue to do so throughout the life of the CREP contracts.

The overall enrollment rate was more successful in 2020 than recent years. The 19,494.59 re-enrolled acres account for 71% of eligible acres for contracts expiring 09/30/2020. This compares favorably with reenrollment rates from the previous 5 years which was only 56%. Similarly, there were new contracts covering 4,586.89 acres which began in fiscal year 2021. The 10-year average from 2011-2020 was only 639 new acres per year.

Challenges

This CREP program is now in its sixteenth year, so 2020 had over 270 CRP participants who needed to be contacted about re-enrollment. The sheer volume of re-enrollment offers, and the complications of the pandemic stressed administrative system within the state and federal offices involved. In addition, there were quite a few new technicians who had not worked with the Department of Natural Resources Water Use Contracts before. Training was conducted in May to address this issue and it helped to streamline the flow of information once the height of processing offers was reached. The drop in rental rates has been a concern expressed by several partners. So far it doesn't appear to have suppressed new enrollments, but that is difficult to know for sure. Some of the surface water irrigation districts have expressed concerns about the possible negative impacts on their ability to deliver water to remaining active irrigated fields.

Future Actions

We will convene Steering Committee Meetings as needed to seek input for process improvements and look for further incentivize sign-ups. Work with partners to streamline the water use contract document and the handoff between the Natural Resources Districts and surface water irrigation districts who need to sign the contracts. Engage surface water irrigation districts to see if their concerns can be allayed.

Suggestions for Improvement

It would be helpful if we could share our GIS layer with natural resources districts who offer other irrigation curtailment programs in the CREP area. They need to be sure they aren't inadvertently signing up land that is already enrolled in CREP. It would be nice to have a more controlled way to share documents rather than e-mail attachments with generic PDF file names that don't distinguish one type of document from another. A file sharing service with a processing workflow would be very helpful.

Additional Information

There is another significant contribution to improving water quantity that is sponsored by three partner Natural Resources Districts. The North Platte NRD, Upper Republican NRD and Central Platte NRD have executed CREP-like agreements to place permanent conservation easements on hundreds of irrigated acres in both basins. This is done to reduce demand on groundwater and surface water sources in fully and over-appropriated areas, within the CREP area. One of the results is less streamflow depletion from irrigation. The total in-kind contribution for this activity is $1,821,776.90 for fiscal year 2020. In addition, the North Platte NRD has entered into agreements with irrigators within their part of the CREP area to reduce their allocation of groundwater for a set number of year. This has a similar benefit as the permanent easements, but for a limited time frame as is done with CREP contracts. The financial contribution for this activity was $64,306.50 for 2020.

Date Completed: 12/28/2020

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