



The Nebraska
Environmental Trust

preserving NATURAL NEBRASKA™ for future generations

NEBRASKA ENVIRONMENTAL TRUST FUND

APPLICATION COVER SHEET

H1. Project Sponsor: Nebraska Department of Natural Resources (in partnership with the Nebraska Center Pivot Manufacturer's Association and the University of Nebraska Cooperative Extension)

H2. Project Name: Enhancing the Value of Water Through Management Education

3. County(s) where project is located: Statewide with emphasis in Republican Basin and portions of Platte Basin upstream of Kearney

4. Nearest town: NA

5. Total Amount Requested: \$215,000

6. Years of funding requested (select one): 1 2 3

Contact Person:

7. Name: Steve Gaul

8. Title: Supervisor, Planning and Assistance Division

9. Organization: Nebraska Department of Natural Resources

10. Address, City, State & Zip: PO Box 94676, Lincoln, NE 68509-4676

11. Daytime Phone: 402-471-3955

12. Alternate phone: 402-471-2081

13. Fax: 402-471-2900

14. E-mail: sgaul@dnr.ne.gov

15. Sponsor web page: http://dnr.ne.gov

16. Is this a continuation request for a project previously funded by the Trust: YES NO:

Is this a resubmission of a project application previously not funded by the Trust: YES NO:

17. Please indicate which category best describes the applicant:

Selections are: Individual City or County Natural Resources District Federal Agency Private for Profit Private Nonprofit Consortium School, Irrigation, Power or Development District State Agency Other (specify):

18. Will this project receive federal funds or require a federal review or permit? NO

If yes, identify the agency(s) and its role:

19. Will this project receive other State of Nebraska funds or require a state review or permit? YES

If yes, identify the agency(s) and its role:

The University of Nebraska will provide in-kind support for this project and conduct the bulk of the work for the effort. The Department of Natural Resources will provide \$10,000 in cash towards the project.

20. In **300 words or less** provide an overview of the project for which you seek funding. If you are asking the Trust to fund only a portion of the project, indicate the components for which you seek funding.

This project will develop and deliver an organized water management educational program to provide irrigators, and those advising irrigators, with the knowledge and skills necessary to obtain maximum value from a constrained water supply. The program will be developed through the University of Nebraska Extension, Biological Systems Engineering Department with extensive input and assistance from Nebraska center pivot manufacturers, Lindsay Corporation, Reinke Manufacturing Company, Inc., T-L Irrigation Company, and Valmont Industries, Inc. Efforts will be made to involve Natural Resources Districts (NRDs). Although the program will be offered statewide, initial efforts will be concentrated in water short areas, including the Republican River Basin and the Platte River Basin upstream of Kearney. This program will differ from previous educational programs in emphasis, scope, marketing strategy, and will rely input from the center pivot manufacturers to reach a previously



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unreached audience. This will result in stronger delivery with a specific concentration on maximizing the value of a constrained water supply.

The need for this type of program has increased in recent years because the water resources in many of Nebraska's NRDs have been declared fully- or over-appropriated, and are subject to either moratoriums, or to restrictions on the amount of water that may be used. The program should help irrigators obtain maximum value from the water they use. If constraints on water useage result in water savings, these savings will provide flow levels that are likely to provide substantial environmental benefits as well as economic benefits from the delivery of this program.

This educational program will provide an introductory 3 to 4-hour module addressing basic principles for efficient irrigation: soil and water management, evapotranspiration (ET), and application uniformity and efficiency. It will also provide an intermediate-level module (3 to 4 hours) providing specialized hands-on instruction addressing such topics as soil water measurement, ET measurement and estimation, and measuring application efficiency and uniformity; an advanced-level module will address the use of state-of-the-art sensing, decision-making tools, and control technology (with demonstration of this technology).

The effort will include: developing the educational materials (for both on-site and distance delivery), coordination among the partners, organizing, scheduling and delivering on-site workshops, interfacing with client groups (including input from irrigators), active program promotion, access to irrigators through center pivot dealers, developing written and electronic program material, and dealers providing resources such as meeting venues, meals, promotional materials, and equipment. A project completion report will be provided.

21. On behalf of the sponsor(s) named above, I hereby certify that the information contained in this application, including all attachments, is true, accurate and complete.

Authorized Signature of Sponsor Organization	Title	Date
Ann Bleed	Director	
Typed or Printed Name of Authorized Signatory	Typed or Printed Title	



NARRATIVE SECTION

H1. Project Sponsor: Nebraska Department of Natural Resources (in partnership with the Nebraska Center Pivot Manufacturer's Association and the University of Nebraska Cooperative Extension)

H2. Project Name: Enhancing the Value of Water through Management Education

In five pages or less, provide a discussion of your project. Be sure to cover the points specified in the instructions.

Purpose

The purpose of this project is to develop and deliver an organized water management educational program to provide irrigators, and those advising irrigators, with the knowledge and skills necessary to obtain the maximum benefit from a constrained water supply.

Need for Program

This effort will deliver a program specifically targeted to maximizing the value of a constrained water supply, and will differ from previous efforts in emphasis, scope, marketing strategy, and will integrate use of center pivot manufacturers' dealer networks for disseminating information. The need for this type of program has increased considerably in recent years. The water resources in many of the NRDs in Nebraska have been declared fully- or over-appropriated, and subject to either moratoriums on new high capacity uses, or to allocations on the amount of water that may be pumped. If the program is successful, irrigators will be able to maximize the value of the ground water and surface water they have, while the potentially lowered water use would provide environmental benefits through maintaining required flows. With constrained water supplies, maximizing the economic benefit of the finite amount of water that can be pumped and/or consumed becomes even more important to landowners and natural resources districts. Furthermore, the crop demand generated by ethanol production has raised crop prices, raising the economic stakes for efficient water use. Finally, higher fuel prices have increased one of the costs of over-pumping. In short, Nebraska's water resource has become far more economically valuable in a time when environmental needs are also receiving more emphasis. Maximizing benefits for all parties requires knowledgeable and well-informed water users.

Project Objectives

Project objectives include:

- 1) Provide irrigators, and those advising irrigators, with instruction on basic principles of efficient irrigation water management. This will include fifteen or more 3 to 4-hour introductory-level workshops on basic irrigation water management principles with at least three of those workshops per year occurring in fully- or over-appropriated areas.
- 2) Provide advanced in-the-field instruction on efficient irrigation water management techniques using the full range of potential contributors including center pivot dealers and Natural Resources Districts. This will include at least five intermediate-level workshops and four advanced-level workshops annually for a total of 15 intermediate and 12 advanced workshops. At least three of each of these workshops will be held annually in fully- or over-appropriated areas.



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- 3) Develop useful hands-on educational materials describing efficient irrigation water management techniques.
- 4) Tailor programs to water management needs specific to local areas with water use restrictions. Develop material specific for those areas, especially in the Republican River Basin and the over-appropriated portion of the Platte River Basin.
- 5) Collaborate with center pivot manufacturers and dealers, and with Natural Resources Districts in workshops and program delivery to maximum extent possible.
- 6) Develop a marketing strategy to reach irrigators that have not previously attended water management educational programs, and to persuade irrigators with an intermediate level of knowledge to participate in the advanced level workshops.
- 7) Provide a project completion report detailing activities of project and success indicators. (Note: this will be a project completion report for purposes of the Environmental Trust grant only because this is expected to become a continuing program through other means if possible).

Design and Implementation

The educational program will be developed in three-levels (Levels One and Two will be three to four hours, and Level Three will be slightly longer) as follows:

- Level One (Introductory) – three to four hours of instruction about basic principles for efficient irrigation: soil and water management, evapotranspiration (ET), and application uniformity and efficiency (five workshops per year -- minimum)
- Level Two (Intermediate) – three to four hours of hands-on and case-study instruction using principles in Level One to manage irrigation water efficiently, e.g., soil water measurement, ET measurement and estimation, and measuring application efficiency (five workshops per year -- minimum)
- Level Three (Advanced) – six to eight hours of instruction on advanced irrigation water management including the use of state-of-the-art sensing, decision-making, and control technology (with demonstration of this technology) (four workshop per year -- minimum)

The educational program will be coordinated through an educator/marketer position(s) hired by UNL Extension for the program that will assist in developing the educational materials (for both on-site and distance delivery) in consultation with the partners, and be responsible for liaison among the partners, for coordinating presentations, for organizing and scheduling on-site workshops, for delivering portions



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of the workshops, and for interfacing with client groups, e.g., irrigation equipment dealers, consultants, crop advisors, NRDs, etc.

Additional aspects of the project are to include:

- 1) Development of detailed written educational material
- 2) Development of fact sheets and brochures
- 3) Development of at least two instructional DVDs
- 4) Use of actual equipment in demonstrations (with manufacturer and dealer assistance)
- 5) Development of promotional and/or instructional material specific to fully- and over-appropriated areas
- 6) Development of additional instructional material related to consumptive water use
- 7) Targeting much of program delivery to fully- and over-appropriated areas in initial years
- 8) Close program coordination between UNL Extension, the center pivot manufacturers (and dealers), and Natural Resources Districts
- 9) Extensive use of center pivot manufacturer and dealer expertise and resources in the educational process
- 10) Web component (modules will be available on the UNL Water web site that is being developed)
- 11) Work with stakeholder groups to provide educational credits for course attendance
- 12) Project evaluation
- 13) Development of a project completion report detailing accomplishments and level of success of project

Specific educational components to be addressed include:

- 1) Basic principles of soil and water management for efficient irrigation
- 2) Evapotranspiration/crop water use
- 3) Evapotranspiration measurement/estimation
- 4) Consumptive use and water budgets
- 5) Soil water measurement
- 6) Irrigation scheduling
- 7) Application uniformity and efficiency
- 8) Measuring application efficiency
- 9) State-of-the-art sensing
- 10) The decision making process and decision making tools
- 11) Allocations and the decision making process
- 12) Control technology and demonstrations
- 13) Technology demonstration



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Roles

University of Nebraska – through Nebraska Extension and the Biological Systems Engineering Department, provide a water management educational program, and coordinate the program with ongoing research efforts at UNL.

Center Pivot Manufacturers of Nebraska – actively promote program, provide access to irrigators through dealers, and provide resources such as meeting venues, meals, promotional materials, and equipment for Level Three. Provide technical instruction as appropriate. This group includes Lindsay Corporation, Reinke Manufacturing Company, Inc., T-L Irrigation Company, and Valmont Industries, Inc. and has committed \$75,000 cash and \$75,000 in-kind contributions for the project.

Nebraska Department of Natural Resources – actively promote program and coordinate information among various entities within the state of Nebraska. Provide \$10,000 cash contribution.

Natural Resources Districts – Natural Resources Districts will be contacted to help set local meetings; provide information on local regulations; promote workshops and water management educational program.

Project Evaluation

Expected techniques to evaluate project success will include: before and after workshop participant surveys to determine knowledge gained and behavior changed, testing following workshops, and certification. Statistics will also be kept on levels of participation and, when large-scale distributions occur, the amount of material distributed. Any electronic information such as program audience (for distance education) or web hits will be noted.

Pre Grant Work

Because the participants consider initiation of this effort so important, they are working to initiate a program this fall and winter to present at least some of the initial concepts that will be in the final program that is proposed in this grant application. This will enable testing of ideas prior to initiation of the Trust grant project, and will enable the new Trust project to have an accelerated start up next spring.

Expected Project Outcomes

- 1) More efficient and economic management of irrigation water, especially in areas with water use restrictions due to:
 - Delivery of at least 42 project workshops providing information related to efficient water use management



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- Development and delivery of a coordinated curriculum with a variety of written and electronic materials promoting better irrigation water management, including: detailed instructional material, fact sheets, brochures, DVDs, Web material, and promotional materials
- 2) Establishment of an ongoing educational program that can be used in different venues in the future, and used as a model for other programs
 - 3) Establishment of better working relationships for educational delivery between Nebraska center pivot manufacturers, University of Nebraska Extension, and Natural Resources Districts
 - 4) Provide the Nebraska Environmental Trust with a project completion report detailing project accomplishments
 - 5) More water availability for surface water or environmental purposes either through reducing water demand in areas not fully or over-appropriated, or through helping water users to more efficiently use their allocations in fully or over-appropriated areas.



NEBRASKA ENVIRONMENTAL TRUST FUND

APPLICATION BUDGET SUMMARY

H1. Project Sponsor: Nebraska Department of Natural Resources (in partnership with the Nebraska Center Pivot Manufacturer's Association and the University of Nebraska Cooperative Extension)

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BUDGET YEAR: SUMMARY * = In-Kind Donations

Column A	Column B	Column C	Column D	Column E	Column F
1. Source of Funds ►	Nebraska Environmental Trust	Nebraska Center Pivot Mfgs Assoc	University of Nebraska	NE Dept of Natural Resources	TOTALS ▼
2. Budget Category ▼					
3. Personnel and Fringe Benefits	\$150,000	\$75,000		\$5,000	\$230,000
4. Program Promotion, Meeting Venues, Meeting Costs	\$5,000	\$45,000*	\$3,000*	\$5,000	\$58,000
5. Material, Publications and Equipment/Equipment Use	\$30,000	\$30,000*	\$5,000*		\$65,000
6. Indirect Costs			\$43,500*		\$43,500
7. Other Direct Costs Including Travel	\$30,000		\$8,500*		\$38,500
8.					
9.					
10.					
11.					
12.					
13.					
TOTALS ►	\$215,000	\$150,000	\$60,000*	\$10,000	\$435,000



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Year 1

Column A	Column B	Column C	Column D	Column E	Column F
1. Source of Funds ►	Nebraska Environmental Trust	Nebraska Center Pivot Mfgs Assoc	University of Nebraska	NE Dept of Natural Resources	TOTALS ▼
2. Budget Category ▼					
3. Personnel and Fringe Benefits	\$57,497	\$25,000		\$2,000	\$84,497
4. Program Promotion, Meeting Venues and Meeting Costs	\$2,500	\$15,000	\$2,000	\$2,500	\$22,000
5. Material, Publications, and Equipment/Equipment Use	\$20,000	\$10,000	\$2,000		\$32,000
6. University Financial and Admin Overhead			\$17,150		\$17,150
7. Other Direct Costs Including Travel	\$14,000		\$1,850		\$15,850
8.					
9.					
10.					
11.					
12.					
TOTALS ►	\$93,997	\$50,000	\$23,000	\$4,500	\$171,497



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Year 2					
Column A	Column B	Column C	Column D	Column E	Column F
1. Source of Funds ►	Nebraska Environmental Trust	Nebraska Center Pivot Mfgs Assoc	University of Nebraska	NE Dept of Natural Resources	TOTALS ▼
2. Budget Category ▼					
3. Personnel and Fringe Benefits	\$44,477	\$25,000		\$1,500	\$70,977
4. Program Promotion, Meeting Venues, Meeting Costs	\$1,250	\$15,000	\$500	\$1,250*	\$18,000
5. Material, Publications and Equipment/Equipment Use	\$5,000	\$10,000	\$1,500		\$16,500
6. University Financial and Admin Overhead			\$12,998		\$12,998
7. Other Direct Costs Including Travel	\$8,000		\$3,502		\$11,502
8.					
9.					
10.					
11.					
12.					
TOTALS ►	\$58,727	\$50,000	\$18,500	\$2,750	\$129,977



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Year 3

Column A	Column B	Column C	Column D	Column E	Column F
1. Source of Funds ►	Nebraska Environmental Trust	Nebraska Center Pivot Mfgs Assoc	University of Nebraska	Other Sources (NRDs and DNR)	TOTALS ▼
2. Budget Category ▼					
3. Personnel and Fringe Benefits	\$48,026	\$25,000		\$1,500	\$74,526
4. Program Promotion, Meeting Venues, Meeting Costs	\$1,250	\$15,000	\$5000	\$1,250*	\$18,000
5. Material, Publications, Equipment/ Equipment Use	\$5,000	\$10,000	\$1,500		\$16,500
6. University Financial and Admin Overhead			\$13,352		\$13,352
7. Other Direct Costs Including Travel	\$8,000		\$3148		\$11,148
8.					
9.					
10.					
11.					
12.					
TOTALS ►	\$62,276	\$50,000	\$18,500	\$2,750	\$133,526



NEBRASKA ENVIRONMENTAL TRUST FUND

APPLICATION BUDGET JUSTIFICATION

H1. Project Sponsor: Nebraska Department of Natural Resources (in partnership with the Nebraska Center Pivot Manufacturer's Association and the University of Nebraska Cooperative Extension)

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1. Have other sources of funding not listed in the Budget Worksheet been approached for project support? If yes, name them and explain the outcome of your request.

Eight Natural Resources Districts were approached about the possibility of partnering on this project. As of the time of application we have not received responses

2. Are all of the matching funds in the Budget Worksheet confirmed? If not, please identify those entities and list the date when confirmation is expected. Explain how you will implement the project if these sources do not confirm participation.

Yes, all amounts have been confirmed.

3. If any of the project costs identified in Column B of the Budget Worksheet have been expended or if debt has been incurred for these costs or a sponsor or partner is obligated for these costs in any other way: List these costs here. Explain clearly why Trust grant funds are requested for these costs.

4. For each line item in column A of the Budget Worksheet, justify the basis for the dollar amount indicated for that item.

CATEGORY/COMPONENT (from Column A of the Budget Worksheet)	BASIS USED TO DETERMINE COST	Attachment? Y or N	ATTACHMENT LABEL
3. Personnel and Fringe Benefits	Actual salaries of some personnel and amount of time each is expected to spend on project	No	
4. Program Promotion, Meeting Venues	Estimate based upon number of expected workshops and average estimated cost of as well as estimated travel expense and very rough estimated of materials/publications cost	No	
5. Material, Publications and Equipment/Equipment Use	Rough Estimate of Material Cost	No	
6. Direct Costs			
7.			
8.			
9.			



NEBRASKA ENVIRONMENTAL TRUST FUND

PROJECT SPONSOR FINANCIAL INFORMATION

H1. Project Sponsor: Nebraska Department of Natural Resources (in partnership with the Nebraska Center Pivot Manufacturer's Association and the University of Nebraska Cooperative Extension)

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Please see the instructions for section C-3. Attachments to this document may be necessary to complete this section. Include these attachments with your hard copy submission.

The Nebraska Department of Natural Resources has a FY 20087 appropriation of about \$21 million. Of the appropriated amount, about \$11.1 million is for pass through funds and about \$9.9 million is for contracts and agency expense.



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Month/Year	Task Description:
September 2007	Work on pre-grant Extension irrigation water management information project begins. The budget for this is not included as part of this project but it should make grant project implementation easier
March 2008	Pre-grant Extension irrigation water management information project ends
April 2008	Environmental Trust Grant Begins
April 2008	Project dedicated extension educator hired or assigned
April 2008	Work on Objective 3 and Objective 4 begin
May 2008	Work on Objective 1 begins – Initial Workshop dates set, publicized
August 2008	Work on Objective 2 begins
August 2008	Work on Objective 5 begins
March 2011	Work on Objective 6 begins
June 2011	Work on all Objectives completed for purposes of Grant. Work on Objectives 1 to 5 becomes part of a continuing post-grant effort
June 30 2011	Environmental Trust Grant ends



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Partner	Contribution
Lindsay Corporation	Part of mfg. group providing \$75,000 cash and \$75,000 in-kind. Assists with setting up meetings, instruction, participation and project promotion
Reinke Manufacturing Company, Inc.	Part of mfg. group providing \$75,000 cash and \$75,000 in-kind Assists with setting up meetings, instruction, participation, and project promotion
T-L Irrigation Company.	Part of mfg. group providing \$75,000 cash and \$75,000 in-kind Assists with setting up meetings, instruction, participation , and project promotion
Valmont Industries, Inc.	Part of mfg. group providing \$75,000 cash and \$75,000 in-kind Assists with setting up meetings, instruction, participation , and project promotion
University of Nebraska Extension/Biological Systems Engineering Department	\$60,000 worth of in-kind. Also provides major work for grant funds received
Department of Natural Resources	\$10,000 in cash and support of meetings and publicity



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REAL ESTATE / SITE PLAN

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This section will not apply to every project. Please see instructions for section F. Attachments should be sent with the hardcopy submission.

Legal Description	County	#Acres
NA		



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4. Nearest town: NA

5. Total Amount Requested: \$215,000

6. Years of funding requested (select one): 1 2 3

Contact Person:

7. Name: Steve Gaul

8. Title: Supervisor, Planning and Assistance Division

9. Organization: Nebraska Department of Natural Resources

10. Address, City, State & Zip: PO Box 94676, Lincoln, NE 68509-4676

11. Daytime Phone: 402-471-3955

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15. Sponsor web page: http://dnr.ne.gov

16. Is this a continuation request for a project previously funded by the Trust: YES NO:

Is this a resubmission of a project application previously not funded by the Trust: YES NO:

17. Please indicate which category best describes the applicant:

Selections are: Individual City or County Natural Resources District Federal Agency Private for Profit Private Nonprofit Consortium School, Irrigation, Power or Development District State Agency Other (specify):

18. Will this project receive federal funds or require a federal review or permit? NO

If yes, identify the agency(s) and its role:

19. Will this project receive other State of Nebraska funds or require a state review or permit? YES

If yes, identify the agency(s) and its role:

The University of Nebraska will provide in-kind support for this project and conduct the bulk of the work for the effort. The Department of Natural Resources will provide \$10,000 in cash towards the project.

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21. On behalf of the sponsor(s) named above, I hereby certify that the information contained in this application, including all attachments, is true, accurate and complete.

Authorized Signature of Sponsor Organization

Title

Date

Ann Bleed
Typed or Printed Name of Authorized Signatory

Director
Typed or Printed Title