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# Water Current

## Four-year study finds NU recommendations dependable

How dependable are the University of Nebraska Soil Test Nitrogen Recommendations when applied under farmer field conditions?

A 4-year study including 36 demonstration locations with 27 different cooperators in the East Central Extension Programming Unit sought to answer that question.

"The university's recommendations fared well in our study," said Jim Peterson, extension educator in Washington County. "While they didn't produce top yields, they produced acceptable yields and provided economical and environmental benefits."

The project compared NU recommendations for corn following alfalfa, soybeans and manure applications to higher, and perhaps more conventional, rates of nitrogen application. Producers in Burt, Cuming, Dodge and Washington counties participated.

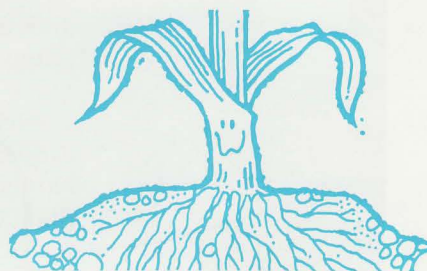
"This study shows what would happen if producers adopted UNL soil recommendations," Peterson said. "With a 4-year span, we hit just about every type of climate."

UNL nitrogen recommendations take into account nitrogen credits from various sources such as previous crop, organic amendments and soil nitrate levels. They stress using a field-based crop history to determine expected yield.

"The recommendations allow producers to use nitrogen fertilizer most efficiently, which prevents groundwater contamination by reducing leaching. It is also more profitable to the producer to reduce fertilizer application as long as the yields are not too low," Peterson said.

Corn yields from strips fertilized based on UNL recommendations were compared with strips fertilized using high rates of nitrogen that did not take into account nitrogen credits for previous crops or organic amendments. In the case of corn following soybean residue, soil nitrate residual levels were taken into account.

At 15 locations the value of the previous soybean crop in reducing nitrogen fertilizer requirements was tested. The average rate of nitrogen application for the UNL



**UNL soil test recommendations provided adequate nitrogen to meet the expected yield set by the producer.**

recommendations was 67 pounds per acre, while that of the higher rates was 115 pounds per acre. In nine of these locations, yields of corn from strips fertilized using UNL recommendations met or exceeded the expected yield goal set by the farmer. At only two locations did the plots fertilized according to UNL recommendations fail to meet the expected yields while the plots fertilized with higher rates met the expected yields. Average yield for

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**SPECIAL POSTER CONTEST ISSUE**

**See Yields.  
Continued on Page 7.**



# Nebraska grants succeed



Bob G. Volk

## from the DIRECTOR

This is a special edition of the Water Current. As cosponsors of the Environment Poster Competition of the Nebraska Association for Family and Community Education, we're publishing the top four contest winners.

Nebraska third- and fourth-graders participated in the contest, "Our Water — Keep it Pure." The winning posters were displayed in June at the state convention of the Nebraska Association for Family and Community Education at Hastings. This Water Current is printed on white paper to better reproduce the posters. Congrats to the winners and all participants for caring about our vital resource.

With great regret I have accepted the resignation of Bettina Heinz effective Aug. 16. Bettina has decided to move on in her career and will be a full-time student, working on her Ph.D. in interpersonal communication. Her tremendous energy and skill in communication will be missed.

Nebraska researchers fared extremely well in the U.S.G.S. Northcentral Section grant competition. Four proposals from each of the 13 states in the section were submitted to an independent, external review. The Water Institute directors of the states reviewed these July 11 to make a final decision.

Three of Nebraska's proposals were funded, giving Nebraska \$160,000 of the total \$805,000 awarded. We received more than our share; several states did not have any proposals funded. Reviewers said Nebraska's proposals, which were ranked 4th, 7th and 8th out of 52, were highly innovative, well-written and well-researched. The following Nebraska proposals were funded by the U.S.G.S. :

1) George Meyer, Biological Systems Engineering, UNL, "Advanced Assessment for Spot Spraying Plants to reduce Chemical Input and Improve Water Quality" (\$64,436);

2) Tom Franti, Biological Systems Engineering, UNL, and Philip Barnes, research ag engineer, Kansas State University, "Reducing Atrazine Contamination of Interstate Surface Water" (\$60,000);

3) Vitaly Zlotnik, Department of Geology, "Field Verification of the Dipole Flow Test: A New Approach for the In-Situ Determination of Transport Parameters" (\$40,000).

Roy Spalding, director of the Water Sciences Laboratory, demonstrated how center-pivot irrigation rigs can be used to clean up contaminated groundwater July 16 in Hastings. The demonstration at a Superfund subsite was sponsored by the U.S. EPA as part of its Superfund Innovative Technology Evaluation project.

## Water Current

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First Place — Bonnie Goff, Grant, NE



# Our Water, Keep it Pure

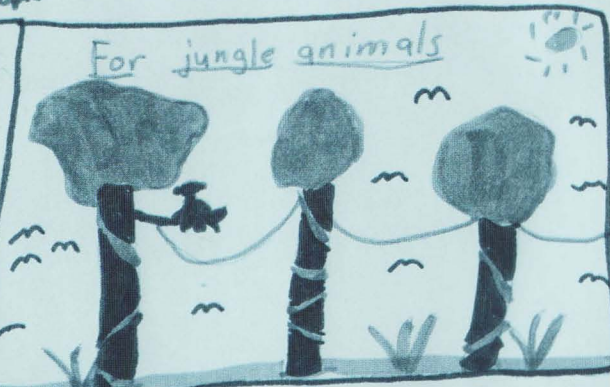
What...

For all animals, plants and people

For Sea Creatures



For jungle animals



For house pets



For People



For Plants

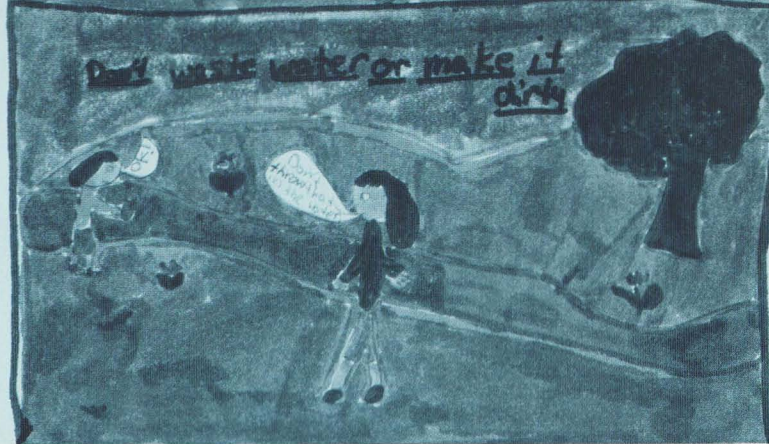


How...

Pick up trash

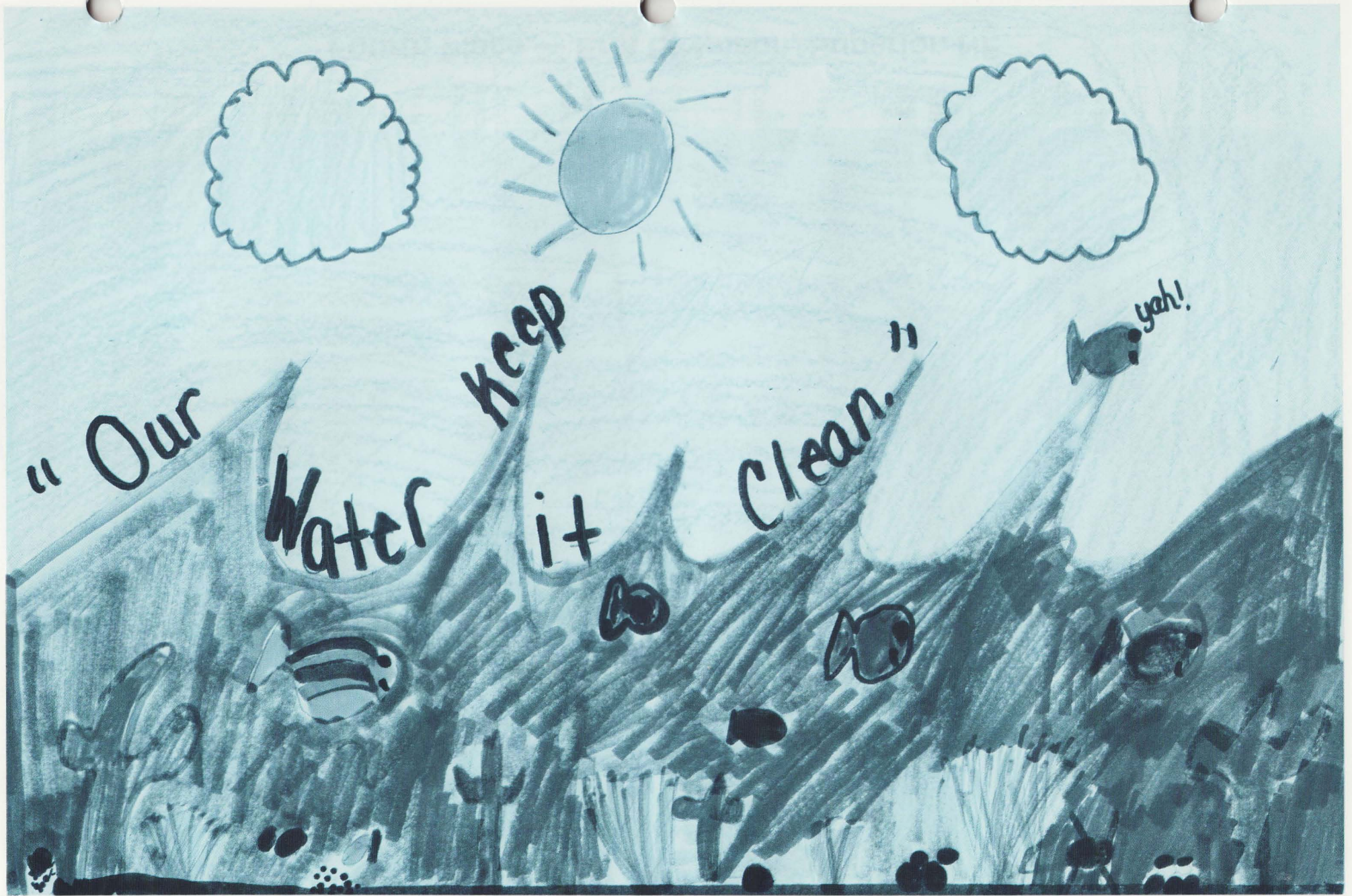


Don't waste water or make it dirty



Second Place — Katie Blunck, Creighton, NE



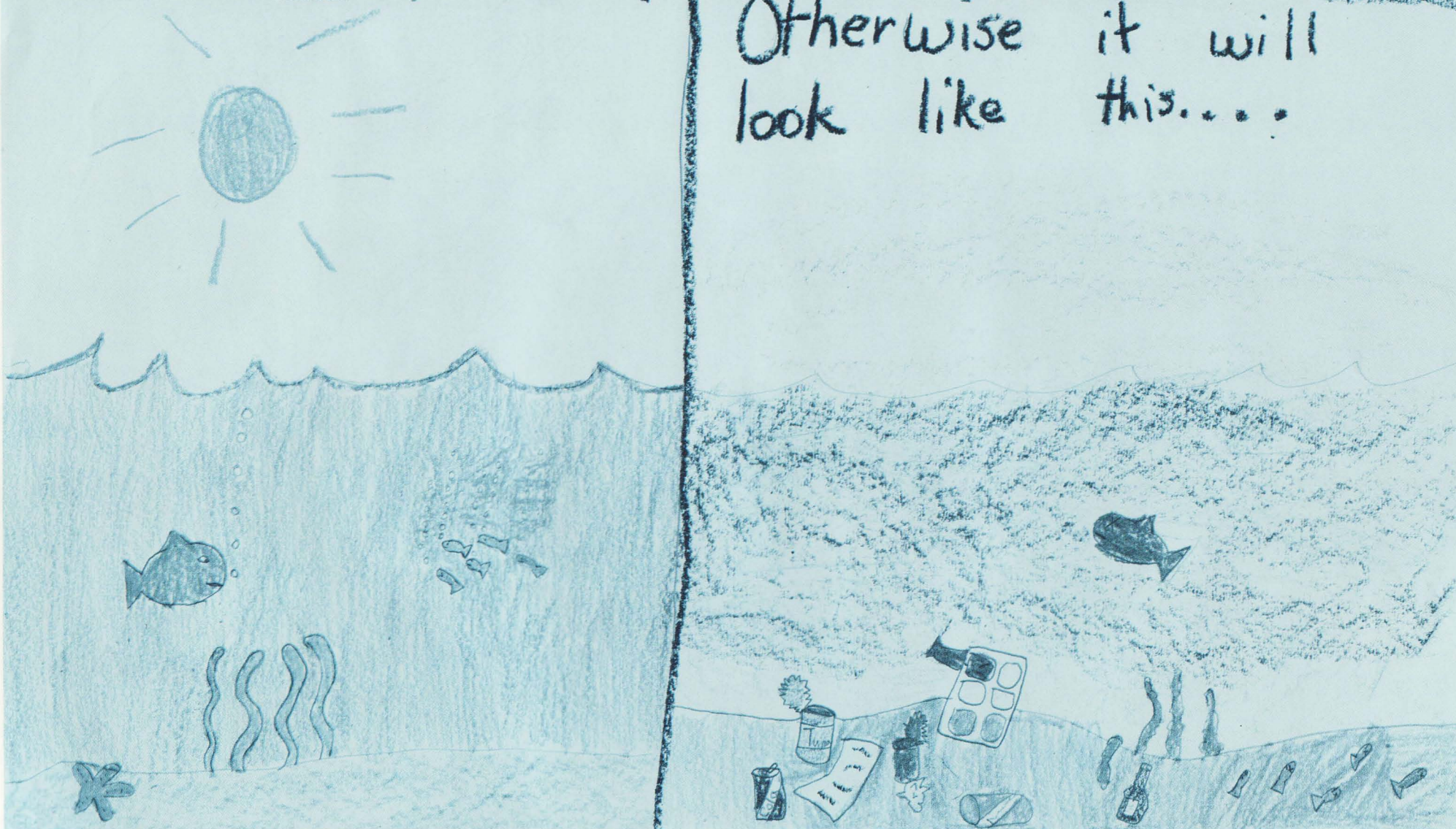


Third Place — Angie Wehner, North Bend, NE



# Our Water, Keep It Clean

Otherwise it will  
look like this....



Fourth Place — Erin Eitzmann, Superior, NE



## Yields.

### Continued from Front.

the UNL recommendations was 137 bushels per acre while that of the higher nitrogen rates was 143 bushels per acre.

"Based on this data, UNL recommendations provided adequate nitrogen to meet the expected yield set by the producer," Peterson said.

In years where the expected yields were exceeded, nitrogen often became a limiting factor in reducing yields of corn fertilized using the

UNL recommendations.

Climate, due to the rate of organic material mineralization, seemed a main factor. "Climate seems to play an important role in determining increased yield potential and nitrogen requirements," Peterson said.

The value of previous alfalfa in reducing nitrogen fertilizer recommendations was examined at five locations. At all locations, UNL recommendations called for no application of fertilizer. Four of the locations did not show a significant increase in yield with additional

fertilizer nitrogen. One location did have a 20-bushel increase on strips fertilized with 50 pounds of nitrogen. In all fields that were no-tilled, there was a trend towards increased yields when fertilized with nitrogen.

"The UNL Soils Laboratory nitrogen recommendations for corn in fields with a history of manure provided the best, most efficient nitrogen recommendations," Peterson said.

*This study was funded in part by the Water Center/Environmental Programs unit.*

## Summary of Results of East Central EPU Nitrogen Management Study (1991-1994)

Test	Number of Locations	Average UNL Yields	Average High Yield	Significant Rate Effects	Sites Exceeding Yield Goal
Corn Following Soybeans	15	137	143	7	9
Corn Following Alfalfa	5	128	135	1	4
Continuous Corn With Manure History	10	119	117	0	4
Corn Following Soybeans With Manure History	4	116	118	2	2
Total	34			10	19

## Fluoridation makes comeback in Nebraska communities

LINCOLN — The Nebraska Department of Health has awarded a total of \$23,610 in grants to four Nebraska communities — Holdrege, Falls City, Stanton and Valparaiso. The funds will be used to buy fluoridation equipment. Citizens in each city approved the decision to fluoridate in referendums earlier this year.

The American Dental Association estimates that every \$1 invested in fluoridation saves about \$50 in dental expenses by preventing cavities. The department's goal is to have 75 percent of all Nebraskans served by fluoridated water by the year 2000. Currently, 63 percent of Nebraskans have access to fluoridated water (from natural or artificial

sources) through public drinking water systems. Across the state, 51 communities fluoridate their water, including Auburn, Columbus, Fremont, Gering, Gothenburg, Hallam, Kearney, Lincoln, Louisville, Magnet, Nelson, Omaha, Springfield, Tecumseh, Utica and Valley. The chemical occurs naturally in water in 29 Nebraska communities.



# Installation of water garden new to festival

ITHACA, Neb. — A day-long demonstration on installation of a residential-sized water garden will be a special feature at this year's Festival of Color.

The Lawn and Garden Open House is set for 10 a.m. to 4 p.m. Sept. 14 at the John Seaton Anderson Turfgrass and Ornamental Research Facility near here.

Sponsored by the Department of Horticulture at the University of Nebraska-Lincoln, the free family event at the Agricultural Research and Development Center will include speakers, children's activities, displays of water-conserving flowers and grasses and organizational exhibits.

"The newest findings on nonpoint source pollution and what people can do in their gardens and yards to protect water will be shared at this festival," said Amy Greving, UNL horticulture assistant and festival co-coordinator.

During the installation of the water garden, the excavation process will be explained and visitors can

drop by periodically and view installation of the lining, water pump and drain systems, water garden plantings and external landscaping.

**"The newest findings on nonpoint source pollution and what people can do in their gardens and yards to protect water will be shared at this festival."**

— Amy Greving  
Festival Co-Coordinator

Another new feature is a permanent children's garden where children can learn about gardening and water conservation and protection.

Tent talks are offered throughout the day featuring topics including landscape design, turfgrass selection and fertilizer and irrigation management.

Non-for-profit environmental and gardening organizations are highlighted in the organization tent. They stress the importance of water quality management, backyard

wildlife habitat development, information and educational resources, plant species selection and more.

Permanent and in-progress demonstration sites are an important component of the festival, Greving said. "These sites give the opportunity to discuss side-by-side comparisons of alternative practices to help participants select those management practices best suited to their sites," she said.

Festival of Color is supported by the U.S. Environmental Agency Region VII through the Nebraska Department of Environmental Quality; Nebraska Nursery and Landscape Association; Nebraska Turf Foundation; Earl May Seed and Nursery, Limited Partnership; Bluebird Nursery; Lilypons Water Gardens, Buckeys Town, Md.; the Lower Platte North Natural Resources District; the Nebraska Environmental Trust Fund and the Cooperative Extension Division and Water Center/Environmental Programs unit, UNL.

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