

TRI-BASIN TOPICS

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“Dedicated to the Conservation of our Natural Resources”

Republican River Basin Flowmeter Data

Nebraska and Kansas have settled their lawsuit over water use in the Republican River basin. A crucial part of that settlement is measuring and reporting groundwater and surface water use. Nebraska needs to supply accurate information to Kansas and Colorado, to make certain that we neither over use our allocation nor over estimate our use, which would result in unnecessary restrictions on water use.

The Nebraska Department of Natural Resources (DNR) and Republican River Natural Resources Districts (NRDs) have undertaken a large data gathering and reporting project. Water supply and use information will be assembled and reported annually. This will include: stream flow, canal and pump diversions, alluvial and upland well pumpage, climatic records, and municipal and industrial water uses. Some of the data has been collected for decades and some of it will be new.

New requirements for annual on-farm reporting of water use in alluvial and upland areas of the Republican River Basin are now in effect. Nebraska will provide the water right number, type of use, system type, location, diversion amount, and acres irrigated for surface water irrigators. Calculations of annual groundwater use by NRDs will include: the well registration number, well location, delivery system type, and irrigated acreage.

Tri-Basin NRD now requires flowmeters on irrigation wells in the Republican Basin. Flowmeters must be installed on all non-

domestic wells that pump more than 50 gallons per minute, by the end of 2005. After meters are installed, the volume pumped will be recorded and reported in the annual Compact. Since many wells did not have meters installed yet in 2003, an alternative method of estimating pumping will to be used. Irrigators must provide information about the number of acres irrigated, crop type, power source (electric, diesel), hours of use, and flow rate. Tri-Basin NRD will verify well locations using GPS equipment.

Collecting this data will be an enormous task for the state of Nebraska, NRDs, and individual irrigators. Efficient and accurate data collection is imperative so that we can make maximum use of our allocation without violating the Republican River Compact.





Managers Message

By: John Thorburn

TREES REVEAL DROUGHT REGULARITY

What can trees tell us about the weather? Not much. Trees can't advise us about whether we need to wear a windbreaker or a heavy coat when we go outside today. They can tell us a lot about seasonal weather patterns, or climate.

Trees have predictable annual growth patterns. They grow most rapidly during spring and early summer. Their growth slows during the heat of summer and they go dormant in fall and winter. Growth rates are higher in wet, temperate years than in hot, dry years. These annual growth patterns are recorded in a tree trunk as rings.

If you've ever looked at a stump after a tree is cut down, you've seen tree rings. The best examples look like a many-circled bull's-eye. Most people are aware that each ring marks the passing of a year, but they don't give much thought to tree rings beyond that. A few people, however, have made the study of tree rings their life's work.

The branch of science (pardon the pun) devoted to the study of tree rings is *Dendrochronology*. Dendrochronologists have developed tree-ring "timelines" or chronologies, for many parts of the world by finding similarities in ring patterns between trees. Scientists extend chronologies back from living trees to dead ones by matching overlapping ring patterns. In some parts of the country, most notably the American Southwest, scientists have extended tree ring chronologies back as far as 9000 years.

Tree-ring chronologies help archeologists date ruins that contain wooden building materials. Geologists use them to determine when prehistoric earthquakes and volcanic eruptions occurred. Climatologists measure and analyze the variability in thickness of tree-rings to learn about climatic cycles. They tell us much about the intensity, duration and regularity of drought in the Great Plains.

A recent scientific paper, "Tree-Ring Evidence for Great Plains Drought" by Connie Woodhouse and Peter Brown with the NOAA paleoclimatology program uses tree-rings to detect historical drought patterns in Nebraska. Their findings are fascinating, but they are also frightening.



"Bristlecone rings, which vary in width year to year, reveal that the trees have an innate ability to endure times of stress, such as a string of droughts. In such periods, the species can go almost dormant." —NOVA online

These researchers and others have found that droughts occur with great regularity in the Great Plains. Their research indicates that there have been at least thirteen major droughts over the last 500 years, an average of nearly three drought periods per century. At least five of those droughts lasted a decade or longer. A particularly severe drought lasted twenty-seven years, from 1578 to 1605.

Weather on the plains can be wildly unpredictable. One day its cold and windy, the next day its hot and dry.

Our climate, while variable, has patterns. We need to recognize that drought is part of the climate pattern and adjust our lives to accommodate it. Ranchers need to reduce cattle stocking rates and shorten rotation cycles in pastures. Farmers need to improve irrigation efficiency. Businesses and homeowners need to conserve water. We all need to take care of our trees and lengthen their chronologies so that they can record the end of this drought.

Director Profile



Larry Reynolds, Tri-Basin
NRD Director

Larry Reynolds represents subdistrict #1 on the Tri-Basin NRD Board of Directors. Larry attended Lexington High School, earned an Engineering Management degree from USAF Academy, and an M.B.A. from UCLA. Larry and his wife, Jeanne are involved in a family corn, alfalfa, and soybean farm. They

have a cow-calf operation and commercially wean and finish calves. At their farm in northern Gosper county, they also raise registered quarter horses. Larry and Jeanne have one daughter, Shannon, who is a sophomore at the University of Nebraska at Omaha. Larry is a member of the Lexington United Methodist Church. He also belongs to: Nebraska Corngrowers Association, Nebraska Cattleman's Association, Nebraska Soybean Association, American Quarter Horse Association, National Reining Horse Association, and AARP.

Crop Reports Due

Crop reports for the 2003 cropping year are due by **December 31, 2003** for those of you farming in the Phase II area of the Tri-Basin Groundwater Management Area. These reports need to have correct ID numbers on them, along with the results of water and soil samples taken before the crop was planted.

You should have received a letter in the mail in November with ID numbers and the fields we show you are responsible to report on. Copies of water and soil test results must be attached to the reports.

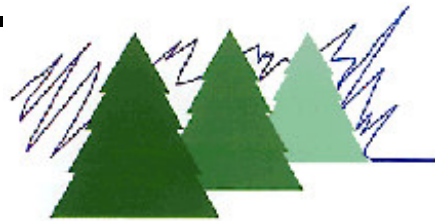
Remember to take your soil samples in early spring for your 2004 crop reports.

2004 Elwood Water Conference

The 2004 Water Conference has been scheduled on February 5th, from 11:00 a.m.—2:30 p.m. at the Elwood Civic Center. There is no charge to attend the conference, and the public is invited. Registration begins at 10:30 a.m. and a free lunch is included.

SPRING GREENERY

It will soon be the time of year to begin thinking about planting trees. We will be selling seedlings as usual this next spring. If you're interested in planting a windbreak, contact the NRD or your local NRC's office to have one of their technicians help you draw up your plans. If you want to order trees to plant yourself, you may call the NRC's office in your area, or call Tri-Basin NRD toll free at 1-877-995-6688. We would be happy to send you a brochure and order form, or you may stop in the office to place an order. You also may log on to our web site at www.tribasinnr.org to see available species and costs; there is a printable order form for your convenience. We will take orders for trees through March 24, 2004.



Nitrogen Management Training 2004

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|-------------------|---------------------|----------------------|
| January 12, 2004 | Elwood Ag Center* | 1:00 PM |
| January 29, 2004 | Holdrege NRD Office | 1:00 PM |
| February 2, 2004 | Holdrege Ag Center* | 1:00 PM
& 7:00 PM |
| February 12, 2004 | Holdrege NRD Office | 7:00 PM |
| February 23, 2004 | Holdrege Ag Center* | 1:00 PM |
| February 26, 2004 | Axtell Village Hall | 1:00 PM |

* Denotes with Private Applicators Training

CALENDAR OF EVENTS

(All meetings are at NRD office in Phelps County Ag Center unless otherwise noted.)

January

- January 1 - New Year's Day (office closed)
- January 13 - NRD Board Meeting at 1:30 p.m.*
- January 19 - Martin Luther King Jr. Day (office closed)

February

- February 5 - Elwood Water Conference
- February 10 - NRD Board Meeting at 1:30 p.m.*
- February 16 - President's Day (office closed)

March

- March 9 - NRD Board Meeting at 1:30 p.m.*

* Times are tentative

WATER CONSERVATION TIP

- Don't let water run while rinsing vegetables and fruits. Rinse them in a stoppered sink or a pan of clean water.

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A mailing list is maintained and requests to be placed on the list should be sent to the above address. Comments and suggestions may be addressed to the General Manager.

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RETURN SERVICE REQUESTED

**1308 Second Street
Holdrege, NE 68949**

Natural Resources District

