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Tri-Basin Topics

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NAWMN Helps Estimate Crop Water Use

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The **Nebraska Ag Water Management Network (NAWMN)** is a tool producers can use to estimate evapotranspiration (ET) or crop water use for their own crops. Once a producer knows their ET, that information can then be used to determine whether irrigation is necessary.

There are a couple extra benefits to utilizing this network. The first is simply the number of locations that provide local climate data. Your field can be 30 miles from the nearest weather station, while a NAWMN location might be just down the road. The NAWMN location would be a better representation of the climatic conditions affecting your crop water use. The second benefit is that you can input your own current crop stage. A producer's crop stage may differ from the weather station's crop stage due to planting date, growing conditions, and varieties. Also, using the same crop stage at different weeks of the irrigation season can affect crop water use simply by the weather conditions during those different weeks. These two extra benefits could make the difference in saving an inch or two of irrigation water.

An atmometer, rain gauge, and soil moisture sensors are installed at most of the NAWMN locations. The soil moisture sensor information is not provided to the network. They are used by the networking producers to provide beginning soil



moisture levels, serve as a check during the irrigation season, and to fine tune last irrigation predictions. The rain gauge information is provided to the network strictly for informational purposes. This is total rainfall, not effective rainfall. Extreme caution needs to be used when using rainfall off this network as it could lead to decreased yields due to over or under irrigation. We all know rainfall can differ significantly from one side of the road to the other. It is highly recommended that producers utilize their own effective rainfall for the fields they are working with.

The main piece of equipment used in this network is the atmometer (see photo). The atmometer is an instrument used to estimate Reference ET. This can be expressed in

"inches per day", "inches per week", etc. The white tube is filled with distilled water which evaporates away. The hotter and drier the air is, the more evaporation. This evaporation is a simulation of Reference ET. Reading an atmometer is as easy as reading a rain gauge. An atmometer is a very practical tool for producers, crop consultants, etc. to use when determining Reference ET.

Reference ET from atmometers is not the actual crop water use or ET. Actual crop ET is estimated by simply multiplying Reference ET (atmometer) and the Crop Coefficient. The Crop Coefficient is simply an adjustment factor based



on the crop and its growth stage.

In 2013, there were 16 NAWMN locations across the Tri-Basin NRD (see map). Information from each of these 16 locations is placed on two separate websites. This information is updated weekly. Any producer can go into these websites, select the NAWMN location nearest their fields, and get their estimated crop water use without doing any calculations.

One website is UNL Extension's website. This is located at <http://elkhorn.unl.edu/ETGage/>. This website contains information from all of the NAWMN locations in Nebraska. When you get to the website, you will select "View Weekly ETGage data". Then you will select the county your field is in. You will then select the red pin nearest your field. Red are the active locations. You will be brought to a chart. Select your crop on the tabs above the chart. Find the weekly date at the top of the chart and your crop stage on the left. Where those meet in the chart will be your weekly crop water use or ET for that week. You can divide by 7 to determine the average daily ET for that week.

The second website is Central Nebraska Public Power and Irrigation District's (CNPPID's) website. This is located at <http://www.cnppid.com/>. This website contains only the

(continued on page 2)

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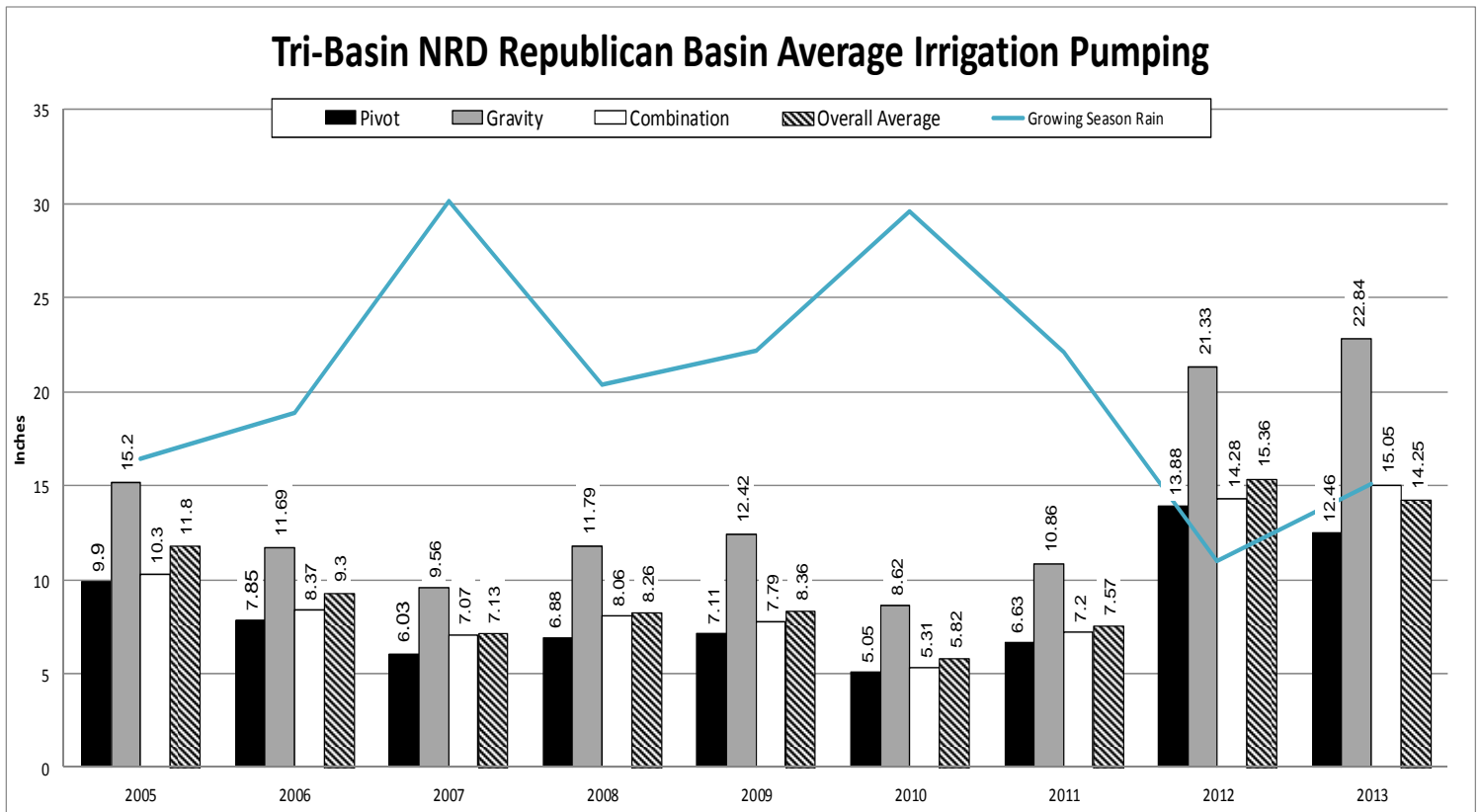
NAWMN locations within the Tri-Basin NRD. When you get to their home page, you will select the tab "News & Info". You will then select "Weather/ET Data". Then select "Link to Nebraska Water Management Network ETGage Data for Phelps, Kearney & Gosper Counties". You will then select the dot nearest your field. You will be brought to two charts, one for corn and one for soybeans. Find the week ending date at the top of the chart for your appropriate crop. Find your crop stage on the left. Where those meet in the chart will be your weekly crop water use or ET for the week prior to the date at the top of the

Date	Crop ET Factor	ET Gage Change for period
5/19	0.14	0.21
5/22	0.14	0.21
5/25	0.14	0.21
5/28	0.14	0.21
5/31	0.14	0.21
6/3	0.14	0.21
6/6	0.14	0.21
6/9	0.14	0.21
6/12	0.14	0.21
6/15	0.14	0.21
6/18	0.14	0.21
6/21	0.14	0.21
6/24	0.14	0.21
6/27	0.14	0.21
6/30	0.14	0.21
7/3	0.14	0.21
7/6	0.14	0.21
7/9	0.14	0.21
7/12	0.14	0.21
7/15	0.14	0.21
7/18	0.14	0.21
7/21	0.14	0.21
7/24	0.14	0.21
7/27	0.14	0.21
7/30	0.14	0.21
8/2	0.14	0.21
8/5	0.14	0.21
8/8	0.14	0.21
8/11	0.14	0.21
8/14	0.14	0.21
8/17	0.14	0.21
8/20	0.14	0.21
8/23	0.14	0.21
8/26	0.14	0.21
8/29	0.14	0.21
9/1	0.14	0.21
9/4	0.14	0.21
9/7	0.14	0.21
9/10	0.14	0.21
9/13	0.14	0.21
9/16	0.14	0.21
9/19	0.14	0.21
9/22	0.14	0.21
9/25	0.14	0.21
9/28	0.14	0.21
10/1	0.14	0.21
10/4	0.14	0.21
10/7	0.14	0.21
10/10	0.14	0.21
10/13	0.14	0.21
10/16	0.14	0.21
10/19	0.14	0.21
10/22	0.14	0.21
10/25	0.14	0.21
10/28	0.14	0.21
11/1	0.14	0.21
11/4	0.14	0.21
11/7	0.14	0.21
11/10	0.14	0.21
11/13	0.14	0.21
11/16	0.14	0.21
11/19	0.14	0.21
11/22	0.14	0.21
11/25	0.14	0.21
11/28	0.14	0.21
12/1	0.14	0.21
12/4	0.14	0.21
12/7	0.14	0.21
12/10	0.14	0.21
12/13	0.14	0.21
12/16	0.14	0.21
12/19	0.14	0.21
12/22	0.14	0.21
12/25	0.14	0.21
12/28	0.14	0.21
12/31	0.14	0.21

chart. You can divide by 7 to determine the average daily ET for that week (see CNPPID's sample chart). Once you have estimated your weekly crop ET, you subtract your effective rainfall and your net irrigation applications for that same week. If the result is below 0, the additional water from effective rain and net irrigation is more than the crop is using. This can lead to reduced yields, runoff, erosion and leaching of nitrates into the groundwater. If the result is 0, then the crop is using only the additional water, not any soil profile moisture. If the result is higher than 0, then the crop is using soil profile moisture. This is not necessarily a bad thing, since we would like to dry up the profile to make room for off-season moisture. However, using too much soil moisture can result in reduced yields. The NAWMN is an excellent tool for producers to estimate crop water use or ET. The data starts getting posted on the websites in mid to late May. If you have any questions, or have an atmometer and would like to participate in this network, you can contact Curtis Scheele at the NRCS office in Holdrege at 308-995-6121, Ext. 3.

2013 TBNRD Republican Basin Irrigation Data Released

Irrigation water use in the Republican Basin portion of Tri-Basin NRD has been compiled and the general trends are shown in the chart below. The growing season rainfall increased only slightly from 2012 to 2013, and the overall average irrigation pumping in the basin dropped slightly. Anyone wanting more detailed information about 2013 irrigation water use in Tri-Basin NRD can contact the office at 1-877-995-6688.



Munter Joins Tri-Basin NRD Staff

Jon Munter of Holdrege has been hired as a Land Resources Technician at Tri-Basin NRD. Jon is originally from Wausa, Nebraska. He has an associate's degree in science from Northeast Community College and a bachelor's degree in natural resources from the University of Nebraska-Kearney. Jon enjoys outdoor activities, such as hunting, fishing, and golfing.

At Tri-Basin NRD, Jon will assist with the conservation tree program and maintaining the district's Improvement Project Areas (IPAs).



Chemigation Permit Renewals Due June 1

Chemigation renewal forms have been sent to producers and are due, along with payment, in the Tri-Basin NRD office by June 1, 2014. Anyone who wants to apply fertilizer or ag chemicals through their irrigation system needs to apply for a chemigation permit for the 2014 season. Landowners and operators should contact Tri-Basin NRD toll-free at 1-877-995-6688 regarding chemigation permits. All newly permitted chemigation systems must be inspected before use. A person who is certified as a chemigation applicator must supervise injection of fertilizer and ag chemicals in irrigation water.

NRD staff do routine inspections on chemigation systems from June until August. Routine inspections are required every three years. If your system is due for an inspection, you will receive a postcard this summer. Routine inspections must be completed for permits to be eligible for renewal the following year.

TBNRD Offers ACE Camp Scholarships

Adventure Camp about the Environment (ACE) is a natural resources camp sponsored by Nebraska's natural resources districts for students who have completed sixth, seventh, or eighth grade. It will be held at the State 4-H Youth Camp at Halsey June 15-18. Cost of camp is \$190.

Tri-Basin NRD is offering up to six scholarships that cover the full cost of registration for students from Gosper, Phelps, and Kearney Counties who want to attend this camp. The deadline to apply for TBNRD scholarships is April 30, 2014. More information about the camp and applying for the scholarships can be found on Tri-Basin NRD's website, www.tribasinnrd.org, or by calling Destinee Steinke at Tri-Basin NRD toll-free at 1-877-995-6688.



Tri-Basin to Host Arbor Day

Tri-Basin NRD will host the Holdrege Chamber of Commerce's Coffee AM at 9:30 a.m. on Arbor Day, Friday, April 25. Holdrege area residents are invited to stop in the Tri-Basin NRD office during Coffee AM to receive a free tree seedling in celebration of Arbor Day.

Tri-Basin will also provide free tree seedlings in other communities throughout the district again this Arbor Day. Watch for details on community Arbor Day celebrations in local media outlets.

Crop Stubble Management Program Offered Again in 2014

The Nebraska Game and Parks Commission (NGPC) will be enrolling tall wheat and milo stubble into the Crop Stubble Management, Wildlife and Water Conservation program again this spring. The program is being offered within eight Natural Resources Districts located in the southern and western portions of Nebraska, including Tri-Basin NRD (TBNRD). Producers located within the project area may receive \$10 per acre to leave wheat and/or milo stubble 14 inches or taller undisturbed until April 1 of the following year. Eligible producers may enroll up to 320 acres per year per crop type, for two years. Post-harvest chemical applications are allowed but other means of disturbance (e.g., disking, grazing, haying) are not allowed before the April 1 deadline. Public hunting access is NOT required to enroll into the program. An additional incentive of \$3 per acre is available to producers willing to allow walk-in hunting access on their stubble fields.

Tall, undisturbed stubble has been shown to provide multiple wildlife benefits to pheasants, quail, and other wildlife from the end of summer and through the harsh winter months. Tall stubble provides additional agricultural and economic benefits by collecting and conserving soil moisture through catching snow, shading the ground, and reducing erosion. There is also potential for higher yields of subsequent crops in a crop rotation.

Last year, over 75,000 acres of wheat and milo stubble were offered into the program and 37,687 acres were accepted. In TBNRD, roughly 1,000 acres of stubble were accepted into the program. This year's crop (2013-14) represents year two of the three-year program, which is funded through a grant awarded to the NGPC through the Nebraska Environmental Trust. We expect that landowner participation will be very high again this year and urge interested producers to fill out an application by June 1, 2014 to be considered for the program. Applications are available at your local NRD, NRCS, or NGPC office. For additional information about the program, please contact NGPC biologists John Laux (308-928-2541) or Justin Haahr (308-865-5308).



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Non-Profit Permit
U. S. Postage
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Holdrege, NE 68949
Permit No. 220

Tri-Basin Natural Resources District
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email: tribasin@tribasinprd.org
www.tribasinprd.org

RETURN SERVICE REQUESTED

Nebraska's NRDs: Protecting Lives, Protecting Property, Protecting the Future

CALENDAR

April 8.....NRD Board Meeting, 7:30 p.m.*

April 23 & 24 Water Jamboree at Harlan Co. Reservoir

April 25..... Arbor Day
Coffee AM & Tree Giveaway at Tri-Basin NRD

May 8-10..... NGPC Outdoor Discovery Program
at Fort Kearny

May 13.....NRD Board Meeting, 7:30 p.m.*

May 26.....NRD Closed for Memorial Day

June 10.....NRD Board Meeting, 7:30 p.m.*

* Times are tentative. All meetings are at TBNRD office in Holdrege unless otherwise noted.

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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.

Get Tri-Basin Topics in your inbox instead of your mailbox!

To request an electronic version of this newsletter, send an email nsalisbury@tribasinprd.org.