

Summer 2017

Volume 31, Issue 3

Tri-Basin Topics

A quarterly publication of Tri-Basin Natural Resources District

What's the Big Deal About Cover Crops?

By Keith Berns, Bladen, Nebraska

Cover crops are getting a lot of publicity right now, but is it a fad or are they here to stay? I believe that cover crops are here to stay for many reasons but I will discuss three main reasons in this article. Before beginning, a brief definition is in order: Cover Crops are plants that are grown in between regular periods of cash cropping for the purpose of soil protection and soil improvement. In other words, cereal rye after corn and before beans or winter barley and vetch after bean harvest and before corn planting.

REASON 1: Erosion Prevention

Our soils are wonderfully complex and incredible intricate ecosystems of plants and biology and the soil can do many things but it cannot protect itself from water and wind erosion. Our topsoil is too precious and too limited to risk any exposure and cover crops can provide that protection. The first rule of soil health is "Always Keep The Soil Covered" and cover crops are critical in order to do that. The goal on our farm near Bladen, NE is to never see the soil unless we go looking for it. We have virtually eliminated erosion and are seeing our top soil increase because of cover crop integration into our rotations.

REASON 2: Weed Prevention

Herbicide resistant weeds are and will continue to be one of the biggest challenges we face in farming over the next 10 years. Resistant palmer amaranth will change how we have to farm. Cover crops by themselves will not fix what is broken but they can certainly help! We have seen a cover crop of cereal rye that is fall planted after corn or beans control 99% of all marestail, henbit, kochia and other winter annual weeds. It helps with the early flushes of warm season weeds as well like pigweed and amaranth. If the cover crop can get out ahead of the weeds, suppression is quite good. We have one field where we will harvest three crops in two years (soybeans – triticale- double crop sunflowers) and the last herbicide application was 15 months ago – the field is not perfectly clean but it is better than most corn and bean fields that have been sprayed multiple times. This is a testimony to out competing weeds by having something growing at ALL times.

REASON 3: Increase Soil Biology

We often think about the physical and

chemical properties of the soil but rarely were we taught to consider the biology – the bacteria, the fungus, the arthropods, the earthworms and the thousands of other species that live under our feet. The more I learn about soil biology, the more convinced I am that we have done a great disservice to our soils and our profitability by ignoring soil biology. God created the soil system to be incredibly productive with no added fertilizer and chemicals – that is only possible with a strong biological component.

The biology cycles and provides nutrients, provides plant protection, gives plants more access to water, and helps plants communicate with each other. We are just now discovering how this all works and it is fascinating and enlightening. The one thing I do know is that soil biology does not work for free – they require food in order to work for you – and their food source is Carbon. Carbon is produced by growing plants through photosynthesis and a corn/soybean rotation does not produce enough carbon to sustain a healthy and active biological population. Growing cover crops produce significant amounts of carbon for the soil biology during otherwise "fallow" periods and this not only sustains soil biology but allows it to increase!

There is so much more we have to learn but I challenge you to consider how cover crops can help you protect your soil, reduce your weed pressure and increase your soil biology.



Cover crops benefit crop production by preventing erosion, preventing weeds, and increasing soil biology. Photo courtesy of Nebraska Extension CropWatch.unl.edu.

"Dedicated to Conservation of our Natural Resources"

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Manager's Message

by John Thorburn

Humans: The Ultimate Invasive Species?

Natural Resources Districts are the local government agency responsible for protecting the soil and water resources in Nebraska. Some of the most significant threats to our environment come from *invasive species*, plants and animals that are native to another part of the world, but which accidentally or intentionally are relocated to our area.

There are abundant examples of invasive species that have become established in south-central Nebraska. Some have become so common that we think of them as natives. House sparrows, rock doves (pigeons) and starlings are examples of non-native birds. German carp, Norway rats, Siberian (Chinese) elms, are all immigrants from other lands, as their names imply. A list of invasive and non-native insects and plants would run several pages.



Phragmites is an invasive species in Nebraska. Because it crowds out native plants and alters wildlife habitat, it has been put on the Nebraska Noxious Weed List. For a full list of Nebraska's noxious weeds, visit <http://www.neweed.org/Weeds.aspx>.

Not all imported plants are unwelcome or harmful. Our farmers feed the world with winter wheat, which originated in Russia, soybeans from China, maize from Mexico and potatoes from Peru. Many of us enjoy pet dogs and cats, which originated in various portions of Asia and Africa. Hunting pheasants, birds that were introduced from China 125 years ago, is a popular fall sport across the midwest. What is the common cause of the spread of all of these plants and animals, both good and bad, from one continent to another? Humans.

Archeologists disagree about when humans first arrived in North and South America. Until recently it was widely accepted that hunters and gatherers from Siberia and East Asia crossed into North America about 12,000 to 13,000 years ago. Recent discoveries indicate that humans have lived in the Americas as long as fifteen or even twenty thousand years.

Regardless exactly when they arrived, there is agreement that those first Americans had a dramatic impact on the environment that they encountered. They purposefully used fire to manage both forests and grasslands. They also used fire to improve their hunting success by crowding animals into draws and canyons. There is a growing belief among archeologists that early native Americans hunted mammoths and some other species of Pleistocene *mega-fauna* to extinction, because they were slow, easy prey.

The arrival of Europeans and Africans to the Americas in the 1500s heralded a massive disruption of native ecosystems. As they colonized the Americas, Europeans brought along plants and animals to make the new land seem more like their old homes. They introduced animals of all sorts, from horses and cattle to honeybees and nightcrawlers. They also brought many different plants, from crops to ornamental flowers and trees.

I don't mean to judge our ancestors' actions in bringing Old World plants and animals to the New World as good or bad decisions on their part. They did what made sense to them at the time to help them survive in the unfamiliar environment into which they settled. With the benefit of hindsight, however, we need to learn from their mistakes. We need to be cautious about introducing new plants and animals into Nature. We also need to be vigilant and take aggressive action to eradicate invasives when they escape into the wild.

Nebraska has done just that in the case of riparian invasive plants like phragmites and purple loosestrife. We have established inter-local cooperative associations called weed management areas that are tasked with eradicating these plants and protecting critical riparian zones along Nebraska's rivers. It isn't particularly exciting work, nor is it especially noticeable. It requires significant amounts of money and a sustained effort over a long period of time. It is nonetheless crucial work to keep waterways from getting choked with weeds and to protect our native riverine ecosystems and all the animals that depend on them. As the ultimate invasive species, we need to learn from past mistakes and accept that it is our responsibility, as good stewards of our land and water, to protect them from current and future invaders.

Tri-Basin NRD Interns Gain Natural Resources Experience

The Tri-Basin NRD Summer Internship Program gives college students an opportunity to gain natural resources management experience. Interns collect and test groundwater quality samples, monitor wildlife habitat, test irrigation system efficiency, and help maintain drainage improvement project areas, or IPAs. The interns also work with staff from Central Nebraska Public Power and Irrigation District, the USDA Natural Resources Conservation Service and the Phelps County Weed Control Authority. TBNRD has three interns working in the district this summer.



Mikalah Brown, Andrew Yantzie, and Dalton Refior are Tri-Basin NRD's 2017 summer interns.

Mikalah Brown is from Gibbon. She is studying biology with a wildlife emphasis at the University of Nebraska-Kearney (UNK). She is a Buffalo County 4-H leader and a Gibbon Legion volunteer. She enjoys raising exotic animals and studies Herpetofauna biodiversity in Harlan County through a project funded by UNK.

Andrew Yantzie lives in Axtell and attends UNK, studying wildlife biology. In his free time, he enjoys hunting, fishing, and trapping.

Dalton Refior has returned for his third summer as an intern at TBNRD. He is from Loomis and attends the University of Wyoming, pursuing a double major in rangeland ecology and watershed management and environmental and natural sciences. He enjoys hunting, fishing, and sports. Dalton also serves as a camp counselor at Camp Joy Bible camp in Alma and helps coach peewee and high school wrestling.

Flowmeter Checks Suggested

Check flowmeters on your wells periodically throughout the irrigation season. Making sure that your flowmeters are working properly benefits both Tri-Basin NRD and you, as an irrigator, so that you can keep accurate irrigation records. It is the responsibility of producers to make sure flowmeters function properly during the irrigation season.

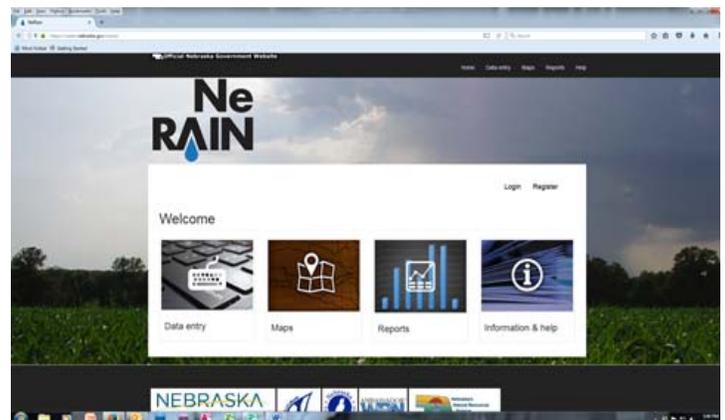
Producers who have Senninger brand flowmeters may want to make sure the batteries they are using are the correct size. These meters take lithium 3.6 volt batteries instead of standard 1.5 volt AA batteries. Using standard AA batteries will cause these flowmeters to not work properly.

New NeRAIN Website Launched

The Nebraska Department of Natural Resources (NDNR) has redesigned the NeRAIN Website! The new site is more user-friendly, with weather data readily accessible. The new website address is: <https://nednr.nebraska.gov/nerain>.

NeRAIN is a cooperative program sponsored by NDNR; Community Collaborative Rain, Hail & Snow Network; Nebraska Environmental Trust; Weather Ready Nation; and the Nebraska Association of Natural Resources Districts. Weather data from across the state is compiled on this website, where it can be used for daily decision-making by agricultural producers, industry leaders, homeowners, utility providers, insurance professionals, natural resources managers, and educators. On the website, there are maps and records of precipitation amounts based on county or natural resources district, as well as data focused on precipitation or temperature.

Tri-Basin NRD welcomes new volunteers to record rain gauge readings at their home, farms, or place of business as part of NeRAIN. Selected volunteers will receive a free National Weather Service rain gauge furnished by TBNRD. If you are interested in participating in the volunteer rain gauge reader program, please contact Esther Smith, TBNRD NeRAIN Coordinator, by email at esmith@tribasinnrd.org or by phone at 1-877-995-6688.





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RETURN SERVICE REQUESTED

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

CALENDAR

July 4NRD Closed for Independence Day
 July 18NRD Board Meeting, 1:30 p.m.*
 July 15-20 Kearney County Fair
 July 23-27Phelps County Fair
 July 27-29 Gosper County Fair
 August 8NRD Board Meeting, 1:30 p.m.*
 August 25-September 4..... Nebraska State Fair
 September 4 NRD Closed for Labor Day
 September 12NRD Board Meeting, 7:30 p.m.*
 September 12-14..... Husker Harvest Days
 September 21 Rainwater Basin Conservation Day

* 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.