NDSU | DICKINSON RESEARCH EXTENSION CENTER

Research Ruminator

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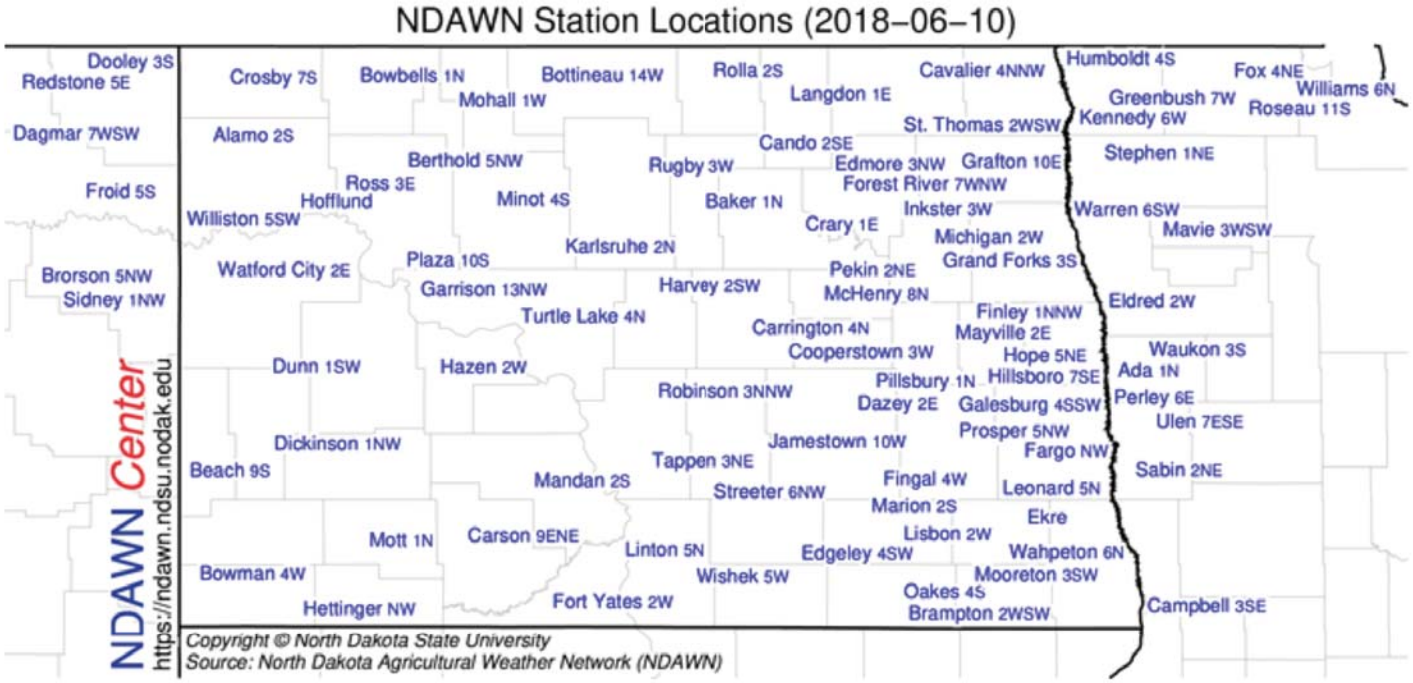
# NDAWN: your weather station

## Real time updates every five minutes at 91 statewide locations

NDAWN (North Dakota Agricultural Weather Network) consists of 91 stations distributed across North Dakota and border regions of surrounding states. Stations are identified by the name of a nearby city or town. The number and letter(s) following the name indicates the distance in miles and direction from the city's edge. For example, BEACH 9S means the station is located approximately nine miles south of Beach. The NDAWN site in Dickinson is located on the grounds of the Dickinson Research Extension Center.

The NDAWN stations measure and record wind speed and direction, air temperature, precipitation, evaporation, solar radiation, dew point, windchill and soil temperatures. NDAWN data is




**Map key:** Station Name 9S = 9 Miles South of Town | Click on a station for more info

**Current weather is now available for *all* NDAWN stations!**

**This is the home page for the NDAWN website. It is available 24/7 for view with updates every five minutes.**

made available to the general public via the NDAWN web site free of charge. Since its inception in 1989, all NDAWN equipment, non-labor opera-tional costs, and some labor costs have been funded through gifts and grants from vari-ous federal and state government agencies, commodity organizations, agricultural clubs, businesses, and individuals.

The North Dakota Agricultural Weather Network was established through a grant from, and in cooperation with, the High Plains Climate Center (HPCC), Lincoln, Nebraska, in 1989, by John Enz. Originally the network consisted of six automatic weather stations located at North Dakota State University (NDSU) Branch Research Centers. The objective was, and still is, to provide current and historical weather data necessary for the development of, and operational use, of vari-ous crop, insect, and disease development models.

Although designed specifically for agricul-ture, data has proven useful for entities in all areas of society. The data is part of the North Dakota Climate archive and is used for any and all climatological studies. Access to past and current detailed weather data is a valu-able resource for all North Dakotans. RR

**https://ndawn.ndsu.nodak.edu**

**Dickinson 1NW NDAWN site is located on the DREC grounds.**

**Beach 9S is 9 miles south of Beach in Golden Valley County.**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**Continuing Our Commitment**

**to serve the people of North Dakota with meaningful research work and protecting our natural resources.**

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# Purple Coneflower roots have anesthetic properties

Purple Coneflower, *Echinacea angustifolia*, is one of the prairie plant species studied at the Dickinson Research Extension Center during 67 growing seasons from 1946 to 2012.

Purple Coneflower is a member of the aster (sunflower) family and is a native perennial, warm season herb. It grows as a rosette of leaves 2 to 11 inches long and one half to one and one half inches wide with stems 11 to over 20 inches tall.

**Purple Coneflower**

Short, stiff hairs cover the stem and leaves. The root system has a thick, black, woody taproot that grows 4 to 6 feet deep into the soil. The plant can reproduce by sprouting from existing plants, or from seed.

The solitary flowers are rose to light purple in color and appear during mid-June to late July. Pollination is by insects. The stems and leaves of Purple Coneflower are not typically grazed by livestock. The crushed roots have anesthetic properties when applied to the skin or chewed. RR

# Multiple strategies part of IPM

## *Outcome is to reduce pests, protect enviroment, people and wildlife*

Integrated Pest Management (IPM) in North Dakota is an integral part of North Dakota's agriculture. IPM is an approach to manage pests that combines a number of strategies to reduce pest risks while protecting the environment, wildlife and people. The targeted pests generally are weeds, insects, and disease-causing organisms such as fungi, bacteria, viruses and nematodes. The goal of IPM in agriculture is to produce safe, abundant and affordable food, feed and fiber.

IPM incorporates several pest management strategies to maintain crop profitability, minimize pest populations, and minimize environmental and health impacts. Approaches are aimed at preventing the pest from occurring in an area, using avoidance techniques to minimize the chance of pest development, monitoring for pests in the field, identifying pests properly, assessing pest populations that determine economic threshold levels, and using pest management strategies to mitigate economic crop loss.

**Striped flea beetle (left) and crucifer flea beetle (right) on canola leaf.** **(P. Beausay, NDSU)**

IPM programs are successful when a number of steps are followed throughout the year.

**Planning and Preparation:** Pest problems may be reduced by field selection (rotation), soil testing, crop and variety selection, use of good-quality seed and choice of planting date.

**Field Scouting:** Crop scouts regularly monitor fields in several locations to identify pests and their severity.

**Pest Trapping:** Use of insect traps to determine presence and occurrence of certain pests, such as pheromone traps for armyworm in canola.

**Determining Thresholds:** Scouting is used to assess pest population densities and the need for action to prevent yield losses.

**Pest Forecasting Models:** May assist in determining the potential risk of a particular pest and when action may be needed.

The Dickinson Research Extension Center often hosts an IPM field scout that covers southwestern North Dakota for the summer growing season to benefit area producers. For more information regarding IPM in North Dakota visit: https://www.ag.ndsu.edu/ndipm RR

# *Research, education are key parts of Frenzel enterprises*

Agricultural research has long been important to Dickinson Research Extension Center Advisory Board members Joe and Sandi Frenzel. Joe grew up on a farm/ranch south of Dickinson "milking cows" among other things. Sandi grew up on a farm/ranch near Sterling.

Over four decades ago, Joe helped establish the DREC community night during the annual summer field day "to maintain the connection between agriculture and non-agriculture" residents. He continues to work to educate and engage the public in learning about the work being done by the faculty and staff at the Center.

Joe and Sandi are active beef producers on their ranch in Billings County north of Medora along the Little Missouri River, property they purchased in 1998. In addition, they have farms in Stark County south of Dickinson. "We do the haying," Joe stated, "the farmland is rented out."

Station director Dr. Kris Ringwall initiated the concept of couples serving together on the advisory board. The idea resonates well with Sandi because men and women have diverse perspectives. She specifically referred to the livestock and the fact that mothers view livestock management and care differently.

Nutrition is a big part of the Frenzel Ranch, feeding hay to the mostly Angus cow herd from December 15 to May 15. With almost two decades experience on the advisory board, Joe gives high marks to the DREC, "I think they have done a good job."

The Frenzels were participants in the CalfAID electronic identification program. Joe and Sandi say the data is available to review and drives decision making within their herd.

**Sandi and Joe Frenzel are active supporters of DREC research and education events.**

Joe and Sandi, both retired registered real estate brokers, spend the majority of their time on their agricultural enterprises. Joe admits that health issues in the recent past have caused him to slow down but interest in agriculture remains strong.

Joe suggested "more research into the cattle business, into cows." He looks to research centers as a partner to recognize what is missing, to do the research as to what is missing and why is missing"

Sandi echoed Joe's pleasure with the DREC. The CalfAID program and CHAPS program gave them more than data.

"We learned how hydraulic chutes were safe for people and animals," she said. Frenzels remain committed to animal ID and the DREC. "We try to attend most of the events because you can always learn something new, no matter how old (you are)," Sandi said. "The sociability of it is good because you are around other ranchers . . ."

Sandi said she likes the involvement on the board and looks forward to continuing to learn about "the exciting things going on. I want to stay involved as long as I can."

The Frenzels celebrated their 40th wedding anniversary recently and have four grown children. They have a home in Dickinson. RR

**Stocking cattle in pastures at the proper rate and rotational grazing can provide producers expanded options for pastures.**

# Proper pasture management can increase grazing options

Pasturing is a product of domestication, the need to keep cattle in a desired area and properly engage cattle with plants. To the bystander, pasturing may seem like a cumbersome human activity, building fences, developing water stations and imaginative gates. Astute managers resist the strong temptation to start opening gates and letting the cows graze beyond the calving pasture to eat the early grass growth; only to stunt later grass development. The pasture stocking rate allows for the utilization of the pasture plants and, at the same time, provides stimulation for the growth of the very same plants the cattle are eating. That is the basis for one of the principles when grazing: Take half, leave half. Pastures that are not stimulated by grazing actually will decline in desirable range plants and see an increase in less desirable range plants.

The cattle business is a grass business, cattle managers are grass managers, and producing beef from grass depends on the development of grazing plans. More important is to manage grazing systems according to the localized grass species. The golden rule among producer grazing plans is perhaps simply to have a plan. The plan should reflect known biological principles that enhance perennial grass production and be manageable by the producer.

At the Dickinson Research Extension Center, the grazing season starts in late April to early May. The cows and calves will be turned out on crested wheat (cool-season) pastures in early May to calve and remain there until the end of May to early June. For years, the center has started cow-calf pairs grazing on native range at the start of June. Pairs are sent to their second rotational pasture by mid-June and to their third pasture at the end of June. This is called rotational grazing: three pastures with a complete quick rotation by mid- July. This stimulation of the grass plants increases pasture productivity.

Following the first round of short rotations through the three pastures, the three pastures are grazed again for approximately 30 days each to complete the grazing season in mid-October. The principle is simple: Stimulate the grass growth, and follow that by utilization later in the grazing season.

Consult with a local range scientist and develop a good, solid plan. Long-term grazing systems work, improving the grass for generations to come. RR

## Crested wheatgrass boosts productivity for beef producers

Crested wheatgrass is an extremely beneficial introduced grass for the Northern Plains. It is usually ready to graze one month earlier (May 1st) than native rangeland which is often ready to graze by June 1st.

All perennial grass tillers (shoots) of crested wheatgrass live for two growing seasons. During the first growing season the tillers remain in the vegetative growth stage, meaning that they just produce leaves, all native and introduced grasses produce 6 to 8 leaves per growing season. During two growing seasons, each tiller produces 12 to 16 leaves. During the winter between the first and second growing seasons, three or four of the previous season's leaves remain alive and green with chlorophyll. These carryover leaves are the green leaves that show up soon after the snow melts and provide most of the energy used to produce the next set of new leaves.

When the plant has produced three and a half new leaves it is ready for grazing in the spring. Most native cool season grasses don't produce three and a half new leaves until nearly the first of June. Crested wheatgrass contains greater than 16% crude protein during the first 3 weeks of May and around 14% crude protein during the fourth week of May, which helps cows and calves grazing crested wheatgrass gain weight rapidly.

Properly managed crested wheatgrass can be used one time per year during the spring without detrimental effects as a spring (May) pasture or cut at boot stage for hay. The pasture use and hayfield use can be rotated every three to five years. Unfortunately, crested wheatgrass cannot have double use during the same growing season. Crested wheatgrass plants are hardy but they do not fully recover from two heavy uses.

Crested wheatgrass spring pastures should have a portion of standing dead vegetation in order to maintain the normal slow rate of forage passage through the digestive tract of cattle to assure normal rates of mineral absorption. When a pasture contains little or no standing old growth and the only forage available is lush vegetation high in water and crude protein, the rate of forage passage is accelerated resulting in deficient quantities of mineral absorption causing milk fever from low calcium or grass tetany from low magnesium. RR