

# NDAWN Center Newsletter

North Dakota Agricultural Weather Network

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## NDAWN - A Valuable Tool

The North Dakota Agricultural Network's (NDAWN) growing degree day applications were once again a valuable tool in 2009. The cool wet conditions in the early spring caused delayed planting. And although the length of the growing season was normal, the persistent cool weather was not. The cool temperatures hampered crop development. NDAWN's calculated crop growing degree day units along with fall frost probabilities became an important factor as the growing season came to a close.

The fall rains of 2008 saturated the soil prior to freezing. In the spring of 2009, record river levels caused severe flooding along many river channels. Fields were saturated which limited field mobility and slowed spring planting. The cool temperatures kept soil temperatures low and hampered germination.

As the growing season pro-

gressed, and cool temperatures persisted, the NDAWN growing degree days were important in calculating the probability that crops would mature prior to the first fall freeze.

When harvest got underway, most crops were harvested behind schedule. Corn harvest was the most difficult due to the high moisture content.

2009 State Average Temperatures with Rank (115 years of data):

- Apr 39.0°F was 32nd coolest.
- May 51.0°F was 33rd coolest.
- Jun 60.6°F was 26th coolest.
- Jul 64.3°F was 5th coolest.
- Aug 64.6°F was 32nd coolest.
- Sep 62.8°F was 3rd warmest.
- Oct 37.7°F was 6th coolest.



Red River of the North at Fargo, ND in March 2009.  
Photo by R. Kupec

2009 State Average Precipitation with Rank (115 years of data):

- Apr 1.02" was 40th driest.
- May 1.53" was 28th driest.
- Jun 2.71" was 31st driest.
- Jul 2.35" was 57th driest.
- Aug 1.65" was 38th driest.
- Sep 1.73" was 72nd driest.
- Oct 2.63" was 5th wettest.

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NDAWN Rolla Station

## March 2009 Recap

There were three major precipitation events that occurred in March. The first was March 9-10 in which heavy snow fell mainly in the southeastern regions. The National Weather Service (NWS) recorded a two day total snowfall (9th – 10th) at Jamestown of 14.0 inches, Fargo of 10.1 inches, Fort Yates of 10.0 inches, and Linton of 10.0 inches. The second major precipitation event was March 22-26 in which heavy snow fell in the southwest, central, and eastern regions. During the second precipitation event, some of the higher amounts recorded by the NWS were 22.5 inches of snow at Marmarth (Southwest corner of the state), 18.0 inches at Dickinson, and 15.3 inches at Beulah. The third major precipitation event was March 29-31 in which heavy snow fell in the south central and eastern areas. The NWS recorded record breaking amounts of snowfall on the 30th at Bismarck of 11.8 inches and Fargo of 5.8 inches. Fargo also had record breaking snowfall on the 31st of 4.6 inches. NWS recorded Fargo as having a record breaking total March snowfall of 28.1 inches.

The NWS recorded the second highest seasonal snowfall amount at Bismarck with 100.2 inches for 2008-2009. The highest seasonal snowfall amount recorded at Bismarck was 101.6 inches in 1996-1997.

The snow melt in March was the beginning of devastating flooding across North Dakota. As the snow melted, river levels rose quickly from overland flooding. By March 24th, a Presidential major disaster declared was issued for 34 of 53 counties that were struck by severe weather and flooding. Ice jams along the Missouri River caused flooding in the Bismarck-Mandan areas. Demolition teams used explosives in an attempt to break up the ice jams along the Missouri River. The west side of Linton, ND was evacuated due to flooding from Bear Creek.

“In Fargo, the Red River crested at 40.82 feet on March 28th breaking the previous record of 39.7 feet set on April 18, 1997.”

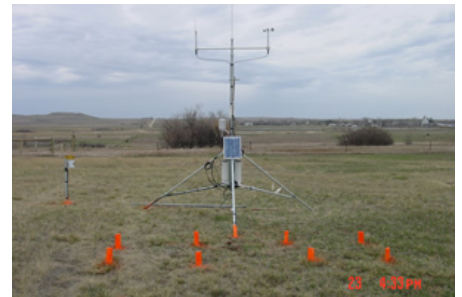
The flooding along the eastern part of the state hit record and near record levels. North Dakota residents built dikes to protect homes and property but in many cases, the rising waters came too quickly causing residents to evacuate the flooded areas. Many rural residents and small towns along the Wild Rice River, Sheyenne River, and Red River were evacuated. A few residents were air lifted to safety. Extremely high Red River levels were reported from the South Dakota to the Canadian border. In Fargo, the Red River crested at 40.82 feet on March 28th breaking the previous record of 39.7 feet set on April 18, 1997. Many homes in the Fargo and Moorhead areas located near the Red River were evacuated as a precaution. Homes were lost but the property damage would have been far greater if not for the community effort to build and maintain dikes. Volunteers filled 3.5 million sandbags in approximately 10 days. The Red River at Fargo rose from 17.3 feet on the 20th to 40.82 feet on the 28th.

## NDAWN Dunn Weather Station

In the Spring of 2009, a new station was added to the North Dakota Agricultural Weather Network (NDAWN) one mile southwest of Dunn Center in Dunn County. The station called Dunn is sponsored by the Dunn County Crop Improvement Association, Dunn County, Dunn County Weed Board, Dunn County Water Resource Board, Farmers Union Oil Company—Killdeer, Marathon Oil Company,

NoDak Mutual Insurance Company, North Dakota and Dakota Community Bank, and SW Grain Co-op Agronomy Division.

Data from the Dunn station is available on the NDAWN web site. Data begin in late May 2009. For more information, please contact our office.



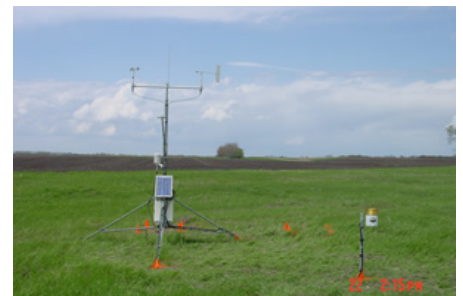
North Dakota Agricultural Weather Network (NDAWN) - Dunn Station

## NDAWN Inkster Weather Station

Another new station added to the North Dakota Agricultural Weather Network (NDAWN) is three miles west of Inkster in Grand Forks County. The Inkster station is sponsored by the North Dakota State University Department of Plant Pathology. The station is part of irrigated potato late blight assessment. The addition of Inkster and Dunn to the network brings

the total number of NDAWN stations to 72.

Data from the Inkster station is available on the NDAWN web site. Data begin in late June 2009. For more information, please contact our office.



North Dakota Agricultural Weather Network (NDAWN) - Inkster Station

# North Dakota Summer Climate Recap

## June State Average Precipitation

- 2009 Amount: 2.71 inches
- Monthly Ranking: 31st Driest
- Maximum: 7.21 inches in 2005
- Minimum: 1.14 inches in 1974
- State Normal: 3.19" (1971-2000)
- Years in Record: 115

## July State Average Precipitation

- 2009 Amount: 2.35 inches
- Monthly Ranking: 57th Driest
- Maximum: 7.88 inches in 1993
- Minimum: 0.62 inches in 1936
- State Normal: 2.75" (1971-2000)
- Years in Record: 115

## August State Average Precipitation

- 2009 Amount: 1.65 inches
- Monthly Ranking: 38th Driest
- Maximum: 5.02 inches in 1900
- Minimum: 0.72 inches in 1961
- State Normal: 2.10" (1971-2000)
- Years in Record: 115

## June State Average Temperature

- 2009 Average: 60.6°F
- Monthly Ranking: 26th Coolest
- Maximum: 74.2°F in 1988
- Minimum: 56.2°F in 1915
- State Normal: 63.7°F (1971-2000)
- Years in Record: 115

## July State Average Temperature

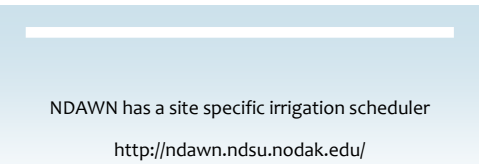
- 2009 Average: 64.3°F
- Monthly Ranking: 5th Coolest
- Maximum: 79.7°F in 1936
- Minimum: 61.8°F in 1992
- State Normal: 68.7°F (1971-2000)
- Years in Record: 115

## August State Average Temperature

- 2009 Average: 64.6°F
- Monthly Ranking: 32nd Coolest
- Maximum: 73.6°F in 1983
- Minimum: 60.9°F in 1977
- State Normal: 67.2°F (1971-2000)
- Years in Record: 115

## Irrigation Scheduler available on NDAWN

The irrigation scheduler was developed by Dr. Tom Scherer, an agricultural engineer at North Dakota State University, Fargo, ND. The scheduler tracks soil water content in a specified field. The primary pieces of information used by the scheduler include soil properties, weather variables, crop properties, and irrigation



data. The user sets up an account on NDAWN, then selects their own fields from a map. Once the users account is set up and fields chosen, the producer can monitor water use and irrigation on the selected fields throughout the growing season. The account remains set up from year to year unless it is removed by the user.



## Delegation from Turkey

Representatives of Pankobirlik, the largest sugarbeet cooperative in Turkey, visited Northern Crops Institute (NCI) and learned about North Dakota agriculture, NDSU agriculture research programs and sugarbeet by-product utilization projects. The delegation visited NDAWN Center to learn more about the NDAWN sugarbeet applications on September 17 and once

more on October 21. They were impressed with how NDAWN data are used to assist sugarbeet growers with sugarbeet growing degree days for growth stages and herbicide timing. They also learned how NDAWN data are used for calculating sugarbeet Cercospora Infection Values.



Representatives of Pankobirlik.

## North Dakota State Climate Office (NDSCO)

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## North Dakota Agricultural Weather Network (NDAWN)

<http://ndawn.ndsu.nodak.edu/>

The North Dakota Agricultural Weather Network (NDAWN) was established through a grant from, and in cooperation with, the High Plains Regional Climate Center (HPRCC), Lincoln, Nebraska in 1989. Originally the network consisted of 6 automatic weather stations located at North Dakota State University (NDSU) Branch Research Centers. Our objective was, and still is, to provide current weather data (yesterday's data today) necessary for the development of, and operational use of various crop, insect, and disease development models.

Currently there are 72 weather stations that expand across ND and include 10 stations in MN, 1 in SD, and 2 in MT. Data are retrieved daily via telephone modem by an HPRCC computer and loaded to the NDAWN web site. The hourly data are used in agricultural and general applications. Crop applications for barley, canola, corn, potato, sugarbeet, sunflower and wheat are available on the NDAWN web site. Additional applications include the irrigation scheduler, crop water use, insect development, and heating/cooling degree day calculator.



## CoCoRaHS in North Dakota

CoCoRaHS is an acronym for the Community Collaborative Rain, Hail and Snow network. The network is composed of volunteers who measure precipitation in their own neighborhoods and record their measurements daily on the CoCoRaHS web site. The web site address is <http://www.cocorahs.org/>.

All volunteers either attend a training seminar or view the on-line training slides. The equipment is standardized and consists of a 4" diameter high capacity gauge.

CoCoRaHS was created as a result of the Fort Collins, Colorado flash flood of July 28, 1997 in which storms produced over 12 inches of rain in a short period of time. The flooding was devastating and claimed several lives.

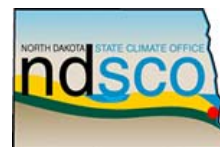
The network is sponsored by the National Science Foundation Grant and the NOAA's Environmental Literacy Program Grant. The support has allowed other states to join the on-line network of observers. North Dakota is the 37th state to join the net-

work.

Dr. Akyüz is the North Dakota CoCoRaHS State coordinator. North Dakota went live on the CoCoRaHS web site November 1, 2008. North Dakota has over 100 observers. More volunteers would be welcomed and greatly appreciated.



Community Collaborative Rain, Hail and Snow network



The most recent state added to the CoCoRaHS network is Minnesota. CoCoRaHS network of volunteers now spans from the Atlantic to the Pacific.

The CoCoRaHS data in North Dakota and Minnesota supplements the precipitation data from the North Dakota Agricultural Weather Network (NDAWN). NDAWN does not measure precipitation in the winter thereby making CoCoRaHS winter precipitation values an important addition to climate data networks.

If you are interested in joining the network please call the North Dakota State Climate Office (NDSCO).

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