



News From

NDSU EXTENSION SERVICE

North Dakota State University, Box 5655, Fargo, ND 58105

October 31, 1991

CLIMATOLOGIST CALLS SNOW GREAT NEWS FOR STATE

North Dakotans digging out from the two heavy snow storms that hit the state in late October may not have thought so at the time, but the snow and the moisture it provided is great news for North Dakota, according to John Enz, climatologist in the soil science department at North Dakota State University.

Enz describes the fall snow storms as "very useful" moisture. It is very likely that the snow will melt this fall and infiltrate into the soil. The soil is still warm enough to cause melting from the bottom, and it is highly likely there will be some warm weather yet this fall.

Snow falling on unfrozen ground is perhaps the most efficient way of getting water into the soil, he says. Most of the snow is likely to stay where it fell, it will melt slowly, and snow cover will help maintain low temperatures so there will be little evaporation.

Even if the snow does not melt this fall, which would be highly unusual so early in the season, the snow will insulate the soil and prevent it from freezing too deeply over the winter.

Even before the recent snow storms, which fell in the form of rain in southeastern North Dakota, the 1992 crop season was starting off on an optimistic note, Enz says.

Plentiful September rainfall resulted in significant soil water storage in much of the state, although the south central region received only an inch or less. But the September rains coupled with the late October snow should result in considerable stored soil moisture available next spring.

For the third year in a row, North Dakota was critically short of stored soil water at the time the 1991 crop was planted. Results from the November 1990 soil water survey indicated that 70 percent of the small grain stubble ground contained less than 4 inches of stored water. Winter precipitation totaled less than half of normal statewide, so little snowmelt was available for recharge.

- OVER -

SNOW—ADD 1

Conditions did change quickly in April, however, with plentiful rainfall across the state. April precipitation totaled at least 1.5 inches at state reporting points and amounts of 2.5 inches or more were common. South central and southeast regions received from 3 to 4 inches. Statewide these amounts ranged from 100 to 200 percent of normal.

May precipitation was extremely variable, common for regions where the dominant summer precipitation is from thunder storms. It ranged from 2 to 4 inches nearly everywhere in the state, but severe storms dropped as much as 9 inches in parts of the southeast. June rainfall was also plentiful, ranging from 3 to more than 7 inches across the state.

Average temperatures during May and June were 2 to 5 degrees above normal, which is surprising because extremely hot weather was rare, Enz says. Maximum June temperatures exceeded 90 degrees only two or three days across the state, yet June 1991 ranked as high as fifth warmest on record at North Dakota reporting stations.

The reason, says Enz, was high night temperatures. Conditions associated with plentiful rainfall, high humidity and cloud cover, helped slow nighttime cooling. Daily minimum temperatures were much above normal, while daily maximum temperatures were near normal.

During July and August plentiful rainfall continued in the northern half of the state with amounts ranging from 4 to 9 inches, but for most of the southern half of the state the rains suddenly stopped. Amounts ranged from less than an inch in the southwest to about 4 inches in the southeast. The driest areas received only 25 percent or less of normal rainfall.

This resulted in some devastating crop failures, which would have been more widespread except for the heavy spring rains, especially in the south central and southeast regions, that recharged soil moisture and helped carry the crops during this dry period.

SNOW—ADD 2

Summarizing the April through September season, 1991 growing season conditions were wetter than they have been since 1986, with precipitation ranging from 11 inches in the southwest to 21 inches in the southeast and 25 inches in the northeast. However, Enz says, these total are somewhat misleading because much of the state received 2 to 4 inches of rain during September.

North Dakota typically receives 4 to 5 inches of water in the form of snow during the winter months. If only 1 or 2 inches of this water is stored in the soil during snow melt it could be worth an extra 5 to 10 bushels of wheat per acre.

Unfortunately, says Enz, winter winds sweep most of the snow from unprotected fields to collect in ditches, shelterbelts or road cuts where most of it is ultimately lost as runoff.

Standing crop stubble effectively holds snow where it falls and traps drifting snow from adjacent unprotected fields. Research shows that an average of 50 percent of the water content of snow will infiltrate in the spring if the snow remains on the fields.

"Water is too valuable to let it just blow away," Enz says.

NDSU Extension Communication
Gary Moran
Agricultural Editor
237-7865
Enz: 237-8576