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## Subsoil Moisture Levels a Concern for Northwest Iowa 2012 Crops

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# Subsoil Moisture Levels a Concern for Northwest Iowa 2012 Crops

## **Abstract**

The northwest Iowa fall survey of subsoil moisture completed by Iowa State University in November shows well below average amount of subsoil moisture. Subsoil moisture levels are checked in the fall in many northwest Iowa counties through this survey.

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## Subsoil Moisture Levels a Concern for Northwest Iowa 2012 Crops

Paul Kassel, ISU Extension field agronomist

The northwest Iowa fall survey of subsoil moisture completed by Iowa State University in November shows well below average amount of subsoil moisture. Subsoil moisture levels are checked in the fall in many northwest Iowa counties through this survey.

The level of subsoil moisture in Dickinson, Clay and Pocahontas counties ranges from 1.4 inches to 5.0 inches of plant available moisture. Most of the area had a full profile of soil moisture in mid-summer. However, a large part of the area received little rain in late summer and fall.

Typical Iowa soils have the potential to hold from 10.0 to 11.0 inches of moisture in the top five feet of soil. The dry conditions late last summer and fall left the soil moisture reserve very low. Soil moisture readings from the 10 sites where Iowa State University personnel analyzed soil moisture in northwest Iowa had 1.4 to 5.6 inches of plant available moisture. The average of these 10 northwest Iowa sites is 4.1 inches of moisture as of Nov. 1, 2011.

These results confirm what is expected in terms of reserve soil moisture. The amount of rainfall has been very limited since mid-July in many locations. Rainfall amounts since mid-July have been six to nine inches below normal.

Some areas – like the sampling site near Rossie - show the results of some late season rainfall and the fact the corn and soybean crop did not use soil moisture past mid- September. A frost event on Sept. 15 effectively brought the growing season to a close and the crop did not use any soil moisture after that date.

This level of subsoil moisture is very low when compared to levels of subsoil moisture the past few years. With less than 0.5 inch of rain in November, the area will be very dependent on rainfall next spring as snow contributes very little to subsoil moisture. (Moisture from snow often evaporates or runs off with snow melt. However, the snow may provide some insulating value – to minimize the depth of frost penetration.) Crop production will be very dependent on summer rainfall without a reserve of soil moisture going into the summer crop growth time period.

Rainfall during March and April 2012 will also contribute to subsoil moisture. Typical rainfall for those months is three to five inches. We can expect about 80 percent of that rainfall to contribute to subsoil moisture reserves.

## County Subsoil moisture – Fall 2011

County	Fall Average, inches	Location	2011 crop	Plant available moisture, inches, Nov 1, 2011
Dickinson	5.7	Spirit Lake	soybean	1.4
Clay	5.7	Rossie	soybean	5.0
Pocahontas	6.0	Rolfe	corn	3.3
Lyon	4.3	Doon	soybean	4.3
Osceola	5.1	Sibley	soybean	5.5
Sioux	4.2	Ireton	corn	5.6
O'Brien	5.9	Sutherland	soybean	4.5
O'Brien	5.9	Melvin	corn	5.1
Cherokee	5.6	Cherokee	soybean	3.9
Cherokee	5.6	Marcus	soybean	2.4

## Rainfall data – July 15 to December 1 2011

	Normal	Observed	Deficit
	-----inches of rainfall -----		
Estherville	12.0	2.0	10.0
Sioux Rapids	12.8	3.0	9.8
Pocahontas	12.8	6.0	6.8
Spencer	12.5	3.0	9.5
Algona	12.5	4.5	8.0
Britt	12.2	4.5	7.7

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