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Fall 2001 Subsoil Moisture Levels

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Fall 2001 Subsoil Moisture Levels

Abstract

Each spring and fall, a soil moisture survey is conducted to determine the amount of plant-available moisture in the top five feet of the major soils in Iowa. Adequate soil moisture reserves increase the probability of average or above-average crop yields the following season. Producers may use this information to alter crop management plans according to expected soil moisture levels. Several sampling sites are located at the Western Research Farm (WRF).

Disciplines

Agricultural Science | Agriculture

Fall 2001 Subsoil Moisture Levels

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Each spring and fall, a soil moisture survey is conducted to determine the amount of plant-available moisture in the top five feet of the major soils in Iowa. Adequate soil moisture reserves increase the probability of average or above-average crop yields the following season. Producers may use this information to alter crop management plans according to expected soil moisture levels. Several sampling sites are located at the Western Research Farm (WRF).

Soil moisture status was quite variable across the region in the fall of 2001, reflecting the variable rainfall of the summer and fall months. Subsoil moisture status ranged from a low of 0.7 inches (6% capacity) plant available water (PAW), under an alfalfa field at the WRF, to 9.8 inches PAW (78% capacity), under a soybean field in Sac County. Most fields are in far better

shape this sampling period compared to the last two falls. Generally, subsoil moisture status improves north and east of Monona County.

The maximum amount of PAW in the top five feet of soil approximates eleven inches for most northwest Iowa soils. The subsoil moisture samples are taken to a depth of five feet, in one-foot increments. Five feet is the normal depth that corn, soybeans, and alfalfa can extract moisture. On average, a corn and soybean crop requires 26 inches of water to produce a normal yield. Timeliness and intensity of the rain events greatly affect water infiltration into soil and the ability of plants to utilize moisture. It must be remembered that rainfall has been variable across the region, and the samples capture only a snapshot of time and location of actual subsoil moisture status. Rainfall has occurred since the samples have been taken, so moisture levels in many areas have improved since the sampling period.

Table 1. Fall 2001 soil moisture sample results.

County	Soil type	2001 crop	Plant available water (in.)	% of capacity
Crawford	Monona Silt Loam	corn	2.1	18%
Crawford	Monona Silt Loam	soybean	4.3	37%
Monona	Monona Silt Loam	soybean	1.8	15%
Monona	Monona Silt Loam	corn	4.0	34%
Monona	Monona Silt Loam	alfalfa	0.7	6%
Ida	Monona Silt Loam	corn	3.4	24%
Ida	Marshall	corn	5.5	49%
Ida	Marshall Benches	corn	7.3	55%
Woodbury		corn	5.1	
Woodbury		corn	6.5	

Sampling date for Monona, Crawford, and Ida counties was 10/31/01.