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Soil Moisture

RFR-A1613

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Introduction

Soil moisture is critical for crop production in most years in northwest and west central Iowa.

Materials and Methods

Soil moisture samples were taken at nine sites in northwest and west central Iowa during the first few days of November 2016. Moisture samples were taken at 1-ft increments down to a 5-ft depth. Samples were weighed, oven dried, and reweighed at the Northwest Research Farm, Sutherland, Iowa. The moisture percentage was calculated from these data, and then used to calculate the inches of plant-available moisture in the soil. The data from these sites are listed in Table 1.

Results and Discussion

Several sites that have normally been sampled were not examined during the fall of 2016 due to significantly higher-than-normal rainfall

late in the growing season and after the crop matured. Field capacity or near field capacity was assumed to have been reached at those sites. The level of soil moisture at sites in eight northwest Iowa counties ranged from 5.1 in. to 10.5 in. of plant-available moisture. The average among the nine observations in the eight counties was 7.7 inches, compared with 7.5 inches in 2015, 6.2 inches in 2014, 5.3 inches in 2013, and 4.5 inches in 2012. Only the Battle Creek site showed less soil moisture than the long-term soil moisture level as of November 1, 2016.

The ISU Soil Moisture Network is at several sites in Iowa. Many are located near where the soil moisture samples are taken. These weather stations assess normal weather activity, plus have sensors for soil temperature and moisture percentages at 12-in., 24-in., and 50-in. depths in the soil. The network is at <https://mesonet.agron.iastate.edu/agclimate/#mpf>. Data from sites located near some of the soil moisture samples reflect similar soil moisture results for November 1, 2016.

Table 1. Soil moisture available to plants, in inches.

Site	Long-term county fall average soil moisture (in.)	County	2016 crop	2016 plant-available soil moisture (in.)
Doon	4.3	Lyon	corn	8.9
Ireton	4.2	Sioux	soybean	10.5
Sutherland	5.9	O'Brien	corn	10.3
Akron	4.3	Plymouth	soybean	5.2
Le Mars	4.3	Plymouth	corn	9.6
Marcus	5.6	Cherokee	corn	8.7
Lawton	4.6	Woodbury	corn	5.3
Battle Creek	6.0	Ida	soybean	5.6
Castana	4.9	Monona	corn	5.1