

Soil Moisture

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Joel DeJong, extension field agronomist

Introduction

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

Materials and Methods

Soil moisture samples were taken at 10 sites in northwest and west central Iowa during the first few days of November 2017. 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 percentages were 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 2017 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 subsoil moisture at the 10 soil moisture sampling sites in nine northwest Iowa counties ranged from 7.3 in. to 9.8 in. of plant-available moisture. The average among the 10 observations in the nine counties was 8.7 in., compared with the 7.7 in. average in 2016, 7.5 in. average in 2015, 6.2 in. average in 2014, 5.3 in. average in 2013, and 4.5 in. average from the sites sampled in 2012. All sites contained soil moisture at levels well above the long-term average.

The ISU Soil Moisture Network is a network of weather stations established at several sites in Iowa. Many are located near where the soil moisture samples are taken. These weather stations assess normal weather activity, with additional sensors for soil temperature and moisture percentages at 12-in., 24-in., and 50-in. depths in the soil. The network can be viewed at <https://mesonet.agron.iastate.edu/agclimate/#mpf>. Data from sites located near several of the soil moisture samples reflect similar soil moisture results for November 1, 2017.

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

Site	County fall average soil moisture (in.)	County	2017 crop	2017 plant-available soil moisture (in.)
Doon	4.3	Lyon	soybean	8.7
Ireton	4.2	Sioux	corn	9.8
Sutherland	5.9	O'Brien	soybean	8.1
Sibley	5.1	Osceola	corn	9.3
Akron	4.3	Plymouth	corn	7.3
Le Mars	4.3	Plymouth	soybean	9.4
Marcus	5.6	Cherokee	soybean	8.5
Lawton	4.6	Woodbury	soybean	8.1
Battle Creek	6.0	Ida	corn	8.9
Castana	4.9	Monona	soybean	8.4