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Soil Moisture Survey

Clarke McGrath

Iowa State University, cmcgrath@iastate.edu

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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 many of the major soil types in Iowa. Several of the sites, which are the same each year, are located in the area of the Wallace Foundation for Rural Research and Development (WFRRD). Many producers make or alter their crop management plans according to expected soil moisture levels.

Disciplines

Agricultural Science | Agriculture

Soil Moisture Survey

Clarke McGrath, field crops specialist
ISU Extension

Introduction

Each spring and fall, a soil moisture survey is conducted to determine the amount of plant-available moisture in the top five feet of many of the major soil types in Iowa. Several of the sites, which are the same each year, are located in the area of the Wallace Foundation for Rural Research and Development (WFRRD). Many producers make or alter their crop management plans according to expected soil moisture levels.

Materials and Methods

Samples were taken at 10 sites in southwest Iowa this fall. A deep-sampling soil probe is used to take samples five feet deep in one-foot increments. Five feet is the normal depth corn, soybeans, and alfalfa can extract moisture. Sampling at the sites consists of two groups of three replications. Each foot increment of soil

from the three replications is placed in a container, weighed, the moisture baked out, and weighed again to measure the amount of water it contained. The results are entered into a spreadsheet to determine plant available moisture.

Results and Discussion

Adequate soil moisture reserve increases the probability of average to above-average crop yields in the following season. Most soils sampled in southwest Iowa can hold a maximum of 10.8–11.3 inches of plant-available moisture in the top five feet. A fall moisture level of less than four inches is considered “dry,” a level between four and seven inches is considered “marginal,” and a level greater than seven inches is termed “favorable.” The following are measurements taken in the WFRRD area in late October and early November 2002.

Table 1. Fall moisture amounts for soil moisture sampling sites in the WFRRD area, fall 2001.

<u>Location</u>	<u>Soil Type</u>	<u>Date Sampled</u>	<u>Inches of Water, Five-Foot Depth</u>
Armstrong Farm	Marshall	11/19	5.21
Cass County	Marshall	11/19	5.49
Shelby County	Marshall	11/19	7.52
Harrison County	Marshall	11/19	4.21
East Pottawattamie County (Avoca)	Marshall	11/8	6.11
East Pottawattamie County (Oakland)	Marshall	11/8	7.11
Audubon County	Marshall	10/30	7.79
Page County	Marshall	11/8	6.47
Mills County	Marshall	11/8	7.82
Fremont County	Marshall	11/8	7.03