

SOIL SCIENCE (AFFILIATE)¹

ABSTRACTS

Are We Doing the Job? GEORGE D. SCARSETH, Director of Research, American Farm Research Association, Lafayette, Indiana.—The solution to the "farm problem" appears to be moving further from realization as the issues move into the realm of politics. This status is developing largely through a mass ignorance of what are the basic facts involved. We scientists are primarily responsible, because of the gigantic task of translating our knowledge into forms where it is realistic, stimulating, inspiring, and practical enough to be effective.

As educators, we scientists tend to be the worst. The farmer deals with "whole problems," that reach across all our scientific disciplines. The farmer's action is wise or foolish according to how well he manages to transpose the known into something he can successfully produce and sell. He deals with uncounted variables and is forced to make his decisions according to what he thinks best.

The scientist abhors to make a choice or to give advice unless he is on the safe ground of verified experimental facts. The confirmed knowledge that scientists have, as well as the sound theoretical speculation they can make, based on established principles and laws are better than the blind guesses people are often forced to use. However, to translate facts and natural laws into use so often encounters such barriers of tradition and misunderstanding that only a very few scientists have dared, in all history, to venture into his unhallowed zone.

Some cases will be used to show the failure of following the hard facts of our sciences in our educational efforts and the resulting consequences.

Temperature Effects on the Utilization of Starter Fertilizer by Corn. A. J. OHLROGGE, W. G. DUNCAN and J. M. SHIVELEY, Purdue University.—Corn was grown through the seedling stage in the controlled climate facility of Purdue University. Six starter fertilizer treatments were used at three temperatures (60°, 70°, and 80°) with a 16 hour day. Radiophosphorus was supplied in the mono-calcium phosphate fertilizer.

Growth rate was affected earliest in plant development by fertilization at the lowest temperatures. Fertilization was approximately equivalent to 10 degrees of temperature as measured by growth. Phosphate recovery rates increased approximately 50 percent for the temperature increase of 10 degrees when nitrogen and phosphate were applied in a single band.

¹All of the following papers were presented in a separate meeting but are joined with the papers of the Geology and Geography Division.

Some Field Observations of Effects of Deficiency and Luxury Feeding of Corn Hybrids. G. N. HOFFER, Lafayette, Indiana.—The effects of essential nutrient deficiencies and imbalances in hybrid corn plants are illustrated. Many observations of different hybrids during the current year will be discussed with some of the interpretation of the symptoms based on recent work with nutrient isotopes.

Atmospheric Radioactivity from Indiana Soils. W. G. DUNCAN, Purdue University.—Observations made over several months indicate that the atmosphere contains highly variable amounts of radioactive materials. The amount of radioactivity appears to vary with weather conditions but the relationship is complex. The intensity of the radioactivity is greatest at the surface of the soil and decreases with elevation.

It is believed to be an entirely natural phenomenon caused by the presence of small amounts of uranium widely distributed in the soil. Probably the radon gas evolved in the decay of uranium becomes a part of the soil atmosphere and as such diffuses into the air in measurable amounts.

Use of Weather Records on Punch Cards in Solving Local Climatic Problems. L. A. SCHAAL and J. E. NEWMAN, State Climatologist, U.S.W.B. and Purdue University.—Beginning in October, 1955, the Department of Agronomy, Agricultural Experiment Station, Purdue University, entered into a cooperative agreement with the United States Weather Bureau, whereby the two above mentioned institutions agreed to certain responsibilities in assembling valuable past Indiana climatic data on punch cards. After one year of this cooperative effort, some 25 climatic stations with records of 50 years or more in length, have been assembled. These 25 stations are scattered rather uniformly over the state.

Brief explanation of what climatic data have been placed on punch cards and the geographical location of each record which has been punched is given. Specific examples of how similar cooperative projects in other states have applied such data to problems of a climatic nature is illustrated. A discussion of contemplated summaries for rainfall and temperature data at the 25 Indiana stations is presented.