THE EFFECT OF INERT COATINGS ON
THE GERMINATION AND SEEDLING
GROWTH OF COTTON

ONE of the major problems in cotton production is obtaining uniform stands of healthy seedlings. A contributing factor to unsatisfactory stands is the use of fuzzy cottonseed which, as they come from the ginning process, are covered with a certain amount of short fibers. These fibers cause the seed to mat together; hence, when dropped from the planter box they fall in irregular clusters rather than as a single seed. This causes erratic stands and the planting of many times the number of seeds actually needed for an adequate stand.

The coating of fuzzy cottonseed with inert materials to obtain seeds which have smooth surfaces and which dispense easily may be one means of getting more uniform stands of cotton. The purpose of this study was to determine the effects of two such coatings upon the germination and seedling growth of cotton.

Many materials have been used as artificial coating for seeds to produce a desired shape and size; Rudolf lists some 15 such compounds ranging from clay to ground glass. Vogelsang et al. have more recently developed a satisfactory coating of feldspar and flyash (a product from the burning of powdered coal in boiler installations) for sugar beets for the purpose of obtaining a smooth pellet, making precision planting possible. Burgesser found a volcanic montmorillonite clay to be a satisfactory material for coating certain vegetable, flower, and cotton seed. Methyl cellulose was selected as the most suitable binding material by both Vogelsang and Burgesser.

In the study reported here, fuzzy cottonseed of the variety, Stormmaster, were coated with: (a) lot 1, a montmorillonitic clay from California, (b) lot 2, a mixture of 65% ground feldspar and 35% flyash, (c) lot 3, the original seed, uncoated. All seeds were treated with a suitable fungicide prior to initiation of the study. Germination tests were made in the Texas State Seed Laboratory, Lubbock, Texas, in accordance with the Texas Seed Law and Regulations; in the greenhouse in flats of Amarillo fine sandy loam; and with the same soil in the field in duplicate 100-foot rows. Four replications and complete randomization were used in all studies.

Seedling growth rate was measured by growing 10 plants to an age of 18 days in 4-gallon glazed pots of quartz sand, after which the roots and tops were removed, oven-dried, and weighed separately.

Data in table 1 show that the use of coatings changed the rate of germination of cottonseed in the germinator and in flats of soil in the greenhouse but under field conditions no significant differences were obtained.

When compared to the germination of the fuzzy seed was due in part to the better control of mold and off organisms with this coating material. Cottonseed coated with the "montmorillonite" flyash coatings but the montmorillonite clay delayed germination from 3 to 7 days under field conditions. When grown in washed quartz sand, seeds coated with feldspar-flyash averaged 30% more dry weight from standard fuzzy seed at the end of 2 weeks. However, under field conditions seedlings from coated seed appeared to be healthier and more uniform than the uncoated seed. - COLEMAN Y. WARD and Y. YOUNG, Formerly Instructor of Agronomy (now Agronomist, Virginia Agr. Exp. Sta.) and Professor of Agronomy, Texas Technological College, at Lubbock, respectively.

A CONE-TYPE NURSERY PLANTER

A SIMPLE and effective mounting for a nursery planter was recently devised in connection with the barley project at the University of Minnesota. The planter is mounted on an Allis Chalmers tractor as shown in figure 1. The cone mechanism was new, but otherwise standard equipment was used. In 2- or 4-row plots the tractor wheels served as a guide for the following rows. A uniform planting depth was maintained by the hydraulic lift despite irregularity in the soil; and the standard cultivating equipment eliminated practically all hand hoeing.

The machine may be operated by one man, but operation by two men facilitates progress. Seeds are piled on the seat at the front of the tractor, and are dropped into the boxes, while the other man drives. A box containing the seed packets is held in place by a bracket mounted on the bar that holds the planter boxes, and the empty envelopes are put in the boxes.