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Soil Conditioners—A Progress Report

Following the release to the general public of a soil conditioner in December 1951, there has been a great deal of publicity given to this material. Dozens of products have been placed on the market, and many people have used soil conditioners with a variety of results.

A summary of agricultural experiment station results with respect to soil conditioners is useful in appraising the value of these materials. Reporting in a recent issue of the *Crops & Soils* magazine (published by the American Society of Agronomy), soil scientists point out that the synthetic soil conditioners currently being marketed are of four classes of chemical compounds: (1) polyvinylites, (2) cellulose gums, (3) lignin derivatives, and (4) silicates.

About 90 percent of the individual products now on the market belong to the polyvinylite family. The amount of active ingredients in each varies considerably, with a recent study showing a range of 15 to 98 percent.

Soil scientists generally are agreed that soil conditioners do at least one thing—they increase the stability of soil aggregates. Soil aggregates are the lumps or granules of soil. In order for plants to achieve maximum growth, the soil must have a granular structure. This is one reason for working the soil prior to planting. Plowing, harrowing, and cultivating make the soil loose, friable, and granular.

However, in normal cultivation of crops, this desirable condition of the soil frequently disappears early in the growing season.

The crusting over of soils following heavy rains is one of the more frequent examples of the breakdown in soil structure. This crusting over prevents the emergence of seedlings and, in many cases, sharply reduces the stand of a newly planted crop. Chemical soil conditioners enable soils to withstand the effects of weathering and tillage machinery and still remain in a desirable physical condition.

A second important point noted by the scientists is that the chemical soil conditioners stabilize whatever soil structure exists at the time of application. In other words, if the soil is crusted over at the time of applying the soil conditioner, the conditioner will have no beneficial effect in attempting to break the crust.

This is a very important point because many people have come to believe that soil conditioners will bring about the existence of a desirable soil structure. However, tests have shown conclusively that the ground first must be worked into the proper state of tilth and then the soil conditioner applied.

Maintenance of the granular soil structure permits more rapid absorption of rainfall and better aeration of the soil, both of which aid plant growth. Tests have shown very definite increases in yields from the use of soil condi-

tioners in situations where the problem of crusting or aeration existed.

It is felt by many that the more satisfactory physical characteristics maintained in the soil treated with the conditioner also tend to lower soil temperatures during excessively hot periods.

It is emphasized that soil conditioners do not add any plant food to the soil. So far as is presently known, the chemicals included in the conditioners have no beneficial effect upon plant growth itself. Their benefit comes solely from their effect on the physical characteristics of the soil. A more desirable physical condition of the soil may enable plants to make more effective use of plant nutrients already present or added by means of chemical fertilizers.

Delay Spring Grazing

It will be a strong temptation this spring to put livestock on pastures just as soon as grasses begin to show a little green.

Ted Trew, extension pasture specialist for Texas A. & M. College, suggests that farmers and ranchers go slow with their spring grazing program on Bermuda and dallis grass pastures. Mr. Trew points out that these grasses went into the winter in a weakened condition in much of the Southwest as a result of drought and overgrazing and will be slow to start this spring. Moreover, if they are not given a rest period of 4 to 6 weeks after new growth begins, the stands will be weakened substantially and production later in the season will be reduced.

Several suggestions are made for providing additional grazing while perennial grasses are being given a rest. Small grains and winter legumes that were planted last fall will furnish some grazing during the spring months without reducing grain yields.

Also, small grains and legumes may be planted now for spring grazing. It is rather

late for such planting, but with favorable weather between now and spring, these crops will pay big dividends during the early spring months.

Hubam or Madrid sweet clovers may be spring-seeded with good results in small-grain or Johnson-grass fields in most northern areas of the Southwest.

Sudan grass can be planted in all areas just as soon as the danger of frost is passed and will make quick, highly palatable, and nutritious pasture.

More About Bluetongue in Sheep

Eradication of common gnats may be the answer to the successful control of bluetongue — a virus disease attacking sheep in Texas.

Scientists in South Africa have identified night-flying midges as carriers of the virus in their country. Scientists at the Texas Agricultural Experiment Station near Sonora, Texas, believe that these same insects are transmitting the disease from animal to animal and from area to area in Texas.

Bluetongue is now believed to have existed unrecognized in Texas for at least two decades. It was first reported as "soremuzzle" in 1952 and was widespread in 1953, at which time it was identified positively as bluetongue.

Research indicates that there is evidence of at least three strains of the disease in Texas. Therefore, each strain must be isolated and a vaccine prepared to control that specific strain. Even though natural infection or vaccination produces lifelong immunity to one particular strain, they will not necessarily give immunity to any other strain.

Dr. D. A. Price, veterinarian at the Sonora station, says that one of the Texas strains has been isolated, and tests are being conducted

to perfect a vaccine similar to the one used very successfully in the control of bluetongue in South Africa.

At the request of the Bureau of Animal Industry, the Bureau of Entomology and Plant Quarantine has undertaken to classify the carrier gnats in the Southwest. The survey is being directed from Washington, with a biological study being conducted from a laboratory at Kerrville, Texas.

Plan Now for Mechanical Harvesting

Savings of \$15 to \$20 per bale of cotton through the use of harvesting machines have encouraged more and more growers to use mechanical pickers and strippers, according to Fred C. Elliott, Extension cotton work specialist of Texas A. & M. College. Mr. Elliott estimates that nearly one-third of last year's Texas cotton was mechanically harvested.

Much of the success in the use of mechanical harvesters depends on a coordinated program of cotton production, beginning with the laying out of the rows and the selection of the variety to plant. Improperly spaced rows and use of varieties not adapted to mechanical harvesting can make it impossible to use such harvesters efficiently.

Mr. Elliott makes the following recommendations for planting cotton to be harvested mechanically.

1. Plant storm-resistant varieties in 40-inch rows.
2. Plant to obtain a stand of from two to six plants per foot of row.
3. Space plants evenly in the rows; do not hill drop.
4. During late cultivations, set the cultivator sweeps so that the space between the rows will be lower than the ridges of dirt at the base of the plants.

Poor Seed Is Expensive Seed

Certified seed costs more, but the added expense assures purity, higher germination, and better yields, according to L. C. Coffey, Extension agronomist of Texas A. & M. College.

Certified seed is the best seed available of a particular variety. It comes from fields that have been inspected during the growing season to insure purity. It has been handled properly after harvest, cleaned, and tested for purity and germination. In Texas, each sack of certified seed carries a blue tag issued by the State Department of Agriculture.

The supply of certified seed usually is insufficient to meet the needs of all farmers. Hence, it is advisable to purchase the seed several weeks in advance of the planting season.

Three yellow corn hybrids—Texas 26, 28, and 30—gave outstanding results in tests conducted in 1953 at widely scattered locations over the State of Texas. Secure 1954 planting seed early.

Farm Records—A Big Help

A more complete record of their farming operations in 1953 would have been a big help to many farmers in figuring income tax returns, states C. H. Bates, Extension farm management specialist with the Texas A. & M. College.

Written farm records are essential for computing income tax returns, says Mr. Bates, and they also can be the basis for improving farm practices and cropping systems. A record of the year's operations can be extremely helpful in evaluating the weak spots and strong points of the farm business, and now is the time to start keeping a record for 1954.

A number of farm record books that make record keeping easier are available from county agricultural agents, implement dealers, and others. The important thing is keeping some kind of written record. It should include an inventory of land, farm improvements, machinery, equipment, livestock, crops, and feed on hand; farm sales and expenses; farm products used in the home; and a summary of the year's farming business.

In early tests, two new tomato varieties, Homestead and STEP 193, showed much promise for central Texas plantings.

Record Number of Boll Weevils

Indications that an all-time record number of boll weevils may have gone into hibernation last fall have been found by the Cotton Insect Laboratory of the United States Department of Agriculture at Tallulah, Louisiana.

M. T. Young, acting director of the laboratory, says that an examination of ground trash in the fall of 1953 at various points in northeast Louisiana showed an average of 5,239 boll weevils per acre in hibernation. This is four times as many weevils as were found in the fall of 1952. The previous high count was in the fall of 1950.

Commenting on this report, Kirby L. Cocke, entomologist for the Louisiana State University Agricultural Extension Service, points out that a large number of weevils in hibernation does not necessarily mean extra heavy boll weevil infestation next spring, as many of the weevils may not survive the winter. However, it is a warning of possible danger, as a mild winter could result in the survival of a record number of weevils.

Cotton farmers will do well to be prepared to take adequate measures to control boll

weevils in 1954. As in every year, this insect is a threat to cotton production, and with the reduced acreage in 1954 it will be even more important that farmers follow recommended practices in the control of weevils and other cotton insects.

Guides for the control of cotton insects in 1954 will be available in the next few weeks from most agricultural experiment stations.

Publications

Texas Agricultural Experiment Station, College Station:

Methods and Costs of Handling Texas Citrus, 1946-51, Bulletin 771, by H. B. Sorensen and C. K. Baker.

Methods of Supplying Phosphorus to Range Cattle in South Texas, Bulletin 773, by E. B. Reynolds and others.

American-Egyptian Cotton Variety Tests, El Paso Valley Experiment Station, 1951-52, Progress Report 1609, by Lee S. Stith and others.

Cotton Variety Tests in the Lower Rio Grande Valley, 1953, Progress Report 1618, by J. L. Hubbard and others.

Yield and Chemical Composition of Crops Grown for Forage at Mt. Pleasant, 1950-52, Progress Report 1626, by Mark Buckingham and others.

Apple Varieties in Northeast Texas, Progress Report 1627, by H. F. Morris.

An Economic Analysis of Land Clearing and Subsequent Crop Production in the Corpus Christi Area, Progress Report 1628, by Ralph H. Rogers and Joe R. Campbell.

Copies of these bulletins may be obtained by request to the publishers.

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