

DUST TREATMENT FOR CONTROL OF WHEAT SMUT

By R. B. Streets, Ph.D.

Smut Loss Is Two Fold; Copper Carbonate Is Now the National Standard Treatment; Directions for Treating

ARIZONA wheat growers who used the copper carbonate dust treatment for the control of wheat smut last fall were well pleased with methods and the results obtained. Those who bought their seed wheat already treated saved all the labor involved in treating and bought their smut insurance for about nine cents per acre, so they were well pleased. The Eagle Milling Company of Tucson

was the first firm in Arizona to offer for sale treated seed wheat and they found a brisk demand last year and an increased demand this fall. Using automatic machinery and buying the copper carbonate in quantity they are able to sell treated wheat at only fifteen cents per hundred pounds above the cost of untreated seed.

The Arizona Agricultural Experiment Station has been particularly

interested in the development and adoption of better, cheaper, and less laborious methods of plant disease control and endorse copper carbonate for the control of stinking smut of wheat whether applied in a home-made machine or by power-driven machines designed for that especial purpose.

Smut Loss Is Two Fold

Recent data from the Illinois Experiment Station show that during the present season (1927) one bushel in every four offered for sale was infested with smut to a noticeable degree, and that one bushel in every five sold received a smut dockage averaging eight cents. The total money loss for the state is estimated at \$502,000. In addition, field data indicates a direct crop reduction from smut of about four per cent, and this loss at the current September wheat price, amounts to \$1,800,000. Thus stinking smut cost the farmers of Illinois during 1927 about \$2,300,000.

The loss to Arizona farmers was as great per acre since the government estimate of loss from stinking smut in Arizona in 1926 was five per cent reduction in yield.

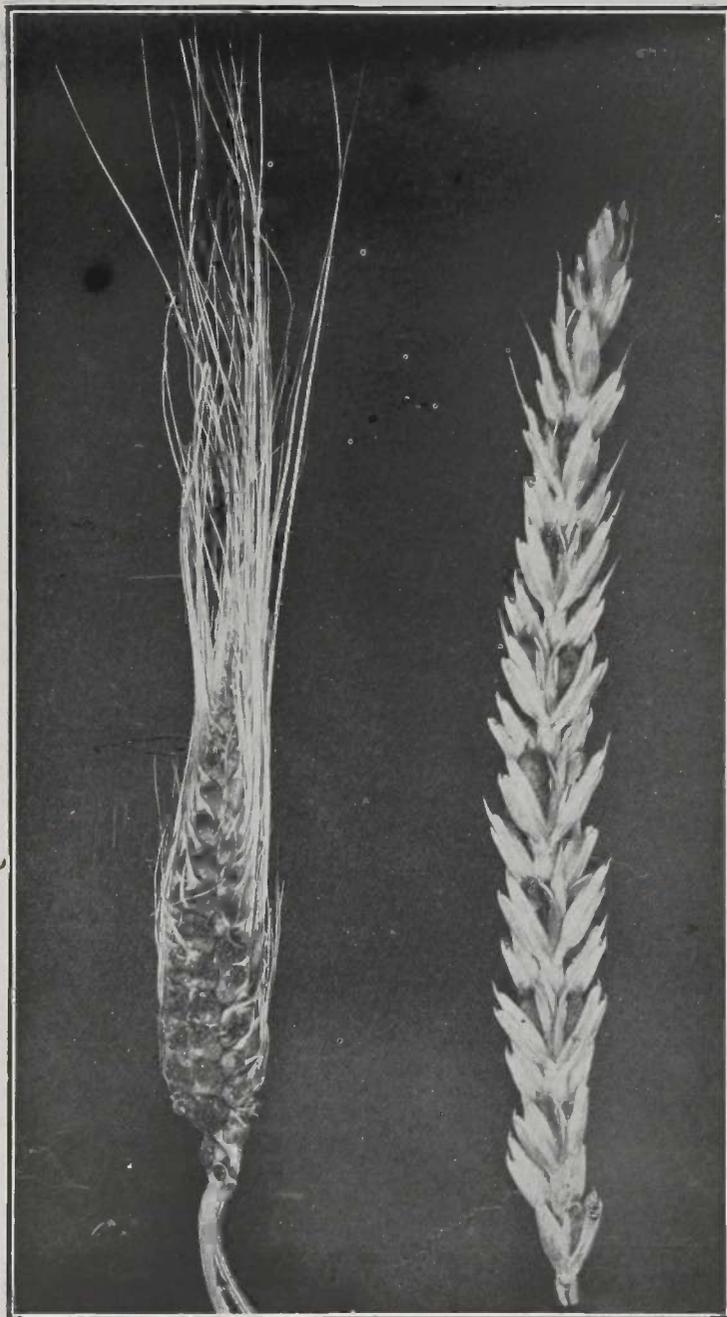
Dust Treatment Now Standard

In practically all states the copper carbonate dust treatment is the one which has been adopted as the standard, and it has been very successful.

Wheat growers have always taken considerable loss from bunt or stinking smut because it was not convenient to carry out preventative measures. The old soaking methods with bluestone and formaldehyde did about as much damage to wheat as the smut, they gave good control but were found to destroy a percentage of the seed when used in sufficient strength to kill the smut spores. Moreover, it was necessary to use the wet methods only a short time before planting, which often compelled the wheat growers to work late at night preparing seed for use the next day, when the damp and swollen wheat would not flow satisfactorily through the drill.

Why work nights with the old, disagreeable, inconvenient, wet method? Get rid of this most irksome task by using the dusting method with copper carbonate, it saves time and labor; the seed can be treated any time before

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Head of wheat infected with smut. Left, loose smut; and right, covered, or Stinking Smut.

STRAWBERRY CULTURE PROBLEMS

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have enough space left to produce its maximum.

Immediately following the renewal it is advised that a good mulch of straw manure be applied to the bed. This will serve to furnish a goodly amount of plant food and will protect the plants from frost during the cooler months of winter. Being thus protected one can expect an earlier crop and a heavier set. The only drawback in this practice is the problem of weeds although an occasional hoeing will suffice to keep down the larger ones.

The problem of soil in the southern valleys of Arizona is not a small one indeed and though strawberries are partial to a light sandy loam soil, yet they may be grown on any rich soil fairly high in humus. The heavier types of soil such as clays and adobes are much later in production and are not usually recommended as the best type for commercial production. These soils may be put in good shape and will produce a good crop if the humus content is kept high by liberal use of manures and cover crops.

Soils containing alkali should never be used as the strawberry plant is extremely sensitive, and where alkali is present the leaves turn yellow and the plant slowly dies. In permanent beds where alkali is gradually accumulating it is suggested that several heavy floodings be given the beds during the dormant season. This practice will keep the alkali leached out and prevent serious injury to the plants.

Much has been said about varieties and many varieties are offered on the market. Only two varieties have shown sufficient merit on the Experiment Station to warrant recommendation. For commercial planting the Klondyke is outstanding as a producer and shipper under Arizona conditions. For the home garden the Arizona Everbearing is an excellent berry. The main drawback to this variety from a commercial standpoint is that the crop is produced throughout the season and the set is never sufficiently heavy to be considered commercially satisfactory. In the home garden, however, it is to be heartily recommended as a continuous supply of berries is always on hand.

For general instructions as to the best methods of establishing a strawberry plantation the reader is advised to obtain a copy of U. S. Department

of Agriculture Farmers' Bulletin number 127. A supply of these is on hand at the County Agricultural Agent's office and in the office of the University of Arizona Experiment Station, at Tucson.

WHEAT SMUT CONTROL

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worms than the poultrymen realize. planting; it is not necessary to disinfect seed containers; does away with liability of freezing, heating or sprouting, no setting of drill necessary for swollen grain; it saves seed; it costs less; it does not injure seed, and it prevents the smut.

The New Treatment

The dusting treatment can be made at any time and the wheat seed returned to the bin to wait the planting date. The dust retains its effectiveness on the seed even when applied six months before the seed is sown. It is reported mice and rats do not attack sacks of copper dusted grain. The method not only prevents stinking smut, but has a tendency to stimulate it and increase the yield. The treated seed germinates so much better, that approximately 25 per cent less seed is needed to secure a good stand, and there is more vigorous and early germination which also insures a superior crop.

Directions for Treating

The method of mixing and amount of material used is very important, and may mean the difference between an effective, safe, protective covering to the seed, and a doubtful covering where less than three ounces of material are used.

Copper carbonate is used two or three ounces to a bushel of wheat seed, depending upon local conditions and the method of mixing. It may be possible to thoroughly coat a bushel of wheat seed with two ounces of mate-

rial if the most careful treatment is given in a specially made wheat dusting machine. But, with a lot of home-made dusters, cement mixers, and other open methods, such as the hoe and wagon box, a more perfect coating can be obtained with three ounces. The results over the last few years have shown that where the regular dusting machine was used with two ounces. The results over the last few years have shown that where the dusting machine was used with two ounces, a perfect control has been obtained.

A heaping tablespoonful of copper carbonate is nearly one ounce, therefore, two heaping tablespoonsful and a third one levelled off to the rim of the spoon, will be just about two ounces.

Caution Against Inhaling Dust

It is advisable to avoid inhaling the dust. If considerable is inhaled, it is irritating and unpleasant, producing nausea and faintness. Therefore, use all possible care to avoid breathing the dust, by using a respirator, or by covering the nose and mouth with a damp cloth.

Thief: "Hands up."

Victim: "Impossible, my suspenders have broken."

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