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Treat Seed Grain

Control of Seed-Borne and Soil-Borne Diseases Improves Yields by Insuring Germination and Seedling Vigor.



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Treat Seed Grain

By W. F. Buchholtz*

Treating seed grain is a beneficial farm practice in South Dakota. In 1943 it improved barley yields at the South Dakota Agricultural Experiment Station as much as 25 per cent, regardless of smut control. This increase resulted from better germination and greater vigor of seedlings from treated seed. It is a very cheap insurance of uniform stands and against losses from the covered smuts. Such applies to barley, wheat, oats, flax, corn and grain sorghum.

After seed grain has been tested for germination and thoroughly cleaned, it may be treated with the following materials and procedures for the diseases listed below.

Crop	Diseases (in order of importance in S. Dak.)	Seed Treatment (Numbers refer to descriptions next page)
Barley	Seedling blight, covered smut	1
Spring wheat	Seedling blight, stinking smut (bunt)	1, 3
Winter wheat	Stinking smut (bunt)	1, 3
Oats	Covered smut, seedling blight	1
Flax	Seed rot and seedling blight, seed-borne pasmo and rust	1
Corn	Seed rot and seedling blight, by seed-borne molds and in cold soil by soil-borne molds	2
Grain sorghum	Covered smut and seed rot and seedling blight	1, 2†, 3

*At the request of the South Dakota Agricultural Extension Service, Dr. Buchholtz, plant pathologist of the South Dakota Agricultural Experiment Station, has prepared this revision of U. S. Department of Agriculture Miscellaneous Publication No. 219, "Treat Seed Grain," to more nearly suit South Dakota conditions.

†Ethyl mercury phosphate, 1% (New Improved Semesan Jr.), is known to be effective for sorghum.

No. 1

ETHYL MERCURY PHOSPHATE DUST TREATMENT

(New Improved Ceresan)

(Applicable to barley, hard red and durum spring wheat, winter wheat, oats and grain sorghum for the control of all diseases of these grains listed on p.1)

Use ethyl mercury phosphate dust manufactured especially for seed treatment. Apply at the rate of one-half ounce per bushel in a mixing machine, or as recommended in directions on the container. It is well for the treated grain to be kept uncovered in a bin, pile, wagon box, or sacks for at least 24 hours before seeding. Treated grain may then be seeded at once or stored. Ordinarily, grain ought not be stored more than four weeks before seeding time because of uncertainty as to the effect on seed germination after this period. This treatment has the advantage of being applicable to barley, wheat, oats and sorghum, is easily applied, does not cake in the seed drill, and is noncorrosive to drill parts. An excess dosage of this material may injure germination.

No. 2

MERCURY DUST TREATMENTS FOR CORN

(New Improved Semesan Jr., Merko, and Barbak C or D)

Use mercury dusts manufactured especially for treating seed corn. Apply to dry seed at the rate of two ounces per bushel in a mixing machine. Follow directions printed on the containers.

These treatments in some instances improve stands and yields of field and sweet corn in South Dakota. They are likely to give greatest improvement when it is necessary to use low-germinating seed or when corn is planted early or in cold, wet soil.

No. 3

COPPER CARBONATE DUST TREATMENT

(Applicable to hard red and durum spring wheat, winter wheat, for stinking smut control, and especially to sorghums for the control of covered kernel smut and seed rot and seedling blight. Not applicable to oats and barley.)

Use a copper carbonate dust (18—20 per cent of copper), manufactured especially for seed treatment. Apply at the rate of three ounces per bushel of well-cleaned seed. Mix the seed and the dust in a tight mixing machine until every kernel is thoroughly covered with the dust. Seed thus treated may be stored indefinitely until sown, without injury to germination. With this chemical, care must be used to avoid damage to the grain drill. Sometimes there is tendency for the treated seed to cake in the drill, when standing overnight or longer in damp or wet weather. In such cases it is advisable to rock the drill wheels back and forth before starting in order to avoid breaking or bending the working parts. All working parts of the drill should be kept well oiled. The treated grain should be well cleaned out of the drill when seeding is completed to avoid corrosion of the parts.

While three ounces per bushel is the correct rate, a slight excess of copper carbonate does no harm and a slight under dosage is nearly as effective as the full amount.

Treating Equipment

Equipment for applying dusts to seed grain ranges all the way from home-made hand mixers operating at the rate of 25 to 30 bushels an hour to commercial, automatic, power-driven, and gravity-type mixers handling 200 to 500 bushels per hour.

On small farms a rotating mixing drum, box, churn or barrel is satisfactory for applying copper carbonate. For applying mercury dusts, these or one of the gravity-type treaters may be used. On large farms, one of the larger capacity commercial or home-made treaters may be better.

Large-scale seed treatment by local elevators, seed houses, central treating plants, or portable treating outfits is practical and valuable, and is increasing in popularity. By means of it, farmers can be relieved of the inconvenience of treating, and a more uniform and satisfactory job of treating can be done. The task is much easier than it was several years ago. New materials, methods and equipment make it possible to treat seed rapidly and effectively at a low cost per bushel.

Caution

Copper carbonate and the mercury dusts are poisonous.

Avoid inhaling these compounds.

Treat seed in a well-ventilated place or outdoors.

Consider wearing a good dust mask over the nose and mouth.

Avoid accumulation of mercury dusts on moist skin, as some are highly irritating and may even burn or blister.

Wash frequently and keep the skin dry.

Seed treated with any of the copper or mercury dusts should not be fed to farm animals.

For further information about seed treatment, consult your county extension agent

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