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# Treatments for Seed Grain

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## TREATMENTS FOR SEED GRAIN

Copper carbonate is the best fungicide for preventing stinking smut of wheat and the smuts of hulless oats.

Formaldehyde is the best fungicide for preventing smuts of hulled oats and covered smut of barley.

Formaldehyde should not be used for treating wheat. It prevents the covered smut, but it is likely to injure the seed severely, especially if the seed is dried after treatment, or sown in dry soil.

Copper carbonate does not prevent the smuts of hulled oats or the covered smut of barley. It reduces the amount, but is not so effective as formaldehyde. Formaldehyde does not injure the seed of oats and barley, and is, therefore, recommended.

Patent fungicides are not better than copper carbonate and formaldehyde. Some of these are being advertised widely at this time. While these are known to be effective, they are, nevertheless, usually very poisonous and fairly expensive.

### How to Use Copper Carbonate Dust

Get a good grade of fine, fluffy copper carbonate, such as Corona "Copper Carb" or some similar brand. In Minnesota, this light material is as effective as the more expensive heavier material. Any dust

with a 20 per cent copper equivalent, or more, is satisfactory. Use two ounces of dust per bushel. If the seed is very badly smutted, use three ounces. For small quantities of seed mix the dust with the seed in an old barrel churn or a similar home-made device. Rotate the churn seven or eight times. For treating large quantities of seed, it probably would pay to buy a smut machine. Details regarding machines may be obtained from local machinery dealers or from the Plant Disease Department, University Farm, St. Paul. Treat the seed any time before sowing.

Marquis wheat seed need not be treated more than once every other year, because Marquis is somewhat resistant to stinking smut.

### **How to Use Formaldehyde**

There are three general methods: the dip, the sprinkle and the spray methods. For the first two, use one pint of formaldehyde to 50 gallons of water. Either dip the seed into this solution, or sprinkle the solution on the seed with a sprinkling can, while the seed is turned with a shovel. In either case, one gallon of the solution will be enough for about 50 bushels of seed. The seed should be sown as soon as possible after treatment, preferably while still moist.

The advantage of the spray method is that it does not wet the seed. Mix one pint of formaldehyde with about a gallon of water and spray this on the seed with a compressed air sprayer—not a sprinkler. Use exactly one pint of formaldehyde to fifty bushels of seed. It can even be used without water. The exact amount of water does not make any difference. After treatment cover the seed with sacking or canvas for five hours. Then sow immediately, or spread out to dry.

For further details see Minnesota Special Bulletin 16, or write to the Plant Disease Department, University Farm, St. Paul.

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