

AGRICULTURAL EXPERIMENT STATION
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MATERIALS AND SPRAYS AVAILABLE FOR ONION MILDEW SPRAYING

by

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A serious infection of onion mildew is developing on the seed onions in the Willamette Valley. Experiments here and elsewhere indicate that application of proper sprays will give a degree of control of mildew on seed onions sufficient to make spraying advisable. The seed yield increases out of proportion to the apparent protection given by the sprays. The benefits of spraying are not so evident on onions being grown for table use.

There are only two types of sprays which can be recommended for Oregon conditions. These are sprays containing mixtures of Malachite Green and Red Copper Oxide and sprays containing mixtures of Red Copper Oxide and oils of the S. E. C. type. The latter tend to burn and cannot be used repeatedly but they can be used at least once in the early season.

Unfortunately, onion mildew cannot be controlled by ordinary Bordeaux sprays, no matter how well they are applied. Some special spray as outlined below is necessary in order to obtain control.

The spray nozzles should be adjusted to cover thoroughly the foliage during the first spray applications. The later applications should be adjusted to cover the pipes rather than the foliage.

SPRAY PROGRAM RECOMMENDED

The grower may use four applications of the killing-protective Malachite Green spray at 10-day intervals or use for the first application a Red Copper Oxide Oil spray and follow this oil spray with the Malachite Green combination as later sprays.

FORMULA FOR MALACHITE GREEN SPRAY ON 100
GALLON BASIS

4 ounces of Malachite Green crystals
28 ounces of Red Copper Oxide
1 pound Wetalene type spreader
100 gallons of water

HOW TO MAKE THE SPRAY UP IN STOCK SOLUTIONS:

1. Make up a stock solution of Malachite Green by adding one ounce of the dye to every gallon of water in the stock solution barrel. Stir vigorously while pouring the dye into the water. When well dissolved, use in the spray tank at the rate of one gallon of stock solution to every 25 gallons of spray.

2. Make up stock solutions of Wetalene type spreader by adding 4 ounces of it to every gallon of water in the stock solution barrel. Stir vigorously while pouring this material into the water. When well dissolved, add to the spray tank at the rate of one gallon of stock solution to every 25 gallons of spray.

3. The Red Copper Oxide is not made into a separate stock solution but is weighed up as needed and added last.

Mix into spray tank nearly filled with water in the following order: First, MALACHITE GREEN; second, WETALENE; third, RED COPPER OXIDE.

FORMULAE WITH STOCK SOLUTIONS

Water	<u>25 gals.</u>	<u>50 gals.</u>	<u>100 gals.</u>
Malachite Green stock solution	1 gal.	2 gals.	4 gals.
Wetalene stock solution	1 gal.	2 gals.	4 gals.
Red Copper Oxide	7 ounces	14 ounces	28 ounces

POSSIBLE SUBSTITUTIONS: The Wetalene type wetting agent can be efficiently replaced with the resin caustic spreader devised by Mr. Godfrey Hoerner for spraying hops. This spreader is described in Oregon Experiment Station Circular of Information No. 235. Use one quart of the resin spreader to 100 gallons of the spray instead of the Wetalene type wetting agent.

FORMULA FOR COPPER OXIDE-OIL SPRAY
ON 100 GALLON BASIS

Red Copper Oxide - $1\frac{1}{2}$ pounds
25% Emulsified Oil S. E. C., called B 1956
Spreader - 1 pint to 100 gallons

In making this up, add the oil first and get it thoroughly emulsified in the tank with the agitator running and then slowly add the Copper Oxide.

CAUTION: Do not substitute Yellow Copper Oxide for Red Copper Oxide in these formulae intended for onions.

SUMMARY OF RECOMMENDATIONS:

1. Bordeaux mixtures are useless for controlling onion mildew.
2. The two types of sprays recommended are (a) Red Copper Oxide and Malachite Green, and (b) Red Copper Oxide and S. E. C. oil (see formulas previously given). The latter should be used only in the first application.
3. First Application. Use either the Red Copper Oxide, Malachite Green combination, or the Red Copper Oxide-S. E. C. oil combination.
Time to Apply. Make the first application of spray preferably before any mildew appears, but certainly at the first sign of any mildew on the seed onions.
4. Later Applications. Use only the Red Copper Oxide - Malachite Green spray for all applications after the first.
Time to Apply. Two or three more applications should be made after the first spray. These should follow at about 10-day intervals.
5. The Malachite Green - Red Copper Oxide spray may be used for all applications and should be used for all the later applications.
6. The resin spreader recommended for hops may be used very efficiently as the spreader in the Malachite Green spray.