

AGRICULTURAL EXPERIMENT STATION  
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VEGETABLE SEED TREATMENTS RECOMMENDED FOR OREGON FOR 1944\*

By

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The treatments suggested in the accompanying table are based on the participation of the Oregon Experiment Station and the United States Department of Agriculture in the National Cooperative Seed Treatment program, on a number of field tests in several sections of Oregon, and on analysis of the national tests recorded for other states. In some cases, the recommendations have been evaluated by specific greenhouse tests on certain plant disease germs, commonly found in Oregon soils.

Points to Consider Before Treating Seeds

1. If the seeds you buy have already been treated by the seedsman do not treat them again.
2. Do not conclude from reading enthusiastic comments on the value of various seed protectants that their use will overcome all soil hazards. Locate beds or plantings in soil that has a favorable crop rotation history making it reasonably free from dangerous germs. The beneficial effects of treating are generally most apparent in cold, wet soils. Give the seed the best chance the season permits.
3. Do not use the chemicals in excess. If the amounts of seeds and chemicals required are small and difficult to measure, estimate them, treat the seeds and then shake them gently on a wire screen to get rid of the excess chemical.  
  
The number of level teaspoonfuls of each chemical to equal one ounce by weight is as follows for each chemical: Arasan averages 12 teaspoonfuls per ounce; calomel, 5 per ounce; New Improved Ceresan, 7 per ounce; Semesan,  $6\frac{1}{2}$  per ounce; Semesan, Jr.,  $8\frac{1}{2}$  per ounce; Spergon, 11 per ounce; zinc oxide (Vasco 4), 12 per ounce; yellow cuprous oxide (Yellow Cuprocide)  $4\frac{1}{2}$  per ounce.
4. Treat the seeds just before planting since some seeds are injured if the chemicals remain on them too long before they are planted.

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5. The seeds should be evenly covered with the chemical. Small amounts of seeds can be shaken with the chemical in fruit jars. Larger amounts should be shaken in a cask or small barrel mounted on a rod. For a good general discussion of seed treating, see U.S.D.A. Farmers' Bulletin No. 1862 which may be obtained from your county agent.

NOTE: Practically all seed disinfectants are poisonous and care should always be used to protect man and other animals. Fumes and "dust" given off by Ceresan are dangerous to breathe. However, masks are not necessary for treating seed under average farm conditions.

### Special Cases and Considerations

Beets. New Improved Ceresan, the first choice, is a comparatively new recommendation which is advised for early-season wet-soil plantings because tests under very adverse conditions on the Oregon Coast have shown this treatment to be outstanding. Growers who have had trouble getting good stands of beets should try this treatment. For average locations and planting conditions, the yellow cuprous oxide treatment is good. Do not use Spergon on beets.

Beans, Lima. Under unfavorable planting conditions in the Eastern United States, Spergon materially increases stands and yields. Under planting conditions typical of Washington county, Oregon, Spergon showed no significant increase in stand or yield during the 1943 season. However, the treatment seems harmless and growers might try it as a precaution against unfavorable growing conditions. Do not use Semesan on lima beans.

Cabbage, Broccoli, etc. Do not use copper compounds on the seeds of cabbage or other crucifers. Do not use Spergon on cabbage because it induces certain abnormal growth which shows up later in the crop. Semesan is considered safe only when the crucifer seed are planted in moist, cold soils. Semesan can be used to stop post-emergence damping-off, but, if maggot injury is likely, use corrosive sublimate, 1 ounce to 15 gallons of water, for both maggots and damping-off. Note that the corrosive sublimate is first dissolved and then poured on the ground around the plants. It is not used on the seed.

Celery. No chemical treatment has been devised which is as satisfactory as planting old seed to avoid seed-borne disease.

Cucumber and Cantaloupe. It is better to rely on planting more seeds than are needed and on removing the weak plants rather than to depend on seed treatment. However, if it should be necessary to plant the seed in cold soil, yellow copper oxide is advised.

Eggplant. Eggplant seedlings are likely to develop serious damping off after they have emerged from the ground. It is advisable to water the very young seedlings with a suspension of yellow cuprous oxide, one ounce of the chemical to a gallon of water, when they first come up. This treatment should be made in addition to the seed treatment advised in the table.

Onions. No treatment has been devised which will replace the Formalin drip method for smut control in old onion growing locations. Where smut is not a serious problem, growers are advised to use Arasan to improve the stands.

Peas. Spergon seems to be the only chemical that is consistently harmless to all varieties and may help all varieties of peas, except Alaska, under average conditions. Moreover, Spergon is the only protectant which can be used if the peas are inoculated with nitrifying bacteria. If inoculation with bacteria is considered more important than obtaining a uniform stand, do not use any protectant. Pea varieties vary greatly in their tolerance of copper oxide, both red and yellow. Never use copper compounds on Alderman, Perfection, and most other late varieties. However, the variety Thomas Laxton has responded very well to copper oxide treatment in some counties.

Spinach. Zinc oxide is first choice for spinach since it has proved beneficial against severe damping-off. The new chemical, Fermate, is being recommended by some workers but it interferes seriously with drilling the seed for proper stand. Anyone who decides to try Fermate is advised to use at least an equal amount of graphite and to experiment with the setting of the drill before he plants any large area.

## VEGETABLE SEED TREATMENTS RECOMMENDED FOR 1944

Notations: Tsp. means level teaspoonful. "See special cases" refers to discussions.

Vegetable	First Choice	Second Choice	Third Choice
Bean (snap)	No treatment	No treatment	Spergon: 1 oz. to 50 lbs. of seed
Bean (Lima) (See special cases)	Spergon: 1 oz. to 30 lbs. of seed.	Spergon: 1 oz. to 50 lbs. of seed.	Arasan: 1 oz. to 50 lbs. of seed.
Beet (See special cases)	New Improved Ceresan: 1 oz. to 6 lbs. of seed. 1 tsp. to 1 lb. of seed.	Yellow Cuprocide: 1 oz. to 6 lbs. of seed. 1 tsp. to 20 oz. of seed	Arasan: 1 oz. to 25 lbs. of seed. 1 tsp. for 2 lbs. of seed.
Cabbage and Broccoli Kale and other crucifers	Zinc oxide (Vasco 4): 1 oz. to 3 lbs. of seed. 1 tsp. for 4 oz. of seed. Use graphite when planting with drill.	Arasan: 1 oz. to 20 lbs. of seed. 1 tsp. for 25 oz. of seed.	Semesan: 1 oz. to 15 lbs. of seed. 1 tsp. for 21 oz. of seed.
Carrot	No treatment	Yellow Cuprocide: 1 oz. to 8 lbs. of seed. 1 tsp. to 2 lbs. of seed.	Zinc oxide (Vasco 4): 1 oz. to 3 lbs. of seed. 1 tsp. for 4 oz. of seed.
Celery (See special cases)	Use old seed -- at least 2 years of age.		
Corn (sweet)	Semesan Jr.: 1 oz. for 37 lbs. of seed. $1\frac{1}{2}$ oz. per bushel. 1 tsp. to 4 lbs. of seed.		

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Vegetable	First Choice	Second Choice	Third Choice
Cucumber and Cantaloupe (See special cases)	No treatment	For cold soils use Yellow Cuprocide: 1 oz. for 30 lbs. of seed. 1/5 tsp. for 1 lb. of seed.	Arasan: 1 oz. to 50 lbs. of seed. 1 tsp. for 4 lbs. of seed.
Eggplant (See special cases)	Yellow Cuprocide: 1 tsp. to 1 lb. of seed.		
Lettuce	Yellow Cuprocide: 1 oz. to 4 lbs. seed. 1 tsp. to 1 lb. of seed.		
Onion (See special cases)	Formalin drip as for smut. (1 pt. to 16 gals. of water; pour in as seed is planted, 125 gals. per acre.)	Arasan: 1 oz. to 3 lbs. of seed. 1 tsp. for 4 ounces of seed.	
Peas (See special cases)	Spergon: 1 oz. to 40 lbs. of seed. 1.5 oz. per bushel. 1 tsp. to 4 lbs. of seed.	Semesan: 1 oz. to 24 lbs. 2.5 oz. per bushel. 1 tsp. for 4 lbs. of seed. (Use graphite, 1 oz. to bushel, to drill.)	Yellow Cuprocide: 1 oz. to 50 lbs., with graphite. (Use only on certain varieties--see notes; use graphite with seed to drill.)

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Vegetable	First Choice	Second Choice	Third Choice
Pepper	Yellow Cuprocide: 1 oz. to 6 lbs. 1 tsp. per lb. of seed.	Arasan: 1/2 tsp. per lb. of seed	Semesan: 1/2 tsp. to 1 lb. of seed.
Spinach	Zinc oxide (Vasco 4): 1 oz. to 3 lbs. seed.  Use 1/2 oz. graphite for every oz. zinc oxide, to drill.	Yellow Cuprocide: 1 oz. to 5 lbs. seed. 1 tsp. per lb. of seed.  Add graphite to mixture when drilling.	Arasan: 1 oz. to 12 lbs. seed.  1 tsp. to 18 oz. of seed.
Tomato	Semesan: 1 oz. to 30 lbs. seed. 1/4 tsp. per lb. of seed.	Yellow Cuprocide: 1 oz. to 7 lbs. seed. 1 tsp. per lb. of seed.	