

# Chemical Control of INSECTS and DISEASES on COMMERCIAL VEGETABLES

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## SPECIAL WARNINGS:

1. You must consider pesticide treatments on past crops and future rotations, for the following reasons: The insecticide suggestions in Extension Bulletin 312, 1965, "Chemical Control of Insects and Diseases on Commercial Vegetables," are arranged according to specific vegetable crops, that is: asparagus, snap beans, red beets, etc. While an insecticide can be used safely ON ONE CROP, it may be PROHIBITED ON ANOTHER. For example, aldrin is presently approved for "in-the-soil" (placed in the soil) application for control of maggots damaging to the edible parts of radishes, rutabagas and turnips. But it cannot be used "in-the-soil" where potatoes, carrots and sugar beets are grown. Consequently, pota-

toes, carrots and sugar beets should not be grown in soils treated with aldrin or dieldrin or other similar chemicals for 3 to 5 years.

Check the "in-soil-type" insecticides given for potatoes and carrots (in this supplement and EB-312, 1965) and for sugar beets (in Extension Bulletin 499). If a specific chemical is not listed for use on these crops, (any kind of use), THEN DO NOT USE THAT CHEMICAL IF POTATOES, CARROTS, OR SUGAR BEETS ARE TO BE GROWN IN THAT SAME SOIL FOR THE NEXT 3 to 5 years.

2. Pesticide drift continues to be one of the most important sources of vegetable, forage, and livestock contamination with chemicals. Consequently, the Section on pesticide drift

should be studied on page 2 of EB-312, 1965 edition. Furthermore, all warnings in the schedules should be read and followed carefully.

3. Applying treatments at the precise time (most favorable time) to get the best results from pesticides is becoming increasingly important. This is primarily because the use of long-lasting chemicals is being restricted more and more. Proper timing of control chemicals will help bridge any weakness that may exist in them.

4. Proper application of pesticides is needed for about the same reason as given in item 3 for "precise timing." That is, to improve control results for all pesticides and to get optimum performance from weaker materials.

## NEW APPROVED INSECTICIDES AND FUNGICIDES

Except where indicated, the following insecticides (*insectum*, insect, plus *cide*—substances used to kill insects) and fungicides (*fungus*, plus *cide*—substances used to kill

diseases) suggested in this 1966 Supplement are in addition to those given in EB-312, 1965 edition.

### Asparagus

*Rust*—Dithane M-45, 2½ pounds WP or D may be substituted for zineb. Apply to fern growth only.

### Beans and Lima Beans

*Seed treatment*—Dieldrin, Thiram or captan—do not use treated beans for your food or feed for livestock.

*Planting treatment*—Poor results can result from applying Di-Syston and phosphate in liquid fertilizers—use only dry mixtures.

*Foliage treatment*—CARBOPHENTHION (Trithion)—do not apply it more than twice per season. Allow 21 days between treating and feeding forage to livestock. CARBOPHENTHION can be used on lima beans. MALATHION can be used on lima beans. (See EB-312, 1965 for dosage rates.)

### Cabbage, Cauliflower, Broccoli, Brussels Sprouts

*Foliage treatment*—DIAZINON—do not apply it to brussels sprouts. METASYSTOX—apply no more than three

treatments to brussels sprouts, cabbage and cauliflower; only one treatment to broccoli.

### Carrots

*Soil Treatment*—Parathion and Diazinon—for carrot rust fly, use either as suggested for wireworms.

### Celery and Parsnips

*Soil treatment*—ALDRIN—Cancel its use on parsnips. DIELDRIN—Cancel its use on celery. CHLORDANE—do not drift it onto forage crops.

## Corn (Sweet)

*Soil treatment*—(for wireworms, etc.)—CHLORDANE—4 pounds G, EC, or WP for light sandy soils; 5 pounds G, EC, or WP for mineral soils; 8 pounds G, EC or WP for muck soils. (See EB-312, 1965 edition, for instructions on how to apply this use of chlordane.) ALDRIN, HEPTACHLOR—do not plant potatoes, carrots, or sugar beets for the next 3 to 5 years where these chemicals have been used. DIELDRIN—Cancel its use on sweet corn, except for the seed treatment.

## Cucumbers, Squash, Melons, Pumpkins

*Soil surface and foliage treatments*—Dieldrin—½ pound per acre application of actual dieldrin to soil surface and foliage does not create as critical a chance of residue contamination of potatoes, carrots, and sugar beets, as does an "IN-SOIL" treatment of 3 pounds actual dieldrin per acre. However, in the case of sugar beets, dieldrin should not be used in any type application on cucumber fields intended for sugar beets in 1966 and thereafter. CARBARYL (SEVIN) or PARATHION—use either instead of dieldrin on cucumbers for cutworms (see Foliage Treatments, EB-312, 1965 edition), if sugar beets occur in the rotation. DIELDRIN—on winter squash, do not apply it after bloom. This is to avoid residues on the crop at harvest. Also see use of dieldrin above when sugar beets occur in rotation.

*Foliage treatment*—(Angular leaf spot, anthracnose, and alternaria leaf spot). BROWN COPPER OXIDE—1½ to 2½ pounds actual WP plus maneb 1½ actual pounds WP per acre. 0 days before harvest. COPPER (fixed)—may be increased to 3 actual pounds per acre in dust combination with maneb. COPPER OLEATE and AMMONIATED COPPER may be substituted for brown copper oxide in combination with maneb (See EB-312, 1965 edition).

COPPER COMPOUNDS—use them at the higher rate for angular leaf spot on pickling cucumbers (see EB-312, 1965 edition, for dosage rates).

*Powdery mildew*—Folpet (Phalton) or Karathane—either material may be

\*If white grubs are heavy, use Chlordane instead of Dieldrin for this insect.

applied alone or in combination with copper fungicides or maneb or in combinations with both (see EB-312, 1965 edition, for dosage rates for folpet, karathane, copper fungicides and maneb, and for other instructions).

## Onions

*Furrow treatment* (onion maggot)—Bay-25141—1 pound actual G per acre. Apply at time of planting. Do not use on bunch or green onions. (See EB-312, 1965 edition, for instructions on how to apply this use of Bay-25141.)

*Foliage treatment*—(Downy mildew, purple blotch, Botrytis leaf blight, and neck rot)—Dithane M-45 may be substituted for maneb or zineb. 2½ pounds WP or D (1½ pounds WP or D when used with fixed copper compounds). Do not use closer to harvest than 7 days. Nor apply to exposed bulbs.

## Peas

*Foliage treatment*—Diazinon—allow 4 days between application and harvest for ensilage or hay.

## Potatoes

*Soil treatment*—(Wireworms and white grubs\*): DIAZINON—increase the dosage to 3 pounds actual per acre for light sandy soils and 4 pounds actual per acre for heavy mineral soils. DDT—do not feed cull potatoes treated with DDT to dairy animals or livestock being finished for slaughter.

*Soil treatment*—PCNB—Cancel its use on potatoes. Phorate and Dison system systemic treatments have some value for scab control.

*Furrow and band treatment*—Phorate (Thimet)—Reduce amount of actual insecticide from 3 to 2 pounds for light or sandy soils. (See EB-312 for instructions on how to use this treatment).

*Potato washing treatment*—(for control of storage rots, bacterial soft rot, Fusarium dry rot)—Chlorine—wash surface of potatoes in water containing 300 parts chlorine per million parts of water. Apply chlorine (Sodium hypochlorite solution) to water

flowing into washer by means of a mechanical proportioner. (See manufacturers' recommendations for correct chlorine concentration of stock solution and adjustment of chlorination equipment.)

Dry all washed potatoes before bagging. By passing hot air over the end of the sorting table. Usually the sponge-drying technique is inadequate without the addition of heat.

## Potatoes (Sweet)

*Soil treatment*—Dieldrin—do not plant sugar beets in soils treated with the insecticide for 3 to 5 years.

## Radishes, Rutabaggs, and Turnips

DIELDRIN—Cancel its use on turnips.

## Spinach

*Crown treatment*—DIELDRIN—Cancel its use on spinach. CARBARYL (Sevin)—the "days before harvest" on spinach are 14. PARATHION—change the "days before harvest" from 7 days to 14 days for spinach.

## Tomatoes, Eggplant, Peppers

*Foliage treatments*—Demeton—it now can be used on eggplant. The days before harvest are 7; do not apply more than 2 times per season. (See EB-312, 1965 edition, for dosage rates and restrictions.)

*Foliage treatment*—(Early blight, late blight, septoria blight, anthracnose, Phomopsis blight, bacterial spot)—Dithane M-45, 1½ pounds may be substituted for 1½ pounds of maneb, zineb or ziram (on tomatoes and peppers only). Do not use M-45 after fruit is formed.

## MICHIGAN POISON CONTROL CENTERS

*Lansing*—Change telephone number of the St. Lawrence Hospital Poison Control Center to 372-3610.

*Grand Rapids*—Change address of St. Mary's Hospital Poison Control Center to 201 Lafayette.