

## VEGETARIAN

No. 8

January 2, 1951

## VEGETABLE GARDEN INSECT AND DISEASE CONTROL GUIDE

It is recognized that insect and disease problems in the home garden may be reduced by many methods varying with the year, location, crops grown, materials used, timing and thoroughness of application, equipment available, and many other related factors. However, this newsletter is devoted to a presentation of some of the more important basic methods that may be used state-wide with a minimum of effort, equipment and materials on the part of the home gardener.

Dr. A. H. Tissot, Entomologist, and Dr. W. B. Tisdale, Plant Pathologist, both of the Florida Agricultural Experiment Station, Gainesville, cooperated to the fullest extent in preparing the material on their respective fields.

Insecticide-fungicide combinations are on the market which for general garden use are quite satisfactory in most instances. Attention here is given to separate materials so that the gardener may better understand and use the fundamentals applicable under most home garden conditions. Commercial controls are of necessity different from those presented.

Insects and Nematodes

Root knot infested soil should be avoided where possible. If nematodes prevent the use of a garden spot, several methods of control may be attempted with varying degrees of success:

- (a) Plant only resistant crops such as Crotalaria spectabilis and velvet beans for one or more seasons.
- (b) Use clean cultivation for one or more seasons, allowing no weeds or crop on the land.
- (c) Where root knot prevents vegetable production, soil fumigation with such materials as DD and ethylene dibromide is suggested. If fumigation is once used, it may be necessary to fumigate regularly for succeeding crops. Fumigation permits planting the garden within two or three weeks and thus early use of the land. Follow manufacturer's recommendations closely.

Many other good insecticides are on the market; however, materials are shown below which control the insects indicated and are relatively safe for garden use. Dusting is probably more satisfactory than spraying in the home garden. Evening applications are generally preferable.

Chlordane 5% may be applied on the soil surface or as commercial bait for the control of ants, cutworms, grasshoppers and mole crickets, or may be directed on the insects as needed. Chlordane is sometimes included in general garden fertilizers and may offer some measure of control of these insects and wireworms.

DDT and chlordane should be applied strictly according to manufacturer's precautions and recommendations. DDT should not be used on young plants of cantaloupes, squash, cucumbers and watermelons. As a matter of safety, plant parts should not be fed to livestock, especially milk cows, unless a period of three weeks has elapsed between treatment with an insecticide and feeding. Rotenone is a good general insecticide where use on plant parts to be consumed is warranted. Dusting sulfur is generally required for red spider control.



	<u>5% DDT</u>	<u>5% Chlordane</u>	<u>1% Rotenone</u>
Aphids			x*
Armyworms	x	x	x
Budworms	x		
Cabbage worms	x		x
Colorado potato beetle	x		
Cucumber beetles		x	x
Earworms	x		
Flea beetles	x		x
Fruit-, horn-, pinworms	x		x
Flea hoppers	x		
Lesser corn stalk borer		x	
Leaf hoppers	x		x
Leaf rollers	x	x	x
Melon-, pickleworms	x		x
Mexican bean beetles			x
Paneras		x	
Pea pod weevils		x	
Pepper weevils	x		
Stink bugs		x	
Thrips	x*		

\* Nicotine sulfate is the preferred material for aphids and thrips, but should be applied when the air temperature is 70° F. or above.

### Diseases

Many chemical materials are available which give effective control of most vegetable diseases; however, as a general practice, application of many specific fungicides on a home garden scale is not warranted. Several measures of protection may be afforded through adherence to the following:

Sanitation: Prevalence of many diseases may be reduced by -

- (a) Rotating garden locations of the same or closely related crops from season to season.
- (b) Cleaning up refuse by removing plant or plant parts that are no longer usable and by turning the crop under as soon as the harvest period is ended.
- (c) Preparing the soil three to four weeks prior to planting to insure deterioration of the green vegetation.

Transplanting:

- (a) Transplants should be disease-free and the source of such plants chosen accordingly.
- (b) Home-grown transplants should be propagated in disease-free soil. Where experience has shown this to be unavailable, practical sterilization may be obtained by placing a two-inch deep layer of soil in a pan and baking it in the oven at 350°-400° F. for at least one hour.

Seed Treatment:

- (a) Many seed sources furnish seed chemically treated for preventing seed decay and certain other diseases. Treated seed are required to be labeled as such.
- (b) Spergon 48% as a seed treatment offers a measure of control of most seed borne diseases encountered in the home garden and may be used on all vegetables except beets. Spergon should be applied to small lots of seed according to manufacturer's directions. Thiram 50% and semesan 30% are among the other seed treatment materials effective on specific crops.



Damping-Off In Garden Row: Setting the base of the plant stem and the soil surface to a depth of one-half to one inch as follows generally controls damping-off in the garden row:

- (a) One ounce of 48% wetttable spergon to 3 gallons of water sprinkled on the soil surface.
- (b) Spergon 12% dusted on the soil surface and watered-in gives a measure of control.

Fungicides for Foliage Diseases:

- (a) The most effective disease control is obtained by using specific materials for specific diseases; however, as this is not generally practical for the home garden, zineb applied as a  $4\frac{1}{2}\%$ - $6\frac{1}{2}\%$  dust or 2 level tablespoonfuls of the wetttable powder to 1 gallon of water is possibly the most suitable material for general usage.
- (b) From the standpoint of effective disease control in the home garden, a protective schedule will be more suitable than waiting for the disease to develop and then starting the applications. The economics and manual efforts involved should be a consideration of the individual gardener. A satisfactory protective schedule necessitates fungicide applications at least once a week and reducing the interval between applications to 3 or 4 days if the foliage disease continues to develop.
- (c) Use of the materials as recommended ordinarily will not offer a hazard to the person consuming the vegetable particularly if the product is thoroughly washed before use in the home. However, if a safety period is desired, cease applications 10 days before harvest. This further emphasizes the importance of maintaining a protective schedule to have the crop free from disease at the time applications cease.

Disease Resistant Varieties: Several varieties of certain vegetables have a degree of resistance to one or more diseases. Some of these are shown below:

Snap Beans: Contender (bean mosaic and powdery mildew), Logan (bean mosaic, several rusts, powdery mildew and bacterial blight), Florida Belle (bean mosaic, several rusts, and powdery mildew), and Top Crop (bean mosaic).

Pole Beans: US #4 (certain rusts).

Cabbage: Resistant Detroit, Globe and Marion Market (yellows).

Cantaloupe: Smith's Perfect and Texas Resistant #1 (downy mildew), and Powdery Mildew Resistant Nos. 5 and 45.

Cucumber: Palmetto and Santee (downy mildew).

Eggplant: Florida Market and Florida Beauty (phomopsis or tip-over).

Pepper: World Beater (certain strains resistant to one form of leaf spotting).

Spinach: Virginia Savoy (mosaic).

Irish Potato: Kennebec (late blight).

Tomatoes: Manahill (wilt, early blight and leaf spot), Jefferson (wilt), Pan America (wilt), and Southland (wilt, alternaria).

Watermelon: Congo (anthracnose), Blacklee (wilt), and Black Kleckley (wilt, anthracnose).

MR. COUNTY AGENT:

We feel that the material presented here would be of use to agricultural workers associated with home gardens in your county. If you agree, but do not have facilities for duplicating, drop us a line and we'll supply you with the copies needed.

Sincerely,

F. S. JAMISON  
Vegetable Crop Specialist