MASSACHUSETTS
FLOWER GROWERS ASSOCIATION
BULLETIN 29 WILLIAM L. IVES – EDITOR MAY 1955

APHIDS AND THEIR CONTROL

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Aphids are a triple-threat to the flower grower. They rob the plants of food, transmit organisms which cause disease, and make the plants unsightly and worthless.

Aphids withdraw great quantities of photosynthetic products by feeding and cause several characteristic symptoms. Plants infested with aphids may be stunted and distorted with wrinkled, curled, and poorly developed foliage. The leaves may become pale, yellow, or even drop from the plant. Buds may fail to break with a resulting loss of blooms. If flowers do develop, they are usually small or misshapen. Once such damage occurs, it cannot be corrected in time for marketing the crop.

If only one or two virus-infected plants are present in the benches, the feeding of aphids may cause the disease to become widespread and abundant and the pathogen may become more virulent in a short time. Carnation mosaic, lily mosaic, and a number of other viruses carried by aphids have caused tremendous losses to flower growers.

The presence of aphids in itself is objectionable to most people. These insects excrete sugary wastes called honeydew, which forms a sticky, shiny film on the leaves. A black sooty mold frequently develops in the honeydew which gives the plant a black dirty appearance. The plants are unable to carry on photosynthesis effectively and are worth very little on the market as a result of the unsightly appearance.

Development of aphids.

Inside the greenhouse, aphids pass from generation to generation continuously. Mature females give birth to living young called nymphs. After feeding for 10 to 20 days, the nymphs develop into mature females. There are no males present, but the cycle goes on and on under favorable conditions. If the host plant is not entirely suitable, or if the aphids are overcrowded, some nymphs develop into winged females. Otherwise, the females are wingless.

Outside the greenhouse, the same type of development, without males, occurs during the warm season. In the fall, however, the last generation produces both females and males. After mating, the female lays eggs on perennials, shrubs, and trees, and thus survives the dormant period.

With the approach of the summer season, aphids will be developing out-of-doors. This means that there will be a continual source of infestation for various greenhouse crops. Winged aphids will be searching for new plant hosts. You must be on the lookout for the first signs of infestation to prevent injury and disease in your crops. During the spring, bulb aphids will be actively developing in colonies in the new shoots of tulip, iris, crocus, lilies, and gladiolus. By the middle of June, the winged females of the green peach aphid will begin migrating from stone fruits to garden and greenhouse plants. This is one of the most important carriers of mosaic disease organisms.

Common aphid pests.

The following is a list of some more common important aphids which often cause severe injury to florists' crops:

Common Name	Scientific Name	Hosts
green peach aphid	Myzus persicae	carnation, dahlia, iris, rose nasturtium
tulip leaf aphid	Amphorophora tulipaella	tulip, iris
melon aphid	Aphis gossypii	aster, mum, gourds, hydrangea, hollyhock morning glory
chrysanthemum aphid	Macrosiphum sanborni	chrysanthemum
rose aphid	Macrosiphum rosae	rose
pea aphid	Macrosiphum pisi	sweet pea
bean aphid	Aphis rumicis	nasturtium, hollyhock

Nearly every plant may be attacked by at least one species of aphid. Some, such as the chrysanthemum aphid, have only one host, while others have a great number of hosts. Certain aphids have alternate hosts. The best example is the green peach aphid. It spends the winter and two spring generations on stone fruits. Thus it is not found on garden plants except in the greenhouse until mid-June when it migrates from stone fruits to garden plants and weeds. Once in the greenhouse it can live on most of the many hosts without returning to the stone fruits.

Control measures.

Whether using a systemic, fumigant, aerosol, dust, or spray, only those aphids which come into contact with the insecticide will be killed. Thorough coverage cannot be emphasized strongly enough. Most aphids feed on the undersides of the leaves or in the leaf sheaths; it is difficult to obtain good control. Very few materials used against aphids have any residual effect. Thus aphids may migrate to the plants soon after treatment. It is

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necessary to observe the plants regularly and closely, and to repeat treatments when necessary.

It should be remembered that all insecticides are toxic. **PRECAUTIONS GIVEN ON THE LABEL OF THE INSECTICIDE SHOULD ALWAYS BE FOLLOWED TO THE LETTER. WEAR PROTECTIVE EQUIPMENT WHEN IT IS RECOMMENDED.**

The control measures presented here are largely based upon work done in New York State. They are the most effective treatments that are known. There are other materials which will also kill aphids but are not included here.

The following recommendations pertain to sprays. Dusts may also be used, but are not generally so effective.

Bulb Aphids

The tulip bulb aphid on iris, tulip, and lilies are most effectively controlled with lindane at the rate of 1 lb. of 25% wettable powder per 100 gallons applied before planting or when the new growth is forming.

Leaf Aphids

1. On the plants listed, malathion is the best treatment, Use 1 pound of 25% wettable powder in 100 gallons of water.

aster*	delphinium	nasturtium
azalea*	iris*	rose
begonia*	hollyhock	snapdragon*
carnation*	hydrangea	sweet pea
dahlia*	lilies*	tulip*

2. For the same plants listed in 1, lindane is effective when used at the rate of 1 pound of 25% wettable powder in 100 gallons.

3. Parathion at the rate of 1.5 pounds of 15% wettable powder in 100 gallons can be used on those plants marked with an asterisk (*) in 1. Parathion causes injury to hydrangea and, with repeated application, to roses.

4. TEPP may be used on carnation, dahlia, and hydrangea at the rate of ¼ pint of 40% emulsifiable solution in 100 gallons of water.

5. Sulfotepp will give good control of aphids on roses. It is especially good where resistant mites also have to be controlled. It should be used at the rate of 1 pound of aerosol grade for every 50,000 cubic feet of space.

6. Demeton (Systox) and schradan (OMPA) will give good control of aphids on chrysanthemums when used as a soil treatment. One pint of 40% demeton OR 2 pints of 90% schradan for each 1000 square feet of soil surface should be applied 10 days after benching and repeated at 3 month intervals. Excessive rates of application may cause serious injury to the plants. No soil should be treated with these materials if it is to be used for any edible crop.

NOTE: Many of the above named insecticides are available as aerosols. They are economical and convenient to use, but not always the most effective. If you use them, **BE SURE TO FOLLOW DIRECTIONS AND PRECAUTIONS ON THE LABEL.**