

## 1984 Cornell Geranium Guidelines

## Part 3

### INSECT AND MITE CONTROL

A number of pests may damage geraniums. Leaf yellowing, leaf drop, and disfigurement may result. Several effective pesticides are available for control. Details for their use may be found in the publication titled *Cornell Recommendations for Commercial Floriculture Crops, Part II, Pest Control—Diseases, Insects and Weeds*. As with all pesticides, read the labels carefully and follow the directions for use and precautions completely to prevent environmental contamination, hazard to applicators and plant damage. Removal or destruction of weed hosts in the growing area will also be helpful.

**Aphids:** Small winged or wingless soft-bodied insects which injure the foliage by sucking plant juices and excreting a sticky "honeydew" on which a sooty mold usually grows. The sooty fungus is unsightly and also inhibits the food-making capability of the plant. (R) aldiarb (Temik)\*†, (R) endosulfan (Thiodan), (R) dichlorvos (Vapona), malathion, (R) sulfotepp (Dithio).

**Cabbage Looper:** The damaging stage is the pale-green caterpillar which moves in a looping motion. Holes are chewed in the leaves. Unsightly fecal droppings fall on the leaf surface. (R) dichlorvos (Vapona), *Bacillus thuringiensis* (A number of proprietary formulations), carbaryl (Sevin).

**Fungus Gnats:** The white, nearly transparent, black-headed worm may be found in the upper layer of the growing medium. Damage is caused by root feeding. diazinon, (R) oxamyl (Vydate).

**Mealybugs:** The outer surface of this insect is covered with a white mealy secretion. Waxy spines are present. Feeds by sucking the plant juices. Usually found in the leaf axils or along the larger veins. Excretes "honeydew". (R) aldicarb (Temik)\*†, malathion, (R) oxamyl (Vydate), (R) sulfotepp (Dithio).

**Plume Moths:** Small caterpillars feed inside the developing stems and buds. Dark fecal droppings betray their presence. (R) dichlorvos, (Vapona), *Bacillus thuringiensis* (A number of proprietary formulations), trichlorfon (Dylox), carbaryl (Sevin).

**Spider Mites:** (Red spider): Minute green-to-orange, spider-like organism with a pair of dark spots on the back. Prefers feeding on the underside of the leaf but may be found on the upper surface, generally in the presence of fine webbing when the population is high. dienochlor (Pentac, Myten), hexakis (Vendex), (R) aldicarb (Temik)\*†, dicofol (Kelythane), naled (Dibrom).

**Whiteflies:** Small insects covered with white powder on both pairs of wings. Adults fly up when plants are disturbed. The immature form is scale-like and is found on the underside of the leaf where it sucks the plant juices and excretes "honeydew". Resmethrin (SBP-1382), (R) dichlorvos (Vapona), (R) parathion\* (R) aldicarb (Temik)\*†, (R) oxamyl (Vydate), (R) azinphos-methyl (Guthion), kinoprene (Enstar), (R) sulfotepp (Dithio).

†The use of aldicarb (Temik) is prohibited in Suffolk County.

(R) Restricted-use pesticide. May be used by certified applicator only.

\*This is a specific exemption granted for use in New York State. A supplemental label must be in the user's possession for this use to be legal.

### DISEASE CONTROL

Prevent diseases by maintaining clean growing conditions. Steam pasteurize at 180°F (82.5°C) for 30 minutes all clay pots, benches, soils, tools and other items used in production. Drench the potting area with sodium hypochlorite (Clorox) using 1 part Clorox, 9 parts water). Disinfect used plastic pots with a 10 minute soak in Clorox (1:9).

**Virus Problem.** Viruses have been a problem in geranium production for many years. Currently some commercial propagators meristem tip culture geraniums and index for viruses. Results indicate that there is a significant increase in vegetative vigor, flower production and rootability. Commercial propagators who are using these virus indexing procedures also use culture indexing procedures. Geraniums supplied from these sources can be expected to be freer of disease than geraniums from other sources, this, we recommend that you purchase virus-indexed plant material.

Virus diseases such as mosaic, crinkle and chlorotic leaf spot are common and usually show up during cold weather. Discard severely infested plants. Virus diseases can occur on both seedlings and vegetatively propagated plants. Tobacco ringspot and tomato ringspot viruses, which are the most common viruses found in geraniums, may be transmitted through seed.

*Botrytis* develops under conditions of high humidity and poor air circulation. It is especially prevalent on plant debris, so pick up all fallen leaves and petals. Flower removal helps reduce the incidence of *Botrytis*. Provide good air circulation by use of fans and tube ventilation systems. Thermodusting with Termil applied weekly helps to control *Botrytis*. The new fungicides Ornalin and Chipco 26019 are also very good against *Botrytis*.

*Pythium*. This fungus may produce a shiny black lesion at the stem base (black leg) and also commonly attacks roots. Apply Lesan 35% WP as soil drench at ½ lb per 100 gal of water every 3 weeks starting 10 days after potting. Apply Lesan immediately after mixing, as exposure to light causes rapid deterioration of the material. Alternative fungicides for *Pythium* control are Truban, Banrot and Subdue.

*Thielaviopsis* root rot. Attacks roots causing black discolored areas. Apply benomyl 50% WP (Benlate) as a soil drench 10 oz/gal water 10 days after potting as a preventative measure. *Thielaviopsis* is not a disease of major significance on geraniums except in the rooting of cuttings.

*Rhizoctonia* stem rot. Not a large problem with geraniums. The same benomyl drench used for *Thielaviopsis* will control *Rhizoctonia*.

Bacterial blight, caused by *Xanthomonas pelargonii*, causes tiny dark spots and v-shaped yellow areas on leaves, stem rot, wilt and dieback, as well as basal cutting rot. The bacteria are spread by splashing water and the touch of humans working with plants. There is no production control other than using disease-free propagation material. Plants suspected of having bacterial blight should be burned. Watch closely for tell-tale symptoms as greenhouse temperatures increase in May.

**Oedema** is a physiological problem. It appears as tiny, water-soaked blisters on the underside of leaves. The blisters burst and then turn brown and corky. It usually occurs on succulent leaves during dark, cloudy weather. Ivy leaf geraniums are particularly prone to oedema.

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Avoid overwatering and provide good ventilation and air circulation to reduce the likelihood of oedema. Heavy mite infestation produces somewhat similar symptoms.

**Geranium Rust** can easily become a very serious, wide-spread disease. This is one disease that growers will not want to introduce into the greenhouse. The rust parasite can attack leaves, petioles, stipules and stems. On badly infected leaves, the spots enlarge, coalesce, and then the entire leaf turns yellow, dries and drops prematurely. The earliest symptoms are small, yellow spots on the upper leaf surface or small whitish, blister-like spots, on the lower leaf surface. The reddish-brown spores which are produced in rings or pustules on the underside of leaves, are spread by splashed water and air currents.

If you do not have the problem, you should plan to exclude the disease from your greenhouse. All incoming plants should be examined carefully and the entire shipment rejected if the rust is found. If a single plant in a shipment is definitely infected, the chances are great that other plants have infections that are not yet visible.

If the disease is established in a greenhouse, diseased plants should be destroyed and the remainder spaced out and sprayed at weekly intervals with mancozeb, chlorothalonil, Polyram, zineb or maneb. These fungicide, with sufficient wetting agent to insure complete wetting, should be applied to both lower and upper leaf surfaces and to stems to protect against new infections.

Bayleton 25 WP is now labeled for greenhouse use: apply this excellent new material carefully, with attention to the details given on the label. Rates are different for summer and winter applications. The spray interval recommended is a minimum of 30 days, in sharp contrast to the non-systemic, protectant fungicides listed above.

On stock plants, Plantvax (75% WP) can be used at a rate of 16-24 oz/100 gal every two weeks. The systemic fungicidal action of Plantvax is of benefit in controlling outbreaks of geranium rust, but it may cause some burning of geranium leaves and thus is best used on stock plants only.



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## Annual Meeting of Comp. Group

The Board of Directors of NYSFI met on Wednesday, March 28th in Albany, NY. At this meeting, a letter from Mr. Donald Rae, Chairman/President of Laverack & Haines, Inc., Group Managers of Safety Group No. 453 of The State Insurance Fund, was read. It apprised policyholders that the net premium saving, after considering the advance premium discount and the 40% dividend, is approximately 48%.

Mr. Rae announced a manual rate revision effective on or after July 1, 1983, and will apply to the Group renewals effective April 1, 1984. The Classifications and new manual rates are as follows:

\*0005 Nurserymen = \$4.15; \*0035 Florist Cultivating & Gardening = \$1.95; \*0042 Landscape Gardening = \$4.62; \*8001 Florist Store - Retail = \$1.95; \*7380 Drivers & Helpers = \$3.34; \*8742 Salesmen = \$0.39; \*8810 Clerical = \$0.27; \*8809 Executive Officers, NOC = \$0.41.


For the past several years the Group has carried a \$75,000.00 excess loss limitation for the combined indemnity and medical cost of any one accident. The premium charge in our accounting



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