News About Roses, Plant Growth, Chemical Needs, and Elm Cultivars

LARRY W. MOORE
Oregon State University, Corvallis

Virus-infected rose plants or nursery stock can be heat-treated by Foundation Plant Materials Service (FPMS), according to Susan Nelson-Kluk of FPMS and G. Nyland of the University of California at Davis. FPMS is a unit at the Davis campus responsible for maintaining and distributing plant materials in clean stock programs. (The program is not part of a formal certification program with the state government.) Roses, grapes, and fruit and nut trees are the major plant materials handled.

The FPMS rose program includes a collection of plants that have been heat-treated and tested for virus disease on the indicators Burr multiflora and Shirofugan cherry. The collection has 283 hybrid tea varieties and the rootstocks Burr multiflora, Manetti, Dr. Huey, Odorata, and La Grifferae. Patented varieties are also included but are released only with written consent of the patent holder or licensee. The program is financed by the sale of material and through contributions from the rose industry.

For a fee, an individual or company may submit a rose variety to be heat-treated and virus-indexed. This takes about 2 years. Then the budwood of treated and tested material is returned to the customer and, if requested by the owner, the item is included in the repository. Inquiries about the program should be directed to: FPMS, 231 Hunt Hall, University of California, Davis 95616 (916/752-3590).

Nyland reports a growing concern among state regulatory agencies about virus-infected rose plants brought into their states. Rejection at destination of rose plants infected with rose mosaic has caused commercial rose nurserymen considerable concern and sometimes irritation. Nyland points out that virus-free stock is available and propagation of diseased stock is no longer justified. Furthermore, virus-free roses can be grown more economically than infected ones. Stand counts and the percentage of number one grade plants are increased in virus-free plants, and research data from workers at the California State Department of Agriculture have shown about a 13% increase in the number of blooms from virus-free greenhouse roses. Similarly, Nyland's group has shown a 15% or greater increase in blooms from landscape roses.

Rosarians are becoming more aware of the harmful effects of rose mosaic and are losing patience with nurseries that still produce plants carrying the virus. Rose fanciers are increasing pressure on the regulatory agencies of their states to prevent importation of roses with mosaic. Some major nurseries are switching over to clean stock, but the move is difficult and expensive. According to Nyland, most nurseries realize the time for clean stock has come.

Recently I received an informative **plant disease fact sheet** prepared by E. H. Moody and G. E. Smith of the Cooperative Extension Service of the University of Georgia. *Diagnosis of Growth Difficulties of Ornamental Plants* has a reprinting date of 1977, but the procedure for diagnosing difficulties remains relevant.

Seven headings describe plant problems: 1) shrubs stunted, poor leaf color, limbs gradually dying; 2) shrubs dying suddenly; 3) browning of margin or tips of leaves; 4) chlorosis of leaves; 5) shrubs failing to flower; 6) shrubs failing to produce berries; and 7) loss of berries before maturity. Up to seven potential causes are listed under each heading. The causes are coded so the reader can look up the number in the text for a more detailed description of the disorder. As the authors point out, poor growth of ornamental plants can be caused by many factors, some of which exacerbate each other. Anyone interested in obtaining the fact sheet should contact one of the authors about Reference Leaflet No. 74.

Representatives of chemical companies, university researchers, and nurserymen met in California and decided that nurserymen need to supply chemical companies and researchers with more information about **pesticide and chemical needs.** As a result, the California Association of Nurserymen (CAN) surveyed 120 member nurseries about their pesticide and chemical needs; nonmembers, retail nurseries, the cut flower industry, and turf growers were not included in the survey. Forty-five nurseries responded, and J. D. McDonald of the University of California at Davis summarized the results. The size of nursery operation varied greatly: 6,000–1,000,000 ft^2 for greenhouse growers, 2–420 acres for container growers, and 1–1,600 acres for field growers. The total amount of pesticides and chemicals used annually was valued at $2 million.

Many nurseries used a variety of fertilizers. Nitrate runoff was a problem for some and a potential problem for all. Fungal root rots were the most common diseases reported, and poor cultural practices contributed in part. Raphiolepsis leaf spot was reported frequently, and effective control methods were few. Common root problems included crown gall, nematodes, *Phytophthora* diseases, and Verticillium wilt. *Phytophthora* is a problem in wet years; trees become infected in the field and after digging despite control measures. A systemic nematicide that could be used in place of or in addition to soil fumigation would be helpful.

The survey also provided data on leading insect and weed problems and control needs. In some instances, if chemicals effective on other agricultural crops were registered for use on nursery crops, growers would be greatly helped.

Some of the problems disclosed by the survey might best be solved by collaborative efforts of researchers and extension personnel. Regional and interregional research projects would be beneficial, since much nursery stock is shipped out of state.

New elm cultivars resistant to Dutch elm disease have been released, reports E. B. Smalley of the University of Wisconsin, Madison. One backcross of *Ulmus pumila* to progeny of *U. pumila* × *U. japonica* resulted in a hybrid that produced seed with a high level of disease resistance (> 90%) and a high percentage of vigorous, large-leaved ornamental trees (79.2%). Smalley's four-component crosses did not achieve the low mortality rates of the two- or three-component crosses and did not yield much more than 25% large surviving trees.

Overall, the most interesting progeny for ornamental qualities came from selected *U. japonica* crosses with certain *U. pumila* parents. These progeny possessed good hybrid vigor and high disease resistance and were often striking as ornamental trees. Sapporo Autumn Gold was derived from such a cross, and marketing rights for this resistant elm in the United Kingdom have been assigned to Pitney Bowes, Ltd. Negotiations for marketing rights in the common market countries of Europe are now under way with the Conrad Apple Company, Darmstadt, West Germany. Smalley expects to release soon a new disease-resistant clone that develops into an extremely attractive columnar tree called Regal. He is continuing the breeding program and corollary studies of the virulence of *Ceratocystis ulmi* races and the search for extractable fungistatic compounds found in the early stages of the host-parasite interaction.