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THE NEW ROSE RESEARCH PROJECT IN TEXAS

H. Brent Pemberton

East Texas is one of the main centers for rose bush production in the U.S. (Stump, 1982). Approximately 12.5 and 1.5 million bushes were grown in 1982 in Smith and Van Zandt counties, respectively (Texas Power and Light, 1983). In addition, large cooling facilities have been established for bush storage and to facilitate the packaging and final marketing operations.

The East Texas rose industry has expressed a desire for research to enable them to remain a viable part of the nursery industry. To this end, the Texas Agricultural Experiment Station has initiated a rose research program at the Agricultural Research and Extension Center at Overton. Dr. Brent Pemberton has recently been hired as a research leader for this project. In addition, Dr. Vince Haby, soil scientist, has received a 25% appointment in rose research.

Rose Bush Production Cycle

Disbudding of Rosa multiflora 'Brooks 56' understock is the first step in a labor intensive two year program for rose bush production. The rootstock cuttings, which are taken from established crop rotations, are planted in December. In May, a bud of the desired cultivar is T-bud grafted onto the rootstock stem just below the actively growing top. The grafted bud is inactive until March of the following spring when the rootstock top is removed. Active growth follows until dormant plants are dug and stored the following December. Approximately 25 manual labor steps are involved before the final product is realized. That improved methods for many of these

steps in the two year cycle could increase production efficiency becomes readily apparent.

Propagation

Rooting studies have been initiated by Dr. Fred Davies of Horticultural Sciences in College Station (Davies, 1983). Further cooperative studies are proposed which will explore the relation of carbohydrate/nitrogen ratios of rootstock tissue to subsequent rooting and cutting survival.

Davies has also initiated trials using chip budding, a technique which would allow grafting of dormant rootstock cuttings before planting (Davies et al., 1980). The results indicate bud live percentages are high and results are promising.

Other grafting techniques will also be explored. The grafting of a two bud scion cutting onto a disbudded rootstock could allow rooting and healing before field planting. This technique is hoped to increase % stand and final bush grade as well as shorten the time of production.

Root-Soil Complex

Soil fertility and plant nutrition are no doubt important for optimum rose bush growth. Dr. Haby is establishing a cooperative project to study the influence of liming native acid soils and how this will interact with the effects of added major and minor nutrients on plant growth during the first and second years of production. Grafted bud survival, subsequent rootability of understock cuttings from plants fertilized during the first year of production and final bush grade will be studied.

Dr. Don Paterson has initiated fumigation studies aimed at

nematode control. However, stunting of understock resulted from fumigation treatments. Dr. Ruth Taber of Plant Sciences has confirmed the presence and absence of mycorrhizal fungi in the non-fumigated and fumigated plots, respectively (Paterson et al., 1983). This information will be important to future studies of fertilization and chemical pest control practices.

Nematodes continue to constitute a major problem for rose producers. An infested plot is being established at the Overton Center for a cooperative project with Dr. Jim Starr of Plant Sciences to elucidate control measures for this pest which can render an entire crop unsalable.

Branching

Basal branching is a critical factor in rose bush production as the final grade of a plant is largely based upon this characteristic. Pruning practices could have a large influence on cane production and will be studied. Timing will likely be critical. In addition, growth regulators will be trialed to determine if increased basal branching can be elicited.

Cultural Practices

Currently most rose crops are not irrigated in the East Texas area. Studies are being initiated to determine whether wider spacings in a dry land situation would be beneficial for production of higher grade bushes.

Weed control is quite difficult during the two year production cycle. Herbicide studies have been initiated (Paterson et al., 1980). New pre- and post-emergent herbicides will continue to be trialed in grower fields to determine if control is effective and whether

phytotoxicity is a problem.

Post Harvest Practices

Currently processors dip packaged plants in hot wax to prevent cane dessication during marketing. The use of antitranspirants is being explored in an effort to replace this practice which is undesirable from a consumer standpoint.

Basic Research

The proposed research discussed to this point is largely applied in nature. A physiology lab is being equipped in cooperation with Dr. Don Cawthon to enable the basic study of specific plant hormones and their relationship to the production and partitioning of photosynthate. Model plant systems will be used to study how these factors are involved in the developmental processes of rooting, graft healing and branching in roses. This basic program of research will be pursued so that the applied program can be supported and sustained.

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