# RESEARCH RESULTS FOR NURSERYMEN

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## GROWTH RETARDANTS:

Azaleas Treating Azalea plants growing in full sunlight with the growth retardant B-nine or Cycocel resulted in more even flowering when the plants were flowered in January following refrigerated storage for 6 weeks. Treated plants were more compact than untreated plants.

One application of either compound at a concentration of 0.25% was effective. Using a concentration of 0.5% resulted in excessive retardation and dwarfing.

Retardant treatment was effective on plants growing in full sun, particularly on varieties such as Sweetheart that normally grow rapidly and unevenly in pots.

Other woody plants Retardant applications restricted stem elongation of Roundleaf Japanese Holly, Gardenia, Burford Chinese Holly, India Privet, Yaupon, Flowering Dogwood, and Common Flowering Quince. Both B-nine and Cycocel were effective as a soil drench and as a foliar spray. Flower bud formation of Common Flowering Quince was increased by use of retardants.

Environment and retardants The observable effect of growth retardants was dependent on the environment and the use of other chemicals. Some of the results obtained are summarized as follows:

Growth retardants B-nine and Cycocel were more effective in restricting stem elongation when light intensity was low than when intensity was high. Least stem elongation resulted under high light intensity with application of retardants.

Temperature also influenced the effectiveness of retardants. They were not as effective at high temperatures (80°F) as at lower temperatures (50°F).

For soil applications, the soil mixture influenced the effectiveness of a given dosage of retardant.

The effect of growth retardants were counteracted by use of Gibberellic acid.

## PROPAGATION:

Reducing the leaf surface on softwood cuttings reduced the degree of rooting. None of the commercial "rooting preparations" replaced the influence of leaves on formation of roots.

Germinating seeds contain many co-factors that stimulates root formation on cuttings. Extracts of germinating chestnut seed contained co-factors that stimulated rooting, using the Mung Bean Assay.

IRRIGATION:

Solar energy measurements can be used effectively to determine proper time to apply water to container-grown plants. Correction for rainfall was not necessary during periods of infrequent and light rain showers.

Irrigation systems developed specifically for growing pot plants in greenhouses were very effective outdoors on container plants. Application of liquid fertilizers may also be made through these systems, resulting in automatic applications of water and fertilizer. Solar energy meters, tensiometers, and weighing devices may be used to automatically apply water.

MARKETING TECHNOLOGY:

While results of the electrolytic exosmosis test and the electrical resistance of the shoot was significantly correlated to viability, the absolute reading varied with the nature of injury. Injury by heat resulted in higher readings than injury by cold. This variability limits present usefulness of the test as a means of surveying viability of stored woody plants.

WOODY PLANTS ON HIGHWAYS:

Since there is only 1 year of results from this research, this report is limited to observations on the value of various plants and practices.

To establish test plantings for this project entailed considerable time and expenditures which suggest that low cost methods of establishing woody plants must be investigated and procedures adapted for large scale usage. Several alternatives are currently under study.

Woody plants will control severe erosion on soils that wash easily. In one test planting, large plants of Von Ehron Juniper stopped erosion even where the water ran through the plot and the cut above the plants was severely washed.

There are considerable variations in microclimates over short distances, such as from one side to the other side of highway. For example, on one site the average maximum temperature during the summer was 104.7°F. Across the road the maximum temperature averaged 101.4°F., whereas 4,000 feet away average maximum temperature was 96.5°F. This microclimate is important in considering plant responses and performance.

Several plants show extreme adaptability in being able to survive and grow in poor locations with neglect. This list of plants includes Robinia hispida, Rosa multiflora, and various prostrate Junipers.

There were many factors contributing to poor survival. These include (1) planting small size plants unable to withstand competition, (2) poor planting stock, (3) waterlogged soil, (4) drought, (5) vehicle traffic on plants, and (6) erosion before the plants become established.