OREGON ORNAMENTAL AND NURSERY DIGEST

December 1971
Vol.15, Issue 2
Pages 1-4

A. N. Roberts
L. H. Fuchigami
Department of Horticulture
Oregon State University
Corvallis, OR

HORTICULTURAL CROPS RESEARCH NEEDED FOR THE 1970'S

As pointed out in the June 1971 issue of the Digest, a rapidly expanding, diversified nursery and ornamental industry such as ours in the Northwest is continually in need of all sorts of reliable information. This information for management decisions comes from many sources, but much of it must come from research past, present, and future. We must constantly assemble the information that is available to the industry, and at the same time identify the problems for which there is no immediate solution. It is by this process that we build a sound research and extension program to serve the industry.

Research planning should be done on the county, state, and regional level, since some of the problems may be local in character, while others may be of concern to large segments of the industry in several states. A joint task force of the Western Association of Agricultural Experiment Station Directors and the U. S. Department of Agriculture is in the process of developing a program of regional research for "Plants to Enhance Man's Environment." The Oregon Agricultural Experiment Station is a participant in determining the direction of this regional research. This activity is especially significant now that plans are moving ahead for the establishment of a regional USDA ornamentals laboratory at Oregon State and the expansion of the ornamentals research program at Puyallup, Washington.

In evaluating our ornamentals research program at Oregon State and making plans for the future, research personnel from the campus, the North Willamette Experiment Station, and area extension specialists involved in ornamental crops problems called on the leaders of various segments of the industry for assistance. Fourteen commodity groups were invited in for half-day-sessions. These represented the azalea pot plant growers, growers of field and container-grown conifers, field and container-grown broad-leaf evergreens, shade trees, fruit and seedling trees, roses and deciduous shrubs, flower growers (both pot and cut flowers), bedding plants and geraniums. bulbs, ground covers, holly, Christmas trees, native plants, and forest greens.
These leaders of the industry were asked for two types of information: 1) the status of their segment of the industry and its promise for the future and 2) the most important immediate problems facing the group and the problems they foresee in the future.
While there were differences of opinion as to the order of priority, there was general agreement on the items needing research and development. The lists represent, in most cases, a fair cross section of opinion among growers and research and extension personnel. Regulatory people from the State Department of Agriculture also often attended and helped much in identifying certain problem areas.

Problems for research

A. *Azalea Pot Plants*

1. Time of taking cuttings and possibilities of storing cuttings for year-around production.
2. Production of an 18-month plant for mass market sales. Costs of increasing daylength and light intensity as related to product value.
3. Maintenance of winter plant quality through lighting, refrigeration, etc.; problem of foliage drop during December, January, and February.
4. Nutrition problems; schedules through to finishing during storage and handling. Question of nitrogen sources and magnesium nutrition.
5. Cultivar improvements to meet market and cultural requirements and in a range of colors.
6. Sprays for increasing hardiness; protective coatings; role of hormones in growth control.

B. *Field- and Container-Grown Conifers*

1. How to time root pruning and transplanting of various conifers.
2. How to "finish" conifers in containers after field-growing; time, methods, etc.: feasibility of bareroot handling rather than B & B in transplanting into containers for marketing.
3. How to control the growth flushes on conifers by manipulating light and temperature; use of chemical treatments or cultural practices-pruning, etc.
4. Timing the taking of cuttings by other than calendar date.
5. What should be produced; problem of grading?

C. *Field- and Container-Grown Broadleaf Evergreens*

1. Rooting responses in *Rhododendron* and other evergreen species; effects of weedicides and other chemicals on rootability of stock plants.
2. Better controls for specific disease problems; improved control of *Phytophthora spp.* root rot in rhododendron and ground covers such as ligonberry and *Gaultheria procumbens* and in heather and junipers.
3. *Daphne odorata*-a virus-free source for propagation for export.
4. Nutrition─as related to maturity, dormancy, and cold resistance in Daphne.
5. What are the channels and distribution patterns in marketing Northwest evergreens?
6. Transportation problems─ possibilities for pooling rail cars and trucks in the Northwest, a transportation problem area.
7. Standardization of container-growing procedures.
8. How to hasten "hardening" processes for early shipments.

D. *Shade Trees*

1. Crown gall (*Agrobacterium tumefacians*) is the principal problem facing both shade and ornamental tree growers.
2. Availability of transportation and its cost from the Northwest.
3. Need for a small shade tree in less time for mail order and container marketing.
4. Verticillium wilt (*Verticillium spp*.) of maples is a serious problem in some years.
5. Reducing weed control costs.
6. Possibilities of spaced seed planting both in field and in containers to go to field later.
7. Spray programs that will combine more controls in one application.
8. Crop rotations and fertilizer programs for shade trees.

E. *Fruit Trees*-seedling stocks and budded or grafted trees.

1. Disease-resistant, home garden fruit tree cultivars needed.
2. Smaller branched trees at less cost for home gardeners.
3. Processed balling of trees in containers.
4. Crown gall in cherries is a very serious problem.
5. Chemical defoliation treatments for fruit, flowering and shade trees.

F. *Roses and Deciduous Shrubs*

1. Retail outlets need trained people to do a better job
2. Spring frosts are a decided disadvantage in producing roses in the Northwest in competition with California and Arizona.
3. Margin is a real problem in wholesale growing and points out need for efficiency of large-scale growing and high bud stands; handling and distribution costs are also a deciding factor.
4. Patent royalties now being paid on the basis of bud sets instead of number of plants produced, are a disadvantage.
5. Need for standardizing container-growing techniques as either cuttings or budded plants.

G. *Florist Crops (Pot mums, hydrangeas, lilies, poinsettias, etc.)*

1. Need a strong grower organization.
2. Problem of wholesale pricing; 50% of market is now in supermarkets and this outlet is expanding.
3. Development of a rhododendron pot plant is desired.
4. Ways of holding plants at certain stage of development during handling and marketing.
5. Problems of handling in supermarkets; space in relation to volume: personnel for handling commodity on floor.
6. Does CO_2 feeding in Northwest greenhouses pay? Also, how does this relate to use of supplemental light and heat in bringing higher-quality crops in earlier?
7. Nutrition─better understanding is needed of light temperature interactions with nutrition.

H. *Florist Crops* (Cut flowers─ roses, carnations, mums, etc.)

1. Need leaf analysis service on roses and carnations.
2. Cut flower sales in tulips, daffodils, irises, and lilies on increase. More information needed in handling these as cut items.
3. Rose shipments to Florida and other markets are increasing─what is the nature of the marketing pattern on roses in the U.S.?
4. Problem of plant patent protection on some of these crops; growers are not selling to countries not having plant patent protection.
5. Carnation growing in Oregon is a marginal operation: summer crop is fairly good but has to compete with Bay Area growers; need lighting studies on winter crop─ what are the economic considerations?
6. Need labor-saving methods in florist industry, particularly in watering and feeding programs.

I. Bedding Plants and Geraniums

1. Standardize media and nutrition schedules for bedding plants of all types.
2. Certain disease problems are critical: problem identification in many cases.
3. Need cultivars of bedding plant species better adapted to Northwest conditions.

4. Possibilities for growing bedding plants with high light requirements east of the Cascades Bend─ Redmond. etc.: problems involved?
5. Ways needed to extend the bedding plant season: do growth retardants have a place in handling and marketing?
6. Possibilities for variety trials in community development programs.

J. *Flowering Bulbs*

1. Need for market development for all types of flowering bulbs.
2. Packaging problems related to this market development.
3. Control of virus diseases in lilies, gladiolus, and other flowering bulbs can be the limiting factor in the continued development of the industry. Bulb rots are also a very serious problem in field, transit, and greenhouse forcing.
4. Studies are needed on relation of bulb rots in field and storage to nutrition, irrigation, and harvesting practice.
5. Need forcing schedules for selected colored garden lilies and their development as a pot plant.
6. Growing shortage of good land for bulbs in favorable locations and sites.

K. *Holly Production*

1. Problems of quality control; cultivar differences; disease control, pruning, and nutrition as related to quality.
2. Cause and control of various "spotting" problems, particularly "blister-spot" in coastal plantings.
3. Post-harvest studies needed; berry cracking and darkening in some seasons; effectiveness of ozone in storage mold control.
4. Possibilities for timing cutting operations with berry ripening dates.
5. Storage facilities problems on Oregon coast and in eastern markets. Demurrage and detention charges making car storage unprofitable.
6. Need for blossom and berry thinning sprays to balance leaf-berry ratio in some seasons; also need sprays to remove old berries from tree.
7. Copper spray injury as related to products, timing, weather conditions, etc.
8. Development of reliable procedures for producing a small, high-quality pot plant.
9. Orchard management problems still exist; hedgerow growing, orchard ground covers ; effective controls for rodents.

L. *Nursery-Grown Christmas Trees*

1. How to deliver well-established, tubbed Christmas trees the first of November after having been grown in the nursery row.
2. Periodicity in conifers as related to growth control, handling, and establishment; timing of root pruning, methods of stimulating root activity, etc.
3. When to harvest bareroot conifers for establishment in a peat ball.
4. Causes and control of "bluing" and "bronzing" in various conifers: effects of fertilizer programs, shading, and temperature patterns in this regard.
5. Shipping weight as related to range in which living Christmas trees can be profitably marketed.

M. *Native Trees and Forest Greens*

1. Need for deciduous species that can withstand the winds of coastal sites and in the Columbia River Gorge. Example: *Pinus pinaster* appears resistant to salt and wind along the coast, at least some seedlings.

2. Disease problems of specific importance to coastal plantings.
3. Selection of native ground cover materials, native dogwoods, and vine maples. Vegetative propagation requirements in these and other natives, e.g. wax myrtle.

N. *Problems of a General Nature*

Although not mentioned specifically, it goes without saying that improved methods of controlling noxious weeds, nematodes, symphyllids, viruses, and numerous other pests and diseases must have continuous attention. Since our activities are primarily exported to other states, and many of these states have strict regulations for preventing the introduction of certain pests and disease, we must be in a position to help our growers and regulatory officials achieve the highest standards of quality.

Most of the problems listed above deal with production agriculture, and this is only natural since we are primarily wholesale growers. However, we must be conscious of the needs and desires of the public in the realm of community planning and development and the role ornamental horticulturists, in all their diverse activities, can play in fulfilling these needs. Consideration of these needs is reflected in the recommendations coming out of the regional planning group mentioned earlier in this report. This regional task force identified five major problem areas they thought should be given special attention in future research. These were:

1. The effects of plants on man's environment.
2. Identification and evaluation of plants which would be better adapted as ornamentals in man's environment.
3. Improved methods of establishment and maintenance of ornamental plants for better survival and growth.
4. New systems of ornamental plant production and marketing.
5. Effects of plants and the landscape environment on man.

Oregon Ornamental and Nursery Digest was published from 1957 to 1975 by the Agricultural Experiment Station, Oregon State University, Corvallis.