

LITERATURE CITED

1. Grouet, D. 1965. La rouille du *Pelargonium zonala*. Traitement par thermotherapie. *Epiphyties* 16:315-331.
2. Phillips, D. J. and A. H. McCain. 1972. Hot-water therapy for geranium rust control. *Phytopathology*. In press.

Wednesday Evening Session

MODERATOR VAN VEEN: Tonight we have a panel discussion on teaching techniques in plant propagation. Howard Brown will be the lead-off man. Howard:

TEACHING TECHNIQUES IN PROPAGATION

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In preparing for this presentation I tried to consider how teaching propagation in our department would differ from that done at the other institutions represented on this panel. There is probably little difference in how we handle seeds, cuttings, buds or grafts but there may be a big difference in how we motivate the students. While the technique that I will describe works well for our vocationally oriented, suburban campus, I am not necessarily recommending it for all colleges.

At Cal Poly our students in Ornamental Horticulture operate a commercial nursery and flower shop as part of their educational experience. It gives them an opportunity to propagate plants, grow them on, and market them while participating in the profits from the crops that they grow. Many of our alumni claim that production and management experience gained through our Agricultural Enterprise Program was the most valuable experience that they received in college. I know, too, that the dollar incentive is much stronger for many students than would be a mere course grade.

We encourage capable students to start an enterprise project during their sophomore or junior years. Oftentimes they will be in partnership with a student who has grown a crop previously. This gives them the benefit of the experience of a person who has been

“through the mill” at least once and usually assures a market.

The heart of our operation is the Cal Poly Foundation, a non-profit corporation set up within the University to do some of the things that can't be done with state funds. The Foundation serves as banker for the Agricultural Enterprise operations. A student must convince his advisor that he has the knowledge and initiative to complete a successful project. He then signs a contract with the Foundation, which provides the money for soil, seed, containers, etc. All of the sales are handled through the cash register in the flower shop and records are kept on all operations. Upon completion of his enterprise the student subtracts all expenses except his labor from his income. He then receives 2/3 of the profit and the other third goes to the Foundation.

If he has planned well and grown a good crop the student is likely to earn a reasonable profit in addition to making wages. If his timing is off or the market not there the most he can lose is his labor. He has still gained valuable experience.

One of our most profitable crops year after year is Christmas poinsettias in 6-inch pots. A senior student last year netted \$5.27 per hour on this crop. Often a money-loser is gladiolus for cut flowers but we don't discourage this crop for a student who plans to be a flower grower. Then there is always the Mother's Day Lily — an Easter Lily that didn't make it. Instead of selling them for \$3.50 a pot the operator is lucky to get 25 cents a flower from the department flower shop.

In addition to the above-mentioned crops some of our most successful student enterprises have included the following:

Miniature roses in pots	Bedding plants
Miniature carnations	Vegetable plants
Annuals in 4-inch pots	Ground covers
Novelty plants	

From a teaching standpoint the Agricultural Enterprise Program is not all sweetness and light. There are many problems, not the least of which is public relations with local nurseries and florists. The trade associations — California Association of Nurserymen and California State Florists Association have been most helpful and understanding in this respect.

Successful projects require close instructor supervision and this mostly comes on Saturday, Sunday or holidays. It requires persistence on the part of the students involved. But the rewards are great. (a) This program enables us to have at least twice as many crops for students to see and work with as compared to what we could finance on our state budget alone. (b) It provides income for students, many of whom are working their way through college. (c)

It provides real life learning experience in propagating, growing, record-keeping and sales. (d) Most important, it motivates the capable student and prepares him for employment in commercial ornamental horticulture.

Based upon thirty years of experience we believe that our Agricultural Enterprise Program is the most important tool we have in recruiting, motivating, and placing qualified graduates in our vocational field.

MODERATOR VAN VEEN: Thank you, Howard. Next is Hudson Hartmann, University of California, Davis. Hudson:

TEACHING TECHNIQUES IN PLANT PROPAGATION

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There seems to be an increasing interest among students in plant propagation at the University of California, Davis Campus. Enrollment in the plant propagation course was quite stable for a number of years at about 35 students per year, then in 1971 it increased to 55, and in 1972 to 80. This class is given in the spring quarter, running 10 weeks, from about April 1 to June 10. It consists of two 1-hour lecture periods and one 3-hour laboratory period per week. Several laboratory sections per week are given, depending upon the enrollment. Twenty students is the maximum per laboratory section. One-third to one-half of the enrollment has been graduate students; a sizeable percentage of the enrollment is foreign students. Various majors are represented — such as plant science, environmental horticulture, agricultural education, agricultural science and management, pomology, viticulture, international agricultural development, and botany. It is an upper division course with a prerequisite of general botany or a general plant science course.

Eighteen lectures are usually given with 2 mid-term examinations. The lectures follow the theoretical chapters in Hartmann and Kester's "Plant Propagation: Principles and Practices" (1), which is used as the text. Considerable use is made of visual aids, chiefly 2 x 2 slides, to avoid the use of time-consuming drawings on the blackboard and to illustrate situations that facilitate explanations. Reading assignments are made of many of the