Table 2. Evaluation of insecticides against magnolia white scale on sago-palm. Treatments and percent alive of 20 crawlers per plant 1 month following treatments. Five replications/treatment.

Insecticide treatment[1]	mean % live crawlers	Standard Deviation
control	71.3a[2]	6.3
oil	72.9a	15.3
oxydemetonmethyl	63.0a	30.5
methidathion	19.0b	4.1
methidathion (2 applications)	8.0bc	6.7
dimethoate (2 applications)	5.0bc	5.0
methidathion + oil	5.0bc	5.0
dimethoate	1.0c	2.2
methidathion + oil + chlorpyrifos	1.0c	2.2

[1]Single applications, or if indicated, 2 applications 2 weeks apart.
[2]Means in a column not followed by the same letter are significantly different (P < 0.05, Waller-Duncan Multiple Range Test).

Table 3. Evaluation of insecticides against magnolia white scale on sago-palm. Treatments and numbers of female scales per sample (n = 20/plant) harboring live egg masses. Five plants per treatment.

Insecticide Treatment[1]	mean number scales with live egg masses	Standard Deviation
control	14.5a[2]	1.7
oxydemetonmethyl	5.8b	4.8
methidathion	0.8c	1.1
dimethoate	0.4c	0.9
methidathion + oil	0.4c	0.6
methidathion (2 applications)	0.2c	0.5
dimethoate (2 applications)	0.0c	0.0

[1]Single application, or where indicated, 2 applications 2 weeks apart.
[2]Means in a column not followed by the same letter are significantly different (P < 0.05), Waller-Duncan Multiple Range Test).

There was a high degree of mortality of mealybugs in the controls. This cannot be explained, but it may have been related to the extremely high population densities at the beginning of the experiment. Single applications of either chlorpyrifos, methidathion, dimethoate, oxamyl, or oxydemetonmethyl effectively reduced the numbers of live longtailed mealybug on the cycads (Table 4). In fact, each of these treatments eliminated or nearly eliminated the mealybugs from the sago-palms. Possible repellent effects of insecticides were not determined, but since there were large numbers of dead mealybugs beneath the plants and the plants did not become reinfested with mealybugs, most of this reduction was probably due to toxicity of the insecticides. No symptoms of phytotoxicity due to any of the insecticide treatments were noted.

Table 4. Evaluation of insecticides against longtailed mealybug on sago-palm. Treatments and numbers of live mealybugs per sample (n = 20/plant).

Insecticide	Mean live mealybugs/plant	*Standard* Deviation
Control	8.2a[1]	7.5
oxydemetonmethyl	2.4b	1.7
oxamyl	0.8b	0.8
dimethoate	0.2b	0.5
methidathion	0.0b	0.0
chlorpyrifos	0.0b	0.0

[1]Means in a column not followed by the same letter are significantly different (P < 0.5, Waller-Duncan).

Literature Cited

1. Dekle, G. W. 1976. Florida Armored Scale Insects. Arthropods of Florida 3 (Revised). Div. Plant Ind., Florida Dept. Agri. & Consum. Serv., Gainesville. 345 pp.
2. Reinert, J. A. 1974. Management of the false oleander scale, *Pseudaulacaspis cockerelli* (Cooley). Proc. Florida State Hortic. Soc. 87:518-520.
3. SAS Institute. 1985. SAS user's guide: statistics. SAS Institute, Cary, N. C.
4. Thompson, N. P., S. Witkonton, and R. M. Baranowski 977. Ethion, malathion and Supracide residues on mangos. Proc. Florida State Hortic. Soc. 90:270-271.

Proc. Fla. State Hort. Soc. 102:295-296. 1989.

RESIDENT INSTRUCTION IN HORTICULTURE FOR PLACE-BOUND STUDENTS

STEPHEN D. VERKADE AND GEORGE E. FITZPATRICK
University of Florida, IFAS
Fort Lauderdale Research and Education Center
3205 College Avenue
Fort Lauderdale, FL 33314

Additional index words. Agricultural education.

Abstract. **Horticultural educators have encountered declining enrollments at a time when most of Florida's horticultural industries are expanding. This presents the challenge of identifying new groups of potential students and meeting their educational needs.**

An innovative program has been developed by the University of Florida's IFAS which provides courses leading to a Bachelor of Science degree and assists an emerging group of students which previously had been geographically excluded from advanced undergraduate educational opportunities. These students typically are older than average undergraduates and have long-established ties to their families, professions and communities and are removed from the main campus of Florida's land-grant university. A profile of these students is provided.

National declining enrollment trends in agriculture during the late 1970's and 1980's indicate a potential shortage of highly trained workers in agribusiness (1). Agricultural employers in Florida also have noted this shortage. In many instances these job opportunities are being filled by older individuals, who only recently considered agriculture as a career option.

Florida Agricultural Experiment Station Journal Series No. N-00140.

Centralized colleges of agriculture have traditionally provided resident instruction programs on their main campuses. The profile of these new individuals entering agribusiness indicates that they are often unable to access B.S. degree programs in agriculture due to their job and family responsibilities. Resident instruction programs for these "placebound students" can be developed to provide educational opportunities, while making use of resources already available.

Case Study

A resident instruction program in ornamental horticulture for placebound students was initiated by the University of Florida at the Fort Lauderdale Research and Education Center during the 1983-84 academic year (2, 3). This location is centrally located for placebound students in Dade, Broward and Palm Beach Counties. The ornamental horticulture industries located in this three county area includes 200 golf courses, and 2,000 nurseries, landscape maintenance, and retail horticulture businesses. This large industry base, serving a regional population of over 4 million, and previously established academic resources all have contributed to the successful implementation of this program.

The University of Florida curriculum in southeastern Florida is cooperative, combining agricultural courses taught at the Fort Lauderdale Research and Education Center with courses available at other area colleges, including Florida Atlantic University and Florida International University. Courses taken at these schools include chemistry, plant physiology, genetics, physics, and electives. Following completion of an Associate of Arts degree program at a community college, students can earn a Bachelor of Science degree from the University of Florida through this program. The cooperative structure of this program enables the University of Florida to offer the B.S. degree in southeast Florida without the expense of creating a new department at any of the cooperating institutions.

A review of over 250 individuals who have enrolled in one or more of the courses during the past five years indicates a very unique student profile. The average student age is 36 years. More than 85% of students in the program are employed in one of the allied horticultural industries, and nearly all have family and job responsibilities that render them placebound which, therefore, prevent them from enrolling in educational programs of the College of Agriculture at the Gainesville campus of the University of Florida.

Most students enrolled in this program are pursuing a B.S. degree, but the courses are also available to individuals who are not formally seeking a baccalaureate degree. Non-degree students may take courses either for credit or audit. These courses have proven to be a convenient and effective means for many industry people to remain updated on the latest technological developments.

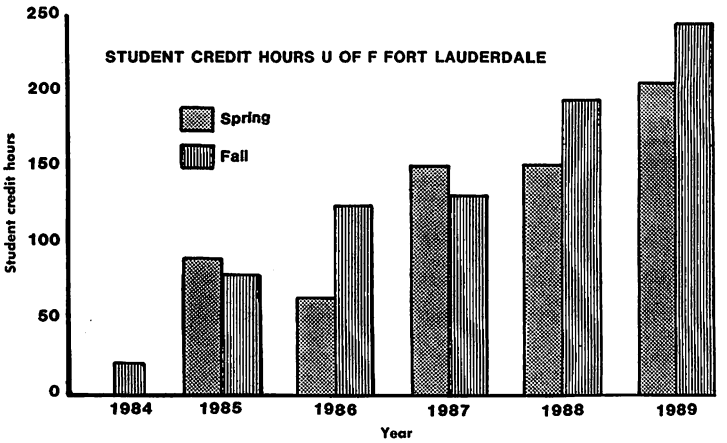

Fig. 1. Student credit hours (number of students x credit hours) in Ornamental Horticulture from 1984-1989 at the University of Florida's Fort Lauderdale Research and Education Center.

During the past five years enrollment in the University of Florida's Fort Lauderdale degree program has shown steady growth (Figure 1), increasing from 6 students with 18 student credit hours in 1984 to 67 students with 250 student credit hours in 1989. This enrollment has made a significant contribution to the total enrollment in the College of Agriculture at the University of Florida. The University of Florida's commitment to state wide educational programming promises to continue this much needed service to placebound students.

Conclusion

The profile of some individuals entering the horticultural industry is shifting from people under 20 to those over 30. However, their educational needs are the same. Colleges of Agriculture have the responsibility to create educational opportunities for all who seek them. This may require innovative programming to accommodate the needs of placebound students. Educational programming for placebound students provides a needed educational opportunity for students, while strengthening undergraduate enrollment in agriculture.

Literature Cited

1. Coulter, K. J., M. Stanton, and A. D. Goecker. 1986. Employment opportunities for college graduates in the food and agricultural sciences. Higher Education Programs, USDA, Washington, D.C.
2. Verkade, S. D., H. E. Drummond, and G. L. Zachariah. 1988. Resident instruction in agriculture for placebound students. HortScience 23(6):955-956.
3. Verkade, S. D. 1989. Professional student. Florida Nurseryman. Vol. 36 22-23.