Accumulated Philosophy on Student Recruiting, Teaching, Research, and Funding in Horticulture

Norman F. Childers

Department of Fruit Crops, University of Florida, Gainesville, FL 32611

Perhaps we should take more time to study student recruiting and teaching of horticulture with student enrollments so critically low over the country (Childers, 1986). Within a few years, if not already, this student deficiency will have an adverse effect on leadership and advancement of the horticultural industry over the United States and world.

Land-grant state universities were established in 1862 by the Morrill Act to teach students “agriculture and mechanic arts”. In recent years, the research program in these colleges has begun to heavily dominate the teaching program. Teaching and student training must be brought into better balance with research.

The philosophy presented here is mine and has developed over some 78 years of living with agriculture, researching it, taking part in extension, student recruiting, and teaching of horticulture in agricultural colleges.

Recruiting horticultural students

Recruiting students in horticulture has to be a continuous effort. We must have a good number of horticultural undergraduates to go into industry and from which to choose gifted and motivated graduate students to replace those of us retiring or leaving the industry and, also, to justify the faculty and the facilities at land-grant universities (Gelinas, 1988; Moos, 1981).

The usual student recruiting techniques are important—brochures (Childers, 1987), radio, TV shorts, exhibits, tours, and meetings with counselors, teachers, students, and parents. But, something more is needed to “final-sell” prospective students on the fact that agriculture is the biggest employer of all industries in the world.

One of the most effective recruiting programs I have seen was developed by Richard H. Merritt of Rutgers Univ., New Brunswick, N.J. Merritt set aside the first Friday in May each year to bring high school biology classes within about a 80-km radius to the Rutgers campus. The students, parents, teachers, and counselors were invited beforehand to come and see departmental exhibits, have a “day in college”, listen to college professors, take building and greenhouse tours, see livestock, a virgin forest, lake and ocean life, landscape designing, ornamentals, vegetable fields and orchards, or whatever students had prechosen on blanks and returned to Rutgers weeks ahead. School buses began arriving about 9:00 AM on. Some parents followed the buses in personal cars. Friday was declared a holiday from classes for all Ag students so that they could help. Visitors first met under a big tent on the beautiful Ag lawn to hear briefly from the campus administration, then break into groups of 15 to 20 guided by Alpha Zeta fraternity members previously caséd. Alpha Zeta also served a cafeteria lunch that brought profits for their activities. Other students helped with departmental exhibits and their own exhibits, manning them in a large room set aside for lax periods. Professors were either in their offices for consultation or lecturing. Leaflets, slide shows, and movies were used to sell the groups on agriculture. It was found that educating teachers, counselors, and parents was as important as selling the students. The Univ. of California at Davis now is using a similar student recruiting system for agriculture.

The program at Rutgers had a marked impact on applications to the College of Agriculture (6000+ a year). Unfortunately, entrance was limited to about 550 available seats in basic chemistry classes. About 1500 students were admitted to eventually get the 550 total. Quality of the students entering agriculture was excellent. It was a real pleasure to work with these gifted, scholarly students. Most of them graduated with honors and had a good sense of humor. Is it asking too much of the students to work with these gifted, scholarly students. Most of them graduated with honors and more than half went on to graduate school.

This student recruitment program could be used in states larger than New Jersey with some adjustments. At the state university, the program could be limited to high school biology classes locally and in neighboring counties. Biology and plant science classes and professors on the local university campus also could be invited.

This procedure also could be employed every year or two at the off-campus university research and educational centers, using leadership from the state university. The first day could draw students, teachers, counselors, and parents from the local and neighboring high schools. The second day could be repeated for local farmers, businessmen, and possibly for the biology classes in a neighboring community college. This activity not only would serve to recruit agriculture students, but also help sell the research and educational programs at the centers.

In the experience of some horticultural departments (Ohio State Univ., Rutgers Univ., and the Univ. of Missouri, Columbia), a home gardening and landscape or grapes-and-wine elective course of one to two credit hours has drawn many students from the other on-campus colleges, which is another source of students that eventually choose a horticultural major.

Picking teachers and teaching

Academic department chairpeople, in my experience, have been placing too much emphasis on research and a candidate’s ability to attract grants. With administrators today, and it is not their own choosing, it is a top priority to get money! Candidates must be able to get grants to support their job, the department, and the college. Teaching ability does not attract departmental money, so the good teachers often transfer to research. This needs correcting.

I have always admired agricultural extension administrators who use the utmost care in choosing their faculty. They choose a candidate for their ability to do the job. No other reason. The candidate will be working with all kinds of people—administrators, city people, students, farmers, and growers. They must have an open happy likable personality, be a leader, an organizer, not afraid of working overtime, a good speaker and writer, productive, morally upright, healthful, and have a good sense of humor. Is it asking too much of the students to work with students. Get them into the profession, and train them well.

A good horticultural teacher must know horticulture, have had practical experience, and have the motivation and ability to sell it to the students. Ten simple commandments have been given (Childers, 1983) and perhaps should be repeated on how to handle...
students and classes, because most college teachers in agriculture today have had little or no training in teaching. The requirements are: 1) prepare your lesson well; 2) be present as often as possible; 3) be on time; 4) be personally interested in each student; 5) be aware of the physical conditions in class—ventilation, temperature—is it comfortable?; 6) start classes promptly and close promptly; 7) do not do all the talking; 8) avoid arguments; 9) be fully aware of your responsibilities; and 10) be truly interested in your subject matter and your class! In conclusion, leave a little time at the end of a class to talk with interested students and give special attention to those who are gifted and show promise of graduate study and future leadership. Take part in student activities. Some horticultural departments, as far back as the 1930s, assigned one particularly qualified faculty member to teach and work with students only.

A teacher is probably more important in influencing the grades of the students than we often give credit. I have told my classes on occasion that I am probably responsible for 75% of the success of a class. By good teaching, I may be able to lift a normally “B” student to an “A,” or a “D” student to a “C.” If I can “deliver the goods” and try to make the course interesting, take time beforehand to bring in “props” that help break monotony, prepare a few slides, plant material, something from industry, and maybe invite an occasional grower to class for the students to “pick their brains.” Growers enjoy this and it also helps the department.

Picking a graduate student

As indicated earlier, we must recruit and train a good number of undergraduate horticultural students to find a few gifted scholars who will qualify for graduate study. Some “C +” students who have extension qualities and the ability to work well with people could be encouraged to proceed to a masters degree. Or, local gifted students could go for a masters, then transfer to another university for a PhD. Scholars are needed to pursue the PhD. They must be able to handle the advanced pure science courses in the graduate school. If they can’t, it is a favor to them, to the department, and to others to point them in another direction. The marginal undergraduate student allowed to enter the graduate school tends to have problems, is less productive, not very useful around the department, takes lab space, uses expensive equipment and vehicles, and costs about as much as the best graduate students, with often little to show for it.

Here is a technique I often used at Rutgers to get gifted on-campus graduate students. Names of the top dozen seniors in plant science and horticulture were requested from the dean’s office in February. If not already placed, each senior was interviewed. If they were interested in graduate work, their transcripts and professors were checked and if these were satisfactory, the students were offered assistantships. They were put on the payroll in April (a “carrot”), told to process their application, and to spend time in the library reading literature related to the project they chose. This is a procedure that “nailed” a few scholars early.

A graduate dean of biological sciences at Rutgers once described the characteristics of a good graduate student, which may be of interest. These characteristics refer to the student on entering the graduate program: 1) industrious; 2) has plenty of curiosity; 3) is original; 4) has a good foundation knowledge—knowledge in the chosen field and is well-informed in supporting fields; 5) has a quick mind, thinks clearly and logically; and 6) spends time in the library studying how others conducted their research and teaching.

On completion of the graduate degree, the advisor would like to help the student get a good job and be able to say: This candidate: 1) has a good mind and knows how to use it; 2) is industrious; 3) is mature; 4) works well with associates; 5) can communicate with others both in writing and orally; 6) is prompt in publication of research and other material; 7) accomplishes assigned jobs with dispatch; 8) is a scholar; and 9) we like to work with this person—a team worker.

In training graduate students, the department head should demand that students assist and get experience in teaching laboratories and lectures in horticulture, whether paid or not.

Fault in funding

The misguided federal competitive grants system of funding agricultural research out of Washington, D.C. has been causing a frustrating, boom/bust, expensive, wasteful, and unbalanced situation in research, teaching, and extension in land-grant universities (Childers, 1986; Peters, 1982). The competitive grants system of funding generally has resulted in too many pure science faculty untrained in agriculture and too much “high-tech” research that may or may not pay off for the farming business in many years to come. Faculty who have been trained in agricultural teaching, extension, and basic (to-day’s buzz word is “high-tech”) research are becoming fewer and fewer as they retire and leave. There always has been a need and a place for pure science faculty on agricultural campuses, but they now have become over-abundant, which is hurting farm-oriented research and teaching. This situation must be corrected as soon as possible if land-grant agricultural colleges are expected to survive and continue to serve the farming business (Childers, 1986; Gelasas, 1988; Moos, 1981).

I suggest that we return to the workable system of turning all monies over to the deans, directors, and department heads of land-grant agricultural colleges. They should decide, with help from the farming industry, where the money and building space best can be invested for local research, teaching, and extension. The career administrators can decide better than distant more or less pure-science administrators and committees in Washington, D.C., where the urgent local funding needs are and the degree of financing needed (Peters, 1981). This can be done by switching the federal competitive grants and other monies to the federal Hatch Act-, McIntire/Stennis-, and Smith-Lever-type funding already in place. Perhaps the old federal Adams Act (discontinued in the 1950s by the competitive grants system) should be reinstated for specific funding of basic and long-term research as needed in plant and livestock breeding, genetics, and nutrition.

An experienced agriculturally trained and oriented committee is badly needed nationally to carefully evaluate the present agricultural funding systems and to make recommendations and carry them through for a more efficient and productive use of appropriated state, federal, and private industry monies. The only way these recommendations can be carried through is to work with leading industry people and members of the state and federal congressional agricultural committees.

In conclusion, there is urgent need for a vigorous student recruitment program for undergraduate horticultural majors in colleges and universities. More jobs are available for well-trained horticultural graduates then there are graduates (10 to 1 in Florida). A graduate recruitment program is suggested that has proven highly successful. The horticultural profession needs more motivated “born-to-teach” teachers. Teachers need more administrative encouragement through better promotion standards and funding. The misguided, wasteful, expensive, inefficient, boom/bust federal competitive grants and other grants systems of funding are disrupting the balance and effectiveness of agricultural teaching, extension, and research. An agriculturally experienced group of professionals, industry people, and legislators must reexamine agricultural college funding to determine if we should return to the former, more-efficient, and fair system of allocating money directly to deans, directors, and department heads for them to decide with industry help where the funds best can be spent locally, instead of committees and administrators in Washington, D.C. and special interests making these decisions.

Literature Cited


Moos, M. 1981. The post-land grant university—a long range planning study. Univ. of Maryland, College Park.