



Elizabeth J. Mitcham

Postharvest

Stopping The Land Grant Brain Drain

OUR land grant agricultural colleges and universities are at a critical point. During the 1970s, a large number of graduates were hired into academic jobs to work on issues related to agriculture and to teach students in agriculture and related fields. The numbers of hires in this area has gradually decreased with time as the number of students interested in agricultural careers has decreased. For example, the number and size of postharvest programs around the country have also greatly decreased in recent years. Over the next 10 years, most of that large cadre of academics hired in the 1970s will retire. Will they be replaced, and if so, by what type of academic?

Since 1970, there have been tremendous advancements in U.S. agricultural technology, as well as in the sciences that support such development. Growers, packers, and others working in support industries are much more sophisticated and knowledgeable today than in the past, but so are their agricultural operations. Agriculture has been so successful and productive that the availability of cheap food is now taken for granted by most Americans. The legislature at the federal and state levels is more concerned with increasing urban issues than with the needs of agriculture. Our agriculture industries need assistance to meet growing regulations and to reduce costs to remain competitive with imported products.

At the same time, there has been a shift in the types of research funded by federal agencies toward much more fundamental approaches such as cellular and molecular biology. There is general agreement this research has the potential to make significant advances to the overall benefit of U.S. agriculture. Unfortunately, this research has come at the expense of funding for more directly

applicable research. In some states, commodity organizations fund a substantial amount of research. However, the level of commodity research funding is also shrinking in many parts of the country.

At most colleges and universities today, nearly 100% of an academic's research program is dependent on external funding, and the college or university depends on the overhead fees charged on such grants to cover



the costs of running the university. Federal grants provide the highest overhead return to the university and are therefore preferred by many, while commodity grants and many state grants provide little or no overhead. Often the colleges and universities are not allowed to charge any overhead. In addition, federal grants provide larger amounts of funding and the funding is committed for several consecutive years per grant compared with smaller, year-to-year commodity grants.

The result of all of these factors is that colleges and universities are hiring fewer scientists focused on whole plants or agricultural systems and more molecular and cellular biologists.

Why Should We Care?

We are reaching a crisis situation with so many retirements pending in the next five to 10 years. We may soon have few faculty members who

have hands-on experience in agriculture and are able and interested to assist agriculture to develop strategies to cope with today's issues. Colleges and universities may no longer have faculty whose research relates with systems-scale or whole plant issues related to agriculture, and therefore U.S. colleges and universities will not be training students in these areas. The result will be fewer graduates from U.S. colleges and universities with the training needed for careers in agriculture and related industries, or to fill future faculty positions focused on whole plant or agricultural interests in the future.

In some cases, USDA-Agricultural Research Service (ARS) scientists are stepping into the void left by colleges and universities. While this meets the immediate needs of industry, USDA-ARS does not train students, our future agriculture leaders and employees, our future USDA scientists, and our future university and college academics.

Critical Point

Application of discoveries made through molecular and cell biology research will only be successful when they are implemented in conjunction with scientists who understand how whole plant and agricultural systems work. A strong cadre of scientists working at the crop and systems level is essential to make the investment in molecular biology pay off.

We are at a critical point in history and we must decide, is it okay for our country to lose its expertise in agriculture? Will it be okay to look outside the U.S. for individuals to fill our positions or to conduct research to assist our agricultural industries with immediate concerns and issues in the future? If not, then it is critical that we make a change soon. The answer may lie in convincing Congress of the importance of a balance in federal funding between fundamental and whole plant research. We also need to do a better job of convincing students that there are a wide array of opportunities for work in the field of agriculture and related industries requiring a range of expertise and experience. ●

Elizabeth Mitcham, Ph.D., is an Extension specialist and pomologist with the Department of Pomology at the University of California-Davis specializing in postharvest handling of fruits and nuts. E-mail questions or comments about this article to ejmitcham@ucdavis.edu.