Hands-on: From classroom to employment

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Academic programs and courses have increased in recent years for sustainable agriculture, organic farming, and agroecology. In a recent study published in the 2010 volume of the *Journal of Natural Resources and Life Sciences Education,* researchers from Cornell University and North Carolina State University sought to bring hands-on learning activities and experiential learning, which are often a part of for-credit coursework, to employment settings.

"Many students discover their interest in sustainable agriculture late in their undergraduate career," says Dr. Julie Grossman, an assistant professor in the Soil Science Department at North Carolina State University and lead author of the study. "This leaves little time for them to make a drastic shift in undergraduate program or coursework in order to learn more about this applied field. New approaches are needed to engage these latecomers in real sustainable agriculture learning opportunities."

Research laboratories in sustainable agriculture typically hire undergraduate students to perform routine lab work. In order to develop a broader understanding of the role research plays in the greater agricultural context, the researchers developed a pilot study to include hands-on learning opportunities in addition to their normal lab duties.

"Students, whose laboratory work involves little more than washing glassware or repetition of routine procedures, very often develop a negative attitude towards research. On the other hand, the reality of much of modern laboratory science is that it involves a lot of routine,

repetitive work. There is a real tension between producing the data and keeping the students motivated and interested in research," explains Maya Patel, a graduate student in Education at Cornell University and second author of the study. "Students minds need to be engaged, as well as their hands, if we want them to truly develop a sense of the nature of scientific work."

The researchers looked at two consecutive years of the Sustainable Agriculture Scholars (SAS) Program, supported by a USDS-CSREES grant. Three students each year spent four days a week performing routine lab work, and classroom-based facilitated presentation/discussionwith professionals, or a field trip to an organic farm. The fifth work day was dedicated to student-designed service projects, ranging from working in a children's garden to designing composting systems for local public schools.

The goals of the program were threefold: to further students' understanding of sustainable agricultural research, increase their interest in careers in sustainable agriculture, and use community service as a vehicle for learning. Based on post-project interviews and focus groups, the research team found that visits to organic farms were most important to linking agricultural research practice.

"The farm visits definitely made the lab work seem more meaningful," said one student. "We could see within the lab and in our work with different farms...how the information that was provided from our research was going to go back to the farms, what they were going to do with it, and how they were going to make management choices for their farms."

Ultimately, four of the six participants expressed an increased interest in sustainable agriculture after the SAS program. Sustainable agriculture tends to attract students from diverse disciplines and majors, and the

researchers suggest that the SAS program outlines approaches that can be used to increase enthusiasm in students and increase the effectiveness of academic programs and future professionals.

More information: The full article is available for no charge for 30 days. View the abstract at www.jnrlse.org/view/2010/e09-0017n.pdf

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