It is a very exciting moment to be an agronomist. Many of us are already part of this journey, but what about the youth who are years away from considering being a student in agricultural sciences?

With the worldwide shift to a more urban and suburban population, future agronomists will mainly come from cities rather than rural areas (National Academy of Sciences, 2009). Our recruitment efforts need to match this trend. What can graduate students do to increase awareness of agriculture among children and young people?

The Graduate Extension Scholars Program at Virginia Tech

At present, several urban agricultural education programs are well established in the country. However, in most K-12 curricular programs, higher education institutions are not well represented (National Academy of Sciences, 2009). Attending this demand, we recently started the Graduate Extension Scholars (GES) program in the College of Agriculture and Life Sciences (CALS) at Virginia Tech. The nature of this program has the following structure:

The youth. To improve education, we need to convince teachers and parents of the importance of children’s “why” questions (Olson and Loucks-Horsley, 2000). The Next Generation Science Standards released in 2013 (www.nextgenscience.org) advocate for the use of scientific inquiry, engineering design, and relevance to socio-scientific issues.

Curiosity, inquiry and engineering design: an amazing set of available tools to impact the future of these young avid minds of knowledge!

Graduate extension scholar. Expectations for high quality outreach components are on the rise. Unfortunately, this is typically not part of our graduate training, leaving future faculty members underprepared for this component of their projects (National Science Foundation, 2013). This program was developed to address this need by providing graduate students the opportunity to work with practitioners to develop an educational module for youth, based on their research.

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4-H youth development agent. Higher education outreach partnerships with institutions like this are rare. By posting lesson plans online and networking through professional conferences and contacts via the Department of Agricultural, Leadership, and Community Education in CALS, the program leverages the influence of this national organization to spread impacts beyond the individual classroom or club with whom we are doing the outreach activities.

Agricultural education/horticulture middle or high school teacher. School teachers appreciate the expertise and involvement of scientists (Zhang et al., 2011) and university science students in joint teaching and outreach experiences (Bruce et al., 1997). However, most of the time, they are unsure about whom to contact at the higher education institutions closest to them (Dolan et al., 2004). We recognize the unique impact teachers can have for the success of our program: teachers know their students better than anyone else and have practical and pedagogical experience on how to teach and manage their classes.

Project leader (Virginia Tech faculty member). Critical piece of the puzzle: from the conception and project funding standpoint, to the search for appropriate partners, the leading of a seminar class and the feedback and guidance provided to scholars.

How the System Works

The first stage is choosing a research topic to work with. For this program, I will work with research related to environmental, economic, and societal impacts resulting from the production of biofuels.

The second stage is finding your “partners for success.” I was lucky to find a high school agricultural teacher and a 4-H agent willing to work in this project. Highly committed people to take this journey to the next level.

The third stage is the planning step. Several meetings with partners throughout the semester will be needed to develop a curriculum for the youth. In a recent first visit, I met the 5th and 12th grade students who I will be working with. The main suggestion coming from the school teacher and 4-H agent: “hands on, hands on, and more hands on; let...
the students get dirty and learn by experience.” So, besides lectures and hands-on experience, we will also develop simple experiments in a greenhouse setting for students. Our goal is giving students a firsthand look at how we do science at the higher education level.

Simultaneously with these stages, graduate extension scholars are required to take a seminar class in the spring semester in order to learn more about social sciences and the art of communicating science.

I am looking forward to starting the fourth stage soon: the time when the curriculum developed throughout the semester will be delivered to the students.

I feel blessed to be part of this endeavor that will positively impact my professional development as a scientist, teacher, and communicator. I recall the 4-H agent’s words after our first meeting: “Martin, do not expect your well-thought plan in advance to be followed exactly as it is with fifth-grade kids; do not be surprised if just a part or nothing of that will happen that day.” This is the outstanding adventure of communicating science to youth. What a wonderful time to be an agricultural scientist!

References


