Engaging Educational Professionals and Students on the Viability of AFNR Careers

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Introduction

Between 2015 and 2020, an average of 57,900 annual job openings are expected in careers related to agriculture, food, and natural resource (AFNR) areas. With an average of 35,400 new U.S. graduates annually that have expertise in these areas, a large gap is present between the number of expected job openings and the number of well-qualified graduates to fill those positions (Goeker, Smith, Fernandez, Ali, & Theller, 2015). Due to this shortage, employers will have to look elsewhere to fill the remaining thirty-nine percent of job openings. Parents and counselors are often more willing to support agriculture than people believe; yet many lack the knowledge about the vast career opportunities available in AFNR areas (Thompson & Russell, 1993; Smith & Baggett, 2012). Some career areas in AFNR, such as water quality and local food sustainability, have existed for quite some time, but now seem more relevant as the human population continues to grow, creating new challenges in the 21st century. With these challenges, establishing a sufficient scientific and professional workforce that addresses the challenges of the 21st century has become a major research priority for the American Association for Agricultural Education (Roberts, Harder, & Brashears, 2016). Growing challenges coupled with scientific and technological advancements have changed the AFNR career landscape over the past few decades. New and important career areas and opportunities in agriculture like biotechnology, urban agriculture have become central components of agriculture today. Yet, many educational professionals (e.g., guidance counselors, career technology education directors, work-based learning coordinators, teachers, school and district administrators)—all of which are influential in students' career decisions—are not aware of these new and vibrant career opportunities (Thompson & Russell, 1993). With changes in AFNR careers over recent decades and the desperate need to fill these positions, training of educational professionals regarding these careers is important. By educating teachers and other education professionals on AFNR careers, the gap between qualified AFNR graduates and AFNR jobs can be eliminated.

How It Works

In order to promote AFNR careers, teachers and other educational professionals are exposed to the various career opportunities within AFNR through a series of workshops that are conducted across Utah. These workshops are designed to give educational professionals the resources they need to promote and educate students on AFNR careers. Workshops are held in two stages, *Explore* workshops and *Learn* workshops. The *Explore* workshop focuses on exploring various career opportunities within AFNR and takes place in the form of a statewide career day to which educational professionals and students across the state are invited to attend. Students also participate in the *Explore* event alongside the educational professionals, where they incorporate hands-on, experiential learning to educate them on career options within AFNR areas. Surveys are administered to the students and educational professionals to gauge the effectiveness of the workshops and to determine specific areas (e.g., urban agriculture, water quality, biotechnology in agriculture, using unmanned aerial vehicles (UAVs) in agriculture, natural resources, urban forestry, climate change, aquaponics, etc.) within AFNR of particular interest for the *Learn* workshops. The *Learn* workshops are administered three times over the course of three years and are based on the feedback from the surveys of the *Explore* workshops. The *Learn* workshops provide educational professionals with an opportunity for hands-on experiential learning in AFNR areas of their interest. As part of the *Learn* workshops, curriculum and resources (e.g., lesson

plans for teachers, brochures and other promotional/informational materials for guidance counselors, etc.) are developed and provided to educational professionals about AFNR careers. The goal of these workshops is to increase the knowledge and skills of educational professionals in the AFNR career areas so they can better guide students into these career areas. This project is funded by a USDA NIFA grant and takes place over the course of three years.

Results to Date

Survey responses from over 200 secondary students at the *Explore* workshop supported the notion that an increase in teachers and other educational professionals promoting and educating students in AFNR areas will lead to an increase in the number of students pursuing careers in AFNR areas. Approximately 96 percent of students reported an increased awareness about careers in AFNR areas and approximately 90 percent of students reported they wanted to know more about careers and educational opportunities in AFNR areas as a result of their participation in the event. The high percentages of students with an increased awareness and interest in AFNR careers are indicative of the effectiveness of the workshops in promoting AFNR careers. Nearly 20 educational professionals attended the *Explore* workshop and provided feedback regarding their perceived knowledge and importance of various AFNR career areas. Using Mean Weighted Discrepancy Scores (MWDS, Borich, 1980), participants indicated the highest need for professional development in the areas of 1) biotechnology in agriculture, 2) UAV's in agriculture, 3) urban agriculture, and 4) water quality and environmental sciences. *Learn* workshops are currently being planned, with the first workshop beginning summer of 2017.

Future Plans

Future plans include the delivery of at least three *Learn* workshops over the course of the next three years with surveys administered at each workshop to measure effectiveness. We have plans to deliver the *Learn* workshops in conjunction with other professional development conferences already in place in order to maximize participation and help promote continued growth in AFNR areas. By utilizing these already existing conferences we foresee the possibility of expanding beyond the three grant-funded *Learn* workshops without much additional cost. Curriculum and resources will continue to be developed and shared with educational professionals to promote and educate students about AFNR careers.

Costs and Resources Needed

Funding for this project was supported by a $144,138 USDA-NIFA grant. Grant funds support two university educator faculty salaries for about two weeks each; travel for administrative faculty involved in the project (four total); one undergraduate and one graduate student assistant for assessment, planning, and development of workshops and curriculum for one year each; and travel stipends for participants. One important key to the success of this project is the partnership with university faculty and extension, businesses, and other individuals directly involved in AFNR careers. These individuals provide key contacts and expertise vital for planning and delivering the *Learn* workshops.

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