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Thoughts from DOCE – the Federal STEM Education Initiative



While many countries go to school year 'round, June marks the start of summer vacation for most U.S. students in grades K-12. That does not mean, however, that many of these students won't be learning as the days get warmer and longer. Many will attend science camps or participate in internships—real-time, hands-on learning—that often help them excel when they return to school. In this edition of Ed-Facts we focused on NIFA-funded projects that keep the learning going all summer long. Our project directors see value in promoting learning through fun-filled STEM camps and engaging internships/externships.

In 2014, Dillivan and Dillivan reported in the *Journal of Extension* that summer STEM camps increase youth interest in math and science. In that same year Mohr-Schroeder, et al., reported in the *School Science Mathematics Journal* that a middle school summer STEM camp resulted in similar benefits. Engaged students are motivated and will work harder when the learning becomes more challenging. You will read about similar successful camps in one of our Ed-Fact articles in this edition.

Teachers often benefit from professional development over the summer as well. In fact, this year the Division of Community and Education (DOCE) offered a new program for K-12 educators: [Professional Development for Secondary School Teachers and Educational Professionals \(PD-STEP\)](#). Funding from this grant can be used to provide summer training to K-12 educators. The goal is to help teachers return to school as inspired as their students who attended those great summer learning activities.

Many NIFA grants in DOCE support experiential learning, such as summer camps, internships, and externships. If you have any suggestions on how NIFA can do more to facilitate summer learning, please let DOCE Director [Suresh Sureshwaran](#) know. In addition, in future issues of Ed-Facts we plan to feature DOCE funded educational resources that can be readily adopted at other institutions. If you wish to enhance the utilization of resources that you developed, please send an email to me.

Scholars Travel to Australia for Poultry Externships, Thanks to NIFA Grant

The goal of the [Multicultural Scholars Program \(MSP\)](#) is to support undergraduate scholarships that increase multicultural diversity in the food and agricultural workforce. North Carolina State University is setting a great example with their MSP grant – “‘Hatching’ tomorrow’s leaders in poultry science.” This program immerses scholars into the international animal science arena through summer externships at agricultural institutions abroad through a Special Experiential Learning (SEL) opportunity.

Project Director Dr. Matt Koci emphasized the importance of the SEL in recruiting students into the MSP program. “The SEL component of the MSP scholarship was an invaluable asset when it came to recruiting students. Most of the students we recruited to our MSP program had multiple scholarship opportunities. SEL allowed us to

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tell the students and their parents that the NC State Prestage Department of Poultry Science and NIFA were not just providing support for four years of education, but investing them as future leaders in a truly global industry.”

Three MSP scholars will travel to Adelaide, South Australia. There, they will participate in a diverse mix of university animal research and cultural experiences. These externships will help scholars to better understand the strengths and weakness of the U.S. land-grant system and compare the support for U.S. agriculture with similar production systems in other countries. The scholars are looking forward to their trip, and one is “excited to step out of [their] comfort zone and discover a new perspective.” The scholars will start with a four-day University of Adelaide aboriginal tour experience designed to teach the history and culture of Australia’s first people. They will then travel to a wildlife park on Kangaroo Island for a three-day stay, and close the trip with a 12-day stay at the University of Adelaide Animal Science campus in Roseworthy, South Australia. Scholars will live in the dorms on campus, sit in on classes, assist with experiments, and learn how the university supports food animal (specifically poultry) producers. At the end of the trip, scholars will report on the local food and animal industry and how it compares to the structure and demands of the industry in the United States.

“The scholars the MSP program helped us recruit have already made our department and program better, and I am excited to see what they learn during their SEL and how we as a program can grow and improve because of it” Koci said.

Girl Power and Fireflies: WAMS Camp Promotes STEM and Higher Education

Lori Duncan, an extension specialist and agricultural engineer with University of Tennessee, is using a grant from NIFA’s [Women and Minorities in STEM Fields](#) (WAMS) program to host a summer STEM camp for 55 high school girls from rural areas of eastern Tennessee. The camp, which runs from July 19-22 will feature a wide-range of activities. Campers are especially excited about a late-night firefly hike led by an entomologist who has authored books about these insects. Duncan, whose specialty is water and agriculture, will hold a special workshop for the young women that looks at water use for the agriculture industry and explores local, national, and global conservation issues.

“As a first-time mother, this camp has become even more important to me,” said Duncan. “I want it to be the kind of place I would like my daughter to attend.

“When I sent an email out, 24 women responded,” said Duncan. “Almost every female faculty member at the University of Tennessee’s Institute of Agriculture wanted to help.”

Another point that impressed Duncan was that some of the girls who will attend the camp will also be the first in their family to go to college. Many of them live on farms, but few are fully aware of the career opportunities available in agriculture. Others, from more urban backgrounds, will experience food and agricultural science for the first time.

“We had the girls write an admission essay, and some were interested in food science, others in environmental engineering. We even had one who wants to be President,” said Duncan.

In her proposal to NIFA, Duncan noted that in her home state of Tennessee the average female college participation rate from high schools is 61 percent, but drops to as low as 29 percent in rural areas. She also pointed out that about half of the University of Tennessee’s College of Agricultural Sciences and Natural Resources departments have

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less than 35 percent female enrollment.

“That’s why NIFA’s WAMS grant program appealed to me,” said Duncan. “I remember how few women joined me as I earned my degree in agricultural engineering. I was glad to get the grant because I want the next generation of women in science to have plenty of company.”

Sowing the Seeds for Summer Learning

Heritage University is a nonprofit higher education institution located in Toppenish, Washington, on the Yakama Indian Reservation. Twice a year the university provides 65 at-risk students with the opportunity to attend Camp S.E.E.D. (Social Economic Environmental Development), a summer learning program. NIFA’s [Hispanic Serving Institution](#) grant has helped to expand the program so more youth can discover their potential as learners through the discovery of agriculture within their community.

The camp targets middle school students whose families are migrant workers or attend the Yakama Nation Tribal School (YNTS). At camp, youth get

hands-on learning in business, conservation, and agriculture. For example, last summer YNTS students did a project on the “birth of a taco” by talking to wheat and tomato farmers near the camp. Relyn Strom, YNTS principal, said the program has made a difference.

“Camp S.E.E.D. gave our future students and former 8th grade students the opportunity to be exposed to a college campus. Many of our students were reluctant to participate and interact at first, but by the end of the program all were engaged,” said Strom. “The biggest benefit came from group activities that allowed students to go out of their comfort zone. These students gained so much knowledge for the upcoming school year. They became school leaders and left the program with the dream of attending college. Many of the students went on to make the honor roll in the following school year, some for the first time.”

The camp’s programs offer many opportunities for learning. The conservation classes are held at Cowiche Canyon Conservancy in Yakima, Washington, a 5,000-acre land trust. To learn financial skills the students are mentored in running their own business, and many return home with small profits of about \$50 in their pockets.

The camp is a father-daughter creation of Heritage University faculty members Leonard Black, chair of Accounting and Business Administration Department, and Dr. Jessica L. Black, director for the Center for Native Health and Culture. “Each year we have the kids write an essay about what they expect from the camp,” Mr. Black said. “Last year, one young man wrote that he expected nothing. He was identified as being at extremely high risk. By the end of camp he was really flourishing and asked if he could come back as a mentor the next year. We were so proud of him.”



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