

Draft for SASE report: Year 2006/2007
As Outlined by the Department of Agriculture/ CSREES
2006-38422-17110

Students Funded:	Stipends:	19
	Scholarship:	1
Faculty Hours Funded:	Director:	520--hours (1)
	Liaison:	144--hours (1)
	Instructors:	120--hours (2)
Total Faculty Hours:		904--hours

41. Progress Report:

The SASE project introduced Northern New Mexico high school and community college transfer students to opportunities in ag. science. Methods used were presentations to area high school and LCC students, and a Summer Institute at New Mexico Highlands University (NMHU) that immerses participants in hands-on exposure to the local agriculture sciences. An academic scholarship of \$40,000 was awarded to an underrepresented participant of the 2007 SASE to attend NMHU.

The recruitment method for the 2007 SASE Institute was a presentation to over 370 Junior/Senior students in ten Northern New Mexico high schools. Power Point, lecture, and discussion questions for presentations were used. Presentations, brochures, institutional websites, involvement of teachers and professors, and other publicity avenues were also used to expose the project to the public. Collaboration among the secondary schools and NMHU is not as strong as desired; consequently, it took effort to be admitted to all schools. The project staff anticipates the first year's effort will streamline the second's goals and objectives.

The two-week SASE Institute was held June 4-16. Nineteen students were housed in dorms at NMHU with two advisors acting as chaperones. SASE participants were exposed to field and laboratory exercises related to the agricultural sciences. The soil science curriculum exposed students to basics of soil science and the importance soil studies has in understanding the composition and functions of an ecosystem. Students gained a theoretical foundation in soil science and applied experience in the collection, characterization, and chemical analysis of soils. The water conservation curriculum exposed students to basics of water science and the importance of water studies. Students learned about the relationship between agricultural activities and aquatic systems. Students gained a theoretical foundation in water science and applied experience in understanding the dependence of agricultural activities within a watershed. Guest speakers from US Forest Service and NRCS informed participants about career opportunities with USDA.

Modules were presented to the SASE participants by a geologist and a forestry professor from the NMHU Natural Sciences Department. SASE advisor positions were filled adhering to EEOC requirements as mandated by the NMHU Department of Human Resources. The advisors participated in an NMHU orientation and also met with the project director in the week preceding the Institute.

Tracking SASE Institute and student participants that attended the presentations, but did not participate in SASE will be managed through a database designed to maintain all necessary longitudinal information. A sign-up sheet and an interest survey collected participant information at the presentations. Follow-up includes phone calls and mailings with information about NMHU and fields in agricultural sciences.

The SASE 2007 program was a great success. The participants gave positive evaluations of all activities and the pre-post tests show satisfactory learning. Eleven of the twelve senior participants are now enrolled at NMHU.

Publications:

Enter products of the project

Several products resulted from the SASE project including:(1)a well-designed brochure highlighting the advantages of the SASE summer institute and agricultural sciences in general;(2)a well-designed informational SASE WEB site;(3)the two-week SASE Institute;(4)receipt of a \$250.00 stipend by the participants;(5)the award of one \$40,000 academic scholarship to one outstanding underrepresented student;(6)a professional quality PowerPoint presentation that could easily be adapted to fit other similar programs;(7)a complete curriculum for the two week institute, suitable for introducing high school and college freshmen to soil and water conservation topics in the many aspects of agriculture sciences and;(8)a curriculum in Geographic Information Systems (GIS) is currently being developed and will be used for the SASE 2008 Institute.

Enter outcomes of the project

The outcomes of the SASE project include:(1)the introduction of professions and careers available in the field of agriculture sciences through presentations at ten area high schools and a MESA college day assembly. Findings from 65 percent of the attendants and returning surveys indicated interest in the SASE Institute and in ag. sciences; (2)exposure of nineteen students to career opportunities in the US Forest Service and the Natural Resource Conservation Service;(3)one-on-one consultation with nineteen students and the NMHU financial aid office;(4)one-on-one consultation with nineteen students and NMHU-Biology faculty;(5)the immersion of nineteen high school students in facets of agricultural sciences through the two-week SASE summer institute;(6)the completion of the two-week institute by nineteen registered participants;(7)satisfactory orientation and training for two advisors and;(8)a curriculum and agenda that created a smooth teaching environment for instructors.

Findings on the success of the institute from a pre and post science activity-exam indicate that student scores more than doubled. Pre-test scores in the soils group averaged 29% and the water group averaged 23%. Post test scores averaged 63% in the soils and 56% in the water module.

In a survey (1-5 scoring, with 5 being excellent and 1 being poor) determining the comfort level with/and interest in science indicated a 15% increase in the student comfort level and interest in science with a pre-institute score of 3.53 and a post-institute score of 4.06. All surveys noted a rewarding appreciation of the field trips, particularly the field trip to Bandelier National Monument and Park.

Instructor evaluations indicated positive comments about the instructors. The primary negative concern was (too much lecture time. Survey results indicate a score of 4.02 for the soils instructor and a 4.12 for the water conservation instructor (on a 1-5 scale).

The participants included twelve high school seniors and seven high school juniors. Participant surveys indicate a 95% satisfaction rate with residential facilities. The students rated the lecture portion of the courses low, hands-on lab experiences high, and the greatest praise was reserved for field trips. Two requests were frequent:(More free time) and (SASE T-shirts). Several also noted, (It was an awesome experience). These findings indicate an overall satisfaction rate of the participants in the SASE Institute was 3.9 (5-point scale).

Eleven of the twelve high school seniors registered at NMHU; five of the eleven NMHU enrollees are science majors. From these eleven students six applied for the \$40,000 academic scholarship provided by USDA-HSI. An objective panel of four NMHU and LCC faculty and staff made the final award decision and selected one of the six applicants to receive the \$40,000 scholarship which will enable him to proceed through a four year program in agricultural sciences at NMHU.

To further track the other SASE participants the Project Director is developing a tracking system to evaluate the long-term influence of the SASE project.

Enter dissemination activities of the project

There were few dissemination activities this first year of the project since there were no long-term results to report. A web page was developed and linked to the NMHU web site. The page details the goals and objectives of the project, provides application forms, and offers links to access additional information. The local Las Vegas, New Mexico newspaper has had two articles advertising the SASE project. The NMHU publicity staff is in the process of publishing these articles in the home-town newspapers of all the summer participants.

In the following years, the project director plans to present this project to various science conferences and prepare articles for relevant publications. At this time, most of these approaches are aimed to the university community. Project director will attend a National Science Foundation (NFS)-Quality Education for Minorities Workshop in October 2007 to potentially develop an education-research project based on the SASE Project. The Luna Community College Liaison agreed to present the findings to community college meetings. He plans to offer sessions to several Community College conferences, but in particular, to the American Association of Community Colleges (AACC) within the next two years. Any of the presentations could easily be a cooperative effort of project director and staff.

Enter future initiatives of the project

The two senior personnel of the SASE are looking forward to ways and means to continue or expand the project when the USDA funding is over. It is hoped they might apply for a second round of funding from the Department of Agriculture/CSREES. Additionally, they are planning on finding and pursuing other grant opportunities. Three sources that will be approached are: the Mathematics, Science, Engineering Improvement Program (MSEIP) initiative of the Department of Education; and the Advanced Technological Education (ATE) and Elementary, Secondary, and Informal Education (ESIE) initiatives of the National Science Foundation. The SASE principals also look to their institutions for further funding.

The administration of NMHU is very supportive of the SASE project. Discussion is under way to make the curriculum of the Summer Institute a dual credit course, which would serve two purposes: make the Institute more appealing to high school students and gain state funding for faculty to teach the two modules. It is likely NMHU will allow the Summer Institute to house students in the dormitories at little or no cost after the granting period. Local business and industry will be approached to contribute funds and technology. These could provide further incentives for participants in the form of awards and/or scholarships.

Enter the Impacts of the project

A key impact of the SASE program is the awareness created in the area schools about careers in agricultural sciences. Since agriculture is an increasingly technical field, the key players must be technologically able. SASE strives to impress that on the project students. It is hoped there will be a growing number of well-educated landowners/farmers who will be able to maintain the family farms with increasing efficiency through technology. Also, it is expected that Northern New Mexico students that complete a degree in Agricultural Sciences will avail themselves of the professional opportunities existing with the Department of Agriculture entities nearby.

A second important impact is that SASE will bring greater recognition to NMHU and LCC through the recruitment efforts at the high schools as students, teachers, and counselors learn about the post-secondary institutions' curricula, faculty, and availability. The participants of SASE, many of whom are from remote rural areas, will advocate the post secondary institutions, their resources and their accessibility to families and friends. This will increase student enrollment in the sciences and across the campuses.

Although students are being recruited to attend NMHU or LCC and major in a field of science, a greater emphasis has been put on the fact that students should continue their education beyond high school. Students, by consequence, are being encouraged to attend post secondary education institutions of their choice and major in a field of their choice.