

Hazardous Occupations Safety Training in Agriculture (HOSTA) Program

I. Program History

The USDA program is authorized under the Smith-Lever Act of May 8, 1914, as amended, (7 U.S.C. 341 et seq.) with funding provided under Section 3(d) of the Smith-Lever Act (7 U.S.C. 343(d)) line item for Youth Farm Safety Education and Certification in the fiscal year (FY) 2001 and 2002 Appropriations Acts.

Since the early 1970's when the DOL implemented the Hazardous Occupations Order for Agriculture significant changes in agricultural production and in the agricultural workforce have occurred. The U. S. Department of Agriculture, working with the Department of Labor, recognizes the unique position land-grant universities share in having the ability to address the immediate information and resource needs associated with the Hazardous Orders (HO's) and hazardous operations on farms.

II. Program Goals

These information and resource needs fall into three broad program goals:

- (1) Support Current Standards – Support existing HOs by updating and assessing curricula, testing, procedures, and certification means. Determine resources required to maintain a national certification program.
- (2) Conduct Studies to Support Policy and Program Development – Conduct research into the effectiveness of current HOs and into the health, labor, and economic impacts of altering current HOs. Study employment trends in employment of youth and skills needed in agriculture that would impact the education and certification need of these youth.
- (3) Develop Programs for Special Needs – Identify and develop educational program needs to mitigate agricultural hazards to young workers, regardless of knowledge, experience, ability, ethnicity, or culture.

III. Funded Projects

A. Fiscal Year 2001

During the program's inaugural year in FY 2001, the Request for Applications solicited proposals within the first category with an emphasis on eliminating regional differences in certification curricula and testing procedures.

CSREES awarded one four-year grant to Pennsylvania State University (PSU), "Establishing a National Safe Tractor and Machinery Operation Certification Program" – Jim Hilton, Dennis Murphy, and Tom Bean, with the following chronologically organized objectives:

Objective 1 – Convene eight focus groups, two in each of the four USDA Regions, to determine the competencies, skills, and certification requirements for the National Safe Tractor and Machinery Operation Certification (NSTMOC) Program.

- Objective 2 – Develop a curriculum for the NSTMOC program using responses from the eight focus groups, research findings, and investigator expertise and experience.
- Objective 3 – Pilot test in Pennsylvania and Ohio with selected instructor teams the NSTMOC program materials to determine their utility. Data collected from observing adherence to program procedures will help evaluate, test, and validate the developed materials and certification procedures. Trained instructors will in turn teach their local youth requiring certification.
- Objective 4 – Hold a national workshop/training session to introduce the NSTMOC program to safety professionals in conjunction with the annual meeting of the National Institute for Farm Safety. Participants will evaluate the technical materials and certification procedures.
- Objective 5 – Conduct three national NSTMOC introduction workshops at the National Education Center for Agricultural Safety (NECAS) Headquarters and Training facilities at Peosta, Iowa, totaling approximately 100 agents, teachers, and dealer representatives. Participants will evaluate the technical materials and certification procedures.
- Objective 6 – Determine the extent of liability borne by teachers, machinery suppliers and manufacturers, and employers with roles in the training and testing of NSTMOC students.
- Objective 7 – Different clientele groups in each of the four USDA Regions will evaluate the technical materials and certification procedures.
- Objective 8 – Determine the need for supplemental training materials covering topics such as skid steer loaders, self-propelled combines, and cotton pickers.
- Objective 9 – Establish guidelines that will maintain the NSTMOC program nationally.
- Objective 10 – Promote the NSTMOC program through workshops and professional meetings.

B. Fiscal Year 2002

During the program's second year in FY 2002, the Request for Applications (RFA) solicited proposals within all three priority categories. The RFA asked applicants to address:

“(a) how the changing workforce will impact this program; (b) how current and anticipated hiring practices of agricultural employers and trends in the agricultural industry will impact this program; (c) development of a tracking and database system for certification; [or] (d) development of training methods and materials that address knowledge, ethnic and cultural differences of youth that may seek certification.”

CSREES awarded three multi-year grants and provided supplemental funding to the PSU project as follows:

(1) “Graphics-Based YFSEC Curriculum,” (2 year project) – Bill Field, Roger Tormoehlen, Gary Bertoline (Purdue University).

“The...project will focus on the development of graphics-based training methods and materials... This alternative curriculum resource will build upon the updated curriculums being developed by Purdue University and Pennsylvania State University for providing training to youth seeking certification as specified by Federal regulations and recommended by agricultural safety professionals. The project will “translate” written instructional material for critical operator and worker safety competencies into graphical or pictorial format for youth (and adults) with limited reading and writing comprehension skills or who use English as a second language. Graphics, including pictorials, signal words, and color combinations published by standards organizations such as ASAE, SAE, and ANSI, will be used in the translation process.

“The materials will be pilot-tested in hard copy and audio-visual formats in instructor-led settings involving agricultural education students and adult farm and horticultural workers who use English as a second language. Levels of knowledge gained by participants will be compared with prior data gathered on students utilizing traditional and computer-aided farm safety instruction. The project team will consist of specialist in the field of agricultural safety, youth, curriculum development, and communications graphics.

“In addition to the supplemental curriculum material, outcomes will include a better understanding of strategies for removing literacy barriers in the farm worker training process, and how graphics could be more effectively used in existing training material.”

(2) “Implementation of a National Youth Farm Safety Certification Database,” (2 year project) – Roger Tormoehlen (Purdue University).

“The...project will design, develop, and implement a national database program...This project will build upon prior and ongoing efforts by Penn State, Ohio State, Purdue University, and others to enhance the effectiveness of tractor and machinery certification training for youth. The database program developed will focus on the following three key areas: 1) development and implementation of a system to track youth certified, leaders/volunteers trained and state safety contacts identified; 2) development and implementation of an educational training database of static and online interactive questions for the tractor and machinery safety certification program; and 3) development of an educational resources database of materials/programs for use with the tractor and machinery safety certification program.

“The tracking system will be designed with maximum flexibility and versatility for data entry. For instance, key individuals or organizations such as the state safety contacts or the certifying agency (ies) will be able to enter certified leaders/volunteers that in turn will be authorized to enter data on youth certified. For the educational training and resources databases, anyone will be able to suggest questions for input into the database, but the questions will only be released for use by the certified instructors and youth being trained when they have been approved by a national questions and resources certification committee/board.

“The database programs developed will be delivered via the web. As an option, individuals with...Windows-based PDA will be able to upload and download data from the databases.”

(3) “Development of a Tracking and Database System for a Youth Farm Safety Education and Certification Program” (3 year project) – Tom Bean and Samuel Steel (OSU and NSC). “This project will develop, implement, and evaluate an electronic system for tracking information and test results from tractor and machinery certification training being conducted by certified instructors in the United States. Further, a database will be established and maintained that will contain information about certified training instructors; certification training sites and dates of instruction; certification status of trained students; on-line versions of task sheets and tests; and, it will offer the flexibility of downloading reports on student test results and certification levels.”

(4) “Establishing a National Safe Tractor and Machinery Operation Certification Program – Supplemental Funding for the National Steering Committee” (3 year project – extendable to 4) – Jim Hilton, Dennis Murphy, and Aaron Yoder (PSU). Originally granted to fund annual meetings of a National Steering Committee to advise PSU’s project, CSREES has reorganized the governance of the National Steering Committee so that it can provide direction to the HOSTA program as a whole through annual meetings that PSU will continue to organize through this supplemental grant while CSREES will manage memberships and agendas. Project representatives will provide project updates at each annual meeting.

C. Fiscal Year 2003

For the program’s third year in FY 2003, the RFA had a narrow focus:

“[A]pplicants should propose at least two survey instruments targeting youth and agricultural producers, or subsets of these populations, within defined commodity industries and geographic regions, as appropriate to project goals. The following minimum survey requirements will apply:

“1. Youth

- (a) Select children and adolescents who have reached their 12th birthday but not their 20th birthday and have garnered experience in agricultural production while employed by persons other than their legal guardians or who desire this experience;
- (b) Collect gender, age, ethnicity, level of education attained, county of residence, and country of citizenship data;
- (c) Determine the extent of the youth’s current skill set in agriculturally related tasks, while determining the means through which the youth acquired their skills; and
- (d) Gauge these youth’s long-term interest in agriculturally related work.

“2. Agricultural Producers

- (a) Select agricultural production operations that directly, or through subcontractors, employ children and adolescents who have reached their 12th birthday but not their 20th birthday and who are legal dependents of any of the operations’ proprietors;

- (b) For each agricultural production operation, record: (1) the county of the base of operations, (2) the acres under production, (3) the operation's gross revenue, (4) the number of persons employed during any twelve month period, (5) the number of these employees under the age of 20 who were employed at least 40 hours per week but for less than six months, and (6) the number of these employees under the age of 20 who were employed less than 40 hours per week for less than six months;
- (c) Assess the employers' perceptions of youth training deficiencies;
- (d) Determine which experiences or skills make youth desirable employees for particular agricultural production operations;
- (e) Determine which tasks employers assign their youth employees, include minimum ages for each task;
- (f) Determine typical durations and intensities for each task; and
- (g) Determine typical sequences of task assignments within a single workday.

“Each applicant must propose to develop a standard for classifying, and later for coding, task categories reported by survey respondents. Standards should group equivalent or related task descriptions and apply an intensity measure for each task category in the form of production per time unit. Before distributing surveys, each grantee must submit this standard to the CSREES program office for approval. Applicants should propose to store data in comma separated values (CSV) on Microsoft format so that, if requested, grantees can electronically share the data, without personal descriptors, with the CSREES program office.”

CSREES awarded one three-year grant to PSU project “Determining Agriculturally Related Skills Twelve to Twenty Year Olds Need...” John Becker, Dennis Murphy, Jim Hilton, Tasha Snyder, and Fern Willits.

Objective 1 – Develop surveys.

Objective 2 – Participant Candidate Pools

Objective 3 – Carry out the survey

Objective 4 – Analyze the data obtained from the surveys.

Objective 5 – Communicate project results to stakeholders, the HOSTA Steering Committee and the public.

D. Fiscal Year 2004

During the program's fourth year in FY 2004, the RFA solicited proposals focused on 1) increasing the “public understanding of the implications of receiving certification and its awareness of available educational offerings across the country that satisfy the requirements for an exemption through education in safe operation of tractors and machinery under 29 CFR 570-72;” 2) preparing “model certification standards flexible enough to encourage adoption by states and territories and facilitate future improvements but rigorous enough to effectively test basic knowledge of working hazards in agriculture and minimal proficiency in safe operation of tractors and machinery as described in 29 CFR 570-72;” and 3) “recommend a fee structure to fund public awareness of certification programs, examination relevancy efforts, and instructor training.”

CSREES awarded one four-year grant to Pennsylvania State University, “Developing a National Center for Hazardous Occupations Safety Training in Agriculture” – Dennis Murphy, James Hilton, Aaron Yoder (Pennsylvania State University), Tom Bean, and Shelley Jepsen (Ohio State University).

Objective 1 – Develop and implement a national marketing plan to increase awareness and understanding of the Hazardous Occupations Order for Agriculture and exemptions through education for safe operation of tractors and machinery under USDOL 29 CFR 560.72. Target audiences include youth and families, state and local educators, employers, popular press and agri-broadcasters, professional organizations with interest in safety and health, and professional education and commodity associations.

Objective 2 – Create administration standards for the development and operation of a National Center for Hazardous Occupations Training in Agriculture (NC-HOSTA). Administrative standards will have enough flexibility to “encourage use without compromising rigor; state minimum agriculture, tractor, and machinery knowledge and skills; apportion minimum knowledge and skills into written and demonstration framework; guide instructors in administering knowledge tests; guide instructors in administering skills test; develop criteria for evaluating and incorporating continuous improvement to [Minimum Core Content Areas] and examination frameworks; and establish minimum instructor credentials including professional development.

Objective 3 – Operate and evaluate a national pilot test of a NC-HOSTA and NSTMOP.

Objective 4 – Prepare final recommendations and products that include administration standards and a fee structure for a sustainable NC-HOSTA.

E. Fiscal Year 2005

In the program’s fifth year, in 2005, the RFA solicited proposals focused on 1) Implementing and maintaining a national database of youth certified, to contain information on youth certified, instructors, training resources, and exams; and 2) Instructor training and skills test equipment, which focused on establishing a mini-grants program to train instructors and disseminate skills test course equipment.

CSREES awarded one four-year grant to Purdue University, “Implementation and Maintenance of a Model Administrative Management System for the HOSTA Program”—Roger Tormoehlen.

Objective 1 - Implement a research-based, comprehensive database for the federal Youth Farm Safety Education and Certification program that will provide appropriate tracking and educational training opportunities for youth and adults associated with the program.

Objective - Develop a cost-effective maintenance program for the federal Youth Farm Safety Education and Certification database.

CSREES awarded one two-year grant to Pennsylvania State University, “Providing Instructor Training and Mini-Grant Distribution of Funds to Support HOSTA Approved National Safe Tractor and Machinery Operation Instruction and Certification Programs”—Dennis Murphy.

Objective 1 - Promote the use of HOSTA approved safe tractor and machinery operation program materials and procedures on a national program basis to meet the USDOL HOOA and HOSTA approved “National Safe Tractor and Machinery Operation Program” objectives.

Objective 2 - Develop a cooperative agreement with the HOSTA funded database awardee [Purdue University] to represent the HOSTA NSTMOP (for purposes of this project) on a national basis and to share database information to facilitate national program development and provide and access data for and in the national database regarding state and community level HOSTA NSTMOP approved instructors.

Objective 3 - Train additional agricultural educators to provide leadership on a state and community level to provide education and training programs in the safe operation of tractor and machinery for those 14 and 15 year old participants wishing employment.

Objective 4 - Develop and evaluate a computer based self-tutorial for future training of instructors to be available online to streamline and to provide for future training needs.

Objective 5 - Encourage state and community level HOSTA approved educators to promote and include adults to participate in a safe tractor and machinery operation training programs as students and program assistants.

Objective 6 - Provide mini-grants to HOSTA approved and registered safe tractor and machinery operation program educators or collective groups of educators in an area to provide supplies and materials to conduct and host HOSTA approved safe tractor and machinery operation certification testing programs and activities.

F. Fiscal Year 2006

In the sixth year of the program, fiscal year 2006, the RFA solicited proposals within the third category with an emphasis on utilizing the North American Guidelines for Children’s Agricultural Tasks (NAGCAT) and developing programs for minority and underserved youth.

CSREES awarded one two-year grant to Purdue University, “A User-Friendly Portal to Age-Appropriate Tasks on the HOSTA Website”—Roger Tormoehlen. The primary objective of this project is to develop a user-friendly database of age appropriate agricultural tasks for children using the NAGCAT guidelines.

CSREES awarded one four-year grant to Kansas State University, “Youth Livestock Safety Education Project,”—John Slocombe. The objectives of this project are to foster a healthy learning environment for youth enrolled in 4-H and Youth Program livestock project areas by providing safety educational materials to supplement project materials. Project products will include a DVD containing livestock safety lessons for six species (beef, dairy, horse, sheep, goat, and swine) and a companion website with youth livestock safety assessment quizzes for each of the species. The target audience is youth who show livestock at public exhibitions. The secondary target audience is local adult volunteer project leaders for youth livestock projects. The NAGCAT guidelines will be used in development of the lessons.

CSREES awarded one three-year grant to the Ohio State University, “Anabaptist Youth Farm Safety Education Program,”—Dee Jepsen. The overall objective of the project is to identify, develop, implement, and evaluate an educational program suitable for Anabaptist (Amish and Mennonite) youth that mitigates the rural and agricultural hazards to which they are exposed. Specific objectives include identifying stakeholders and developing partnerships for an Anabaptist youth safety program; developing safety curricula for Anabaptist youth who live and work in rural areas; implementing and evaluating the day camp concept as a viable methodology for creating awareness and teaching agricultural safety and health to Anabaptist youth; and disseminating the Anabaptist youth educational model and safety curriculum beyond the Ohio-piloted counties.

CSREES awarded one three-year grant to Purdue University, “Implementation and Evaluation of the Gearing Up for Safety Curriculum for use with Black Youth Seeking AgHOs Certification,”—William Field.

- Objective 1 - Achieve a better understanding of the needs of Black agricultural educators and youth concerning compliance with the Agricultural Hazardous Occupations Orders (AgHOs).
- Objective 2 - Documentation of criteria and development of evaluation processes that should be considered to ensure that AgHOs training, regardless of source, is free of cultural and racial bias when used with Black youth.
- Objective 3 - Enhancement of the current “Gearing Up for Safety” curriculum to ensure its acceptance by Black agricultural educators and youth. This would include expanded resources to specifically make the resource more reflective of the agricultural work environment in which a majority of Black youth are engaged.
- Objective 4 - Increased awareness among Black agricultural educators and employers concerning the training requirements contained in the AgHOs and the availability of resources to meet those requirements.
- Objective 5 - Documented increase in the number of Black youth who successfully participate in and successfully complete the AgHOs certification training.

G. Fiscal Year 2007.

In the seventh year of the program, the RFA solicited proposals under the first objective: Support Current Standards, with an emphasis placed on the development and implementation of a collaborative instructor training program. Applicants were encouraged to propose planning processes which include the development and utilization of a focus group consisting of previous instructors and users of the available Hazardous Occupations Safety Training for Agriculture Program (HOSTA) approved curriculum materials. Applicants were also encouraged to describe how the focus group would be active in the planning process and actual training of the instructors.

CSREES awarded one four-year grant to Purdue University, “Youth Farm Safety Educational and Certification Program: Development and Management of Instructor Training.” The ultimate objective of the project is to develop and implement a nationwide, fully collaborative and evidence-based instructor recruitment, training, and validation program for current and future instructors of programs leading to the certification of eligible youth under the provisions of the Agricultural Hazardous Occupations Order (AgHOs). To accomplish this goal, the following objectives have been established:

- Objective 1 - Establish a nationally representative project advisory committee for the purpose of assisting with the drafting and implementation of a strategic plan for a national AgHOs instructor recruitment, training and validation program and to provide continuing external validation of project activities.
- Objective 2 - Facilitate a national AgHOs instructor focus group during the first year of the project consisting of current instructors and key stakeholders to identify critical components needed to develop an effective, outcome-based AgHOs instructor recruitment, training, and validation program.
- Objective 3 - Develop a strategic plan for implementation and assessment of a national AgHOs instructor recruitment, training, and validation program for USDA approval.
- Objective 4 - Implement and evaluate the components of the strategic plan on a national basis.
- Objective 5 - Maintain a national, up-to-date database of trained and validated instructors equipped to offer AgHOs certification at the local and state level.
- Objective 6 - Provide for the duration of the project continued training/learning opportunities on a national basis for AgHOs instructors via Internet-based and face to face formats.
- Objective 7 - Develop recommendations for USDA concerning strategies for continuity of the instructor recruitment, training and validation program, and needed changes to the AgHOs to reflect recent changes in program management and education delivery strategies.