AFF Center Evaluation

[*Prepared by the NIOSH AFF Center Evaluation, Communications and Outreach (ECO) Group*]

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In 2011, NIOSH AFF Centers officially began to include evaluation within each center. That same year the, Ag Centers initiated the Evaluation, Communication and Outreach (ECO) Group, a cross-center forum to share program methods and expertise and peer mentoring to new personnel and Centers. This group has been meeting every other month, for more than 5 years. Through ECO, Centers share approaches to evaluation and collaborate on evaluation priorities, challenges and opportunities. Although Ag Centers approach evaluation in a variety of ways, they collect and store many common data elements. Most centers maintain databases which store information about the outputs and outcomes of each center project and the center overall. Information to populate databases come from multiple sources, including annual progress reports (e.g., 2590 report and "highlights" reports), program documents (e.g., attendee lists, newsletters, seminar announcements), and public databases (e.g., *NIH Reporter, PubMed/Scopus*), institutional databases (e.g., grants databases, *SciVal*), social media and website analytics (Facebook, YouTube, Twitter, URL Shorteners) and meetings or correspondence with center PIs and staff.

[The table below describes example content of the type of data that Ag Centers are currently collecting.]

OUTPUTS/PRODUCTS: Outputs are the products resulting from a project or center's activities.

Output/Product	Data being collected
Publications in peer-review literature, technical reports	Publications (Count, journal type, co-authors collaborations, alternative metrics)
Presentations to scientific audience (including posters)	Presentations – Scientific, Conferences and Meetings
Presentations to community/lay audience	Presentations –Community meetings attended
Media/press releases/public service announcements	Media Coverage (Count, estimate of viewership via print or online metrics, geographical region)
Workshops/Conferences/Seminars/Farm Shows	Outreach (topic, type, # attendees, geographical region)
Webinars/Trainings/Ag Safety and Health Courses	Outreach (topic, type, # trained, geographical region)
Social Media Activity (Facebook, Twitter, Blog, YouTube)	Social Media (Number of individuals reached/engaged, geographical region, etc)
Supported graduate students, Master's Thesis and Doctoral Dissertations	Grad Students Supported (count, titles of Thesis's/Dissertations)
Supported post-doctoral fellows	Post Docs Supported (# and names)
Educational material developed/delivered (webinars, trainings, videos, etc.)	Educational Materials (# developed, # delivered, geographical region)
Other Scientific Products (licenses, patents, copyrights, databases, methods, websites)	Other Scientific Products
Research and health care tools/methods (questionnaires, test kits, training modules)	Impact on Research Community, (# developed, questionnaire results if applicable)
Standard Operating Procedures/methods (assay)	Impact on Research Community
Collaborations/Partnerships resulting from project or center activities	Collaborations
Grants resulting from project or center activities	Grants
Honors/Awards	Honors/Awards

OUTCOMES: Outcomes are the "uptake" or use of project or center outputs. NIOSH distinguishes between intermediate outcomes, or evidence of reduction of risk factors in the workplace and end outcomes, which are defined as "evidence of reduction in workplace exposure, illness or injuries". We define outcomes generally as "workplace improvements in safety and health that result in documented decreases in illness, injury or exposures".

Selected Examples of Ag Center Outcomes

Outcome	Examples
Policy/regulations/standards	• Contributed to a multilevel transformation of California's heat illness prevention requirements (WCAHS) • International Engineering Standard (ANSI/ASABE S607), "Ventilating Manure Storages to Reduce Entry Risks" (Multiple Centers) • Projects promoting harness and lifeline use in grain bin entry influenced the new ASABE x624 Grain Bin Entry Design Standard (Multiple Centers) • Provided evidence of safety improvements with farm vehicle lighting and marking and influenced the 2016 Federal Standard on Lighting and Marking on Agricultural Equipment (Public Law 112-141 Section 31601 of MAP-21) (GPCAH)
Guidelines or best practices adopted	• A bilingual 5-module farm safety curriculum for immigrant dairy workers has been adopted by OSHA (UMASH) • Partnered with the tree fruit industry to release a pesticide safety training video to help growers comply with the new EPA Worker Protection Standard and field sanitation standards (PNASH)
Research methods or procedures used beyond center project	• Methodology developed from research on airborne particulate matter implemented in other studies with colleagues for research supported by the California Air Resources Board and the Electric Power Research Institute (WCAHS) • Social marketing approach developed for the ROPS project which includes a retrofit hotline and rebate successfully encouraged farmers to install ROPS on tractors (NEC) • Identified culturally appropriate training and messaging favorably influence attitudes and beliefs among commercial fishermen and is being used by other researchers (SWAG)
Technology (pilot or market-ready)	• Immunoassays for pesticide exposure available for use in human and animal studies (WCAHS) • Designed a computer program using tractor dimensions and weight to create a ROPS design that is easy to implement and construct. The program has been made available to certified ROPS manufacturers (HICAHS) • Developed a mobile App for pesticide handlers that provided pesticide product labels in English and Spanish (PNASH)
Changes in safety practices, work environments	• A collaboration with farm-owners and tractor PTO shield manufacturers increased the documented purchase of PTO shields by 264% (NEC) • Aurora Organic Dairy (TX, CO) now implementing the first Total Worker Health program at a dairy farm (HICAHS)

Increased Productivity	• Ergonomic improvements were made to the design of Maine blueberry rakers, which led to increased productivity, greater acceptability, and overall reduction in MSD pain (NEC) • A project with Navajo farmers identified to significant changes in pesticide use, storage behaviors, and safe pesticide application techniques, while also increasing agricultural yield in treated plots (SWAG)
Demonstrated Risk Reduction (Biological and Physical Monitoring)	• Documented 19 tractor overturn events that resulted in a saved life due to the installation of ROPS through a rebate program (NEC) • Increased vitamin D found to reduce bone loss in farmers who breathe agricultural dusts (CSCASH)
Use of education and training products	• On-farm and community safety training sessions for >8,000 farmworkers (NEC) • The Agricultural Core Course, has expanded beyond Iowa to Vermont, Nebraska, North Carolina, North Dakota, Wisconsin, Alabama, Texas and Australia. The course has been delivered 36 times to over 800 trainees (Multiple Centers) • Centers collectively participated in video production, review, and evaluation of social media using the U.S. Agricultural Safety and Health Centers YouTube platform. This collection has been used for numerous training programs and videos have viewed more than 200,000 times (Multiple Centers) • The 'Considering Human and Animal Safety' video series is used across the Southwest region as a training tool. The video was developed by HICAHS, The SW Ag Center, the Southern Great Plains Dairy Consortium and New Mexico State University (Multiple Centers) • Developed workshops on agrotourism for state licensing requirements, best practices for animal venues, design, farm safety—over 87% of participants plan to implement the recommendations (UMASH)
Exposure Reduction	• Washington State created a successful biological monitoring program for workers handling the most toxic pesticides. In 2004 20% of workers were overexposed, but this quickly fell to 12% and is now 3-8% of workers (PNASH) • Simple changes in heater selection was found to reduce CO_2 concentrations in livestock production buildings (GPCAH)
Reduction in Illness, Injuries, and Fatalities	• The AFF program has retrofitted unprotected tractors with close to 2,306 ROPS. ROPS are the only proven method for preventing deaths and injuries in tractor rollover events. In more than 100 recorded incidents, farmers who had installed ROPS suffered no injuries (Multiple Centers) • A farm safety education program in South Dakota has trained more than 500 Hutterite colony members and led to a 51% reduction in agriculture trauma-related incidents at the local health care center (GPCAH)