

# Community Partners for Healthy Farming: Involving Communities in Intervention Planning, Implementation, and Evaluation

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## BACKGROUND

Agriculture is among the most hazardous industries and yet those who farm in the U.S.A. have very limited occupational health resources. In 1996, unintentional, work-related injury–death rate in U.S.A. agriculture was more than five times higher than in all industries (21 vs. 4/100,000) and 40% higher than construction (15/100,000) [National Safety Council, 1997]. Agriculture is dynamic in terms of farm size, ownership, commodity, the wide range of hazards, the influence of few labor regulations, community norms, working children, and owner autonomy which all vary significantly from other industries. These aspects require multidisciplinary approaches for prevention [Ehlers et al., 1993; Purschwitz, 1994]. Factors influencing preventive behaviors of farmers include concern; perception of risk, preventability, and cost/benefit; personal experience; convenience; and farmer's age. [Wadud et al., 1998]. An external panel evaluated NIOSH's (National Institute for Occupational Safety and Health) agricultural initiative and recommended that NIOSH foster the development of community-based intervention research linking traditional research and surveillance projects to community-based interventions [Kennedy et al., 1995]. To address this problem and respond to these recommendations, in 1996, the NIOSH initiated the Community Partners for Healthy Farming (CPHF) surveillance and intervention research programs.

## METHODS

Through CPHF, seven agencies conduct community-based intervention research. The active involvement of the stakeholders in communities as partners is a required, integral part of these projects. It begins during proposal preparation and continues throughout every phase of the project. Community partners and multidisciplinary research teams collaborate to develop and test interventions. By utilizing pre- and post intervention data of treatment and control groups, each project evaluates the process of community involvement as well as specific interventions.

In three states, ergonomic projects focus on tree nurseries (WA); the grape wine industry (CA); and small, specialty crop farming (WI). Researchers used psychosocial and symptom questionnaires and observational exposure assessment to identify risk factors for musculoskeletal effects. Cooperatively, researchers and partners identified job hazards, prioritized hazards for intervention, collected baseline data, and initiated selected interventions. Evaluations will include impact on workplace hazards, effectiveness of their promotions, and successful adoption of cost-effective modifications that decrease hazards while increasing efficiency.

Two agencies are evaluating three programs for youth. In North Dakota, they are evaluating previously developed tractor safety certification courses for 14–15 year-olds and a school-based program for fifth–sixth grade children. The National Farm Medicine Center, in partnership with the National FFA Organization (previously known as the Future Farmers of America), will be conducting a comprehensive evaluation of the impact of a national safety and health initiative targeted primarily at farm youth. Data will be collected from > 3000 study participants at four time intervals.

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The University of Kentucky (KY) is focused on reducing tractor-related injuries and fatalities. By using a community education approach consisting of a variety of materials and media, KY aims to change farmers' perceptions about roll-over-protective structures (ROPS). Surveys and farm visits will be used to measure changes in farmers' knowledge and attitudes about the value of ROPS. The number of ROPS acquired by farmers will be used to evaluate program effectiveness.

The University of Iowa (IA) is testing three interventions: the feasibility of implementing medical insurance incentives (discounts) to farmers who operate a "Certified Safe Farm", the development of a model clearinghouse for agricultural health and safety information, and the reduction of dust inhalation by workers in swine housing. Criteria for receiving insurance discounts for operating a "Certified Safe Farm" include participating in farm safety audits, health screening, and education. For the clearinghouse, process evaluation will be used to evaluate feasibility. Health and injury surveillance data will be used as outcome measures for the "Certified Safe Farm" and clearinghouse projects. In the intervention to reduce dust, researchers are comparing the effects of applying different quantities of soybean and canola oil (oil misting) to no application.

## RESULTS

These projects are about 50% complete. The partners are providing input in various forums, e.g., participation in labor/management teams, community coalition meetings, stakeholder advisory boards, grower meetings/events, focus groups; establishing collaboration with farmers, tool manufacturers, suppliers, and equipment dealers; and developing and disseminating a variety of survey instruments, educational materials and media messages [NIOSH, 1997].

Ergonomic teams are functioning. In tree nurseries, the labor/management teams have received training in ergonomic awareness, job analysis and team building. Teams have identified problematic jobs (e.g., equipment operator, packing, loading transplanter) and potential controls (e.g., vibration attenuating seats, smaller/shorter bags, tiltable bins). Working with small growers, researchers found that the needs of different size operations vary widely and mechanization is desirable, but not always realistic. A dozen relatively simple interventions have been identified, (e.g., net bags for washing leafy vegetables, a seedling transplanting tool, and a bike cart to assist in various types of field work) which appear practical, low cost enough to appeal to many small growers, and potentially useful in developing countries. In the wine grape project, acceptable alternative approaches to four priority hazards have been selected and the prototype equipment is under development.

In the youth-directed projects, the contribution of partners will vary by community because the partners will

be solicited by FFA chapters, schools, and those conducting tractor safety programs. Curriculum for the tractor safety training and school-based programs have been reviewed, revised as necessary, and piloted. FFA chapters ( $n = 123$ ) in 10 states have agreed to participate in the evaluation of their health and safety activities.

Partners in KY have developed 33 intervention activities. These include: pamphlets on how and where to get ROPS, vignettes for newspapers, and instructions for an interactive demonstration using toy model tractors with seatbelts, eggs, and detachable ROPS. Banks provide low interest loans for ROPS, non-agricultural employers have disseminated information with paychecks, and equipment dealers make ROPS readily available, often provided by manufacturers at cost. Pre-intervention surveys indicated that few farmers had thought about installing ROPS.

CPHF in IA has developed the components of all three projects. After the presentation to the advisory board of the Certified Safe Farm Program, the original education component was changed to individualized education based on needs assessment with the farmer, and both producer groups and agribusinesses provided additional funding for project expansion. This funding has enabled the number of pilot farms to be increased from 25 to 150 and the project to assess the role of psychological factors in predicting successful participation. Oil-misting of swine housing appears to reduce dust levels 50%. The clearinghouse has evaluated materials and the database contains over 3,000 names of people with interest in agricultural safety and health.

## CONCLUSIONS

During the first half of this project, we have confirmed some beliefs and identified some strengths and barriers to agricultural safety. Collaboration is both valuable and usually enthusiastically embraced by workers and communities. Private and public sectors seek involvement, including worker-related organizations, schools, youth organizations, grower associations, extension service, media, banks, agribusinesses, and both workers and managers of corporate and family farms. Partners volunteer their time, expertise, and financial resources. Workers readily provide useful ideas to researchers. Workers readily make adaptations to tools being evaluated; although potentially useful, these adaptations complicate evaluation.

These projects provide important data to direct intervention efforts and develop models for agriculture and elsewhere. Furthermore, the processes developed may be useful models for other industries, e.g., construction, where the worksite is also dynamic, and small businesses in other industry sectors, especially where voluntary focus on health and safety is important. With the growing interest of citizens in many countries for less government regulation

and, at the same time, growing interest in health and safety, models for community involvement and motivation for voluntary compliance will be valuable.

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