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Eileen L. Fisher PhD & Kelley J. Donham MS DVM

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## Agricultural Medicine Core Course: Building Capacity for Health and Safety Professionals

Eileen L. Fisher, PhD  
Kelley J. Donham, MS, DVM

**ABSTRACT.** In 1987 the University of Iowa began training health care professionals to care for farmers' occupational health needs. The training enables health professionals from various disciplines to function in the anticipation, diagnosis, treatment, and prevention of occupational illnesses and injuries in the farm community. A grant from National Institute for Occupational Safety and Health (NIOSH) entitled "Building Capacity for Health and Safety Professionals" allowed for the expansion of this training to other states. This paper describes the challenges, successes, and lessons learned from dissemination of Agricultural Medicine Core Course.

**KEYWORDS.** Agricultural, medicine, occupational, prevention, health, safety, injury, rural, farming, health care, continuing education, training

### INTRODUCTION

The recognition of the need for specialized training for health care professionals in agricultural medicine continues to expand across the nation. In the mid-1970s, when there was an initiative to place health care professionals in rural areas, the University of Iowa began to develop an educational program in occupational and environmental health for medical students and graduate students. It would be the first such program in the nation to focus on agricultural health.<sup>1</sup> The program included:

- Introductory lectures in agricultural medicine for second year medical students
- A graduate-level course called "Agricultural Medicine and Rural Health"

for medical, nursing, industrial hygiene, and environmental health students

- A rotation in agricultural medicine for medical students and family practice residents
- A summer research experience for medical students in agricultural medicine
- A graduate level seminar in agricultural medicine
- A 3-hour, graduate-level course in zoonoses (infectious diseases common to animals and man)

The book *Medical Practice in Rural Communities*<sup>2</sup> was written to supplement this program and provide an introduction to agricultural occupational and environmental health.

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Eileen L. Fisher is Associate Director and Kelley J. Donham is Director, Iowa's Center for Agricultural Safety and Health, The University of Iowa, Iowa City, Iowa, USA.

Address correspondence to: Eileen L. Fisher, PhD, Iowa's Center for Agricultural Safety and Health, The University of Iowa College of Public Health, UI Research Park 220 IREH, Iowa City, IA 52242-5000, USA (E-mail: eileen-fisher@uiowa.edu).

The term agricultural medicine was first traced to an institute in Poland and the use of the term in North America can be traced to 1955 with the founding of the Institute of Agricultural Medicine within the College of Medicine at the University of Iowa.<sup>3,4</sup> Kelley J. Donham, MS, DVM, expanded the definition of agricultural medicine in multidisciplinary and holistic terms to “the anticipation, recognition, diagnosis, treatment, control, and community health aspects of occupational exposures in agriculture.”<sup>1,3</sup> He felt that agricultural medicine must be multidisciplinary in concept and approach, and wanted the University of Iowa physicians, physician assistants, pharmacists, nurses, industrial hygienists, and other occupational health professional students to receive this basic training together. This multidisciplinary concept has persisted in Iowa since 1974.

The Iowa Legislature realized the need for training in agricultural medicine as well as networks to deliver the services and in 1987 passed legislation to establish a network of Agricultural Occupational Health and Safety Clinics. The success of this initial program led to legislation in 1990 to create Iowa’s Center for Agricultural Safety and Health (I-CASH). From 1990 to 2003, Dr. Donham managed a program that provided consultation, continuing education, and standards of care to the clinics in Iowa providing agricultural occupational services. In 2003, with interest growing beyond state boundaries, that program became a nonprofit membership organization named AgriSafe, representing health professionals concerned about the health and safety of farmers, farm families, and farm workers. Today the organization provides its members with access to education, contact with other clinicians in the field, and updates on cutting-edge developments in agricultural safety and health ([www.agrisafe.org](http://www.agrisafe.org)). AgriSafe providers offer a variety of services including preventive screening, personal protective equipment (PPE) selection guidance, and an on-farm safety consultation called Certified Safe Farm. Five working committees with representation from all AgriSafe clinics provide recommendations to the board of directors. These committees include Quality Assurance, Marketing and Fundraising, Certified Safe

Farm, Training and Education, and Budget. The Training and Education committee approve the curriculum and instructors of trainings that qualify the participants to become AgriSafe Providers.

Over a 20-year period, the training has evolved into what is now called “Agricultural Medicine: Occupational and Environmental Health for Rural Health Professionals-The Core Course,” abbreviated as “Agricultural Medicine Core Course” (AMCC). The course enables health professionals from various disciplines to function in the anticipation, diagnosis, treatment, and prevention of occupational illnesses and injuries in the farm community. The course is taught at the University of Iowa every spring semester and in a 40-hour workshop in June where students can earn continuing education units (CEUs) for nurses (RNs) continuing medical education (CME) for doctors (MDs), physician assistants (PAs), or nurse practitioners (NPs), or 3 semester hours of graduate credit. The workshop is divided into two 2.5-day sessions. Participants may attend one or both sessions. Consistent core curriculum in each session helps practicing professionals who cannot attend the full week by allowing them to take the second session in the following year or in another state. Topics for Sessions I and II are listed in Table 1.

Students who want graduate credit must take a closed-book online exam within 30 days of the end of the second session, and pass with a score of 70% or higher. Health care professionals (RNs, PAs, NPs, MDs) taking the course who want to become an AgriSafe Provider must apply to AgriSafe and pass the closed-book exam with a proctor. A second exam is available within 60 days for those who fail on the first try. AMCC certificates are awarded to those who pass the exam.

Although training of health professionals in agricultural medicine was identified as one of the most important recommendations to come out of the Agriculture at Risk conference held at the University of Iowa in 1988,<sup>5,6</sup> a report from 2002 indicated that there had been little improvement nationally in the number of health professionals trained between 1988 and 2002 in agricultural safety and health.<sup>7</sup> From 1987 to

TABLE 1. Agricultural Medicine Core Course Topics—Session I and Session II

Session I topics	Session II topics
<ul style="list-style-type: none"> <li>● Rural Health and Agricultural Medicine 1.5 hours</li> <li>● Veterinary Biological &amp; Therapeutic Occupational Hazards 1.5 hours</li> <li>● Health Effects of Agricultural Pesticides 1.5 hours</li> <li>● Zoonotic Diseases 3.0 hours</li> <li>● Acute Agricultural Injuries 3.0 hours</li> <li>● Agricultural Respiratory Diseases 2.0 hours</li> <li>● Physical Factors Affecting Health in Agriculture 1.5 hours</li> <li>● Behavioral Health Issues in the Farming Community 1.5 hours</li> <li>● Environmental Hazards in Agriculture 1.0 hours</li> <li>● Agricultural Skin Diseases 1.5 hours</li> </ul>	<ul style="list-style-type: none"> <li>● Musculoskeletal Diseases and Ergonomics in Agriculture 2.5 hours</li> <li>● Resources for Farm Family Members with Disabilities 1.0 hours</li> <li>● Cancer in Agricultural Populations 1.0 hours</li> <li>● Skin Cancer and Precancerous Lesions 1.5 hours</li> <li>● Farm Safety for Youth 1.0 hours</li> <li>● Personal Protective Equipment (PPE) in Agriculture: An Overview 1.0 hours</li> <li>● Selection of PPE/Respiratory Fit Testing 2.5 hours</li> <li>● Integration of Agricultural Occupational Health Care into an Established Health Care System 1.5 hours</li> <li>● Prevention of Agricultural Injury and Illness 1.0 hours</li> <li>● Case Studies/Problem Solving 1.5 hours</li> <li>● Farm Tour 3.0 hours</li> </ul>

2006, the University of Iowa had trained 300 students and 160 earned an AMCC certificate. The lack of training in agricultural medicine in states outside of Iowa led to funding from the National Institute of Occupational Safety and Health (NIOSH) through the Great Plains Center for Agricultural Safety to expand the course to other Midwest states. This paper describes the challenges, successes, and lessons learned from dissemination of AMCC during 2006–2010.

## METHODS

### *Development of Core Curriculum*

A consensus process was used to engage experienced agricultural health specialists from the upper Midwest region to develop a model core curriculum and competencies for health professionals. These experts formed an External Advisory Committee and played an important role in “regionalizing” the training by adjusting it to geographic variations in agricultural work processes and the cultural/socioethnic makeup of the workers. Regional experts shared core elements they thought should be included before deciding on core curriculum and competencies for the AMCC. Relevant materials to be considered in the course were sent to the agricultural health specialists for review. Based upon this input, the textbook *Agricultural Medicine: Occupational and Environmental Health for*

*Health Professions* was written to cover the consensus core curriculum.<sup>4</sup>

### *Recruitment of Organizational Leaders*

The External Advisory Committee members played a key role in identifying leaders in other states who were interested in offering the AMCC course. The plan was to offer the course once in Iowa and once in another Midwest state each year for a total of 10 courses over 5 years. Targeted states included Wisconsin, Illinois, Kansas, Nebraska, South Dakota, and Colorado. If a state responded with interest, a planning committee would be formed with leaders from that state and an adjacent state, in order to plan a joint AMCC.

### *Plan and Implement the Course*

The respective External Advisory Committee member in each state conducted program planning via teleconference with project staff at the University of Iowa in order to:

- Identify planning committee in host state
- Identify regional differences in agricultural practice
- Identify faculty from the host state
- Develop budget and secure local funding
- Set date/location of training
- Develop marketing/publicity methods

- Determine needs and methods of distance learning
- Arrange sites for field visits to farming operations
- Determine methods of graduate college credit
- Determine CEU and CME accreditation
- Assemble course materials
- Conduct evaluation
- Review and revise based on evaluation

The External Advisory Committee member recruited a host site coordinator who was responsible for scheduling regular conference calls, sending minutes and reminders, and the logistics of the training. A protocol manual was developed by project staff that included an overview of the project, a history of agricultural occupational health training, a planning task list, a timeline, evaluation plans, testing procedures, sample budgets, brochures, flyers, and sample press releases. The planning task list, timeline, and checklist guided the planning committee through the process from beginning to end.

Instructors for the AMCC course were sent a list of the core curriculum and competencies, an Agricultural Medicine textbook,<sup>4</sup> and an electronic presentation for their topic area. Instructors were also invited to participate in an introductory Webinar that provided an overview and objectives of the course. Individual calls with each instructor and the project director helped them prepare their presentation and make sure it was geared to agricultural health and safety.

### ***Program Evaluation***

A process evaluation monitored the steps needed to reproduce the AMCC, which included:

- Recruitment of collaborating states
- Planning sessions via conference calls
- Development of a protocol manual
- Student course evaluations
- Development of an online exam service
- Consultations with new instructors
- Webinar sessions with new instructors
- Financial assistance to collaborators
- Postcourse conference calls with organizers

Measurable outcomes included dates and location of AMCC courses delivered, number of participants attending the course, participant geographic distribution and professional diversity, number of participants passing course exam, number of participants who said their practice has been impacted by taking the course, and participant satisfaction.

Participant satisfaction data was collected on course evaluation forms and through direct participant input at the end of each course to assess quality and comprehensiveness of the course. Participants also evaluated learning objectives for each topic in the AMCC course using instruments approved by the accrediting CEU and CME agency. Participant learning was evaluated with online testing instruments developed to reflect the learning objectives of each topic. Within 30 days of completion of the course, the University of Iowa provided online exams using the University of Iowa's online testing system (ICON), which allowed questions for each topic to be randomly selected from a databank of 300 questions. The course examination service was created and maintained by the University of Iowa and included semianual question analysis. The University of Iowa administered a 6-month follow-up online survey (via Survey Monkey<sup>®</sup>) to participants via to measure knowledge retention and how the training had impacted practice.

Key members of host state planning committees were interviewed by telephone using open-ended questions to gather information on the successes and challenges of offering the AMCC and the anticipated future need for AMCC training in their state. In addition, a survey was conducted of AMCC faculty both online (via Survey Monkey<sup>®</sup>) and via regular mail to document their experience and determine the usefulness of the materials provided, their willingness to be an instructor in the future, and their opinion on the development of an academy of certified AMCC faculty.

## ***RESULTS***

### ***Development of Core Curriculum***

The topics and competencies of a core curriculum in agricultural health and safety for

health care professionals was agreed to in 2006 by a group of 16 experienced agricultural health and safety specialists. These core topics and competencies are the basis for the AMCC curriculum and the textbook *Agricultural Medicine: Occupational and Environmental Health for the Health Professions*, and are listed in Table 1. The curriculum continues to be adapted to local agricultural practices, climates, cultures, and workforce demographics.

### **Recruitment of Organization Leaders**

Initial contact was made with Carle Clinic (a large multispecialty physician clinic with numerous regional clinics) in Urbana, Illinois, and the College of Agriculture at the University of Illinois. A day-long preview program was presented at the Carle Clinic to show the value of the program. Southern Illinois University Medical School had the most interest and Dr. David Steward, Head, Internal Medicine, was selected to help bring the Agricultural Medicine course to Illinois. A site visit was scheduled to explain the program and develop a planning committee. Over the next 9 months this committee organized the first AMCC training outside of Iowa.

Other leaders were recruited through the External Advisory Committee in Wisconsin, North Dakota, and Nebraska.

### **Planning and Implementing the Course**

During the first 4 years of the Building Capacity project, 10 AMCC courses have been held and another 6 are scheduled during the fifth year (Table 2).

Illinois was host to the first AMCC held outside of Iowa. That course drew 34 participants from a variety of backgrounds and valuable lessons were learned. First, it would take 9 to 12 months of lead time to plan and implement the course. Second, the committee in the target state would need to have leaders take on a number of roles. Illinois was fortunate to have a strong coordinator who organized planning committee meetings, sent meeting minutes, and reminded members of their assigned tasks. They also had someone who had taken the course at Iowa and knew what the training should be like. Planning committee members identified local instructors in their respective fields. The process worked best when a committee member knew someone in the field and had personal knowledge of their expertise and speaking ability.

After the Illinois course, a conference call was held to discuss what went right and what

TABLE 2. Schedule of Agricultural Medicine Core Courses

Location	Project year	Dates	Key contact
Iowa	1	June 11–15, 2007	Kelley Donham
Illinois	2	May 21–23 and June 18–20, 2008	David Steward/Stacy Sattovia
Iowa	2	June 9–13, 2008	Kelley Donham
Vermont	2	September 25–26 and November 13–15, 2008	Jean McCandless
Iowa	3	June 8–12, 2009	Kelley Donham
Illinois/Missouri	3	August 3–7, 2009	David Steward/Stacy Sattovia
North Carolina	4	November 31–December 4, 2009	Robin Tutor/Julia Storm
Wisconsin/Minnesota	4	November 12–14, 2009, and March 18–20, 2010	Steve Kirkhorn
Vermont	4	April 7–11, 2010	Jean McCandless
Iowa	4	June 7–11, 2010	Kelley Donham
North Carolina	5	March, 2011	Robin Tutor/Julia Storm
North Dakota	5	March 22 and November 4–5, 2011	Paul Gunderson
Iowa	5	June 13–17, 2011	Kelley Donham
Nebraska	5	July 11– 15, 2011	Risto Rautiainen
Wisconsin	5	March 31–April 2 and October 13–15, 2011	Steve Kirkhorn
Vermont	5	July 2011	Jean McCandless
Illinois	5	Considering for 2011	David Steward/Stacy Sattovia

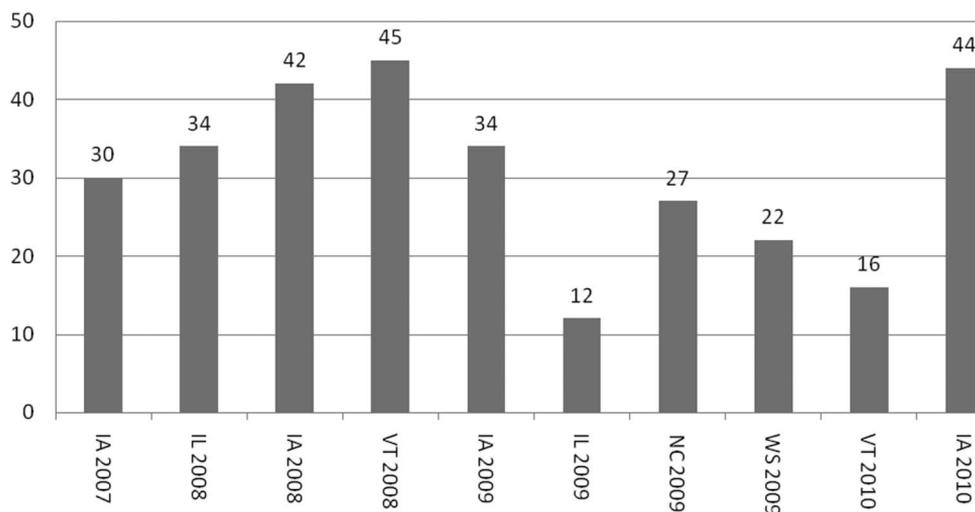
could be improved, which resulted in the development of a protocol manual for organizers. This manual would include an overview and background of the course, core topics and competencies, sample agenda, case studies, AgriSafe background, task planning list, exam information, and also a sample budget, timeline, save the date card, brochure, e-mail announcement, exam forms, demographic information form, pre/post test, press releases, and certificates. Lessons learned from Illinois in 2008 and 2009 helped smooth the way for Wisconsin, North Dakota, and Nebraska. Courses are scheduled for North Dakota, Iowa, and Nebraska in 2011. Wisconsin will repeat the course in 2011 and Illinois is considering a third course.

Although, the intent of the project was to offer the course in the Midwest, Vermont, and North Carolina were added to the list of states when leaders requested help in planning an AMCC course. Vermont trained 45 participants in a split session course offered September 25–26 and November 13–15, 2008, and 16 participants in a 1-week course offered April 7–11, 2010. North Carolina had 27 participants in a weeklong course November 31 to December 4, 2009. Vermont and North Carolina plan to offer the course again in 2011. Outside of the United States, Australia held an AMCC course

in 2010 after two participants attended the Iowa training.

The estimated AMCC budget, excluding the planning committee effort, is between \$12,000 and \$20,000. A sample budget includes income of \$14,000 from registration fees with the remaining funds coming from local sponsorships. Each state in the Building Capacity project received a grant of \$7800 to help cover the start up costs and some salary for planning effort. Course registration fees were determined by each host state. The recommended fee of \$700 covers the cost of promotion, printing, textbooks, continuing education credit, catering/room charges, honorariums to faculty, mileage for faculty, etc. Honorariums were paid when necessary to faculty who could not present as part of their employment. Due to the economy, many presenters requested mileage reimbursement. Presenters from nonprofit organizations were typically paid an honorarium and mileage. A class size of 20 to 35 is recommended to allow for student interaction and hands on activities; however, it takes time to build the word of mouth recognition that results in classes the size of the Iowa AMCC (35 to 40). Enrollment for past AMCC courses is shown in Figure 1. First time organizers should not be disappointed with a class of 15, if they can make it work financially. Most states

FIGURE 1. Number of AMCC participants.



have found local sponsors to help offset costs, such as:

- State Farm Bureaus
- Colleges of Medicine
- Colleges of Nursing
- State Health Departments
- Primary Care Associations
- State AgrAbility
- University Extensions
- Injury Prevention Programs
- Grants from State Legislatures
- Rural Health Associations
- Centers for Agricultural Safety and Health
- State Hospital Associations
- State Health Associations
- Critical Access Hospital Networks

### Program Evaluation

The AMCC continues to attract a wide variety of participants by geography and profession, with 306 participants attending 10 courses since the project began in 2006. Another five courses are currently scheduled for the fifth project year. Table 2 shows the location, dates, key state contacts, and number of participants for each

AMCC course held and scheduled. Iowa consistently attracts between 30 and 40 participants each year, with participant numbers in other states ranging from 11 (Illinois 2008) to 45 (Vermont 2008).

The participants came from 29 US states, the District of Columbia, Puerto Rico, Bermuda, Canada, Australia, Sweden, Finland, Ireland, Singapore, and South Korea (Figure 2). Seventy-eight percent came from the five states where the course was offered. Other than Iowa, the course did not draw participants from adjacent states in the numbers anticipated. Contacts in Minnesota, Missouri, and South Dakota did not think people would travel outside of their state to attend the training.

In addition to the expanded geography of the students, the audience has changed from primarily nurses to primarily physicians. The AMCC courses attracted a wide variety of professionals, including physicians, nurses, veterinarians, nurse practitioners, physician assistants, and a long list of other professionals, including physical therapists, occupational therapists, EMTs, social workers, safety professionals, extension personnel, mental health personnel, chiropractors, naturopaths, dietitians, industrial

FIGURE 2. Number and origin of building capacity training participants (306 participants 2007 – 2010).

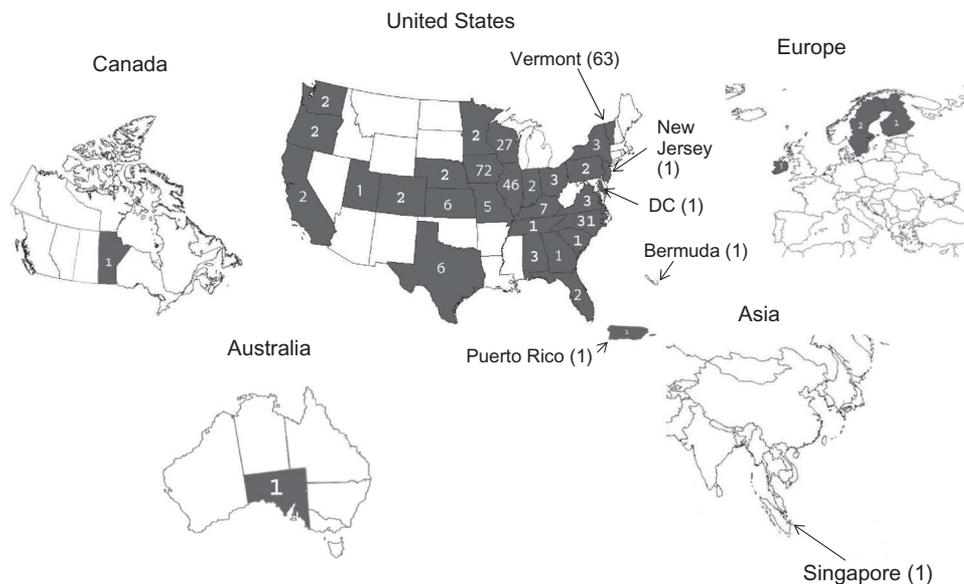
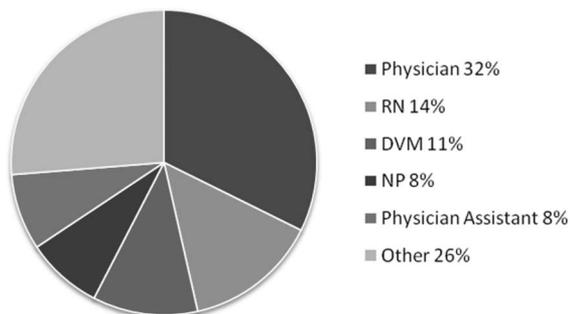


FIGURE 3. AMCC participants by profession.



hygienists, and farmers (Figure 3). The multi-disciplinary nature of the course was mentioned many times by the participants as an added value of the course. The majority of the participants were in a private practice clinic (30%) or a hospital (25%), 8% in a public practice clinic, 19% in a University or College setting, and 18% other. There was an even distribution of age between 21 and 60 years. Fifty-one percent were between the ages of 41 to 60 years of age, with an average of 16 years of experience. Females outnumbered males 2 to 1.

Participants who want graduate college credit, an AMCC certificate, or to become an AgriSafe provider must pass the course exam. Currently only Iowa and Illinois have had students take the course for graduate college credit. The online exam randomly selects questions on each topic so no two students get the exact same exam. Students who fail the exam may arrange to take a second exam within 60 days. Fifty-four percent (166/306) of the AMCC participants took the exam, and 94% passed the first time. A semiannual question analysis is used to remove or revise poor questions, to improve instruction on core competencies, and to evaluate faculty. This is done by the University of Iowa project staff using the ICON exam analysis tools.

A 6-month follow-up survey was administered to assess knowledge retention and changes in practice. The survey was conducted with 150 valid e-mail addresses using the online service Survey Monkey®. An initial e-mail and two reminder e-mails resulted in a 30% response rate (50 responses). The correct responses on five knowledge questions ranged from 46% to 80%,

with questions about acute poisoning being answered correctly 80% of the time and questions about chronic musculoskeletal conditions answered correctly only 46% of the time. As a result of the low percent of correct answers on the musculoskeletal questions, instructors were encouraged to add interactive questions to their presentations and to check the core competencies of the course against their presentation and educational materials provided.

Participants overwhelmingly (91%) agreed that their ability to anticipate, diagnose, treat, and/or prevent agricultural occupational exposures was improved by taking the AMCC course. They also agreed or strongly agreed 91% of the time that the information presented was helpful. Fifty percent said they felt confident or very confident in recommending personal protective equipment. Participants reported changes in how they practice as a result of taking the AMCC course such as increased referrals for farmers, changes in health history questions, collaborations with community leaders, use of resources such as AgriSafe Occupational Manual, and attendance at AgriSafe Webinars (Table 3).

TABLE 3. Behavior Changes as Result of taking AMCC

Behavior changes ( <i>n</i> = 50 responses)	Percent
Had discussions with key leaders to collaborate	36
Changed health history questions	28
Used AgriSafe Occupational Manual	22
Increased farmer referrals	14
Attended AgriSafe Webinar	10
Other (such as)	24
<ul style="list-style-type: none"> <li>• Teaching farm ergonomics</li> <li>• Teaching machinery safety</li> <li>• Planning a farm safety day camp</li> <li>• Read Alive &amp; Well Newsletter</li> <li>• Conducted a Health Fair for Farmers</li> <li>• Looking for grant funding to help provide services to farmers</li> <li>• Responded to question about toxic exposure appropriately</li> <li>• Updated educational materials for farmers and farm families</li> <li>• Conducted a migrant employee outreach event</li> <li>• Talked to farmers about AgriSafe</li> <li>• Conducted a farm safety review</li> </ul>	

Pre- and posttests were used to test knowledge before and after each session of the course. Of the 306 participants, 293 returned the pretest and 263 returned the posttest. The increase in the percent of correct answers pre to post was 17%. Questions on the pre- and posttest were not changed from year 1 to year 4 to provide consistency. In retrospect, the questions probably should have been revised in Year 1 because they did not represent core topics and competencies for the course. Therefore the information needed to answer correctly the questions was not always in the materials presented. New pre- and posttest are being written and a participant ID will be added to the tests so a test of significance on the results can be performed.

Participant input was solicited on the course evaluation form and also in a debriefing session at the closing of each course. The responses from these evaluations were extraordinarily high with health care professionals stating that they know they have misdiagnosed illnesses in the past that were due to occupational exposure. Student responses include, *“This cohort represents an underserved segment in the community in which I live and work. This information has provided creative thinking as well as constructive evaluation of our current program”* and *“This course enabled me to diagnose organic dust toxic syndrome that I would otherwise have missed.”*

A common student complaint is that the test is too hard. After the 2010 Vermont course, a Webinar review session was organized with the project director available to answer questions. This option will continue to be offered to other states in the future. Ninety percent of the material covered on the exam is either in the textbook or on the handouts that the students receive in the course binder. Following each site's exam, the average score for each question is determined and any questions for which 30% or more of the students had the wrong answer are reviewed for clarity and accuracy. If those questions are deemed unclear or otherwise unfair, they are deleted from the bank or rewritten. Experts from participating states are involved in plans to add regional exam questions.

Ten key organizers from Illinois, Wisconsin, Vermont, and North Carolina were interviewed

by telephone with open-ended questions to gather input on their experience and what the University of Iowa could do to make the AMCC better. They were also asked what the demand for training is in their state, if they planned to repeat the training and if so, would they need help. All expressed a need for more training in their state and with one exception said they could not have put the course on without help from Iowa.

A survey of the 84 AMCC instructors was conducted to determine the usefulness of the teaching materials provided, identify barriers to teaching again, and gather feedback on the concept of creating a certification process for AMCC instructors. Thirty-five instructors (42%) responded to the e-mail survey after two reminders and mailing a hardcopy survey to nonresponders. Ninety-one percent of the responding instructors said they would teach in the AMCC again if asked. Time and workload were identified as barriers to teaching, 77% and 63% respectively, whereas money was identified as a barrier by 26%. Tables 4 summarizes how useful the instructors found the teaching resources offered to them. The Webinar was only offered to Vermont instructors, with nine ranking it at “very or somewhat useful” and one ranking it “not very useful.”

To develop quality control and assurance of instruction in AMCC taught in the future, the project director envisions Certified Agricultural Medicine Instructors (Certified Instructor) who could be called upon to teach core topics in the AMCC. To be a Certified Instructor, one would need to take AMCC, pass the AMCC exam, and pass an additional exam on the agriculturally related issues in the core topics that they would teach (e.g., agricultural respiratory disease, agricultural dermatology, agricultural toxicology, etc.). The instructor survey included questions to gauge the willingness to become a Certified Instructor. Of the 35 instructors responding, 43% said they would definitely be interested in becoming certified, another 34% were not sure, with only 6% not interested. Table 5 summarizes the instructors' willingness to complete the certification requirements.

TABLE 4. Usefulness of Teaching Resources ( $n = 35$ )

Teaching resource	Very useful	Somewhat useful	Not very useful	Did not receive/Missing/NA
Agricultural medicine textbook	14 (40%)	13 (37%)	1 (3%)	7 (20%)
Core competencies	12 (34%)	8 (23%)	2 (6%)	13 (37%)
PowerPoint presentation	14 (40%)	10 (29%)	0 (0%)	11 (31%)
Phone consultation	15 (43%)	4 (11%)	1 (3%)	15 (43%)

TABLE 5. Willingness to Join Academy of AMCC Instructors

	Yes	Not sure	No	Have already taken	Missing
Would you join AMCC Academy?	15 (43%)	12 (34%)	6 (17%)		2 (6%)
Would you take the AMCC course?	11 (31%)	10 (29%)	6 (17%)	6 (15%)	2 (6%)
Would you take the AMCC exam?	16 (46%)	6 (17%)	7 (20%)	4 (11%)	2 (6%)
Would you take an additional exam covering agricultural aspects of the topics you would teach?	19 (54%)	9 (26%)	4 (11%)		3 (8%)

## CONCLUSIONS/LESSONS LEARNED

The organizers and instructors place a high level of importance on the AMCC training and their commitment to help sustain the training in their state. Because Vermont and Illinois have already held two AMCC courses, North Carolina and Wisconsin are planning a second course, and Vermont a third, there is a need for the course and the potential for sustainability of the program. Vermont, North Carolina, Wisconsin, and Illinois each had instructors from their state who had taken the course prior to organizing their own course. It is helpful to have at least one person from the expansion state take the course prior to organizing the course in their own state.

Each AMCC teaches the organizers and instructors something new. The multidisciplinary nature of the course is valuable and has been recognized by the participants. Although in-person instruction is the optimal way to teach the materials, there may be circumstances in very rural states when part of the training could be conducted via distance learning. Distance learning will be tested with North Dakota, as some rural health care providers there are not able to take a week off work to attend the training.

A significant outcome of the project has been the development of state affiliates for the AgriSafe Network. This new state affiliate model was instituted by AgriSafe with state affiliate agreements being signed by Vermont, North Carolina, Wisconsin, Iowa, Illinois, and Australia.

Other valuable lessons learned:

- It is helpful if at least one person from the target state takes the course before putting it on in their state.
- Promotion should begin 6 months prior to the training.
- August does not appear to be a good month to offer the training possibly due to vacations.
- There is tremendous synergism in the multidisciplinary participants and the mixing of students with practitioners.
- Course participants become energized to incorporate agricultural medicine in their practices and become advocates of the farm population and of serving their needs.

The expansion of the Building Capacity program has been a process of collaboration, evaluation, and revision based on evaluation. Examination results, trainee course evaluations,

instructor surveys, and key organizer interviews have all influenced course organization and technical assistance. This project would not have been possible without the willingness of the health and safety professionals to share their time and talent.

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