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Building Capacities to Conduct Respirator Fit Testing for Pesticide Applicators

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Building Capacities to Conduct Respirator Fit Testing for Pesticide Applicators

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Abstract. The 2015 revision of the Worker Protection Standard (WPS) mandates requirements for medical evaluation, fit testing, and respirator training when the pesticide label requires a respirator. An ad-hoc group of Extension pesticide safety educators came together to address a lack of training and infrastructure for respirator compliance. In the ensuing years, programs of varied audiences and formats were hosted. Errors and shortcomings were realized, knowledge was gained, and lessons were learned. Those lessons are summarized here with links, resources, and suggestions for the implementation of similar efforts by Extension professionals.

INTRODUCTION

Extension personnel have a role in educating the public about research and regulatory compliance to protect public health and the environment and to improve economic viability. Extension has a history of providing pesticide safety education (Weed Science Society of America, 2014), and those working in Extension develop effective ways to convey information through publications, exhibits, and trainings (Young, 2017). In this article, we outline how a group of Extension professionals addressed a need to help applicators comply with regulations regarding respirator fit tests.

The revised 2015 Environmental Protection Agency (EPA) Worker Protection Standard (WPS) mandated that when pesticide labeling requires the use of a respirator, the handler must have a medical evaluation, annual fit test, and annual respirator training before use. Because the shape of each person's face is different, respirators are not one-size-fits-all. Pate et al. (2016) identified a need for training and infrastructure to comply with revised respiratory regulations. Extension pesticide safety educators developed workshops to address these needs.

Extension pesticide safety educators have extensive pesticide regulatory and safety expertise, but often limited knowledge related to proper fit of respirators. The authors are part of a team that helped form a National Respiratory Safety Collaboration Team to identify, develop, improve, and share available materials with Extension pesticide safety educators and others. By partnering with skilled respirator professionals, educators were able to provide respirator training to applicators and potential trainers. Extension teams and safety partners implemented workshops to address medical evaluations, fit testing, and employee training. The goal of these workshops was to increase respiratory safety knowledge, focusing on proper fit testing. Interestingly, there are no EPA training or certification requirements for those who wish to conduct fit testing, even when charging for their service. All workshops were interactive and included discussions, demonstrations, and hands-on fit testing. Through this paper, we present approaches and insights gained from outreach efforts spanning 2017 to 2019. We share these insights so they may benefit other Extension professionals in their respiratory safety education efforts.

WORKSHOP APPROACHES AND OUTCOMES

Workshops either addressed respiratory safety, trained participants to conduct fit tests, or trained others to provide fit test workshops. All workshops had the same overall goal of increasing knowledge of and compliance with WPS and Occupational Safety and Health Administration (OSHA) respiratory regulations to protect the health of pesticide applicators, but workshop organizers attracted participants in different ways.

Minnesota Extension offered a free test kit valued at approximately $700 (see Appendix) and outreach posters. Evaluations showed that hanging posters was the most common outreach activity. Minnesota participants were asked to commit to one outreach activity beyond fit testing. One-third of the participants agreed to offer fit testing; their locations and contact information were compiled into a map on the Minnesota Pesticide Safety Education Program (PSEP) website.

In Colorado, participants willing to conduct fit tests were given a free fit test kit. Participants in Utah developed a distribution system through which people can check out a kit for free from Extension offices around the state. Arizona and Utah workshops fulfilled pesticide applicator continuing education units (CEUs). Some states require CEUs to maintain applicator licenses.

Table 1 presents a summary of workshop details and outcomes.

INSIGHTS GAINED

We gained many insights through discussions and interactions with participants at the events, and we share some of the major insights below. If planning similar events, consider the following to improve the outcomes:

1. Address liability concerns during training. Fear of legal liability was a significant barrier to implementing respirator fit testing locally. Participants across workshop locations expressed hesitation to provide fit tests due to potentially negative outcomes (i.e., lack of respiratory protection due to improper use). Some were willing to test their employees, but not the general public; others preferred to outsource to others conducting fit testing.

Table 1. Overview of Respirator Workshops

State PSEPs and others providing training*	Audience	Number of workshops / Length of each workshop	Fee	Outcomes
NC Agromedicine Institute; NH; CT; DE	Farmers	3/3 hours	Free	Solidified the formation of a multi-state respiratory safety workgroup to address identified needs.
NE; Agriculture Health and Safety Alliance	Extension Educators	1/3 hours	Free	Participants felt comfortable fielding questions about respirators and fit tests.
NC Agromedicine Institute; AZ; UT; CO	Pesticide applicators; pesticide regulators; state lead agency inspectors; private, commercial, tribal, and industry pesticide applicator managers	6/6 hours	$45	Participants were educated in respiratory safety and fit testing, trained to conduct fit tests, and trained to become respiratory safety and fit testing trainers. AZ and UT offered pesticide applicator CEUs. Implementation of the UT PSEP Fit Testing Kit Initiative.
MN; Univ. of MN Workplace Safety Unit; 3M	Rural healthcare providers; farm co-op safety managers	9/4 hours	Free	Participants were trained to become trainers and received free test kit and outreach posters. Interactive map developed to show fit testing locations.

*Trainers were Extension professionals unless otherwise noted.

2. Group discussions and hands-on components significantly improved the learning environment. Having the opportunity to practice under supervision was critical for building confidence and skills in fit testing. For participants' future reference, provide supplemental information, review videos, and templates in online and hard copy formats.
3. Allow time for one-on-one discussions at the workshops. Many participants stayed after the workshop to discuss related health and safety issues, emphasizing the importance of having safety professionals as training partners. These conversations can occur during the hands-on fit testing practice, at breaks, or after the workshop.
4. Overall, when provided with tools, workshop participants were more likely to follow through with outreach and fit testing activities. This should be a key consideration for programs when writing grants and budgeting for materials.
5. New health and safety requirements can be perceived as onerous or unnecessary. One attendee expressed frustration, saying, "I've worn a dust mask for years and didn't need a fit test. Why now?" Educators found a helpful approach: explaining that safety measures increase as risks increase. A response to that attendee's question could be, "Pesticides requiring the use of respirators present a higher level of risk, and fit testing provides the increased protection that is needed." Framing the message from a risk perspective and not a regulatory perspective helps people understand and be more accepting of changes.
6. Workshop fees did not seem to deter participants. Workshops offering pesticide applicator CEUs had higher attendance in general.

CONCLUSIONS

The need for respirator safety training and fit testing has increased due to changes in pesticide usage and regulations. Extension and pesticide safety educators will be expected to provide education opportunities to address this need. Pesticide safety educators should partner with health and safety professionals to fill this need. Creating the National Respiratory Safety Collaboration Team to develop publicly available resources was an effective way to ease the burden of content creation for individual programs. The team's efforts facilitated identification of gaps, established priorities to fill existing needs, and shared ideas and resources, thereby eliminating duplication of efforts.

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APPENDIX. SUGGESTED RESPIRATOR FIT TESTING KIT SUPPLIES AND ESTIMATED COSTS (2019)

Item	Estimated Cost
32L Box	$35.00
1 small Honeywell North® 5500 or 7700 Series Half Mask Respirator	$20.00
1 medium Honeywell North® 5500 or 7700 Series Half Mask Respirator	$20.00
1 large Honeywell North® 5500 or 7700 Series Half Mask Respirator	$20.00
1 small 3M® 6000 or 7500 Series Half Mask Respirator	$20.00
1 medium 3M® 6000 or 7500 Series Half Mask Respirator	$20.00
1 large 3M® 6000 or 7500 Series Half Mask Respirator	$20.00
2 Honeywell North® organic vapor cartridges	$25.00
2 3M® organic vapor cartridges	$25.00
1 Training Material Folder	$30.00
1 PERC Worker Protection Standard (WPS) Respirator Protection Guide (in binder)	$10.00
1 Rutgers Respiratory Protection for Occupational Users of Pesticides (in binder)	$10.00
1 3M® FT-30 Qualitative Fit Testing Apparatus Manual	$10.00
1 55 ml bottle of FT-11 (Sweet) Sensitivity Solution	$35.00
1 55 ml bottle of FT-12 (Sweet) Fit Testing Solution	$35.00
3M® Fit Testing Kit	*Full kit ~ $ 400.00*
1 hood	$75.00
1 collar assembly	$75.00
1 55 ml bottle of FT-31 (Bitter/Amer) Sensitivity Solution (RED TEXT)	$30.00
1 55 ml bottle of FT-32 (Bitter/Amer) Fit Testing Solution (RED TEXT)	$30.00
1 Sensitivity Solution Nebulizer/Bulb	$100.00
1 Fit Testing Solution Nebulizer/Bulb	$100.00
2 sets Replacement Nebulizers Inserts	$20.00