

# Improving Pesticide and Fertilizer Decisions for Environmental Quality

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## INTRODUCTION

Private, restricted use pesticide and fertilizer applicators are required by law in Ohio, USA, to obtain recertification training every three years. Pesticide applicators must obtain a minimum of three hours and fertilizer applicators one-hour of continuing education credits. Ohio State University Extension has taken this required training as an opportunity to teach current university pest and environmental management principles. Programs are delivered by Extension personnel, administered through the Ohio Department of Agriculture through a partnership agreement.



## BACKGROUND

From 2019 to 2022, pesticide applicator training has focused on several areas of environmental quality such as on-target application technologies, switching modes of action to minimize weed resistance, sprayer rinsate management, and the importance of following pesticide label instructions. Research on reducing pesticide exposure to reduce human health risk has been utilized through curriculum on new personal protective equipment technologies such as respirators and new glove materials. Fertilizer certification lessons focused on optimizing nutrient management to limit runoff and leaching while maintaining yields, through agronomic crop best management practices such as cover crops and tillage reduction.

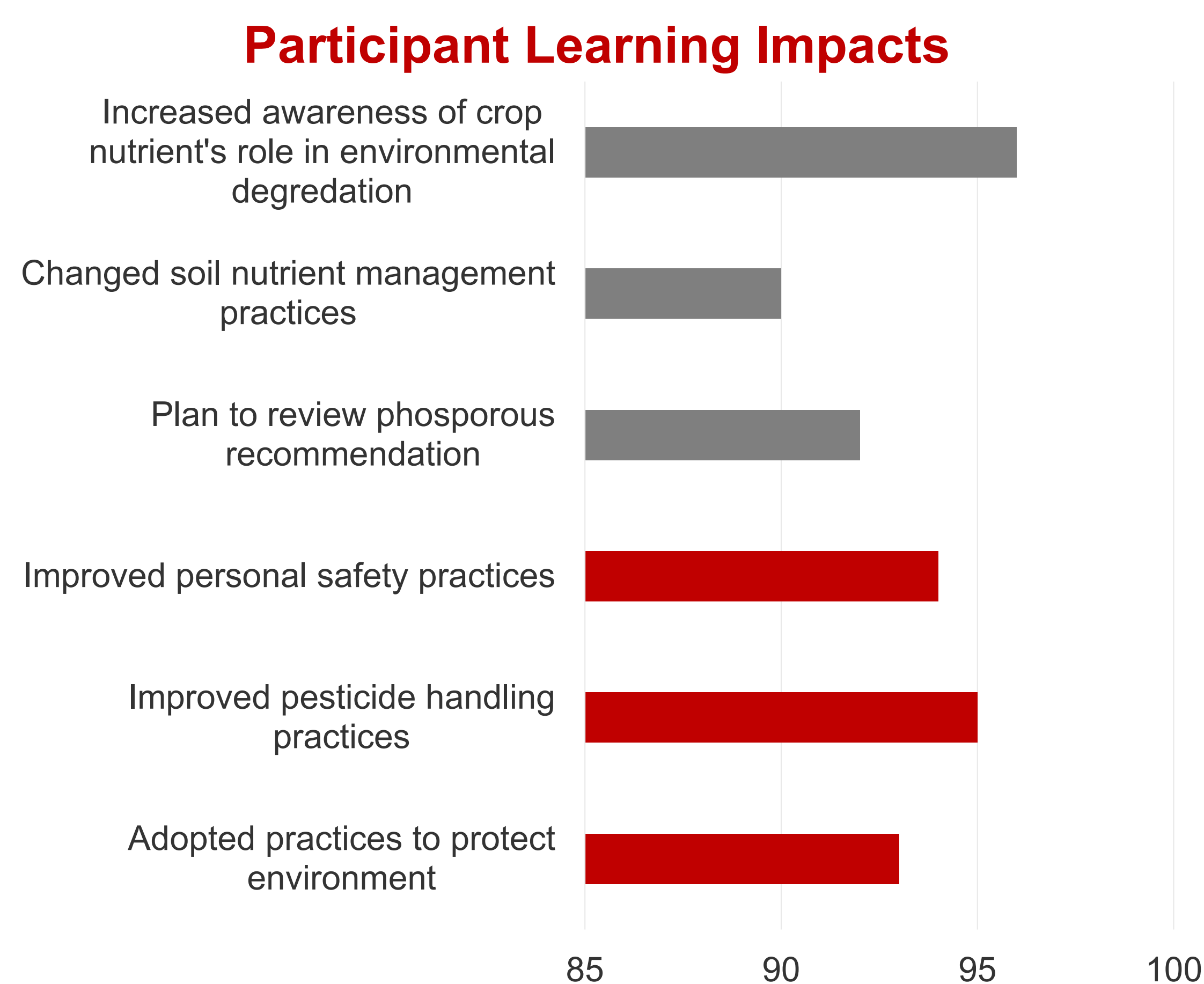
## OUTREACH

There are 422 farmers in Clinton, Fayette, Pickaway, and Ross counties in Ohio, USA that are pesticide licensees and/or fertilizer certificate holders, with many having both. These farmers in the four-county area apply fertilizer and pesticides to 873,000 tillable acres, growing primarily annual crops of corn, soybeans, and wheat. Typically, the senior generation is the pesticide licensee, and the younger generation is the fertilizer certificate holder.



## PROGRAM IMPACTS

Participant's evaluations for the pesticide applicator trainings have confirmed that among applicators 93% adopted practices that protect the environment, 95% improved pesticide handling practices, and 94% improved personal safety practices. Adopted practices identified by participants included: proper handling and application according to label, using drift reduction nozzles, measuring wind speed, and increased use of personal protective equipment.



Fertilizer applicator recertification evaluations indicated that 92% of applicators plan to review their soil test phosphorus recommendations and 90% will change their nutrient management practices. Most common practice changes were incorporating applied nutrients immediately following application and the adoption of sowing a cover crop. Additionally, 96% of the respondents indicated an increased awareness of crop nutrient's role in environmental degradation.



## CONCLUSION

Required trainings to maintain certifications is an effective way to change farm production practices resulting in improved environmental quality and personal safety. Program evaluations show significant impact in achieving these program objectives.

## ACKNOWLEDGEMENTS

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