Outcomes and Impact Quarterly

Volume 2
Issue 2 *Environment and Society*

Article 2

7-1-2022

Helping Utah Landowners Reduce Pesticide Use through a Statewide IPM Program

Nick Volesky
Utah State University, nick.volesky@usu.edu

Mair Murray
Utah State University, mair.murray@usu.edu

Recommended Citation

Volesky, Nick and Murray, Mair (2022) "Helping Utah Landowners Reduce Pesticide Use through a Statewide IPM Program," *Outcomes and Impact Quarterly*: Vol. 2: Iss. 2, Article 2.
DOI: https://doi.org/10.26077/44d8-1819
Available at: https://digitalcommons.usu.edu/oiq/vol2/iss2/2

Helping Utah Landowners Reduce Pesticide Use through a Statewide IPM Program

Nick Volesky, Marion Murray, Claudia Nischwitz, Zachary Schumm, Boyd Kitchen, Benjamin Scow, Kristina Young, Sheriden Hansen, Nathan Staker, JayDee Gunnell, and Katie Wagner

Abstract

The Utah Integrated Pest Management (IPM) program provides outreach and education to Utahns to reduce pesticide use and ultimately protect human and environmental health. In 2022, the IPM program responded to stakeholders' needs by partnering with county Extension offices to deliver eight (8) in-person workshops across the state. The workshops connected Extension specialists and county faculty with managers of home landscapes and farms. The objective of the workshops was to provide participants with IPM skills to identify, monitor, and manage pest problems in preparation for the upcoming growing season.

Introduction

Pesticides, both organic and conventional, are often necessary for the production of healthy crops and landscapes. However, integrated pest management (IPM) practices promote the use of non-chemical options first and pesticides as the last resort. A high level of IPM implementation prevents crop and ornamental plant losses, improves profits, and protects human health and the environment (USDA, 2018). Therefore, the Utah IPM program at Utah State University (USU) implemented a series of workshops to equip land managers with the skills to implement IPM practices.

In 2020, the IPM program conducted a survey of over 10,600 subscribers of a seasonal newsletter called the IPM Pest Advisories. The results showed that 74% of respondents "highly valued" information from USU Extension specialists, and many of these stakeholders stated they were interested in advanced IPM training. Topics requested by respondents included general IPM techniques (45%), insect identification and management (54%), natural enemy ID and promotion (73%), and IPM monitoring techniques (100%) (Murray & Volesky, 2020). Arthropod pests, plant diseases, and abiotic conditions are some of the main challenges in homes, urban, and agricultural landscapes in Utah. Pests cause economic loss and aesthetic damage, and can often be prevented or maintained in low levels by using proper IPM practices.

Response and Target Audience

In January of 2022, the Utah IPM program partnered with USU county Extension offices and hosted eight (8), half-day workshops across the state. Each of the eight workshops included a variety of IPM topics targeting a mixed audience of Utah farmers, homeowners, and landscape managers. The workshops were advertised from November 2021 to January 2022 through the IPM Pest Advisories email list (reaching over 11,000 individuals), the *Utah Pests News* quarterly newsletter (reaching over 6,000 subscribers), USU Extension calendars, and the Utah Pests Facebook and Instagram sites.

The workshops were hosted in-person using classroom spaces in both rural and urban areas around the state. Table 1 shows the number of attendees by workshop date and location. Four (4) Extension specialists and seven (7) county Extension faculty presented pertinent IPM-related topics relevant to the respective county. Hands-on demonstrations were used to train participants on identification of pests that may occur in their region. Attendees received hand-outs and other resources for the upcoming growing season, including the USU Extension publications, "Occurrence of Vegetable Diseases in Utah" and "Squash Bug Management".

Extension specialists and county faculty instructors designed a retrospective survey to evaluate the workshops. The survey was used to determine the change in participants' knowledge of various IPM topics and their intent to adopt pest management practices. Participants were asked to rate their knowledge of general IPM concepts, insect and disease identification, and pest management, before and after the workshop on 5-point scale, where 1 = "*Very Little*" and 5 = "*Very Much*.". Participants were also asked to indicate their intention to implement IPM practices and use USU educational materials.

Table 1: Date, location, and number of attendees of each Winter IPM Workshop.

Date	Workshop Location	Number of Attendees
Tuesday, January 4	Vernal (Uintah County)	16
Thursday, January 13	Hurricane (Washington County)	19
Saturday, January 15	Moab (Grand County)	9
Tuesday, January 18	Ogden (Weber County)	9
Wednesday, January 19	Kaysville (Davis County)	24
Thursday, January 20	Logan (Cache County)	8
Saturday, January 22	Salt Lake County*	27
Thursday, January 27	Lindon (Utah County)	20

*Due to the rise of COVID-19 cases in Salt Lake County, the workshop was transitioned from in-person to virtual.

Participants included farmers, home and residential gardeners, and ornamental landscape business managers. Each workshop was interactive and provided an opportunity for participants to engage with Extension specialist and county faculty. If applicable, participants received a certificate of continuing education credits (CEUs) toward their Utah Department of Agriculture and Food (UDAF) pesticide applicator's license.

Outcomes

A total of 131 individuals participated in the workshops, and 50 CEU credits were awarded to attendees with a pesticide applicator's license. Based on the retrospective evaluation results (N = 131) in Figure 1, there was an improvement in participants' knowledge on all IPM topic areas covered in the workshops. Using the post-then-pre-mean knowledge ratings, there was a 37% increase in participants' knowledge on general IPM understanding, 51% increase in arthropod pest identification, 46% increase in arthropod management strategies, 38% increase in plant disease identification, and 62% increase in disease management strategies. The evaluation results also showed that participants were likely to implement plant pest scouting and use the USU Extension guides, fact sheets, and videos (Figure 2)

Figure 1: Participants' Mean Knowledge Rating on IPM Topics

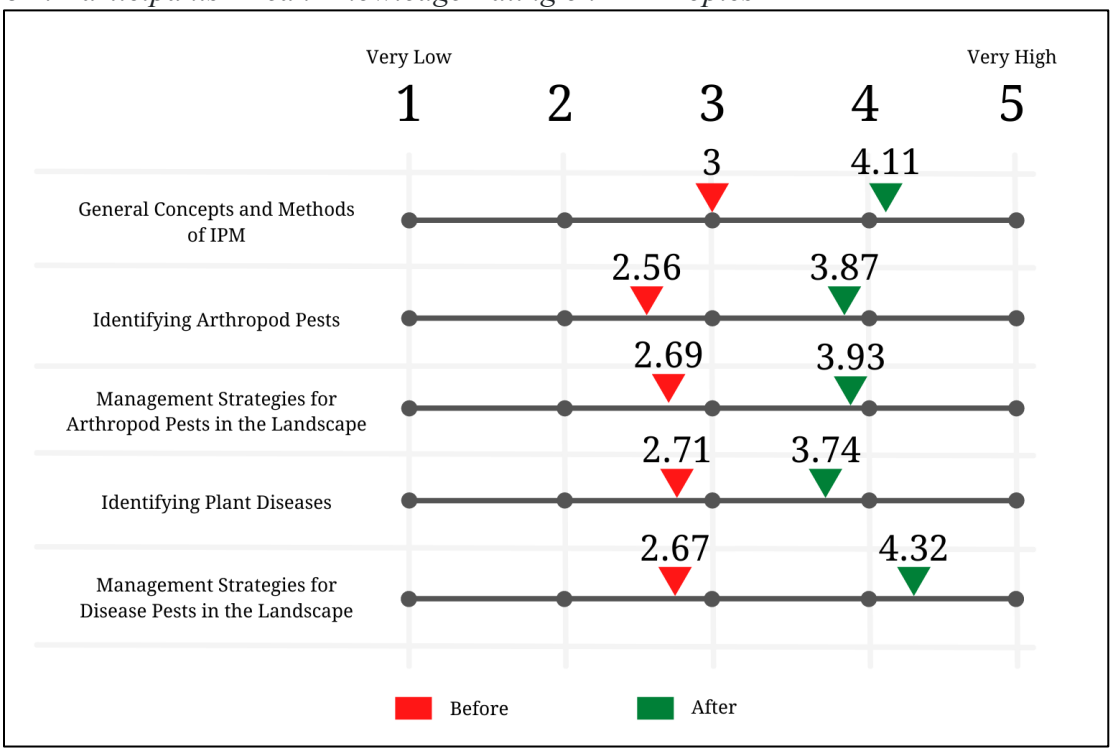
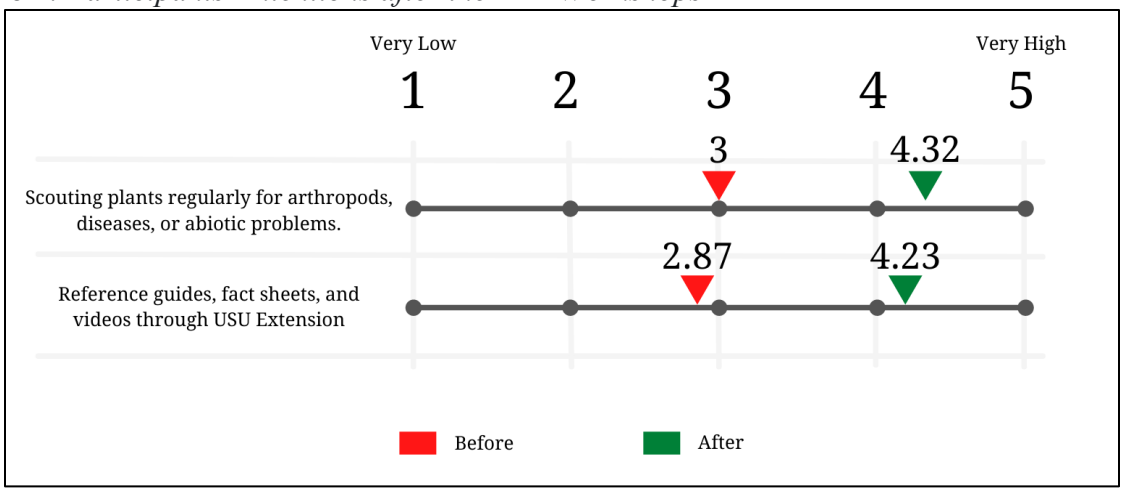


Figure 2: Participants' Intentions after the IPM Workshops



The evaluation survey gathered open-ended data from participants. Workshop participants provided positive feedback and constructive ideas for outreach activities for the Utah IPM program. The following are selected comments shared by participants:

- "We have excellent expert support through our local USU Extension"
- "Seeing the insect specimens and photos were very helpful"
- "I really liked the images showing what different insects and diseases look like, this will be really helpful for future identification"

- "I learned about the importance of soil health and how the spacing of plants is important for disease prevention"
- "It is important to have diverse plantings to increase beneficial insects"
- "I learned to consider all implications before utilizing synthetic pesticides as this can have unintended negative reactions"

Public Value and Next Steps

Evaluation results of the Utah IPM program indicated participants experienced an increase in their knowledge of IPM, were satisfied with the workshops, and had intentions to apply what they learned during the sessions. The IPM workshops effectively responded to stakeholders' needs and interests by providing outreach and education on using IPM to manage insect and disease pests on their farms and home landscapes. Results suggest the IPM program prepared attendees for the upcoming growing season and provided them with the skills to identify, monitor, and manage pest problems, which can ultimately reduce pesticide use. The potential long-term outcomes of IPM adoption include a reduction of toxic pesticide use, reduced human and environmental exposure to pesticides, and reduced yield losses for commercial producers.

Moving forward, the Utah IPM Program will continue to deliver research-based education and outreach opportunities to more Utah stakeholders. Future sessions will incorporate a virtual component to increase access to trainings field demonstrations, social media events, and other interactive workshops and grower meetings.

References

Murray, M. & Volesky, N. (2020). [Unpublished raw data of survey to Utah IPM Pest Advisory subscribers]. Utah State University.

Murray, M. & Volesky, N. (January 2022). *Utah Pests Quarterly newsletter*. Utah State University.

Murray, M. & Volesky, N. (March 2021). *Squash bug management infographic*. Utah State University.

Nischwitz, C., Murray, M., & Volesky, N. (January 2022). Vegetable diseases of Utah. Utah State University.

USDA. (2018). *A national road map for Integrated Pest Management*. Washington, DC. https://www.ars.usda.gov/ARSUserFiles/OPMP/IPM%20Road%20Map%20FINAL.pdf

APPENDIX

Figure 3: Pictures taken during the Utah IPM Workshops

Boyd Kitchen teaching about integrated weed management to workshop attendees in Vernal, UT.

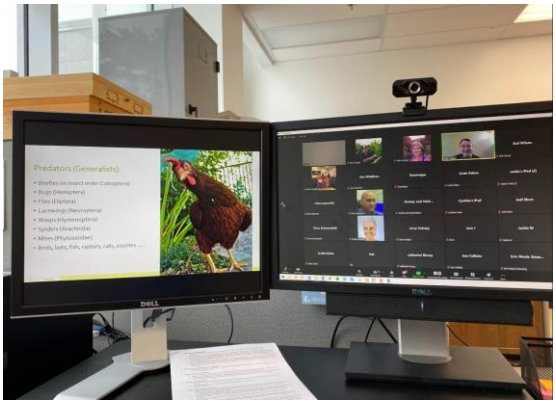
Claudia Nischwitz teaching about vegetable diseases to workshop attendees in Hurricane, UT.

Claudia Nischwitz teaching about vegetable diseases to workshop attendees in Moab, UT.

Zach Schumm teaching about beneficial insects to workshop attendees in Ogden, UT.

Sheriden Hansen teaching about landscape insects and diseases to workshop attendees in Kaysville, UT.

Jaydee Gunnel teaching about landscape insects and diseases to workshop attendees in Logan, UT.



Salt Lake County residents attending their workshop virtually.

Mair Murray teaching about the drought effects on pest pressure to workshop attendees in Lindon, UT.