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ENHANCING INTEGRATED PEST MANAGEMENT STRATEGIES FOR U.S. POTATO PRODUCTION SYSTEMS

WSU Sociology Team

Jessica Goldberger, Professor of Rural Sociology and Co-PI

Edem Avemegah, Postdoctoral Research Associate

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WSU TEAM – COMPLETED ACTIVITIES *

- Continued to collaborate with ISU Team on qualitative research, survey work, presentations, papers, etc.
- Continued to conduct interviews with potato growers and other potato industry stakeholders in PNW
- Conducted survey of WA potato growers (April–July 2025)
- Presented survey results at Rural Sociological Society (RSS) Annual Meeting, Salt Lake City, UT (August 2025)
- Completed survey report (September 2025)
- Presented survey results at Entomological Society of America (ESA) Annual Meeting, Portland, OR (November 2025)

* Since January 2025 (Project Meeting at Potato Expo)

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2025 SURVEY OF WASHINGTON POTATO GROWERS

- *Decision Support Systems for Insect Pest Management: Survey of Washington Potato Growers*
- Survey focused on insect pest management decision-making, familiarity and use of decision support tools (particularly, WSU Potato Decision Aid System), opinions about such tools, etc.
- 214 growers on mailing list
- Mixed mode survey (paper + web)
- 40 respondents | 10 ineligibles | 20% response rate
- Respondents represented ~63% of WA potato acreage

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ADOPTION AND PERCEPTIONS OF DECISION SUPPORT SYSTEMS FOR INSECT PEST MANAGEMENT AMONG WASHINGTON POTATO GROWERS

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INTRODUCTION

Decision support systems (DSSs) provide growers with data-driven tools to enhance pest management decisions, yet adoption varies across agricultural sectors. This study examines awareness, use, and perceptions of insect pest management DSSs—specifically the Washington State University Potato Decision Aid System (WSU-Potato DAS)—among potato growers in Washington State. A survey was conducted to assess key factors influencing pest management decisions, growers' familiarity with DSSs, and user experiences with WSU-Potato DAS. As researchers from outside entomology, we emphasize the importance of integrating grower perspectives and social science approaches to understand the human dimensions of pest management technology adoption. These insights can illuminate behavioral, perceptual, and practical factors that shape the real-world impact of pest management innovations..

SURVEY METHODS

- Commercial potato growers surveyed in WA
- 9-page questionnaire + online version
- Multiple contacts during April–July 2025
- 19% response rate
- Surveys completed by 39 potato growers

RESPONDENT AND FARM CHARACTERISTICS

Characteristics	Mean or %
Age (mean)	50 years
Years involved in agriculture (mean)	26 years
Years involved in potato production (mean)	21 years
Male (% of respondents)	95%
Bachelor's degree or higher (% of respondents)	51%
Total acres of farm / ranch land (mean)	7,516 acres
Total acres of potatoes (mean)	2,803 acres
Percentage of gross farm income from potatoes (mean)	63%

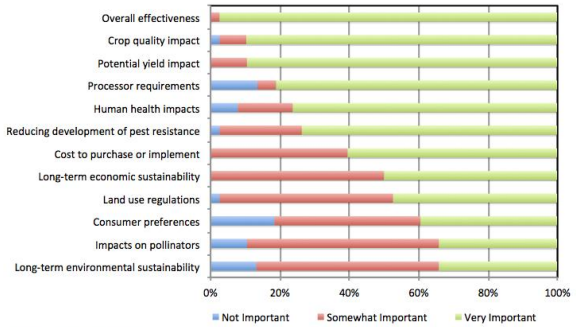
DECISION SUPPORT SYSTEM FAMILIARITY

In agriculture, decision support systems (DSSs) help farmers make more informed decisions by providing relevant information, analysis, and recommendations. DSSs (e.g., interactive web platforms and mobile apps) are available for crop, pest, livestock, and financial management.

- 77% of respondents were familiar with DSSs in general
- 72% of respondents were familiar with DSSs specifically for insect pest management

INSECT PEST MANAGEMENT DECISION-MAKING

Perceived Importance of Various Factors When Making Decisions about Insect Pest Management Strategies for Potatoes

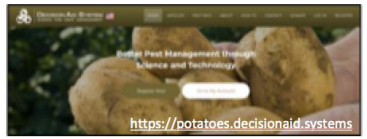


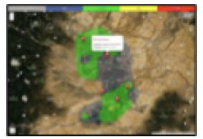
PERCEPTIONS OF DECISION SUPPORT SYSTEMS

Statement	% Agreed
Using decision support systems can help reduce insecticide use while still effectively protecting crops from insect pests.	74
Using decision support systems to manage insect pests will lead to cost savings through more efficient insecticide applications.	72
Using decision support systems improves the timing of insect pest control.	72
The agricultural industry is moving toward more data-driven insect pest management.	69
Using decision support systems for insect pest management is becoming increasingly important to remain competitive.	69
Agricultural advisors encourage the use of decision support systems for insect pest management.	64
The potential benefits of implementing decision support systems outweigh the challenges.	46

USE OF WSU-POTATO DECISION AID SYSTEM

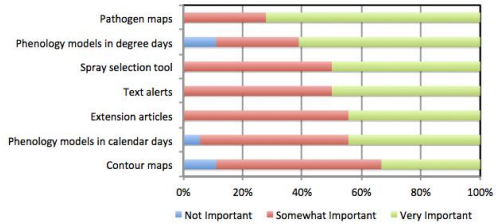
- 46% of respondents reported previous use of WSU-Potato DAS
- 26% of respondents reported regular use of WSU-Potato DAS



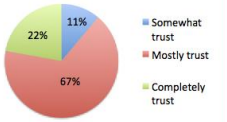


WSU-POTATO DAS USER EXPERIENCES

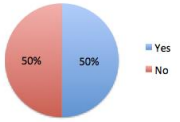
Perceived Importance of WSU-Potato DAS Features



Level of Trust in WSU-Potato DAS Information



Willingness to Pay $250 Annual Subscription Fee Per Weather Station



Over 75% of Users Agreed that WSU-Potato DAS:

- Aligns well with their current farming practices
- Offers recommendations that are easy to understand
- Increases their ability to prevent pest outbreaks
- Reduces pesticide use while maintaining crop protection
- Allows for more efficient pesticide application, reducing costs
- Aligns with best practices recommended by their agricultural advisors

ACKNOWLEDGMENTS

Funding for this research was provided by the Specialty Crop Research Initiative (SCRI) of the USDA's National Institute of Food and Agriculture (Grant #2023-51181-41160). We thank our project collaborators and advisors who reviewed the survey instrument, as well as the growers who participated in the study.

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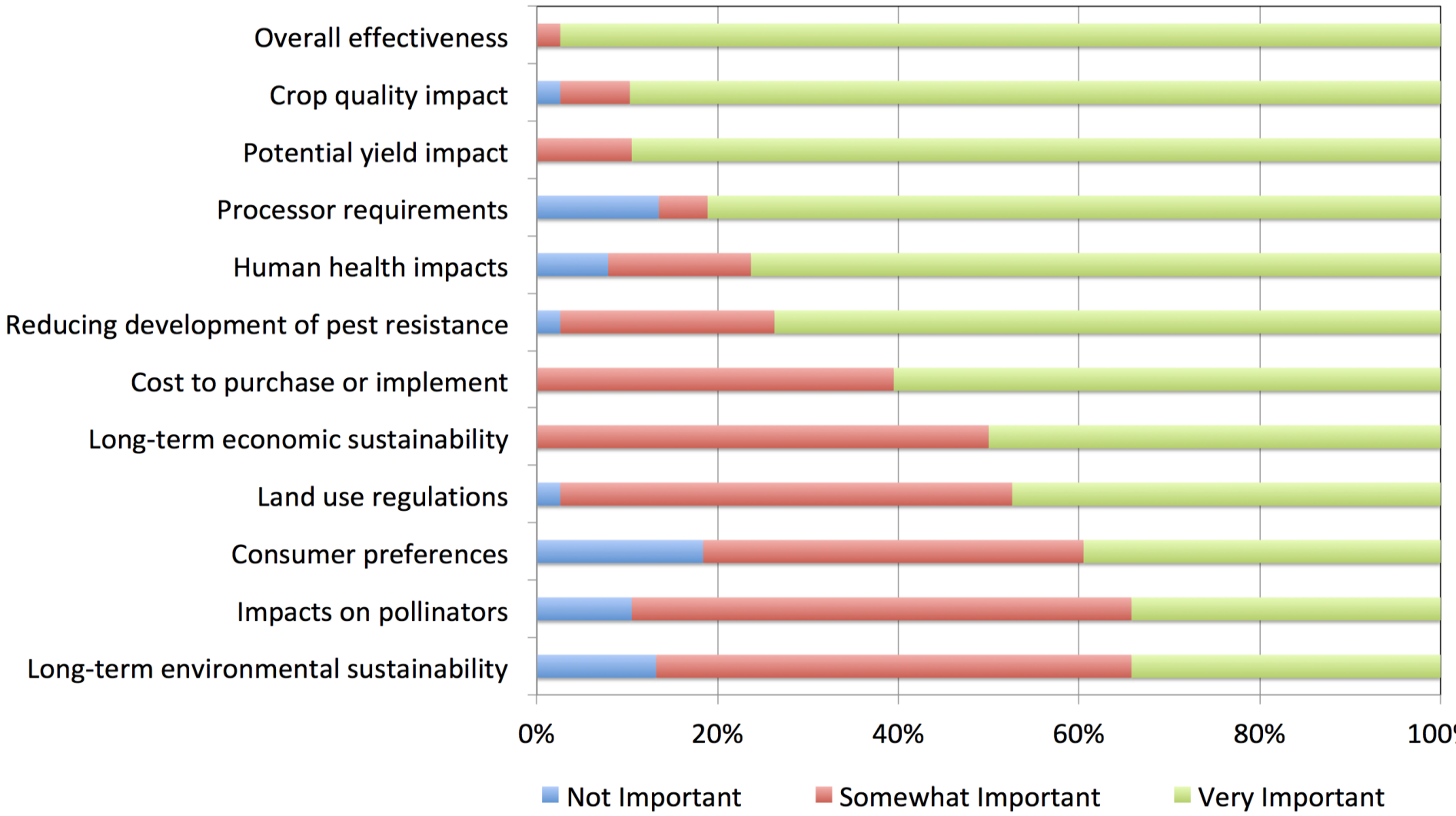
Perceived Importance of Various Factors When Making Decisions about Insect Pest Management Strategies for Potatoes



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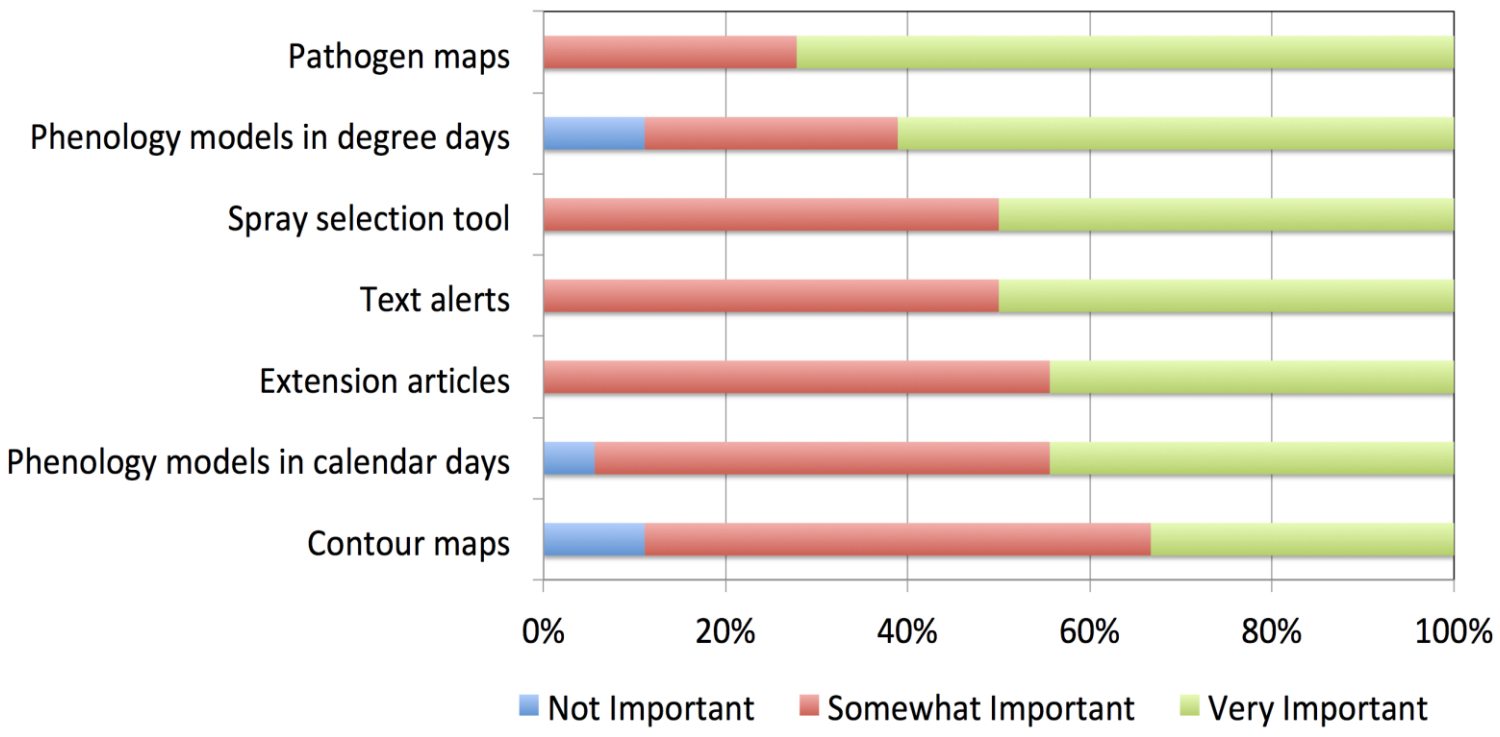

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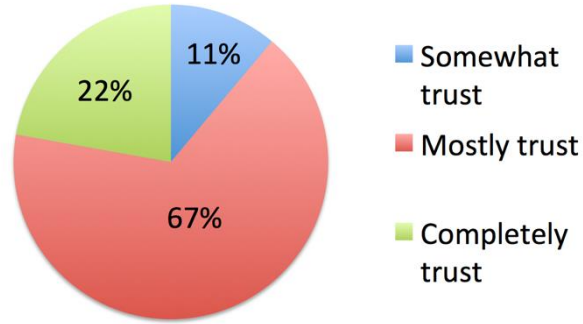

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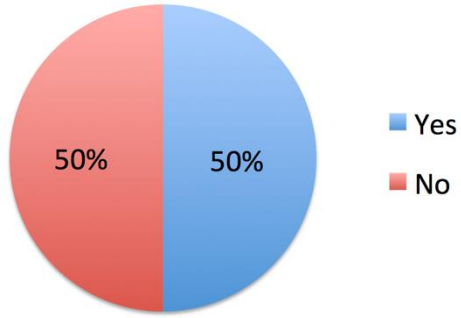

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WSU TEAM – CURRENT SURVEY ACTIVITIES

- Survey of potato growers in 10 states:

WSU Team	Colorado, Idaho, Oregon, Washington
ISU Team	Maine, Michigan, Minnesota, North Dakota, New York, Wisconsin

- Emphasis on neonicotinoids (use, alternatives, opinions)
- Open access approach (link or QR code) – Flyers, commodity commission assistance (CO, ID, OR, WA), social media, etc.
- Finalize survey instrument in January 2026
- Complete data collection by March 2026

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We want to hear from you!

NATIONAL SURVEY OF POTATO GROWERS

Insect Pest Management Practices

Scan Here

Potato growers in Colorado, Idaho, Oregon, and Washington are encouraged to share information about their insect pest management practices, as well as their opinions and concerns about potential restrictions on neonicotinoid use in U.S. potato production.

For More Information
edem.avemegah@wsu.edu

Project Website
https://potatoipm.msu.edu

This research is funded by the Specialty Crop Research Initiative (SCRI) of the USDA's National Institute of Food and Agriculture (Grant #2023-51181-41160).

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WSU TEAM – UPCOMING CONFERENCES AND WORKSHOPS

PNW Potato Industry Events (* *presentation*)

Idaho Potato Conference | 1/21–1/22 | Pocatello, ID

Washington & Oregon Potato Conference | 1/27–1/29 | Tri-Cities, WA *

Western Washington Potato Workshop | 2/20 | Mount Vernon, WA *

Academic Conferences

ESA Pacific Branch Meeting | 4/12–4/15 | Spokane, WA

Agriculture, Food, and Human Values Society | 6/7–6/10 | Burlington, VT

IRSA World Congress of Rural Sociology | 7/19–7/23 | Porto Alegre, Brazil

Rural Sociological Society Annual Meeting | 7/29–8/2 | Raleigh, NC

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