CURRICULUM VITAE | MARY L. HALBLEIB | DECEMBER 2022

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A. EDUCATION AND EMPLOYMENT INFORMATION

EDUCATION

Year	Degree	University	Field of Study
1995	M.S.	Washington State University, Pullman, WA Thesis: *Soil Quality of Conservation Reserve Program Land Compared to Wheat-Fallow in Adams County, WA*	Soil Science, with Agricultural Economics emphasis
1991	B.S.	California Polytechnic University, San Luis Obispo, CA	Agricultural Business

ACADEMIC EMPLOYMENT

2022-present	Professor of Practice, Extension Programming for Sustainable Agriculture, Department of Crop and Soil Science, Oregon State University
2018-2022	Associate Professor of Practice, Extension Programming for Sustainable Agriculture, Department of Crop and Soil Science, Oregon State University
2014-2018	Associate Professor of Practice and Associate Director, Capacity Building, Integrated Plant Protection Center, Oregon State University
2013-2014	Senior Research Assistant and Assistant Director, Program Planning and Evaluation, Integrated Plant Protection Center, Oregon State University
2012-2013	Senior Research Assistant, Education and Evaluation Specialist, Integrated Plant Protection Center, Oregon State University
2005-2012	Senior Research Assistant, Education Project Coordinator, Integrated Plant Protection Center, Oregon State University
2001-2004	Faculty Research Assistant, Nutrient Management Educator, Department of Crop and Soil Science, Oregon State University
1996-2002	Faculty Research Assistant, On-Farm Research Coordinator, Department of Horticulture, Oregon State University

B. TEACHING, ADVISING AND OTHER ASSIGNMENTS

1. Instructional Summary

As an Associate Professor of Practice in the College of Agricultural Sciences (CAS) at Oregon State University (OSU), the focus of my program is to increase the use of evidence-based teaching and learning practices by CAS Extension faculty. Based upon the learning theory of constructivism, I provide instructional design expertise and learner-centered teaching strategies for Extension projects, design and teach professional development programs, and create educational tools and resources to meet emerging Extension faculty needs. I teach direct, non-credit education via presentations, workshops, and courses. I also support my colleagues and college by providing guest lectures and seminars.

a. Credit Courses
None since 2004 as this is not included in my position description.

b. Non-Credit Courses and Workshops

Professional Development for Extension Program Design, Implementation, and Evaluation

I provide learning experiences that empower Extension faculty and other educators in becoming more skillful in creating and conducting outreach programs that motivate learners. To model learner-centered, research-based teaching I employ peer-to-peer learning, activities that reflect real-world challenges and opportunities, and reflective practice. I also develop context-specific tools that improve the development of instructional design, teaching plans, and program evaluation instruments.
At OSU and beyond, I aim to create a shift in the culture of doing educational development work in isolation through creating supportive learning spaces that result in the co-generation of new approaches.

From 2014 to present.

Topic	**Total no. events**	**No. events outside region of responsibility**		**Invited teaching events**		**Total no. of attendees**
		National	International	National	International	
Program Design and Evaluation	35	1	1	0	1	591
Teaching and Learning	12	0	0	0	0	172
TOTAL	**47**	**1**	**1**	**0**	**1**	**671**

Jones, G. and **Halbleib, M.L**. *Time to Collect the Data: Tools of the Trade for Program Evaluation*. OSU Extension Annual Conference December 8, 2022. (1 hr, n = 50) peer reviewed session
Role: Co-wrote the proposal, co-developed the instructional design, and co-taught the session.

Halbleib, M.L. *Powerful Impact Statements.* OSU Extension Annual Conference December 6, 2022. (1 hr, n = 30) **invited**
Role: Developed the teaching plan and taught the session.

Halbleib, M.L. *Part 6: Developing an At-Event Evaluation Tool*, Effective Extension Education Program Design, Teaching, and Evaluation Series. October 12, 2022 (2 hr, n = 5)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 5: Crafting a Learner-Centered Teaching Plan*, Effective Extension Education Program Design, Teaching, and Evaluation Series. October 12, 2022 (2 hr, n = 6)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 4: Identifying Essential Knowledge to Deepen Learning*, Effective Extension Education Program Design, Teaching, and Evaluation Series. October 11, 2022 (2 hr, n = 8)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 3: Designing Learning Activities to Increase Engagement*, Effective Extension Education Program Design, Teaching, and Evaluation Series. October 11, 2022 (2 hr, n = 8)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 2: Creating Assessment Tasks to Promote Learning*, Effective Extension Education Program Design, Teaching, and Evaluation Series. October 10, 2022 (2 hr, n = 9)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 1: Writing Powerful Learning Outcomes*, Effective Extension Education Program Design, Teaching, and Evaluation Series. October 10, 2022 (2 hr, n = 9) (Community and Peer Reviews, Sections 2 and 3)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and valuated the series.

Halbleib, M.L. *Part 6: Developing an At-Event Evaluation Tool*, Effective Extension Education Program Design, Teaching, and Evaluation Series. March 16, 2022 (2 hr, n = 12)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 5: Crafting a Learner-Centered Teaching Plan*, Effective Extension Education Program Design, Teaching, and Evaluation Series. March 16, 2022 (2 hr, n = 12) (Community Reviews, Section 2)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 4: Identifying Essential Knowledge to Deepen Learning*, Effective Extension Education Program Design, Teaching, and Evaluation Series. March 15, 2022 (2 hr, n = 12)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 3: Designing Learning Activities to Increase Engagement*, Effective Extension Education Program Design, Teaching, and Evaluation Series. March 15, 2022 (2 hr, n = 12) (Community Reviews, Section 2)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 2: Creating Assessment Tasks to Promote Learning*, Effective Extension Education Program Design, Teaching, and Evaluation Series. March 14, 2022 (2 hr, n = 12)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 1: Writing Powerful Learning Outcomes*, Effective Extension Education Program Design, Teaching, and Evaluation Series. March 14, 2022 (2 hr, n = 12)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and valuated the series.

Halbleib, M.L. *Writing Measurable Learning Outcomes: Building the Foundation of Your Extension Program Design*. OSU Extension Annual Conference (online). Dec. 10, 2021. (1 hr, n = 23).
Role: Developed the instructional design, created the session guidance document, and taught online.

Christensen, A., Doyle, J., **Halbleib, M.L.**, Philips, A. *Engaging with a New Extension Norm Series: Intentional Program Design.* OSU Extension Annual Conference (online). Dec. 9, 2021. (1 hr, n = 52) **OSU Extension regional director nominated**.
Role: Collaborated on the instructional design with PACE and the three co-presenters and presented on how to create alignment for deeper learning in Extension educational programming.

Halbleib, M.L. *Part 6: Developing an At-Event Evaluation Tool*, Effective Extension Education Program Design, Teaching, and Evaluation Series. CAS Professional Development Program. November 17, 2021 (2 hr, n = 2)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 5: Crafting a Learner-Centered Teaching Plan*, Effective Extension Education Program Design, Teaching, and Evaluation Series. CAS Professional Development Program. November 16, 2021 (2 hr, n = 7)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Learner-Centered Extension Programming.* Southern Oregon Extension Faculty Meeting. November 5, 2021 (1 hr, n = 10) **invited**
Role: Shared my collaborative approaches to intentional Extension program design and learner-centered teaching.

Halbleib, M.L. *Part 4: Identifying Essential Knowledge to Deepen Learning*, Effective Extension Education Program Design, Teaching, and Evaluation Series. CAS Professional Development Program. October 28, 2021 (2 hr, n = 7)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 3: Designing Learning Activities to Increase Engagement*, Effective Extension Education Program Design, Teaching, and Evaluation Series. CAS Professional Development Program. October 26, 2021 (2 hr, n = 8)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 2: Creating Assessment Tasks to Promote Learning*, Effective Extension Education Program Design, Teaching, and Evaluation Series. CAS Professional Development Program. October 22, 2021 (2 hr, n = 11)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and evaluated the series.

Halbleib, M.L. *Part 1: Writing Powerful Learning Outcomes*, Effective Extension Education Program Design, Teaching, and Evaluation Series. CAS Professional Development Program. October 19, 2021 (2 hr, n = 14)
Role: Developed the instructional design, created the session guidance document, taught on Zoom, and valuated the series.

Halbleib, M.L. *Refining Learning Outcomes and Tips for Improving Program Design,* Cultivating Success Small Farms Team Retreat*,* University of Idaho Extension. October 5-6, 2021 (3 hr, n = 11)
Role: Provided expertise and feedback on Extension educational program design.

Halbleib, M.L. *Designing Learning Activities to Increase Engagement (Part 3)*. Effective Extension Program Design Series. August 3, 2021. (1.5 hr, n = 5)
Role: Developed the instructional design, guidance document, and taught on Zoom.

Halbleib, M.L. *Designing Learning Activities to Increase Engagement (Part 3)*. Effective Extension Program Design Series. July 29, 2021. (1.5 hr, n = 3)
Role: Developed the instructional design, guidance document, and taught on Zoom.

Halbleib, M.L. *Creating Assessment Tasks to Enhance Learning (Part 2)*. Effective Extension Program Design Series. July 6, 2021. (1.5 hr, n = 6) (Community Reviews, Section 2)
Role: Developed the instructional design, guidance document, and taught on Zoom.

Halbleib, M.L. *Creating Assessment Tasks to Enhance Learning (Part 2)*. Effective Extension Program Design Series. July 1, 2021. (1.5 hr, n = 6) (Community Reviews, Section 2)
Role: Developed the instructional design, guidance document, and taught on Zoom.

Halbleib, M.L. *Writing Powerful Learning Outcomes (Part 1)*. Effective Extension Program Design Series. June 29, 2021. (1.5 hr, n = 6)
(Community Reviews, Section 2)
Role: Developed the instructional design, guidance document, and taught on Zoom.

Halbleib, M.L. *Writing Powerful Learning Outcomes (Part 1)*. Effective Extension Program Design Series. June 24, 2021. (1.5 hr, n = 6)
(Community Reviews, Section 2)
Role: Developed the instructional design, guidance document, and taught on Zoom.

Halbleib, M.L. *Improving Extension Programming through Community Engagement and Learner-Centered Education*, CSS promotional seminar on June 7, 2021. (1 hr., n = 24)

Halbleib, M.L. *Designing Outcome-Based Extension Teaching and Learning Programs.* Developing Successful Outreach and Engagement Programs Onboarding Session. April 20, 2021. (1 hr., *n* = 4) **invited**
Role: Created and presented an outcome-based design practice for developing and evaluating learner-centered Extension programs. Co-presented the two-hour session with Sam Angima, CAS Assistant Dean for Outreach and Engagement.

Halbleib, M.L. and C. DePhelps. *A Design Template for Developing Outcome-Based Extension Education Programs.* University of Idaho Annual Extension Conference Cultivating Success Small Farms Team in-service workshop. April 15, 2021. (2 hr., *n* = 16) **invited** (Community Reviews, Section 2)
Role: Designed an interactive learning experience, created a new agenda analysis form, and co-facilitated and evaluated the session with Colette DePhelps, Area Extension Educator for Community Food Systems, University of Idaho.

Halbleib, M.L. *Increasing Extension Impact with Program Design Templates: Using the Teaching and Learning Template*. Dec. 16, 2020. (1.5 hr., *n* = 3) (Community Reviews, Section 2)
Role: Developed the instructional design, taught on Zoom, and evaluated this class.

Halbleib, M.L. *Increasing Extension Impact with Program Design Templates: Using the Outcome-Based Program Design Template*. Dec. 15, 2020. (1.5 hr., *n* = 11) (Community and Peer Reviews, Sections 2 and 3)
Role: Developed the instructional design, taught on Zoom, and evaluated this class.

Halbleib, M.L., G. Jones, and L. Shirley. *Theory and Practice of Designing Impactful Extension Programs: Wait, why didn't anybody tell me this sooner?* OSU Extension Annual Conference (online). Dec. 11, 2020. (1 hr., *n* = 52)
Role: Designed, taught, and evaluated this session with Gordon Jones, Assistant Professor of Practice, Dept. of Crop and Soil Science at OSU, and Lindsey Shirley, Associate Provost, University Extension and Engagement, OSU.

Halbleib, M.L. *Increasing Extension Impact with Program Design Templates: Using the Teaching and Learning Template*. Dec. 2, 2020. (1 hr., *n* = 6) (Community and Peer Reviews, Sections 2 and 3)
Role: Developed the instructional design, taught on Zoom, and evaluated this class.

Halbleib, M.L. *Increasing Extension Impact with Program Design Templates: Using the Outcome-Based Program Design Template*. Nov. 30, 2020. (1 hr., n = 15) (Community Reviews, Section 2)
Role: Developed the instructional design, taught on Zoom, and evaluated this class.

Halbleib, M.L. *Learner-Centered Teaching for Extension Education.* Developing Successful Outreach and Engagement Programs Onboarding Session. February 18, 2020.
(1 hr., *n* = 13) **invited**

Role: Created and presented an outcome-based design practice for developing and evaluating learner-centered Extension programs. Co-presented the two-hour session with Sam Angima, CAS Assistant Dean for Outreach and Engagement.

Halbleib, M.L., G. Jones, and C. Bouska. *Lecturers Anonymous: Starting Down the Road to Active Engagement and Learning for Extension Programs.* OSU Extension Annual Conference, Corvallis, OR. Dec. 5, 2019. (1.5 hr., *n* = 25)
Role: Designed and evaluated this peer-reviewed session with Cassie Bouska, Asst. Professor of Practice, Horticulture at OSU, and Gordon Jones, Asst. Professor of Practice, Crop and Soil Science at OSU, and I taught on the science of teaching and learning with adults. (Community and Peer Reviews, Sections 2 and 3)

Halbleib, M.L. *Some Science Behind Learner-Centered Teaching for Extension Education.* Crop and Soil Science Departmental Seminar, OSU, Corvallis, OR. June 3, 2019. (1 hr., *n* = 15) (Peer Reviews, Section 3)
Role: Developed and presented this seminar.

Halbleib, M.L. and S. Duggan. *High Impact Teaching: Applying Science and Best Practice to Increase Engagement.* Oregon Agricultural Extension Association Professional Improvement Conference. Bandon, OR. April 3, 2019. (1.5 hr., *n* = 21) **invited**
Role: Developed the instructional design, created the Teaching and Learning Planner, and produced the session evaluation. I taught the session with Scott Duggan, Asst. Professor of Practice in Animal and Rangeland Science, OSU. (Client Reviews, Section 2)

Halbleib, M.L. *Extend Your Teaching and Learning to Enhance Sustainable Agriculture.* Ten-week, statewide course taught via Zoom. Winter term, 2019. (15 hr., *n* = 7) (Community and Peer Reviews, Sections 2 and 3)
Role: Developed, taught, and evaluated this 10-week course.

Baur, M., Bolton, H., Seth Carley, D., Crump, A., Dubois, J.-J., Fournier, A., **Halbleib, M.,** Hurley, J., Liu, Y., Martin, T., McRoberts, N., Mitchell, P., and Ratcliffe, S. *Path to Success: Evaluating IPM Programs from Planning to Data to Impact Statements*. 9th International IPM Symposium, Baltimore, MD. March 22, 2018. (4 hr., *n* = 36) **invited**
Role: Co-designed the workshop with another team member and co-instructed with academic and agency colleagues from around the nation.

Halbleib, M.L. and K. Sagmiller. *Inspiring Change through High Impact Teaching.* Extension Annual Conference, OSU, Corvallis, OR. December 7, 2017. (1.5 hr., *n* = 16)
Role: Co-designed and co-taught this peer-reviewed session with Kay Sagmiller, Director, OSU Center for Teaching and Learning.

Halbleib, M.L. *Adult Education to Minimize Pesticide Risk and Maximize IPM Adoption*. Environmental and Molecular Toxicology Departmental Seminar, OSU, Corvallis, OR. September 25, 2017. (1 hr., *n* = 19)
Role: Designed and presented this seminar.

Halbleib, M.L. *Constructivism, Concepts, and Capacity*. Kim Anderson Lab Group, Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR. April 5, 2017. (1.5 hr., *n* = 11) **invited**
Role: Designed and led this group learning session.

Halbleib, M.L. *Learner-Centered Education and Evaluation Design Training*. Hermiston, OR. October 10-12, 2016. (16 hr., *n* = 8)
Role: Designed and instructed this professional co-learning program.

Halbleib, M.L. and P.C. Jepson. *Outcome-Based Extension Program Planning and Evaluation.* Extension Annual Conference, OSU, Corvallis, OR. December 10, 2015. (2 hr., *n* = 15)
Role: Designed and co-taught this peer-reviewed session with Paul Jepson, Professor, Environmental and Molecular Toxicology, OSU.

Halbleib, M.L. *Experiential Learning for Extension Education*. Portland, OR. September 21-22, 2015. (12 hr., *n* = 7)
Role: Designed and co-instructed this professional co-learning program.

Halbleib, M.L. *Principles and Practices of IPM Program Design*. Planning and Implementing Sustainable IPM Systems Course, OSU, Corvallis, OR. August 11-24, 2013.

Halbleib, M.L. *IPM Program Evaluation Planning and Use*. Planning and Implementing Sustainable IPM Systems Course, OSU, Corvallis, OR. August 11-24, 2013.

Halbleib, M.L. *A Powerful Process to Demonstrate the Impacts of Your Work*. Connect 2010 Conference: Linking Conservation District Employees Across Oregon. Canby, OR. May 4-6, 2010. **invited**

c. Curriculum Development

I provide instructional design frameworks, learner-centered teaching strategy development, and tools for program evaluation for the following four curricula.

Progression of amplification of training modes and impacts.

Course ***Date*** **Location**	Increasing Extension Impact with Program Design Templates (Parts 1 and 2) *Nov. and Dec., 2020* Remotely taught workshops	Extend Your Teaching and Learning to Enhance Sustainable Agriculture *Winter term 2019* Remotely taught course	West African Pesticide Risk Reduction Training for Trainers *March 7-10, 2015* Bayakh, Senegal	West African Pesticide Risk Reduction Training for Farmers *April 9-10, 2014* Diender, Senegal
Learners **Duration**	29 OSU Extension faculty and staff (attended one or both sessions) 3 hr.	7 newer OSU Extension faculty 15 hr.	26 smallholder farmers 24 hr.	15 smallholder farmers 8 hr.
Situational Analysis and Learning Outcomes Source	Extend Your Teaching and Learning Course end of course survey and follow-up interviews	Needs assessment at 2019 OAEA Professional Improvement Conference Pre-course interviews	Local pesticide marketplace survey Farmer cooperative meetings	Rapid assessment focus group on local farming practices Community outcome visioning
Instructional Design and Data for Learning	Science of memory formation and active learning research Examples from my past work	Individual design coaching Science of learner-centered teaching	Train the trainer model for scale-up Enable learners to identify pesticide exposure pathways	Learner-constructed seasonal cropping timelines to determine high-risk intervals Pictogram-based pesticide risk information

New Elements	Guidance for instructional design Specific practices to increase learner engagement	Tangible tools for future program development Peer teaching and learning Reflection for learning and assessment	Expanded, revised pictogram-based pesticide risk assessment tool Learner led small group learning exercises	Hand-drawn timelines Roleplay for risk communication practice

Creating Unique Curriculums for the Extension Context

Situation. Often Extension faculty and others that provide integrated pest management (IPM) and sustainable agriculture outreach have significant subject matter expertise, but have limited or no training in the science of teaching and learning the principles. Given that these experts will engage with their communities to share new information and scientific advances, they must have a working knowledge of how people learn. Additionally, this understanding must be linked to the skills necessary to design and teach effective educational programs capable of supporting behavior change. Providing Extension faculty with professional development that includes direct experience is a practical way to increase their confidence in developing and implementing learner-centered programs in the future.

Approach. To address the above area of need, I use my experience from the work I have done in the Collaborative Program Development for IPM Partnerships (Section 5ai-iii) and West African Pesticide Risk Reduction Education initiative (5bi) to create professional development courses expressly for the Extension context. In 2018 I created a 10-week curriculum for a professional development course, *Extend Your Teaching and Learning to Enhance Sustainable Agriculture*. Using a cohort-based model, the course provided a learner-centered experience for designing and teaching agricultural Extension programs. I enrolled seven early career Extension faculty for winter term 2019. Each week for 1.5 hours we met on Zoom for instruction, active co-learning, and reflection. Between sessions, I coached participants to enable them to refine their outcome-based instructional design and provided feedback on the alignment of their course elements.

Given the reported value of the two design templates to Extension professionals within the *Extend* course, I developed and taught two new Extension Program Design modules focused on the use of these templates in November and December 2020. The purpose of the *Using the Outcome-Based Extension Education Design Template* and *Using the Facilitating Teaching and Learning Template* 1.5-hour modules is to enhance instructional design skills and increase use of learner-centered teaching strategies through using these streamlined planning tools. A total of twenty-nine faculty and staff attended one or both modules. In 2020 I created a new four-part series, *Effective Extension Program Design*, to provide in-depth learning experiences and resources for the core elements of outcome-based education. I expanded the series to six parts in 2021 the *Effective Extension Design, Teaching, and Evaluation,* including planning for teaching and development of an event evaluation tool.

To expand the reach of this work I co-designed and co-instructed sessions at the OSU Extension Annual Conference in 2019 and 2020. To provide ongoing support across the state, I lead the Extension Teaching Network that launched in January 2020 with Gordon Jones, Asst. Professor of Practice, OSU Extension, and Cassie Bouska, Asst. Professor of Practice, OSU Extension, as co-facilitators. Creating a space for faculty and staff to gather once a month to form a responsive peer-to-peer network has extended knowledge across Extension programs and colleges.

Outcomes, impact, and scholarship. The *Extend* course evaluation data gathered a week after the conclusion of the class showed that all seven learners achieved the outcomes they were seeking. The most impactful component of the course was teaching the process of developing learning outcomes. The most valued learning approaches I employed were the creation of the design templates for the sequence of steps in program design and opportunities for peer feedback. The retrospective pretest data showed high levels of change in the participants' ability to create learner-centered experiences and expanded confidence in teaching using learner-centered strategies (see tables below). Interviews were also conducted with participants seven to nine months after the course. These evaluations captured that all of the learners had used the design templates for educational programs created following the completion of the course. These interviews also revealed a paradigm shift in how the faculty perceived and understood the value of acknowledging and building upon the life experiences and knowledge that adult learners bring to Extension programs. This understanding has translated into adoption of new instructional designs and application of more interactive teaching strategies (see quotes below).

Retrospective pretest data from for the *Extend Your Teaching and Learning to Enhance Sustainable Agriculture* course (*n* = 7).

Level of skill	**Before**[z]	**After**[z]	**Change**
Conduct a stakeholder outcome visioning session	3.71	5.57	+1.86
Develop learning outcomes	3.57	5.00	+1.43
Design active learning experiences	3.43	5.57	+2.14

[z]Mean ratings on a scale of 1-7: 1 = no skill or ability, 7 = high level of skill or ability

Post-course evaluation for *Extend Your Teaching and Learning to Enhance Sustainable Agriculture* (*n* = 7).

Level of understanding or confidence	**Before**[z]	**After**[z]	**Change**
Understanding of the approaches for creating learner-centered education programs	1.75	3.71	+1.96
Confidence in teaching a learner-centered course with your clientele	1.68	3.43	+1.57

[z]Mean ratings on a scale of 1-4: 1 = low understanding or confidence, 4 = high level of understanding or confidence.

Quotes from the *Extend Your Teaching* course participant interviews:

> "*I would say my philosophy has adapted to be more egalitarian, friendlier, more welcoming of other people's experiences*."

> "*I found the ideas about what are things unique to adult learners and how can you kind of cater to that, really helpful, and some of the specific techniques for how to plan out a lesson were really helpful*."

> "*Adult learners are there to gain information that they can use in their everyday life and they bring a lot of information to the table that can be leveraged by the teacher."*

Four months after the *Outcome-Based Extension Education Design Template* courses 89% of participants had learned more about how to develop educational programs and 78% have used or will use this template in their work (n = 9). The design and use of the two templates has been described in the manuscript, *Improving Extension Curriculum Design Using Learner-Centered Templates*, published in The Journal of Extension in 2021.

To measure the impact of the *Lecturer's Anonymous* Extension Annual Conference session in 2019 an online survey was conducted six months later (n = 15; 65% response rate). The participants shared that 93% had added visual learning methods, 80% had incorporated new hands-on activities, and 80% had implemented peer learning strategies. This session was voted by conference attendees as the 2019 People's Choice Award for the Program Track.

At the end of the first year of the Extension Teaching Network I conducted an online survey with 20 respondents (41% response rate). Nearly half of these Extension professionals have tried a new or different approach in one or more of their education programs as a result of participating in the network, and over one third have a plan to do so in the near future. Almost 80% reported that through the network they were able to share their educational experience to help others in the group. Seventy percent have shared or plan to share what they learned from the network gatherings with their colleagues. In 2021 Extension professionals from the University of Idaho and the Northeastern Sustainable Agriculture Research and Education (SARE) Professional Development Program staff have joined the gatherings.

2. Community Evaluation of Teaching

Date	Non-credit teaching activity	N	Median Rating (1 = Very poor, 6 = Excellent)	
			Overall teaching quality	Overall event quality
Oct. 11, 2022	Identifying Essential Knowledge to Deepen Learning	8	5.5	5.5
March 16, 2022	Crafting a Learner-Centered Teaching Plan	9	5.56	5.56
March 15, 2022	Designing Learning Activities to Increase Engagement	11	5.73	5.82
July 6, 2021	Creating Assessment Tasks to Enhance Learning	5	5.6	5.6
July 1, 2021	Creating Assessment Tasks to Enhance Learning	5	5.8	5.6
June 29, 2021	Writing Powerful Learning Outcomes	4	5.5	5.75
June 24, 2021	Writing Powerful Learning Outcomes	5	5.8	5.8
April 15, 2021	Developing Outcome-Based Extension Education Programs	10	5.4	5.6
Dec. 16, 2020	Extension Program Design: Using the Teaching and Learning Template	2	6.0	6.0
Dec. 15, 2020	Extension Program Design: Using the Outcome-Based Design Template	5	5.2	5.4
Dec. 2, 2020	Extension Program Design: Using the Teaching and Learning Template	2	6.0	5.5
Nov. 30, 2020	Extension Program Design: Using the Outcome-Based Design Template	6	5.7	5.7
Dec. 5, 2019	Lecturers Anonymous: Starting Down the Road to Active Engagement and Learning in Extension Programs	17	5.6	5.6

Date	Non-credit teaching activity	N	Median Rating (1 = Very poor, 6 = Excellent)	
			Overall teaching quality	Overall event quality
April 3, 2019	High Impact Teaching: Applying Science and Best Practice to Increase Engagement	16	4.8	5.0
April 1, 2019	Extend Your Teaching and Learning to Enhance Sustainable Agriculture	7	5.3	5.1

Participant feedback in 2022 on the Effective Extension Program Design, Teaching and Evaluation Series:

The Effective Extension Program Design, Teaching, and Evaluation Series is a must for all Extension Service field faculty. Mary did a great job leading participants through a hands-on learning opportunity with educational tools that can improve all extension curriculum.

Thanks for the great course—I found it very helpful and inspiring!

I just wanted to reach out and say thank you so much for putting together such a great course on extension teaching! I had gotten bits and pieces of that information from talking to experienced extension educators, but have never had it presented in one place with an opportunity to practice and get feedback. And thank you again for scheduling it so I could attend. The stakeholders we work with will be thanking you too.

… I wanted to reach out and thank you for your time and dedication to Extension teaching. The course was definitely impactful and has encouraged me to really think critically about the design of educational programming. I am a very new faculty member, so I have a lot to chew on. Your templates have already been helpful for imagining and designing some of the educational programming I hope to offer. I know the course was enjoyed by my course mates as well. Looking forward to learning more from your expertise!

Thank you for such an incredible course this week! I really learned a lot!

3. Peer Teaching Evaluation

Date	Reviewer	Presentation Title	Location	Overall Score 1 = Needs improvement, 5 = Outstanding
Oct. 10, 2022	Leon Nguyen, Crop and Soil Science, OSU	Writing Powerful Learning Outcomes	Zoom	5
Nov. 16, 2021	Judit Barroso, Crop and Soil Science, OSU	Developing a facilitating teaching and learning plan	Zoom	5
Dec. 15, 2020	Jacob Powell, Crop and Soil Science, OSU	Increasing Extension Impact with Program Design Templates: Using the Outcome-Based Program Design Template	Zoom	5
Dec. 2, 2020	Dana Sanchez, Fisheries and Wildlife, OSU	Increasing Extension Impact with Program Design Templates: Using the Teaching and Learning Template	Zoom	5
Dec. 5, 2019	David Hannaway, Crop and Soil Science, OSU	Lecturers Anonymous: Starting Down the Road to Active Engagement and Learning in Extension Programs	Campus	5

Date	Reviewer	Presentation Title	Location	Overall Score 1 = Needs improvement, 5 = Outstanding
Dec. 5, 2019	Navneet Kaur, Crop and Soil Science, OSU	Lecturers Anonymous: Starting Down the Road to Active Engagement and Learning in Extension Programs	Campus	5
June 3, 2019	Lauren Gwin, Crop and Soil Science, OSU	Some of the Science Behind Learner-Centered Teaching for Extension Education (CSS Dept. Seminar)	Campus	5
June 3, 2019	David Hannaway, Crop and Soil Science, OSU	Some of the Science Behind Learner-Centered Teaching for Extension Education (CSS Dept. Seminar)	Campus	5
June 3, 2019	Rory Mc Donnell, Crop and Soil Science, OSU	Some of the Science Behind Learner-Centered Teaching for Extension Education (CSS Dept. Seminar)	Campus	5
April 1, 2019	Gail Langellotto, Horticulture, OSU	Reflective Learning to Increase Relevancy and Meaning (10th week of *Extend Your Teaching* Course)	Zoom	4

4. Advising

I do not have an advising role.

5. Other Assignments

My work has evolved in two stages that allow me to excel in my current assignment. From my years of experience designing and evaluating Extension outreach programs for IPM and nutrient management in Oregon and the Pacific Northwest, I gained the knowledge and skills necessary to conduct applied research and provide our faculty with educational project design support. Through my initial work at OSU work conducting on-farm research to expand the use cover cropping, conservation tillage and IPM with Oregon vegetable growers, I also gained experience and insights for Extension outreach. Through my current position, I have further developed three areas of expertise including 1) educational program development to enhance community partnerships, 2) development of and applied research on new approaches for Extension education, and 3) program evaluation to support continuous improvement. In these endeavors I work both independently and collaboratively as part of a team. Additionally, in this work, I employ my knowledge of pesticide risk reduction for the protection of human health and the environment and as a pathway towards IPM implementation.

a. Cultivating Impact through Producer-Centered Education

The cohort-based co-learning project engages 10 agricultural educators across Oregon and support them in partnering with a producer to create and teach more impactful programming on areas of sustainable practices.

Funding

Title: Growing Agricultural Service Providers' Program Outcomes with Producer Co-Educators (2022-24)
Funder: USDA WSARE Professional Development Program
Amount: $84,995
Role: As PI I lead the design, implementation, and evaluation of this co-learning project with input from a leadership team.

b. Collaborative Program Development for Extension IPM Partnerships

My approach to facilitating collaborative educational partnerships across Oregon is through implementing *Adaptive Learner-Centered Education* (ALCE) with funding and scholarship that integrates across typically linear content areas. Having outcome-centered programs enables multiple means of fulfilling individual grants given the intersection of different projects and faculty members.

Funding
Two grants were awarded that supported the three Extension partnerships below:

Title: *Redefining Learner-Centered Education to Build High Impact IPM Partnerships,* (2016-20)
Funder: USDA WSARE Professional Development Program
Amount: $67,802
Role: As PI I lead the development and evaluation of educational programs that increase the use of evidence-based teaching and learning approaches to increase the adoption of IPM and reduce pesticide risks.

Title: *Statewide Networks for Overcoming Barriers to IPM Adoption in Oregon,* (2017-19)
Funder: USDA NIFA Extension Implementation Program
Amount: $299,140
Role**:** As Co-PI I provided leadership for network engagement in community-driven outreach programs with Extension faculty to enhance IPM adoption and reduce the risks associated with pesticide selection and application.

Scholarship across the three IPM partnership projects.
The learning and insights within the three community partnerships is captured in the publication, *Increasing the Reach of Integrated Pest Management through Community Partnerships: Insights from Implementing Adaptive Learner-Centered Education across Oregon* (Extension Pubs #1).

i. Biological Integrated Pest Management Program for Northeast Oregon (2016 to present)

Situation. Farmers are interested in enhancing their pest management programs with more integrated approaches, including creating on-farm plantings to support biologically-based IPM. In northeastern Oregon, leading farmers have installed habitat for beneficial insects and other wildlife as a long-term tactic to reduce pest pressure in their fields.

Approach. In January 2017, a grower and community IPM needs assessment was conducted using the ALCE outcome visioning process. I facilitated a group of 17 farmers and other agricultural community members along with three OSU faculty to capture future possibilities for IPM for NE Oregon cropping systems. This interactive approach captured nine areas of community interest, and using a sticker-based system the topic of biological control was indicated to be of most interest. In March 2017, the local project lead Darrin Walenta, Associate Professor in the Department of Crop and Soil Science, took the IPPC two-day Integrated Biological IPM Train-the-Trainer Course.

Given the limited expertise at OSU for this innovative work, I assembled a diverse team of experts that met the needs of this grower community. We have partnered with the Functional Agricultural Biodiversity (FAB) Regional Workgroup, both state and local Natural Resources Conservation Service (NRCS) staff, a local native plant nursery, Eastern Oregon University faculty, and the Xerces Society. The initial event for the project was an indoor workshop, *Farmscaping for Biological Pest Control in NE Oregon Cropping Systems*, attended by 19 people in November 2018 in La Grande, OR. The FAB Workgroup collaborated with this project to co-host on-farm tours in the summer of 2019.

This full-day event, *Agricultural Biodiversity Working for Farmers Tour*, was hosted by two local farmers who have installed beneficial insect and wildlife habitat. The event was filled to capacity with 41 people attending. Our next step for this project is a biodiversity habitat planning workshop in 2022 to support farmers in initiating new installations or enhancing existing on-farm plantings, this in-person, hands-on program has been on hold due to COVID. To support the on-farm planning process, two new resources were researched, developed, and refined by the project team, the *Eastern Oregon Pests and Beneficial Insects Table* and the *Eastern Oregon Plant List for Beneficial Insects and Native Pollinators Chart*. To ensure farmer to farmer engagement is as an integral approach throughout this program, farmers regularly served experts and educators.

Outcomes and impacts. The at-event evaluation for the *Farmscaping for Biological Pest Control in NE Oregon Cropping Systems* workshop documented that all seven of the growers intend to change what they do to protect and support beneficial insects on their farms, and four of the five agricultural advisers and educators plan to change how they advise growers for farm management practices. The 2019 on-farm tours post-event survey (n = 32) captured that the majority (86%) of participants who were growers indicated they intend to change their farm management practices to conserve natural resources. The specific actions these farmers plan to implement to increase beneficial insects on their farms include adjusting tillage and mowing practices, providing additional resources for native pollinators, and creating new habitats for beneficial insects.

Retrospective pretest data for Farmscaping for Biological Pest Control workshop (*n* = 15).

Ability to:	**Before**[z]	**After**[z]	**Change**
Identify beneficial insects on and around farms	3.07	5.27	+2.20
Identify three conservation practices that support beneficial insects	3.80	5.67	+1.87
Differentiate between the different functional groups of beneficial insects	2.53	4.33	+1.80

[z]Mean ratings on a scale of 1-7: 1 = no skill or ability, 7 = high level of skill or ability

ii. Middle Rogue Pesticide Stewardship Partnership Project (2017 to 2019)

Situation. Protecting water quality through mitigation of off-target pesticide movement is a particularly important facet of IPM. Aquatic ecosystems are sensitive to toxic compounds, and there are regulatory ramifications for surface water contamination. A unique, voluntary approach in Oregon for reducing surface water contamination is the Pesticide Stewardship Partnership (PSP). Through this state-level, multi-agency program, water quality sampling is conducted in watersheds to track progress and provide feedback. In 2016 the Middle Rogue Watershed was selected for a PSP to enable this community to be the driver of locally relevant solutions.

Approach. The Middle Rogue PSP project, began with an ALCE outcomes visioning process with community members. The two outcomes the group prioritized included:

1. The need to support further collective action on validated information and tools to implement higher levels of IPM.
2. Improving communication within the watershed that *everyone* has a role in protecting surface water.

With the support of an initial technical assistance grant in 2017, I led the design and evaluation of a grower workshop and the first annual IPM Festival with tours to target diverse audience groups. Surface water monitoring data was shared and the sessions emphasized practical options for better management and reduced use of pesticides of concern. In 2017 Gordon Jones, Commercial

Agronomist at the Southern Oregon Research and Extension Center, was hired and became the OSU local lead for this PSP project. I supported the development of the second IPM Festival that was designed to engage a wider range of pesticide user groups through concurrent sessions, an onsite pesticide calibration demonstration, and two site visits. The attendance grew from 25 to 43.

In 2018 I assisted staff with the Rogue River Watershed Council and Jackson Soil and Water Conservation District to develop the second technical assistance grant. This approach enabled these local partners to become co-leaders in the partnership through facilitating the development of the first Oregon PSP strategic plan. This five-year plan clarified each partner's commitments for short-term and long-term efforts. I contributed to the Documentation of Improvement section and provided editorial feedback on the plan.

Outcomes and impact. The evaluation at the end of the 2018 IPM Festival found that of those participants who apply pesticides, 90% stated they would adopt practices they had learned with the aim of reducing off-target pesticide movement. The follow-up evaluation conducted two months later showed that 10 of the 17 respondents were somewhat likely (n = 4) or extremely likely (n = 6) to have used what they learned to reduce pesticide contamination of surface water. These results indicated that this learning experience had enabled participants to change one or more management practices to protect of surface water quality. To increase team learning, I produced two new templates that were piloted in the Middle Rogue project: 1) the *After Event Reflection* Form to capture learning by each team member and as a group, and 2) a teaching and learning planner to clarify the teaching and learning strategies, purpose of each activity, and time use to ensure a high level of learner engagement. The *After Event Reflection* form was used in the other two IPM partnership projects and was adopted by one faculty member for use in other programs. The teaching and learning planner was expanded, and became the *Facilitating Teaching and Learning Template* (Section B1c).

The multi-agency Oregon Water Quality Pesticide Management Team, that oversees the PSP Program views, the Middle Rogue PSP Strategic Plan as the template for all PSPs across the state. In 2020, $10,000 of additional funding was secured to support an expanded two-day IPM Festival in 2021 and support partner organization staff.

Two grants were funded to support this work:

Title: *Middle Rogue Strategic Communication and Outreach*, 2018-19
Funder: Oregon Pesticide Stewardship Partnership Technical Assistance Program
Amount: $40,870
Role: I initiated and supported the two leading local partners in partnering in the PSP leadership and management through securing funding for their staff and the development of the first PSP strategic plan.

Title: *Pesticide Management Decision Support and Education* (Middle Rogue PSP), 2016-17
Funder: Oregon Pesticide Stewardship Partnership Technical Assistance Program
Amount: $40,854
Role: As Co-PI my roles included providing an outcome visioning process, instructional design skills, and program evaluation development and reporting.

Scholarship and awards. In 2019, I co-developed a peer-reviewed session at the 2019 Extension Annual Conference (Section B1b) that shared learning from our collaborative IPM projects and received a People's Choice award.

iii. Oregon Cranberry Pesticide Resistance Prevention Program (2017 to 2019)

Situation. Oregon cranberry farmers have expressed interest in learning more about preventing pesticide resistance and how to make more informed pesticide selection decisions. Our access to an industry cranberry pesticide use database confirmed there are patterns of pesticide use that can accelerate pesticide resistance.

Approach. A cranberry industry consultation in 2017 produced by IPPC staff captured the current education and research needs; it was clear there was an opportunity to work with Oregon cranberry growers to provide education and decision-support information to enable more informed pesticide selection. The Oregon Cranberry Association and OceanSpray are supporting partners in this effort. Using an outcome-based design clarified the two essential concepts of this educational program 1) pesticide mode of action classes, and 2) in-season and between season pesticide class rotation. Cassie Bouska, the local project lead and Assistant Professor of Practice in the Department of Horticulture, taught a two-hour workshop in 2018 with 41 growers and other industry members. Using a visual approach, she simplified the complex concepts of mode of action and rotation by using color-coded blocks to represent pesticide classes within actual spray programs. My role was to support the project in instructional design, program evaluation, and event facilitation.

Outcomes and impacts. The at-event survey (n = 29) showed 30% of participants felt they had a very low, low, or slightly moderate level of confidence before the program in making pesticide selection choices that rotate modes of action. After the program these growers all indicated increased confidence to moderate or high. Eighty-one percent will more frequently consider mode of action in their future pesticide selection decisions. Nearly two-thirds intend to share what they learned with others. The most common perceived barrier to changing pesticide selection was cost. In 2019 Cassie taught a refresher course to 63 participants. The evaluation data from 21 participants, representing 36 farms, showed that ninety-five percent of those surveyed had rotated pesticide classes in the prior growing season.

Scholarship and awards. Learning from this project resulted in a peer-reviewed and award-winning co-presentation with Cassie Bouska and Gordon Jones (Section B1b) at the 2019 OSU Extension Annual Conference.

c. Applied Research: Adaptive Learner-Centered Education for Extension

In international and local Extension programs I conduct applied research to determine more effective and efficient approaches to extending the reach of crucial information within agricultural communities.

i. West African Pesticide Risk Reduction Education (2013-2016)

In 2014 I directed the design of, and instructed in, a two-week residential course at OSU, *Planning and Implementing Sustainable IPM Systems*, with a group of 14 staff members of the UN Food and Agriculture Organization (UNFAO) from nine countries and two OSU faculty members. Two significant program outcomes were 1) the formation of the West African Pesticide Risk Communication Task Force, and 2) the development of an effective pesticide risk reduction education program in Senegal. Additionally, this program also created an opportunity to provide input to the regulatory leaders on

how education and new forms of information can decrease pesticide exposure to smallholder farming families across West Africa.

Situation. There is a global need to increase the sustainable production of crops to meet the needs of a growing world population while minimizing negative impacts of pesticides on human health and the environment. In West Africa, there is documentation that smallholder farmers and their families are regularly exposed to highly toxic pesticides at higher rates than almost anywhere else in the world. These results were confirmed within the initial stages of this program via a collaboration with Kim Anderson's Toxicology Lab at OSU in which personal exposure wristbands were deployed in the prospective pesticide risk reduction education program area. The measured rates of exposure amongst farmers were higher than we expected and what the participants could account for in the logs they kept of their daily activities, these results clearly confirmed the need for a new approach to pesticide risk reduction education that is better able to provide an effective learning experience and new forms of pesticide-related information to smallholder farmers.

Approach. The core team for this work included myself, Paul Jepson, IPPC Director, and Makhfousse Sarr, UN FAO Senegal. To evaluate whether the ALCE approach could influence decision-making to reduce pesticide exposure, I coordinated a group of experts and led the planning and design for a pesticide risk reduction education initiative in Senegal. As a part of the process, we engaged a diverse group of stakeholders through a community-level planning process. I mentored Makhfousse Sarr, given his ability to speak French and Wolof, to conduct the ALCE outcomes visioning method. We developed a 'rapid assessment' approach to gather cropping practice and pesticide use data from a group of farmers in the geographic area where we would conduct the educational program. To learn about the pesticide marketplace, we created an interview process to understand the products sold and the role of pesticide vendors in the villages. The cropping practice and pesticide sales information was used to guide a pesticide risk assessment process led by staff in the IPPC; the resulting data was used in a pictogram-based pesticide risk index. This visually-based resource was a critical piece of the program as it allows low literacy farmers to select pesticides based on risks to human health while also considering potential impacts to livestock, aquatic life and well water, and beneficial insects.

With the generated desired outcomes and local farming practices and pesticide use data, I led the creation of the curriculum design and program evaluation for an initial pilot course with input from the task force members. In April 2014, this pesticide risk reduction course with 15 farmers was taught by Jepson and Sarr with assistance from local UN FAO trained facilitators. At the event, I documented the implementation of our teaching and learning process. Given the success of this pilot farmer training (see table below), I coordinated the design of a four-day train-the-trainer course to educate 25 farmers from nearby villages to serve as facilitators to extend this education into their communities. This in-depth course was designed to enable the trainers to scale up the education through conducting modified ALCE-Farmer Field Schools. Given that prenatal pesticide exposure has been linked to cognitive deficits in children, it is especially critical that women have access to information that better enables them to mitigate both their, and their children's exposure risks. Because of this, I designed and conducted a focus group to gather data from six local women on pesticide use and management. These results influenced the ALCE-Farmer Field School curriculum which was taught in late 2015 and consisted of 10 field schools which ran concurrently for 12 weeks training over 200 farmers in the area.

Outcomes and impact. The 2014 pilot program evaluation documented the changes farmers made in their pesticide selection, as well as adoption of the newly learned concept of a restricted re-entry interval (REI) (see table below). In 2015 after completing the train of trainer course, the 25 farmers

rated their confidence in facilitating the pesticide risk reduction course with other farmers at 5.9, with 6-7 being a rating of “high confidence.” Post program evaluation for the 10 ALCE-Farmer Field Schools showed the method was effective in enabling farmers to reduce pesticide exposure and adopt new protective practices. After the 12-week school, farmers selected different pesticides with shorter REI periods, with many shifting to safer biopesticides made from neem and Bt. Nearly all the farmers implemented new risk-reducing behaviors and shared health protective information with others in their families and communities (see table below).

Survey results from the April 2014 pilot farmer training and the August-November 2015 Farmer Field School pesticide risk reduction education program in the Diender area of Senegal (manuscript submitted).

Since training:	Pilot Farmer Program[a]	Farmer Field School[b]
MAIN RISK REDUCTION FINDINGS		
Changes in practices to reduce pesticide use risks	100%	99% (n = 136)
Purchased a lower-risk pesticide	93%	94% (n = 135)
Top motivation for selecting a lower-risk pesticide	Toxicity during REI 100%	Toxicity during REI 96% (n = 131)
Risk-reducing behaviors employed	Did not eat lunch in field 87% Kept children out of fields during REI 100% Women, or self, kept out of the field during REI 93% Wore protective clothing: 60%	Did not eat lunch in the field 81% (n = 134) Women, or self, kept out of the field during REI 72% (n = 134) Kept children out of fields during REI 71% (n = 134) Wore boots, pants, or gloves 71% (n = 134)
REDUCTION IN EXPOSURE RISK		
Change in REI (days)	-11.2 ± 8.9 (n = 11)	-8.4 ± 11.0 (n = 97)
DIFFUSION OF KNOWLEDGE		
Communicated pesticide risk information to others	Family 100% Other farmers in village 93% Village leadership 53%	Family 100% (n = 127) Other farmers in village 75% (n = 127) Village leadership 31% (n = 127)

[a]Survey conducted July 2014; n = 15 unless otherwise noted
[b]Survey conducted November 2015-February 2016

Scholarship. The insights from this unique experience are captured in the *Adaptive Learner-Centered Education: A Toolkit for Extension* (ALCE) document (Extension Pubs #2). The personal exposure data collected from farmers in the Diender area resulted in two peer-reviewed manuscripts published in Royal Society Open Science (Refereed Pubs #2, #3). The first paper in 2016 documents the high level of pesticide detections from wristbands worn by the farmers in Senegal and the second publication in 2019 provides a three-continent survey of personal chemical exposures reanalyzing the preserved wristbands for 1,530 chemicals. I have co-authored and/or given 10 oral presentations related to this program; three as the first author, three as co-presenter, and four as a co-author. One of these presentations was invited by the Sahelian Pesticides Committee and Rotterdam Convention regional meeting to convey the possibilities for well-designed and scaled-up education to reduce the pesticide risks in the lives of smallholder farmers in West Africa.

ii. The Clackamas Pesticide Stewardship Partnership Project (2013-2016)

Situation. Surface water in many Oregon watersheds is impaired by pesticides and can threaten salmonid survival as well as drinking water quality. These off-site pesticide losses represent inefficiencies in pesticide application and an opportunity to reduce pesticide-related risks. The Clackamas River provides drinking water for over 300,000 people. The Clackamas Basin Pesticide Stewardship Partnership (PSP) was initiated in 2005 and struggled with ongoing detections of insecticides and herbicides of concern.

Approach. Within the Clackamas PSP, with Paul Jepson, Director IPPC, I tested the ALCE approach to determine if behavior change was possible two pesticide user groups. With Christmas tree growers and nursery managers, I conducted the ALCE outcomes visioning technique with each group in 2014. From 2014-2016 I developed and evaluated a series of participatory education programs to increase knowledge and skills to increase application efficiency and decrease off-target losses (see below). I was PI or co-PI for two PSP technical assistance grants. Local partners, including the Clackamas Soil and Water Conservation District and Clackamas River Water Providers, provided additional programming, such as distributing pesticide application windsocks to growers and other outreach events, and additional financial support. Another role I have within this collaboration is in building educational partnerships with a diverse group of organizations, including federal, state and local agencies, industry organizations, and grower and conservation groups. In coordinating this diverse clientele, I lead them to better realize their missions

Educational programs developed and evaluated (unless otherwise specified)

1. *Whole Farm Planning to Manage Pests and Minimize Pesticide Use on Christmas Tree Farms* (April 13, 2016) North Willamette Research and Experiment Station, 5 hr. *n* = 25
2. *Beneficial Insects in Christmas Trees: Moving Ahead* (Feb. 11, 2015) North Willamette Research and Experiment Station, 6 hr. *n* = 24
3. *Combining IPM and Pesticide Risk Management in Nurseries Workshop* (Feb. 3, 2015) North Willamette Research and Experiment Station, 3 hr. *n* = 33
   Role: I taught a two-hour active learning session.
4. *Covering Your Assets: Hands-On Sprayer Calibration and Application Assessment* (Aug. 13, 2014) Hans Nelson and Sons Nursery, Boring, OR, 6 hr. *n* = 27
   Role: Program in partnership with Robin Rosetta, Nursery Integrated Pest Management, Horticulture Department, OSU; I designed the evaluation instruments and analyzed the evaluation data.
5. *Identification and Use of Beneficial Insects in Controlling Aphids in Christmas Trees* (June 11, 2014) North Willamette Research and Experiment Station, 6.5 hr. *n* = 14
6. *Maximizing Pesticide Use Efficiency in Nurseries* (Feb. 20, 2014) Boring-Damascus Grange, Boring, OR, 4 hr. *n* = 46

Follow-up evaluation one year after the education programs for growers in the Clackamas Watershed (*n* = 23 trees; *n* = 20 nurseries).

Actions Documented One Year Later	Christmas Tree Growers (%)	Nursery Growers (%)
Used less chlorpyrifos (broad-spectrum organophosphate insecticide)	58	30
Adjusted pesticide application practices to protect sensitive sites	90	55
Used online weather forecasting	50	90
Adjusted pesticide application timing based on weather data	79	95

Outcomes and impact. From 2014 to 2016, I have led or co-led the design and evaluation process for six workshops with 169 farmers and other professionals in attendance. Participating growers have implemented high levels of pesticide risk-reducing decisions and actions (see table below). External monitoring by DEQ showed, for the first time, no detections for an insecticide of concern in the Clackamas Basin in 2014. This partnership is still actively working with landowners in the watershed to reduce detections through improved pesticide management.

Grants

Title: *Biological Christmas Tree Pest Management* (Clackamas PSP), 2016-17
Funder: Oregon Pesticide Stewardship Partnership Technical Assistance Program
Amount: $49,278
Role: As Co-PI I supported the implementation of an outcome-based educational design process and conducted the program evaluation.

Title: *Enabling IPM Transitions in Christmas Trees* (Clackamas PSP), 2015-16
Funder: Oregon Pesticide Stewardship Partnership Technical Assistance Program
Amount: $25,170
Role: As PI I managed the grant, led the outcomes visioning process with local members of the Oregon Christmas tree industry, supported colleagues in creating active learning experiences, and developed and implemented the program evaluation.

Scholarship and awards. The *Adaptive Learner-Centered Education: A Toolkit for Extension* (ALCE) publication (Extension Pubs #2) provides educators with guidance on how to implement this approach. In 2010 I received a Thank You Award from Marion County Soil and Water Conservation District for IPM education I contributed to in the watershed.

d. Program Evaluation to Improve IPM Programs

i. IPM Impacts Assessment National Workgroup (2012 to 2018)

Situation. There is an increased need for accountability and to demonstrate the cost-effectiveness of research investments by the USDA and related organizations. Simultaneously, recognizing the need for impact assessment and conducting these assessments requires a set of skills that typically lies outside of the purview of those in the natural sciences. There is a shortage of capacity in the social sciences to conduct this work.

Approach. Funded by the Western Region IPM Center beginning in 2013, the IPM Impact Assessment Workgroup created a set of online modules that allow IPM specialists and natural scientists to carry out evaluations guided by best practice. I co-led the development of several modules in the *IPM Impacts Assessment Toolkit*, and in 2018 I co-developed with a colleague the instructional design and learning templates for a half-day advanced-level professional development workshop at the 9th International IPM Symposium. This workshop, *Path to Success: Evaluating IPM Programs from Planning to Data to Impact Statements,* was co-instructed by nine team members.

Outcomes and impacts. The initial regional workgroup developed four modules by 2014 with the first Regional IPM Center grant; then, we received a second grant to add five additional modules and expand the team to national membership. The group hosted webinars and professional development workshops in 2015 and 2018 at the International IPM Symposiums. Following the 2015 workshop, the use of the Toolkit increased 100-fold. Since 2015 this toolkit has been adopted by USDA NIFA as the resource development of evaluation plans for the Regional IPM Centers request for applications. Through mid-2016, we were able to reach a worldwide audience of over 10,200 individuals, 2,062 of which viewed three pages or more. Of those, 522 spent 10-30 minutes in a session and 157 spent more than 30 minutes in a session indicating that they were likely reading the material to learn more.

Scholarship. Peer-reviewed online *IPM Impacts Assessment Toolkit* (Other Peer-Reviewed Materials #1). Invited professional development workshop, *Path to Success: Evaluating IPM Programs from Planning to Data to Impact Statements*, that filled (36 participants) at the 9th International IPM Symposium.

ii. Biology and Management of Spotted Wing Drosophila on Small and Stone Fruits (2010-2015)

Situation. The Spotted Wing Drosophila (SWD), *Drosophila suzukii*, was a new invasive pest of small and stone fruits, most notably, blueberries, blackberries, strawberries, raspberries, cherries, and wine grapes. Throughout Oregon, California, and Washington, there was an urgent need for the coordination of a region-wide comprehensive project to develop SWD integrated pest management programs.

Approach. The foundation of this USDA SCRI-funded project was based on three components: biological/management information, economic analysis, and assessing social impacts. The project included stakeholder input to guide the development, coordination, and implementation of a comprehensive IPM plan for SWD. My role as co-evaluator was to contribute to the development of evaluation instruments, conduct surveys with growers and fruit packers, and collect observational data at stakeholder and annual research meetings.

Outcomes and impact. In cooperation with a co-evaluator, three evaluation instruments were used to collect data annually from SWD educational events, berry and stone fruit packers and berry, stone fruit, and wine grape growers. Packer surveys indicated that 87% of berry packers were sampling fruit for SWD larvae at an average cost of $12.80 per sample. Across all fruit growers surveyed 34% experienced losses due to SWD, the highest being berries with 45% of growers losing fruit in 2012. Growers were willing to share changes in their pesticide use patterns, this showed that more than half had increased the number of pesticides they use to manage SWD. This data allowed the project team to conduct economic analyses and develop optimized pesticide management plans.

C. SCHOLARSHIP AND CREATIVE ACTIVITY

h-index: 9 Total citations: 638
(Google Scholar: December 13, 2022)

Summary of peer-reviewed papers

Time frame	Refereed papers	Book chapters	Extension publications	Other peer-reviewed materials
2014 to 2022	4	0	2	1
Prior to 2014	4	1	3	6
TOTAL	**8**	**1**	**5**	**7**

1. Publications (*indicates corresponding author)

a) Peer-Reviewed

i. Refereed Publications

1. Halbleib, M.L. (2021) Improving Extension Curriculum Design Using Learner-Centered Templates. *The Journal of Extension*. 59(4). https://doi.org/10.34068/joe.59.04.12
   Role: Developed and tested the two templates and wrote the manuscript.

2. Dixon, H., Armstrong, G., Barton, M., Bergmann, A., Bondy, M., **Halbleib, M.,** Hamilton, W., Haynes, E., Herbstman, J., Hoffman, P., Jepson, P., Kile, M., Kincl, L., Laurienti, P., North, P., Paulik, L., Petrosino, J., Points, G., Poutasse, C., Rohlman, D., Scott, R., Smith, B., Tidwell, L., Walker, C., Waters K., and Anderson, K. (2019) Discovery of Common Chemical Exposures Across Three Continents Using Silicone Wristbands. *Royal Society Open Science*. 6: 181836. https://royalsocietypublishing.org/doi/10.1098/rsos.181836 (5-year impact factor: 2.924)
   Role: Shared farmer pesticide exposure study data from research in Senegal and edited the manuscript.

3. Donald, C.E., Scott, R.P., Blaustein, K.L., **Halbleib, M.L.,** Sarr, M., Jepson, P.C., and Anderson, K.A. (2016) Silicone Wristbands Detect Individuals' Pesticide Exposures in West Africa. *Royal Society Open Science*. Application of knowledge: First report of individualized exposure profiles among smallholder farmers in West Africa. 3: 160433.
   https://royalsocietypublishing.org/doi/full/10.1098/rsos.160433
   (5-year impact factor: 2.924)
   Role: Co-developed training approach for wristband facilitators in Senegal, shared data from a focus group with Senegalese women farmers that I designed and facilitated, and edited the manuscript.

4. **Halbleib, M.L.*** and Jepson, P.C. (2015) Adapting an Outcome-Based Education Development Process to Meet Near Real-Time Challenges to Sustainable Agricultural Production. *Journal of Agricultural Education and Extension*. 21(2):109-126.
   https://www.tandfonline.com/doi/full/10.1080/1389224X.2014.927377 (impact factor: 1.52)
   Role: Designed teaching and learning programs, developed and conducted program evaluation, analyzed data, and co-wrote the manuscript.

5. Luna, J.M. and **Staben**, **M.L.** (2002) Strip Tillage for Sweet Corn Production: Yield and Economic Return. *HortScience*. 37(7):1040-1044.
   Role: Co-designed and implemented field trails, collected and analyzed study data, and co-wrote the manuscript.

6. Karlen, D.L., Rosek, M.J., Gardner, J.C., Allan, D.L., Alms, M.J., Bezdicek, D.F., Flock, M., Huggins, D.R., Miller, B.S., and **Staben, M.L.** (1999) Conservation Reserve Program Effects on Soil Quality Indicators. *Journal of Soil and Water Conservation*. 54(1):439-444.
   Role: Shared research data and wrote the methodology section.

7. Luna, J., **Staben, M.,** and O'Brien, T. (1997) Integration of Cover Crops and Strip-Tillage Systems for Vegetable Production. *HortScience*. 32(3):539-540.
   Role: Co-designed and implemented field trails, oversaw a graduate student that contributed to data collection and analysis, and co-wrote the manuscript.

8. **Staben, M.L.***, Bezdicek, D.F., Smith, J.L., and Fauci, M.F. (1997) Assessment of Soil Quality in Conservation Reserve Program and Wheat-Fallow Soils. *Soil Science Society of America Journal*. 61:124-130. (impact factor: 1.997)
   Role: Collected and analyzed soil samples, analyzed data, and co-wrote the manuscript.

ii. Book Chapters

1. Huggins, D.R., Allan, D.L., Gardner, J.C., Karlen, D.L., Bezdicek, D.F., Rosek, M.J., Alms, M.J., Flock, M., Miller, B.S., and **Staben**, **M.L.** (1998) Enhancing Carbon Sequestration in CRP-Managed Land. p. 323-334. *In* R. Lal et al. (ed.) *Management of Carbon Sequestration in Soil*. CRC Press, New York, NY.
   Role: Wrote the methodology section and analyzed the Washington state dataset.

iii. Extension Publications

1. **Halbleib, M.L.*,** Jones, G., Bouska, C., and Walenta, D.L. (2021) Increasing the Reach of Integrated Pest Management Through Community Partnerships: Insights from Implementing Adaptive Learner-Centered Education Across Oregon. EM 9328. Oregon State Univ. Extn. https://extension.oregonstate.edu/pub/em-9328
   Role: Led the team-based writing approach, co-wrote the manuscript, and managed the publication process.

2. **Halbleib, M.L.*** and Jepson, P.C. (2016) Adaptive Learner-Centered Education: A Toolkit for Extension. EM 9411. Oregon State Univ. Extn. https://catalog.extension.oregonstate.edu/em9144
   Role: Co-developed the approach and co-wrote the manuscript.

3. **Staben, M.L.***, Ellsworth, J.W., Sullivan, D.M., Horneck, D., Brown, B.D., and Stevens, R.G. (2003) Monitoring Soil Nutrients Using a Management Unit Approach. PNW570-E.
   Role: Led the team-based development process for this manuscript.

4. Luna, J.M. and **Staben, M.L.** (2003) Strip Tillage for Vegetable Production in Western Oregon. EM 8824. Oregon State Univ. Extn.
   Role: Co-wrote the manuscript and conducted data analysis.

5. **Staben, M.L.***, Young, D.L., and Bezdicek D.F. (1996) Soil Quality Perceptions of Eastern Washington CRP Contract Holders. Washington State Univ. Cooperative Extn. Technical Report 96-3:105-107.
   Role: Developed and conducted surveys, analyzed the data, and co-wrote the manuscript.

iv. Abstracts from Conferences without Published Proceedings

1. **Staben, M.L.** (2005) The iSNAP Project: A Regional Approach to Agricultural Professional Education. p. 234-235. Western Region Nutrient Management Conference Proceedings. Vol. 6. Mar. 3-4, 2005. Salt Lake City, UT.
   Role: Created the presentation and wrote the abstract.

2. **Staben, M.L.**, Sullivan, D., Stevens, R., Brown, B., Harrison, J., Horneck, D., and Ellsworth. J. (2005) A Regional Approach to Extension Outreach. *In* Getting It Done: The Role of TMDL Implementation in Watershed Restoration proceedings. Stevenson, WA.
   Role: Created and gave the presentation.

3. Luna, J.M. and **Staben**, **M.L.** (2000) Evaluation of Strip-till Vegetable Production Systems for the Willamette Valley. *Proceedings of the Oregon Horticultural Society*. 91:160-166.
   Role: Implemented on-farm research trials, including data collection and economic analysis.

4. Luna, J.M. and **Staben, M.L.** (2000) Integrated Vegetable Production Systems: Using Strip-tillage and Cover Crops. p. 56 *In* S.L. Swezey and K. Kelleher (eds.) *Sustainable Agriculture: Continuing*

to Grow. Proceedings of Farming and Ranching for Profit, Stewardship and Community Conference, March 7-9, 2000, Portland, OR.
Role: Designed and implemented field trails, collected and analyzed crop and economic data, and co-wrote the manuscript.

5. Luna, J.M. and Staben, M.L. (2000) Evaluation of Strip-till Vegetable Systems for Western Oregon. p. 53-61 *In Conservation Tillage Success Stories from around the US*. Univ. of Calif. Dept. Vegetable Crops, Davis, CA.
Role: Designed and implemented field trails, collected and analyzed crop and economic data, and co-wrote the manuscript.

6. **Staben, M.L.**, Bezdicek, D.F., and Fauci, M.F. (1994) Soil Quality of Conservation Reserve Program Land Compared to Wheat-Fallow in Adams County, Washington. *In Soil Science Society Abstracts*. ASA, CSSA, SSSA 1994 Annual Meetings. Seattle, WA.
Role: Co-designed study, collected and analyzed samples, conducted data analysis, and co-wrote manuscript.

vi. Other Peer-Reviewed Materials

1. Coli, B., Fournier, A., **Halbleib, M.,** Goodell, P., Haley, J., Hansen, K., Hurley, J., Lubbell, M., McRoberts, N., Miller, W., Mitchell, P.D., Sande, D., Tungate, S., Young, D., and Thomas, C. (2018) *IPM Impacts Assessment Toolkit*. http://ipmimpact.ucanr.edu/
Role: Contributed to creating the plan of work, co-authored several modules, and reviewed the online resources.

2. Presentations to Peers

Sharing learning from collaborative projects and the development of educational design frameworks allows others to benefit from my work. Also, awareness of these programs and approaches has sustained funding for projects and expanded partnership opportunities. (First author was presenter unless otherwise noted by *)

Year	Within Region	National	International	Total	No. Invited
2022		2		2	1
2021	1	1		2	1
2018			2	2	
2017					
2016		1	1	2	
2015		2	3	5	2
2014			2	2	1
Prior to last promotion	1	6	7	14	5
TOTAL	**2**	**12**	**15**	**29**	**10**

a. National Presentations (Peer-Reviewed and Invited)

1. **Halbleib, M.L.** (2022) Connecting Intended Outcomes to Learner-Centered Teaching. Reimagining Extension: National Association of Extension Program and Staff Development Professionals Annual Conference. Fort Lauderdale, FL. Online proceedings

Role: Developed the presentation proposal, wrote the proceedings abstract, and created and gave the presentation.

2. Elgeberi, N., Spears, L. R., and **Halbleib, M.** (2022) Survey Mistakes that can Ruin your Data. Extension Foundation Extension Skills Series (online). **Invited**. Online recording
   Role: Co-developed the teaching plan and co-taught the national webinar.
3. **Halbleib, M.L.** (2021) Using Extension Education Design Templates to Increase Learner-Centered Teaching. National Association of Extension Program and Staff Development Professionals: Moving Forward in a New World Virtual Annual Conference.
   Role: Developed the proposal, wrote the proceedings abstract, and created and gave the presentation.
4. Hilton, R., Jepson, P., **Halbleib, M.,** and Masterson, K. (2016) Addressing the Issue of Pesticides in Surface Waters of the Middle Rogue Watershed: The Pesticide Stewardship Partnership Approach. International Congress of Entomology 2016. Orlando, Florida.
   Role: Provided input on the presentation design and edited the final draft.
5. Donald, C.E., Scott, S.P., Blaustein, K., **Halbleib, M.L.,** Sarr, M., Jepson, P.C., and Anderson, K.A. (2015) Silicone wristbands detect individuals' pesticide exposure in West Africa. Society of Environmental Toxicology and Chemistry North America 36th Annual Meeting. Salt Lake City, Utah.
   Role: Contributed data from research with Senegalese farmers.
6. Jepson, P.C., **Halbleib, M.L.,** and Sarr, M. (2015) Ecological Principles and the Future of Food Security Viewed through the Lens of Small-holder West African Farmers. Ecological Society of America Annual Meeting. Baltimore, Maryland.
   Role: Co-designed the presentation.
7. Jepson, P.C., **Halbleib, M.L.,** and Luh, H. (2011) International Efforts to Improve Pesticide Safety and Increase IPM; and Developing Community Partners to Improve Pest Management and Protect the Environment; Association of Applied IPM Ecologists Annual Conference. Monterey, California. **Invited keynote and invited plenary presentation**
   Role: Provided data from collaborative projects conducted with Jepson.
8. Jepson, P.C., Jenkins, J.J., and **Halbleib, M.L.** (2009) Integrated Pest Management and Environmental Protection. Oregon Department of Environmental Quality Toxics Reduction Opportunities Workshop. Portland, Oregon.
   Role: Developed education and evaluation plans for IPM outreach.
9. Jepson, P.C., Jenkins, J.J., and **Halbleib, M.L.** (2008) The Pacific Northwest's iSNAP Project: An Educational Success Story for Best Management Practices. USDA National Water Quality Conference. Reno, Nevada. **Invited**
   Role: Co-designed the presentation.
10. **Staben, M.L.**, Sullivan, D.M., Jepson, P.C., Jenkins, J.J., and Halstead, S. (2007) Addressing Educational Complexities in Extension Programs. USDA National Water Quality Conference. Savannah, Georgia.
    Role: Led the design of presentation and gave invited oral presentation.
11. **Staben, M.L.,** and Engle, M. (2006) Using Reach of Communications as a Measure of Impact. 20th Annual Conference of the American Evaluation Association. Portland, Oregon.
    Role: Led design of the presentation and gave the oral presentation.
12. **Staben, M.L.** (2005) The iSNAP Project: A Regional Approach to Agricultural Education. USDA National Water Quality Conference. San Diego, California. **Invited**

Role: Designed the presentation and gave the invited oral presentation.

a. International Presentations (Peer-Reviewed and Invited)

1. **Halbleib, M.L.,** Jepson, P.C., Fournier, A., and McRoberts, N. (2018) Novel Approaches to IPM Extension: Transferring Learning across Contexts. 9th International IPM Symposium. Baltimore, Maryland. (see page 39)
   https://ipmsymposium.org/2022/Documents/IPMSymp18_Full_Program_with_Abstracts.pdf
   Role: Led a team-based process to design the four-person interactive session, facilitated and evaluated the session, and presented the overarching learning and cognition science.
2. Jepson, P.C., Bach, O., **Halbleib, M.L.*,** Murray, M.K., Sarr, M., Donald, C.E., and Anderson, K.A. (2018) Limiting the Impacts of Highly Hazardous Pesticide Use on Human Health. 9th International IPM Symposium, Baltimore, Maryland.
   Role: Gave the oral presentation and contributed to the research.
3. **Halbleib, M.L.**, Jepson, P.C., and Sarr, M. (2016) Learner-Centered Education Driven by Constructivism. 32nd Annual Conference of the Association for International Agricultural and Extension Education. Portland, Oregon.
   https://www.aiaee.org/images/stories/AIAEE/2015Conference/conf_abs.pdf (see page 92)
   Role: Created the instructional design and gave the presentation.
4. **Halbleib, M.L.**, Jepson, P.C., Blaustein, K., and Sarr, M. (2015) Employing Outcome-Based Extension to Reduce Risks of Highly Hazardous Pesticides in West Africa. Competence and Excellence in Extension and Education – a joint conference of the Association for International Agricultural and Extension Education and European Seminar on Extension and Education. Wageningen University, Netherlands.
   https://www.aiaee.org/images/stories/AIAEE/2016Conference/conf_abs.pdf (see page 206)
   Role: Designed the session and gave the oral presentation.
5. Jepson, P.C., **Halbleib, M.L.,** Blaustein, K., Sarr, M., and Guzy. M. (2015) Integrating IPM and PRM in Outcomes/Performance-Based Certification Procedures that are Scalable from Smallholders to Plantations. Sustainable Agriculture Network International Standards Committee meeting. **Invited webinar**
   Role: Shared data and personal experience from research conducted in collaboration with Jepson.
6. Jepson, P.C., **Halbleib, M.L.,** Blaustein, K., Sarr, M., and Guzy, M. (2015) IPM: Scaling Up and Scaling Down. IPM Innovation in Europe: IPM PURE Congress. Poznan, Poland. **Invited keynote**
   Role: My research and development on outcome-based education was included.
7. Jepson, P.C., and **Halbleib, M.L.** (2014) Opportunities for Action and Future Collaborative Programs. Regional Workshop: Strengthening cooperation between the Sahelian Pesticides Committee and the Designated National Authorities in the implementation of the obligations of the Rotterdam Convention, taking into account the social sustainability, environmental and economic factors. Dakar, Senegal. **Invited**
   Role: Co-designed and co-presented the oral session.
8. Jepson, P.C., and **Halbleib, M.L.** (2014) Pesticide Risks to Human Health and the Environment. Final Restitution Meeting, Global Environment Facility (GEF) Program: Reducing Dependence on Persistent Organic Pollutants and other Agro-Chemicals in the Senegal and Niger River. Dakar, Senegal.
   Role: Co-designed the oral session.

9. Jepson, P.C., Guzy, M., **Halbleib, M.L.**, Lewotsky, K., Saam, H., Kent, D., and Scribner, K. (2012) Putting PRiME to Work for Specialty Crop IPM. 7th International IPM Symposium. Memphis, Tennessee.
   Role: Designed and evaluated the education programs that integrated PRiME pesticide risk reduction data.
10. Jepson, P.C., Luh, H., **Halbleib, M.L.,** and Settle, W. (2008) Does Ecological Risk Assessment Advance or Inhibit Sustainability? SETAC Europe Annual Meeting. Warsaw, Poland. **Invited keynote**
    Role: Data from collaborative projects conducted with Jepson were presented.
11. Luna, J.M., **Staben, M.L.**, Garcia-Torres, L., Benites, J., and Martinez-Vilela, A. (2001) Strip Tillage Systems for Sweet Corn Production. Conservation Agriculture: A Worldwide Challenge. First World Congress on Conservation Agriculture. Madrid, Spain.
    Role: Conducted the on-farm research trials with Oregon vegetable farmers.

c. **State and Regional Presentations (Peer-Reviewed)**

1. **Halbleib, M.L.** (2021) Increasing the Reach of IPM Partnerships Using the Adaptive Learner-Centered Education Approach. Western Region IPM Center IPM Hour. **Invited**
   Role: Developed and gave the presentation.
2. **Staben, M.L.** and Luna, J.M. (1998) Strip Tillage and Cover Crops to Enhance Soil and Water Quality and Improve Farm Profitability. Agriculture and Water Quality in the Pacific Northwest Conference. Yakima, Washington.
   Role: Gave this co-developed presentation.

3. Grant and Contract Support

To support my program, I am or have been PI or Co-PI grants, for those received from 2014 to 2022 one-quarter of the funds were allocated my program. This is fully appropriate and commensurate for the structure and focus of my position and demonstrate that small targeted investments can have a large impact.

Submitted and not funded:

Integrating Cultural Awareness and Science-Based Education: Uncovering learning preferences and increasing inclusivity in sustainable agricultural programming in the Western United States. USDA WSARE Program Education and Outreach Enhancement Project. 2022. $64,816. Role: PI

Grant received, 2022 to present.

Years	PI(s)	Agency	Title	Funding	$ to my program
2022-2024	**M.L. Halbleib**	USDA WSARE Professional Development Program	Growing Agricultural Service Providers' Program Outcomes with Producer Co-Educators	$84,995	$84,995
Role: Lead author and co-developed the project concept.					

Grants received prior to last promotion, 2014 to 2022.

Years	PI(s)	Agency	Title	Funding	$ to my program
2021-2022	G. Jones, D. Hannaway, **M.L. Halbleib**	College of Agricultural Sciences Extension Agriculture Program, Oregon State University	Oregon Pasture and Forage Needs Assessment	$14,130	$3,000
Role: Co-developed the project concept and contributed to drafting the proposal.					
2016-2020	**M.L. Halbleib**	USDA WSARE Professional Development Program	Redefining Learner-Centered Education to Build High Impact IPM Partnerships	$67,802	$67,802
Role: Leader for the project design, evaluation and resulting scholarship from the three collaborative projects with faculty. Co-wrote the proposal with another faculty member that left the project.					
2017-2019	P.C. Jepson K. Murray **M.L. Halblieb** L. Coop T. Stock	USDA NIFA Extension Implementation Program	Statewide Networks for Overcoming Barriers to IPM Adoption in Oregon	$299,140	$11,861
Role: Co-wrote the proposal and led the education partnerships.					
2016-2017	R. Hilton **M.L. Halbleib**	Oregon Pesticide Stewardship Partnership Technical Assistance Program	Pesticide Management Decision Support and Education	$40,854	$8,000
Role: Co-wrote the proposal and co-led the project that resulted in further funding procurement by local partners.					
2016-2017	G. Ellen **M.L. Halbleib**	Oregon Pesticide Stewardship Partnership Technical Assistance Program	Biological Christmas Tree Pest Management	$25,170	$0
Role: Co-wrote the proposal and provided the educational design, outcome visioning sessions and program evaluation.					
2015-2016	**M.L. Halbleib** P.C. Jepson G. Ellen	Oregon Pesticide Stewardship Partnership Technical Assistance Program	Enabling IPM Transitions in Christmas Trees	$49,278	$22,829
Role: Led the proposal development and project management. Provided educational design strategies and program evaluation tools.					
2014-2017	P.C. Jepson **M.L. Halbleib** T. Stock	USDA NIFA Extension Implementation Program	Implementing and Improving IPM Adoption in Oregon Farms Nurseries and Schools	$190,000	$58,678
Role: Co-wrote the proposal and contributed education program development support for the community-based outreach.					
TOTAL				**$771,370**	**$257,165**

Grants and contracts received prior to 2014.

Year(s)	PI(s)	Agency	Title	Funding
2013-2016	A. Hensey **M.L. Halbleib** P.C. Jepson K. Masterson	National Fish and Wildlife Foundation	Clackamas Basin Strategic Pesticide Stewardship Partnership	$79,989
2013-2014	P.C. Jepson M. Guzy **M.L Halbleib**	UN Food and Agriculture Organization	Support of activities related to pesticide monitoring and analytical capacity building for the CERES Locustox Laboratory in Dakar, Senegal	$193,263

Year(s)	PI(s)	Agency	Title	Funding
2013-2014	P.C. Jepson **M.L. Halbleib** T. Stock	USDA NIFA Extension IPM Program	Implementing, Coordinating and Evaluating Efficient, Low Risk IPM in Oregon	$299,900
2013	P.C. Jepson **M.L. Halbleib**	UN Food and Agriculture Organization	Global Pilot Project in IPM Capacity Building for Sustainable Intensification of Crop Production	$131,036
2007	**M.L. Staben** P.C. Jepson	Mercy Corps.	Education Exchange to Improve Apple Production in North Korea	$11,437
2006-2007	Jepson, P.C. **M.L. Staben** J.J. Jenkins	USDA Risk Management Agency	Enabling Lower Risk Pest Management Practices through Using Localized Weather and Climate Information	$64,000
2005-2006	**M.L. Staben** P.C. Jepson J.J. Jenkins	Western Region IPM Center	Regionalized IPM Outreach: Buffers, Drift Management and BMPs to Protect Water Quality	$53,444
2001-2003	J.M. Luna **M.L. Staben**	Oregon Watershed Enhancement Board	Implementation of Strip-Tillage Vegetable Production Systems	$22,000
2001-2002	J.M. Luna **M.L. Staben**	Oregon Processed Vegetable Commission	Strip-Till Sweet Corn: Increasing Yields to Improve Profitability	$12,140
2000-2001	J.M. Luna **M.L. Staben**	OSU Agricultural Research Foundation	In-Row Cover Crops for Oregon Wine Grape Production	$7,427
2000-2001	J.M. Luna **M.L. Staben** D. McGrath E. Peachey D. Hemphill	Oregon Processed Vegetable Commission	Strip-till Sweet Corn Production: An Interdisciplinary Approach to Improving Profitability	$16,150
1999-2000	J.M. Luna **M.L. Staben** S. Swezy D. Granastein	USDA Sustainable Agriculture Research and Education Program	Western Region Conference on Sustainable Agriculture	$128,382
1999-2001	J.M. Luna **M.L. Staben**	Oregon Department of Agriculture	Developing and Evaluating an Integrated Vegetable Production System to Protect Groundwater Resources	$21,033
1999-2000	J.M. Luna **M.L. Staben**	OSU Agricultural Research Foundation	Enhancement of Biological Control with Beneficial Insectary Plantings	$6,073
1999-2000	J.M. Luna **M.L. Staben**	Oregon Processed Vegetable Commission	Development and On-Farm Evaluation of Strip-Till Production Systems for Sweet Corn and Snap Beans	$14,200
1999-2000	J.M. Luna **M.L. Staben**	Organic Farming Research Foundation	Development and Evaluation of Biologically Integrated Strip-Tillage Systems for Organic Vegetable Production	$4,825
1999-2000	**M.L. Staben** J.M. Luna	Oregon Department of Agriculture	Farm Management Options to Protect Groundwater Resources: An Educational Outreach Program	$8,651
1998-2000	J.M. Luna **M.L. Staben**	Oregon Processed Vegetable Commission	Development and Evaluation of Minimum-Tillage Production Systems for Sweet Corn and Snap Beans	$20,518

Year(s)	PI(s)	Agency	Title	Funding
1997-1998	J.M. Luna M.R. Colley **M.L. Staben**	Oregon Department of Agriculture	Enhancement of Biological Control with Insectary Plantings	$6,388
TOTAL				**$1,100,856**

4. Patent awards, cultivar releases, and inventions – n/a

5. Other Information Appropriate to the Discipline

a. Professional Associations

National Association of Extension Program and Staff Development Professionals
Association for International Agricultural and Extension Education

b. Professional Development

Intercultural Development Inventory® (IDI®): Applications for Extension. John Diaz, AFRI/NAEPSDP Conference Workshop, December 1, 2022 (2 hr.)

Search Advocate Annual Update. Anne Gillies, Search Advocate Program Director, November 2, 2022 (4 hr.)

Leadership Development Program Executive-Level. OSU Extension Service and College of Agricultural Sciences in partnership with Ohio State University Leadership Center. 2020-2021

Search Advocate Foundations Workshop Series. Anne Gillies, Search Advocate Program Director, April 20 & 22, 2020 (16 hr.)

Getting Started: Workshop for New Faculty Developers. Connection: Closing the Distance, 2019 Professional and Organizational Development (POD) Network Conference. Pittsburgh, PA. November 13-14, 2019 (7 hr.)

Faculty Success Program. National Center for Faculty Development and Diversity, Fall term 2019.

Constructing Cohorts that Enhance Employee Engagement in Extension. 2019 Virtual Summer School, National Association of Extension Program and Staff Development Professionals, July 18, 2019 (1.5 hr.)

Better Together: Mentoring Teams vs. Mentors. 2019 Virtual Summer School, National Association of Extension Program and Staff Development Professionals, July 17, 2019 (1 hr.)

Cognition and Learning. Damain Hommel, Tuesday Teaching Talks, OSU Center for Teaching and Learning, May 7, 2019 (2 hr.)

Portfolios to Celebrate Success and Survival, Brooke Howland, Tuesday Teaching Talks, OSU Center for Teaching and Learning, March 19, 2019 (2 hr.)

Course Design Institute. Brooke Howland, OSU Center for Teaching and Learning, Dec. 12-14, 2018 (14 hr.)

Lesson Planning and Reflection. Lori Kayes, Tuesday Teaching Talks, OSU Center for Teaching and Learning, Oct. 16, 2018 (2 hr.)

Teaching Philosophies and Portfolios, Brooke Howland, Tuesday Teaching Talks, OSU Center for Teaching and Learning, Sept. 25, 2018 (2 hr.)

Adult education graduate courses, College of Education, Oregon State University, 2004-2005

i. Diversity, Equity, and Inclusion Training

Diversity, Equity, and Inclusivity. Jeff Kenney, Gail Langellotto, and Deana Llyod, Oregon State University. CAS Professional Development Series, November 8, 2022 (1 hr.)

Diversity Champions Community of Practice. Extension and Engagement, Oregon State University. 2022

Diversity, Equity, and Inclusion in Extension Evaluation. Natalie Cook and Thomas Archibald, Extension Programming for Everyone Through the Lens of DEI, National Association of Extension Program and Staff Development Professionals, July 17, 2020 (1 hr.)

Program Planning Process Designed to Increase Access and Grow Programs. Jennifer Skuza and Jessica Pierson Russo, Extension Programming for Everyone Through the Lens of DEI, National Association of Extension Program and Staff Development Professionals, July 13, 2020 (1 hr.)

Power Dynamics Master Facilitator Certification. Meredith Holley, Eris Conflict Solutions, November 2019 (6 months)

Power Dynamics Master Certification. Meredith Holley, Eris Conflict Solutions, February 2019 (3 months)

Courageous Conversations for Systemic Equity Transformation. Luis Versalles, Pacific Educational Group, 2018 Extension Annual Conference, Dec. 3, 2018 (6 hr.)

Supporting Diverse Learners through Culturally Responsive Teaching, Jeff Kenney, Office of Institutional Diversity, Tuesday Teaching Talks, OSU Center for Teaching and Learning, Oct. 9, 2018 (2 hr.)

Assess your Ability to Navigate across Cultural Differences and Commonalities: Learn and grow through I.D.I. (Intercultural Development Inventory) by Dr. Quentin Tyler, Diversity and Inclusion 101 Virtual Summer School, National Association of Extension Program and Staff Development Professionals, July 25, 2018 (1 hr.)

c. Service

i. University Service

1. Departmental

Chair of the CSS Peer Evaluation of Teaching Committee, 2021-present

CSS Peer Evaluation of Teaching Committee, 2020-2021

CSS Communication Committee, 2020-2021

Core Leadership Team, Integrated Plant Protection Center, 2015-2017

Search Committee, Horticulture Department Administrative Assistant, 1999

2. University

President's Commission on the Status of Women, Gender Equity Committee, 2021-2023

OSU Personal Performance Coach, 2004-2007

d. Service to Profession

Western Region Evaluators Network (WREN), a committee within the Western Program and Organization Leadership Committee (WPOLC), Western Extension Directors Association (WEDA). 2022 to present

Co-Chair of the Professional Development Committee, National Association of Extension Program and Staff Development Professionals, 2020-2021

Book peer reviewer, *Sustainable Agriculture through Sustainable Learning: An Educator's Guide to Best Practices for Adult Learning* (96 pgs), 2021
Note: As a result of this service an example was included from my adult education work.

Reviewed one proposal for the Fertilizer Research and Education Program, California Department of Food and Agriculture, 2021

Reviewed three manuscripts for the Journal of Agricultural Extension and Education, 2015-2016

Reviewed seven Workgroup Proposals for the North Central IPM Center, 2015

Reviewer for the NRCS Comprehensive Nutrient Management Plan Development Course, 2004

Member of NRCS National Training Coordinating Group for Technical Service Providers, 2004

Technical reviewer for Western Region SARE Research Proposals, 2001

e. Awards

i. National and International Awards

2012 International IPM Award of Recognition for the Integrated Plant Protection Center, 7th International IPM Symposium, Memphis, USA

1999 Soil and Water Conservation Society Feature Article Award to Mary Halbleib and co-authors

ii. State and Regional Awards

2019 People's Choice Extension Award for the Peer-Reviewed Program Track at the OSU Extension Annual Conference, *Lecturers Anonymous: Starting Down the Road to Active Engagement and Learning in Extension Programs* with Gordon Jones and Cassie Bouska

2012 Thank You Award, Marion County Soil and Water Conservation District, for IPM education in the Pudding Watershed, Oregon

f. Diversity, Equity, and Inclusion

As OSU increases the diversity of our workforce and Extension reaches a more diverse clientele, I aim to design and teach with inclusivity in mind that increases equity. By placing learners at the center of the educational experience, the ALCE approach allows for the creation of space for diverse opinions and the sharing of life experiences by individuals. To further inclusive programming in Extension, in 2020 I participated in the Leadership Development Program Executive-Level to deepen my knowledge of how to support social justice and equity. In 2022 I joined the Engagement and Extension Diversity Champions to expand my skills and capacity to take new approaches to co-creating inclusive programs and spaces. Working with colleagues from another university, I learned about developing community agreements as a way to create safe, trusting, and inclusive ways for a group to work together. The WSARE "Cultivating Impact" project cohort and leadership team has a community agreement that outlines the expectations and commitments we have for ourselves and each other.

g. Mentoring

From 2018 through 2021, I have served as both supervisor and mentor to Ph.D. candidate Berit Nelsen in her position as an Extension Education Program Assistant. Through our work together, I have assisted Berit in developing both her conceptual knowledge of Extension-specific educational approaches and her network of Extension faculty and agricultural practitioners. The development of these skills, interests, and relationships has resulted in her decision to continue working in Extension support and education following the completion of her degree.