

Report from the 2nd Annual OSU IPM Summit
January 15th, 2020
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The 2nd Annual OSU IPM Summit had 40 faculty attending (4 remotely), including faculty representing research, extension, and administration. Specialties included agriculture (vegetable, row seed, orchard, small fruits), dairy/livestock, pollination, wildlife, IR-4, pesticide safety and communications. Various disciplines were represented including entomology, plant pathology, weed science, horticulture, crop science, social sciences and communications.

The agenda (see Appendix), included flash talks from participants about IPM successes, group discussion and feedback related to IPM metrics and tracking, bridging between IPM research and extension at OSU, an update from CAS regarding the Oregon IPM Center and its future structure, and four concurrent development/discussion sessions addressing resistance management, action thresholds, basic IPM training, and IPM Strategic Planning.

Flash talks: At the 1st annual summit we heard 17, three-minute flash talks from participants on the subject of barriers to IPM. This year we asked participants to speak about IPM successes, specifically what this looks like, and how it is measured.

From 11 flash talks in 2020, we heard the following about IPM success and measurement:

- IPM success involves better integration of IPM within more narrowly-focused initiatives such as pollinator protection, pesticide safety, etc.
- Success originates from multiple aspects of IPM planning and programming, including investment, research, extension, and implementation
- Success relies on a set of core practices including sampling, use of thresholds, and decision-support tools for pesticide selection that reduce health and ecological risks while balancing economics
- Success includes the ability to make cost/efficacy/benefit determinations that also take into account negative impacts
- Examples from urban IPM and state government-led efforts to treat invasive pests have proven successful, particularly with regard to public engagement, and also effectiveness of low-risk methods that lead to pest eradication
- Successful biological control efforts, such as those in the hazelnut industry for suppressing filbert aphid, involved engagement with, and education of growers on the importance of biocontrol (parasitic wasps in this case)
- Outreach and communication are keys to success in IPM, but critical information and capacity to implement IPM can be lacking, including acquisition of basic skills such as sprayer calibration
- Simple observation and inquisitiveness can form the basis for IPM decision-making
- Measuring yield gains and losses over seasons can be a measure of success, and can also help growers and consultants reflect on progress over time
- Successful IPM can be quantified by measuring behavior change over time, such as selection of lower risk pesticides that are also less toxic to natural enemies, in addition to changes in the overall level of pesticide use
- The level of faculty engagement around topics like IPM is an indicator of success from the university perspective

- Successful IPM involves ready access to a wide suite of effective and economical tactics and tools which also reduce pesticide risks and usage
- Sometimes success is in the small victories with individuals – teaching better pruning, sanitation, or other tactics. These victories spread over time

Group discussion: how do we currently measure success (metrics, tracking, evaluation), and what more do we need?

- *Efforts to track pesticide use are an underutilized yet critical metric:*
 - The PNW lacks systematic measurement of on-farm practices, which poses challenges for the development of tracking and evaluation metrics
 - We need more tracking of pesticide use to assist in measuring success overall, possibly through smart-tech methods
 - Some version of a pesticide risk ranking tool that assigns “scores” that farmers can track might be helpful to improve metrics/tracking and encourage stakeholder engagement and participation
 - Our programs need metrics designed at the outset, to track IPM impacts
 - Point-of-sale data on pesticides could be one way to track usage
 - Other IPM metrics:
 - Beneficial insect abundance
 - Pesticide residues in water
- *Asking the right questions is also important:*
 - Online surveys provide for easy data collection
 - Need a “bank” of well-constructed survey questions for metrics and tracking
 - Need survey design expertise, which can be expensive but very helpful to evaluation efforts
 - Social science has a lot to contribute – survey growers and document practices: what is working, what isn’t?
 - Be bold: don’t be reluctant to ask the right questions, especially with regard to pesticide usage
- *Establishing and maintaining relationships with growers is critical to having the ability to track progress*
- *Impact evaluation: need to understand how programs are making a difference, and document stories for promotional use – anecdotes can be powerful in this regard*
- *Challenges with metrics and tracking:*
 - The complexity of IPM presents a challenge for measurement
 - The need for communication to be strong across research and extension, and with an array of pest managers, requires engagement of a lot of different actors
 - Growers are commonly trying to adhere to multiple standards/regulations with varying goals

CAS Update: Oregon IPM Center: Dan Edge provided an update on the changes to the Center, including the reasons for the changes, and the new structure.

Discussion/Feedback exercise: ideas for better connecting IPM research and extension at OSU

Collaboration and information dissemination

- Send a regular IPM newsletter to extension and research personnel
- Can we have a searchable version of Digital Measures to find information about current research and extension initiatives in IPM? How else can these be highlighted or made accessible?
- Hold an annual exchange to report needs from extension, announce findings from research
- Promote programs/ideas through college-wide communications - faculty spotlights
- Host a website for exchange/communication; develop an online discussion board to match needs with expertise or questions with research.
- Increase coordination between all of the various ag. and extension related websites – where does one go for IPM information?
- Can OIPMC offer a research clearing house (e.g. collecting and distributing information)?

Administrative suggestions - funding and job responsibility

- Create fiscal incentives for better integration: workgroup grants, planning grants, seed funding
- Incentivize faculty to talk to each other
- Create performance/evaluation incentives such as annual reviews that recognize cross-disciplinary team efforts and collaborations between research and extension
- We need a strong connection between research and extension faculty – to encourage implementation of new technologies
- Encourage researchers to collaborate with extension-based collaborators on projects
- Increase the number of staff supporting the master gardener program
- Give all researchers a small extension appointment
- Funding is needed for researchers to evaluate effectiveness/communicate with farmers
- Increase on-farm research and funding, expand the range of farms and field days, to take basic research to application/implementation

Encouraging in-person meetings/communication

- Although research and extension are well connected within certain departments, other departments are not as well integrated; ideas needed to foster connections between faculty across departments, and across on- and off-campus faculty; off-campus extension faculty can feel isolated from the campus-based research community and the opposite may also apply
- Encourage attendance at events like the Annual IPM Summit to increase networking opportunities
- A 2-day event could be planned for the next IPM Summit, with the 2nd day focused on research/extension updates, presentations and/or posters
- Encourage more research faculty to participate in OSU's Extension annual conference; perhaps we can organize an IPM-focused afternoon with a research/extension exchange?
- Hold more extension field days and invite more researchers to these
- Increase the research presence at master gardener trainings and events
- Organize field trips for researchers
- Encourage more face-to-face, informal meetings between faculty and across departments/locations
- Make communication a top priority

Professional Development Sessions:

IPM Strategic Planning – led by Katie Murray. Four faculty attendees learned the details of how to initiate and facilitate the IPM Strategic Planning process for a chosen crop or industry based on this recently-published guide: <https://catalog.extension.oregonstate.edu/em9238>. Dairy and field crops were represented as possible future industries of focus, with discussion around how to adapt the process to a non-crop setting (dairy), and possible streamlining tools for the process and the communication it entails that could be facilitated by extension communications.

Action thresholds – led by Peter Ellsworth. 15 faculty attendees went in-depth through an example of a successful IPM system that developed and deployed action thresholds for the management of insect pests. Thresholds are keystone to IPM. A grower wishes to know if remedial inputs are needed, when to use them, and what fits and works best in their system. Without credible thresholds, educators lose important credibility with their stakeholders and risk reluctance to consider other important information. This presentation introduces the topic of thresholds and then walks participants through two examples of thresholds development: a straightforward threshold based on pest density to damage or revenue relationships, and a far more complex and advanced system where information about natural enemy densities modify or inform pest-centric thresholds, a central goal of IPM as suggested originally more than 60 years ago by Stern and colleagues (Hilgardia, 1959).

Resistance management - led by Judit Barroso. Six attendees (4 faculty, 2 graduate students). Discussion topics included: 1) variability by pest in the rate of resistance development between and among insects, diseases, and weeds; 2) entomologists base management recommendations on economic/activity thresholds, while thresholds are hardly used for weed or disease management recommendations. 3) weed resistance is more of a community problem than insect or disease resistance, yet education tends to be individual-focused rather than community-focused which ignores the social aspects of the problem. 4) resistance management tends to be more reactive (implementation of tactics after resistance has been confirmed) than proactive (e.g. implementation of tactics before herbicide-resistant weeds are apparent). 5) The group discussed strengths, weaknesses, and opportunities to improve education delivery on pesticide resistance management. Strengths: existing workshops; effective collaboration with growers. Weaknesses: not being able to reach all the growers or stakeholders; need for increased pest monitoring (we are always catching up rather than ahead of the problems); the difficulty of behavior change. Opportunities: engage on the need for more proactive management; provide successful examples of pesticide resistance management in seminars/talks.

IPM basic training – led by Chris Hedstrom. The group had seven faculty attendees including representatives from pollinator health, PSEP, the Department of Horticulture, and OSU Extension. The group identified four main audiences in need of basic IPM trainings: growers, non-crop applicators, non-professional (general public/master gardeners), and faculty/extension/consultants. Major themes included identification of roles for content creators, creation of materials that were appropriate and considerate of the audience, and quality and consistency of the materials created. The group determined that over the next year, an updated slide deck or collection of teaching modules that cover Basic IPM techniques should be created to cover a broad range of topics that trainers could choose from based on their audience, with some more advanced/specific modules. This would be created with input from

faculty, and made available on the Oregon IPM Center's website. Next steps identified at the end of the workshop were to select the group to help create the slide deck (3-5 members to provide input on content) and to identify the roles and responsibilities of the members that group.

Summit Feedback

23 respondents filled out or feedback form, which asked the following questions:

- 1. What were you hoping to gain from participating in today's IPM Summit? Did the event meet your expectations?**
- 2. Do you feel an annual IPM summit is a helpful event to strengthen IPM collaboration and networking at OSU? What other opportunities did it provide you with?**
- 3. What (topics/sessions/format) did you like most about this year's summit?**
- 4. What would like to see at future IPM Summits (e.g. topics covered, other ideas, etc.)?**
- 5. What three things do you need in order to better meet the IPM needs of your stakeholders?**

See the 'summit feedback' file for full responses.

In summary, all but two reported that the event met/exceeded their expectations, which included networking with faculty, learning about the work of other faculty, and hearing examples of IPM success.

All but one felt an annual summit will be helpful in strengthening collaboration and networking.

Participants appreciated the flash talks, the guest speaker, the overview of current IPM tools available through OIPMC, and the professional development sessions.

Ideas for future summits include measuring success, more guest speakers/keynote speakers, hearing more from each other about research/extension, outreach/education, and more information about online tools, analytics.

APPENDIX
2nd Annual Oregon IPM Research and Extension Summit
January 15, 2020
Oregon State University, MU 109, Corvallis, OR

Meeting Agenda

8:15-9am	Welcome and Group introductions; Katie Murray, Statewide IPM Coordinator
9am-10am	Flash talks: IPM Success – What does it look like, how do you measure it?
10am – 10:30am	Group Discussion: IPM Metrics & Tracking – what do we know, and what else do we need?
10:30-10:45am	Break
10:45-11:30am	Bridging IPM Research & Extension within CAS: ideas & discussion
11:30-12pm	CAS update: IPM @OSU; Oregon IPM Center Q&A; group discussion
12-1pm	Lunch and networking (on site)
1-2:45pm	Concurrent Discussion & Development Sessions: 2-3 topics, TBD; proposed: <ul style="list-style-type: none">• <i>IPM Basic Training: collaborative development of components and ideas for basic IPM trainings (Chris Hedstrom)</i>• <i>Pesticide Resistance Management (Judith Barroso)</i>• <i>Action thresholds: tools and tips (Peter Ellsworth, U of AZ)</i>• <i>IPM Strategic Planning – take the lead (Katie Murray)</i>
2:45-3:15pm	Quick report back from groups: top takeaways
3:15pm	Break
3:30-4pm	Round robin: top priorities; goals moving forward
4pm	Closing comments, meeting evaluation
4:30pm	Adjourn