Pesticide Stewardship Partnership (PSP) Advisory Committee Meeting

Second Meeting
Thursday, January 16, 2020
9:00 AM – 1:00 PM
ODA Building, 3rd floor conference room
635 Capitol St NE
Salem, OR 97301

Abbreviations

ODA = Oregon Department of Agriculture
OFIC = Oregon Forest and Industries Council
OFS = Oregonians for Food and Shelter
OEC = Oregon Environmental Council
OFB = Oregon Farm Bureau
OSU = Oregon State University
DEQ = Oregon Department of Environmental Quality
OWEB = Oregon Watershed Enhancement Board
OHA = Oregon Health Authority
GYWC = Greater Yamhill Watershed Council
SWCD = Soil and Water Conservation District
CTUIR = Confederated Tribes of the Umatilla Indian Reservation

Attendance (Affiliation)

In-person: Jeff Jenkins (OSU), Kyle Williams for Seth Barnes (OFIC), Audrey Hatch (OWEB), Todd Hudson (OHA), Brenda Sanchez (ODA), Ted Bunch (ODA), Rose Kachadoorian (ODA), Kaci Buhl (OSU), Mary Anne Cooper (OFB), Scott Dahlman (OFS), Luke Westphal (GYWC), Sam Sweeney (Yamhill SWCD), Grant Jackson (ODA), Stephanie Page (ODA), Matthew Bucy (ODA)

Phone: Bryan Harper (State Board of Agriculture), Derron Coles (Blueprint Foundation), Karen Lewotsky (OEC), Kirk Cook (ODA), Kevin Masterson (DEQ), Lisa Arkin (Beyond Toxics), Robin Harris (CTUIR), Brian Wolcott (Walla Walla Basin Watershed Council)

Call to Order: Stephanie Page called the second meeting of the Pesticide Stewardship Partnership (PSP) Advisory Committee to order around 9 AM. Those in attendance introduced themselves and discussed their desired outcomes from the PSP program.

Discussion of Program Strategic Plan

Central questions of this discussion were, firstly, whether the program should seek new, prospective PSP areas (through an evaluation of watersheds, land uses, and data), or continue to focus on watersheds with known pesticide-related water quality issues. Secondly, whether the program should prioritize complex watersheds, with heterogenous land use and where demonstrating outcomes will be more difficult, over less complex watersheds with more homogenous use. Thirdly, whether the program

should focus on watersheds where past experiences indicate that meaningful improvements would be seen through a PSP area.

Prioritization of Sampling Sites

Those in attendance discussed different ways sampling sites could be prioritized. Potential courses of action identified include:

- Conducting a census of agriculture, though this could be problematic.
- Identifying the most toxic pesticides and pesticide degradates.
- Identifying vulnerable communities (e.g., people who fish for subsistence)
    - The Environmental Protection Agency (EPA) has a program called EJ Screen, which could be utilized to identify vulnerable communities in Oregon. OHA also has means of identifying environmental equity issues, and their Environmental Public Health office does a lot of work in this field. The point was raised that the Advisory Committee could expand their definition of stakeholder to include communities impacted by water quality (by fishing, recreating, drinking water, etc.). The point was raised that the definition of vulnerable communities could include people that rely on domestic wells in which agricultural chemicals have been detected.
- Identifying areas where there are known pesticide-related water quality issues.
- Determining in which basins it would be more feasible to achieve measurable success through a PSP area
- Determining in which basins education could make the most difference.
- Utilizing Strategic Implementation Areas (SIAs) (see below).
- Utilizing United States Geological Survey (USGS) water quality data and/or DEQ ambient monitoring data (though data is limited).
- Prioritizing watersheds with fewer land uses.

Strategic Implementation Areas (SIAs) are small watershed areas, selected by ODA in consultation with SWCDs and local partners, where the ODA Water Quality Program does focused work. An SIA is scheduled to be implemented in 2020 for the Middle Deschutes area, and the ODA Water Quality Program will partner with the PSP currently there. SIA monitoring efforts typically focus on identification of bare ground, manure piles, and the condition of riparian vegetation in the water quality in an area. Local partners offer resources to address these concerns and ODA provides a regulatory backstop when needed. Turbidity data is recorded, and turbidity is known to be correlated with pesticide content. Things like flow monitoring or water quality testing could fill in the gaps of these data. Water quality monitoring in SIAs is currently limited by funding. Typically, an SIA is allocated $25,000 for up to 10 years, which is enough to start addressing the aforementioned pollution sources. Collaboration between SIAs and PSP areas could result in cost savings.

A question was asked regarding whether DEQ water sampling is tooled to monitor sediments and aquatic invertebrates for pesticides. Kevin Masterson stated that bed sediment has been monitored, but not to the same extent as surface water. Since 2014/2015, monitoring programs have incorporated sediment monitoring, primarily focusing on pyrethroids because of their toxicity to benthic organisms. Bifenthrin has been seen in sediment in both urban and agricultural areas, and more sediment monitoring is planned for

this year. Some municipal partners are embarking on a macroinvertebrate study assessing the impact of pesticides found in sediments on macroinvertebrates.

Regarding whether new areas should be sought or whether work should continue in existing areas, many of those in attendance agreed that this program should focus on areas where water quality concerns have already been identified. However, concern was raised as to whether we would need preliminary sampling or a pre-pilot program to see if an area had pesticide-related water quality concerns in the first place.

DEQ ambient water quality data has historically been used to identify areas for pilot projects. However, this data is primarily collected at tributary mouths, while monitoring is lighter further up the watershed. This means there could be problems that these monitoring efforts did not detect. Other organizations have also collected high-quality water quality data (e.g., the USGS and their Willamette River data).

DEQ organics monitoring currently encompasses 240 chemicals, 130 of which are pesticides or pesticide degradates. The DEQ Toxics Monitoring Program is in the process of being scaled back due to budget cuts, and the focus will shift more onto metals and less onto organic contaminants (like pesticides). DEQ is currently proposing an ambient monitoring network specifically to collect data on metals.

A committee member asked whether POCIS monitoring could be useful in detecting water quality issues, particularly in eliminating some of the uncertainty introduced by the specific time data is collected. POCIS was deployed within the South Yamhill PSP area, and proved useful in determining the presence or absence of certain pesticides. It could therefore be useful in identifying where to deploy a PSP. However, POCIS is a less useful means of calculating actual concentrations, because one has to back-calculate the time-based average mass of contaminants that POCIS provides.

There are areas in which a lot of water quality data have been collected, and there is value in moving forward in those areas. The Water Quality Pesticide Management Team (WQPMT) looked for new monitoring areas a few years ago when their funding shifted away from being grant-based. These data led to 2 watersheds becoming more long-term projects, one of which was dropped and the other of which has been in a state of limbo. No new watersheds have been selected since 2014.

Complexity:

Advantages of focusing on smaller, less complex watersheds include:

Education: Educational efforts do the most good in small watersheds, because the educator has a more focused group of students. In larger watersheds, educational efforts must be tailored to many different user groups. The success of educational efforts in larger watersheds is also more difficult to evaluate.

Quantification: Outcomes in more complex watersheds may be more difficult to quantify and may take more time to achieve.

Ability to Take Ownership of an Issue: It is difficult to tie a water quality issue to a particular user group in larger watersheds, because it is easier for one group to believe that a different group is contributing more to the issue than they

are.

Past PSP Successes: The Hood River PSP area was in a smaller, relatively homegeneous watershed and was successful.

Resources: Resources are limited, and working in a larger, more complex watershed could cost more than working in a smaller, less complex watershed.

Advantages of focusing on larger, more complex watersheds include:

Learning Experience: Focusing on larger watersheds could teach the PSP program how to address different interacting pesticide uses.

Pesticide Synergy: A program in a larger, more complex watershed would help the PSP program to address pesticide synergy.

Public Perception of PSP: Historically, this program has been sensitive to not single out particular user groups or particular users (e.g., by not sampling at points immediately before and immediately after one person's property). If the program is viewed as targeting individual users/user groups, stakeholders in potential future PSP areas could be wary of becoming involved with the program. Furthermore, attempting to identify the individual users that are contributing to a particular water quality problem would be less effective than identifying practices that may be contributing to an issue, and allowing all users to reflect on their own practices. Working in a complex watershed helps avoid potential targeting, but it is challenging to reach out to multiple different user groups.

More Options: There are few remaining small watershed areas in which a PSP area could be initiated.

OSU's Pesticide Safety Education Program (PSEP) has worked in the Amazon watershed, a complex watershed in which waters begin in the City of Eugene and flow to agricultural users. Their outreach efforts focused on smaller areas within the larger watershed. The concentration of propiconazole in this watershed has been in decline since 2015. Dividing a watershed into more manageable areas could be a successful outreach approach for PSPs in larger, complex watersheds. Current PSP areas in complex watersheds include the Yamhill, Clackamas, and Pudding PSP areas.

A committee member proposed the idea of initiating a PSP area in a less complex watershed and initiating another in a more complex watershed. This comparison would help indicate how the PSP model should be adapted to deal with a complex basin.

Case Study #1 – Greater Yamhill PSP – Kevin Masterson, Luke Westfall & Yamhill Soil Water and Conservation District

The Greater Yamhill PSP was initiated in 2006, due to the inclusion of Palmer Creek on DEQ's list of water quality impaired areas (303(d) list). Chlorpyrifos was detected in Palmer

Creek by USGS in the late 1990s. This watershed encompasses diverse agriculture as well as urban areas. Water quality has been monitored since 2007, with up to 8 locations monitored in the early years. After a few years of monitoring, integrated pest management (IPM) and risk reduction workshops were offered to growers in collaboration with the OSU Integrated Plant Protection Center. Meetings with watershed councils, and in some cases dealers and crop consultants, were conducted on best management practices.

This PSP area specifically focuses on 2 sub-watersheds: the Palmer Creek sub-watershed and the Cozine Creek sub-watershed. These sub-watersheds had minimal or no sustained reductions in pesticide concentrations, and therefore warranted special attention. The concentrations of 34 pesticides/pesticide degradates of concern in these sub-watersheds have moved up and down over the years, with the concentration for 9 of these ingredients having exceeded their benchmark at least once. Beginning in 2020, monitoring will be scaled back and more resources will be devoted to strategic outreach. Limited budget, staff, and capacity have been challenges for this PSP area.

The estimated total pesticide loading at the monitoring site furthest downstream (west fork of Palmer Creek at Webfoot Bridge) is much higher than the estimated loading at an upstream site (west fork of Palmer Creek at SE Palmer Creek Rd). Concern was expressed over the accuracy of this jump in loading, and that the estimated loading at the more upstream point is too low. The practice of pumping water for irrigation may impact these values.

The pesticides found in Palmer Creek are mainly herbicides, followed by metabolites, fungicides, and insecticides. Atrazine and simazine are frequently detected. The average chlorpyrifos detection in Palmer Creek has been fairly consistent over time. The average concentration is not particularly high, but it does exceed the chronic benchmark.

Of the pesticides detected in Cozine creek, herbicides are detected in the largest quantity followed by metabolites (like Palmer Creek). Unlike Palmer Creek, insecticides are detected in larger quantities than fungicides.

The average concentration of diuron (a multi-use pesticide) in Cozine creek has been fairly consistent over time. Higher concentrations have generally been seen in the middle Cozine at the end of the town.

Achieving measurable water quality improvements in the west fork of Palmer Creek is challenging, firstly, because there are many water changes within this sub-watershed. There is an irrigation district, and water is pumped from the Willamette to the main branch of the Palmer for growers to use. The water is then pumped into the west fork of Palmer Creek, where water quality is being tested, while the upstream sites experience natural flow. Secondly, when pumps are on, one sampling site becomes too challenging to reach. Another site (west fork of Palmer Creek at SE Lafayette) often has so little flow that it is a struggle to collect enough material for a sample. Sites that are ideal for flow sampling are not necessarily ideal for grab sampling, and there are not clear criteria as to when it is appropriate to move a sampling site. Drainage tiles may affect some locations over others early in the year, but this influence should be negligible once everything dries up. If storm water systems are including in the definition of tiling, then the urban contribution comes from many sources.

Education and outreach efforts about the Cozine Creek have focused on the broader community beyond just pesticides. A Friends of Cozine Creek group was formed to reach out to the urban and agricultural communities. Outreach to the urban area has been very

successful, with some people going door-to-door to recruit people for plantings, riparian projects, etc. There are currently collaborations with 50 urban land owners, including the college and long-established local institutions (e.g., churches). One hundred acres of land spanning monitoring sites has been recruited for riparian projects, and projects are ongoing on 60 acres. The goal over the next 5-10 years is to plant native vegetation over this whole area.

Agricultural engagement has mainly been limited to concerns over the data, how it is presented, and what its presentation will say about the agricultural community. Agricultural users located immediately stream-side are well-engaged, but there is concern over how to engage those that are farther away. Agricultural and urban users have different value sets and bottom lines, which outreach efforts must consider.

Meetings and equipment demonstrations have been conducted with specific commodity groups through 2 PSP technical assistance grants.

The first grant was utilized to assess the usefulness of tunnel sprayers, and to offer field tours and tunnel sprayer demonstrations. Tunnel sprayer trials were conducted on flat caneberry fields, because the devices would roll downhill on sloped land. While tunnel sprayers resulted in greater on-target deposition than airblast spraying, it was concluded that tunnel sprayers were not an appropriate fit for growers. Rows are too tight for tunnel sprayers (which require single rows), and the having multiple rows is also more time and cost-efficient. While the modifications that growers would have to make are expensive, there are some growers moving away from single rows.

The second project aimed to combat erosion in hazelnut orchards. The goal was to have 400 acres of cover cropping (specifically straw mulch, no-till drill-in, or ideally, both). The no-till drill was available for rent at no cost to growers. While it was a foot-in-the-door for a change in practices, in many circumstances the mulch did little to combat erosion. No-till was more effective overall. In addition, running no-till without seed caused leaves to get caught in the rough ground. Therefore, solely running no-till allowed leaf litter to accumulate and effectively created a layer of mulch. There is a quad-county NRCS implementation plan to implement conservation practices like this. Regardless of the water sampling data, practices like this are making in-roads with the community.

Growers have come to meetings and there has been good dialogue. After one meeting, attendees were invited to visit a large nursery near Palmer Creek Road, where there has been consistent detection of bifenthrin in the water. In the last several years, no bifenthrin has been detected in the water column near that area.

Engaging community members in water quality improvement had positive ripple effects (e.g., more discussions, other community efforts, etc.). This is a positive but difficult-to-measure outcome. There is still the challenge of getting more commitments (like the aforementioned nursery) from users in complex watersheds. The decision to shift limited resources to engagement rather than monitoring raises the philosophical question as to what to do when we do not see sufficient action in an area with diverse agriculture.

Discussion about Stakeholder Engagement and Education Efforts – Kevin Masterson & Kaci Buhl

Kaci presented a Statement of Work proposing the development of a 1-hour presentation to pesticide users on water quality protection. This presentation will also be

adapted into an interactive online module which licensed pesticide applicators could take to get recertification credit. The presentation and module will cover water quality data (i.e., what we are finding in the water), how to keep pesticides out of water (in general), and best management practices (about rinsate, disposal, preventing run-off, etc.). The final product is expected to be developed by March 2021. The presentation will be modifiable, so that partners can tailor it to their specific audiences. OWEB is currently investigating how to best track communication products, and could be a helpful resource in this regard. Topics of environmental public health could also be incorporated into these materials.

The presentation and module will use data from the PSP program as well as other quality-controlled sources (e.g., DEQ). Using data beyond what the PSP program has collected will make the presentation applicable to watersheds in which there is not a PSP area. There is a reporting process for SIA data which eventually makes it publicly accessible, which must be kept in mind if SIA data is to be used.

Education ought to cover the "why" – why is it important to keep pesticides out of our waterways? Are mixture effects concerning? Why should I be concerned about invertebrates? Etc. The "why" question is crucial in recruiting people, and different groups of people will have different answers to this question. Education must also consider that data can be interpreted differently (e.g., "x has only been detected once, why should I care about it?"). One idea on how to incorporate the "why" question into the module is to have students select reasons why water quality matters to them from a provided list. This question would have no right answer, and would serve to remind the student why clean water matters to them.

Funding is currently available to make this presentation and the corresponding online module. Updates may eventually be needed to account for new data, but this is a future project.

Another potential project is to develop a social media kit, with content (e.g., stories and videos of best management practices) that could be shared during the most relevant times of year. Members in attendance were supportive of this idea. A social media kit could help reach a broader audience, and could help fill the absence of brochures, which are increasingly becoming obsolete. Tailored social media messages can help involve a broader range of people in water quality efforts, and can help recruit and inform vulnerable communities. These online materials should be general in nature, rather than exclusively focused on agricultural pesticide users. This is supported by water quality data, which indicates the presence of non-agricultural pesticides in our water samples. Finally, social media outreach could help frame water quality efforts within the state's larger 100-year water vision.

Success in the Hood River PSP was in large part driven by individuals who became very passionate about the cause, and in turn recruited others. Educational efforts like this could help make more of these champions. This is especially true in watersheds where there are multiple user groups.

A potential obstacle is that there is a knowledge gap between the training manager and the actual operator. The high-level person may receive extensive education, but there is the issue of getting this information to the on-ground operator. This issue is compounded by language barriers. ODA has 2 Pesticide Registration Specialists who are

fluent in Spanish and have experience educating applicators, and whose expertise could be utilized.

Many applicators are not a part of our licensed community, which makes it difficult to access them.

Case Study #2 – South Umpqua PSP – Kevin Masterson & Thomas Whittington

The South Umpqua was 1 of 4 PSP pilot areas selected in 2014. Like all pilot areas selected that year, this area contains multiple land uses. Furthermore, the percentage of total land area within this PSP dedicated to forestry is larger than that of all the other PSP areas except for South Yamhill. Partners for Umpqua River (PUR), Cow Creek Tribe, Douglas SWCD, and OSU Extension were among the initial partners.

Monitoring was initially conducted at 5 sampling locations, located in tributaries fairly far downstream. In order to better isolate forestry and agriculture, two sampling sites were relocated between Phase I (Fall 2014 – Spring 2015) and Phase II (2017 – Spring 2019) of this project. Several herbicides registered for forestry and rights-of-way uses were detected during Phase I, two of which (sulfometuron methyl and metsulfuron-methyl) had maximum concentrations between 10-50% of their respective benchmarks. Atrazine and sulfometuron methyl were the most frequently detected pesticides in Phase I. Concentrations detected in Phase II were no more than 10% above their benchmarks. Atrazine detection frequency in Phase II was almost 60%, indicating moderate priority for action. Atrazine and hexazinone were the two most frequently detected pesticides in Phase II. The concentrations of some detected pesticides did decrease over time. ODF helped get forestry representatives involved, and major forest land owner representatives were well-engaged.

Sampling in this pilot area was complicated, because it needed to be coordinated with a spray schedule. Sampling only occurred about five times in the Spring, so it would be easy to miss a spraying event. A general spray schedule must be known to sample at the optimal times. This reflects a question that came up several times during this meeting -- how much information must be gathered before we begin collecting data in an area with more homogenous land use?

The status of this pilot project is unclear. Monitoring was suspended in summer 2019 and will maintain suspended until decisions are made. The data indicate that off-target pesticide movement is occurring, and do indicate opportunities for improvement (e.g., atrazine). However, have enough opportunities for improvement been identified to justifying continuing with a PSP project in this area? If we decide that this project is concluded, how do we formally conclude it (write a final report? Develop a fact sheet? Etc.)? A report for the South Umpqua could be modeled after the concluding report written for the South Yamhill. One recommendation as to how to conclude this project would be to present the story told in this presentation ("We worked with engaged stakeholders, we sampled here on this schedule, and here is what we found.")

The main argument for concluding activities within this pilot area was based on the fact that earlier discussion indicated that committee members supported prioritizing places with known issues and benchmark exceedances. Based on these criteria and resource limitations, the South Umpqua PSP pilot area is not an ideal candidate for a PSP area.

Arguments against concluding activities within this pilot area included, firstly, that the detected pesticide concentrations indicate off-target pesticide movement, which is illegal. Secondly, there is statewide interest in forestry herbicide use, but limited data on the subject. Collecting data like those collected in this pilot area is important in filling this knowledge gap. Thirdly, while monitoring did not indicate a benchmark exceedance, this could be a result of sampling not being appropriately timed with a general spray schedule. Finally, benchmarks can be lowered in the future, which could influence how these data are interpreted.

After these initial arguments were presented, committee members went around and shared their thoughts on the future of the South Umpqua pilot area. The major comments are summarized below:

- There are probably areas that should be a higher priority based on water quality data
- Resources are limited and it is difficult to determine where they should be prioritized. There are potentially areas that are not being sampled at the optimal frequency. Continuing to sample in this area would spread resources even thinner.
- Continuing to operate in this area could negatively impact the credibility and public perception of the PSP program. The purpose of the PSP program is to identify a problem within a watershed and then work with stakeholders to mitigate that problem. Sufficient problems have not been found in the South Umpqua, so if the PSP continues to operate in that area, it could seem like the purpose of the PSP is to stay in an area until a problem is found. This could discourage future stakeholders from engaging with the PSP program.
- Few opportunities for uplift in the basin have been identified.
- Stakeholder engagement is good, so improvements may continue to be made even if PSP activities conclude.

Action Items

- **ACTION:** Stephanie to send out a copy of the ODA Strategic Plan to the committee members for reference as to what the PSP strategic plan should look like.
- **ACTION:** Stephanie to email the PSEP Statement of Work (without the budget page) to the committee members.
- **ACTION:** Kaci to get contact information for volunteer reviewers of the presentation PSEP will develop.

Next Meeting and Logistics

The plan for future meetings is to answer 1-2 questions from the Strategic Plan Questions document. The answers to these questions will help inform the overall development of a PSP strategic plan. The PSP strategic plan should be high-level and similar to the strategic plan for ODA. Questions 2 and 3 from the list of strategic plan questions will be discussed at the next meeting.

At the next meeting, one case study will be discussed for 1.5 hours, instead of two being discussed for 45 minutes each. This will ensure that there is enough time for a full discussion. Future presenters should identify the more philosophical questions they want committee members to ponder. Next meeting's case study will be the Clackamas PSP, which is currently developing its strategic plan. The Rogue PSP will be a case study for a future meeting.

The next meeting will be on Wednesday April 29, 2020 from 9 AM – 1 PM.

Adjourn: Meeting was adjourned shortly before 1 PM.