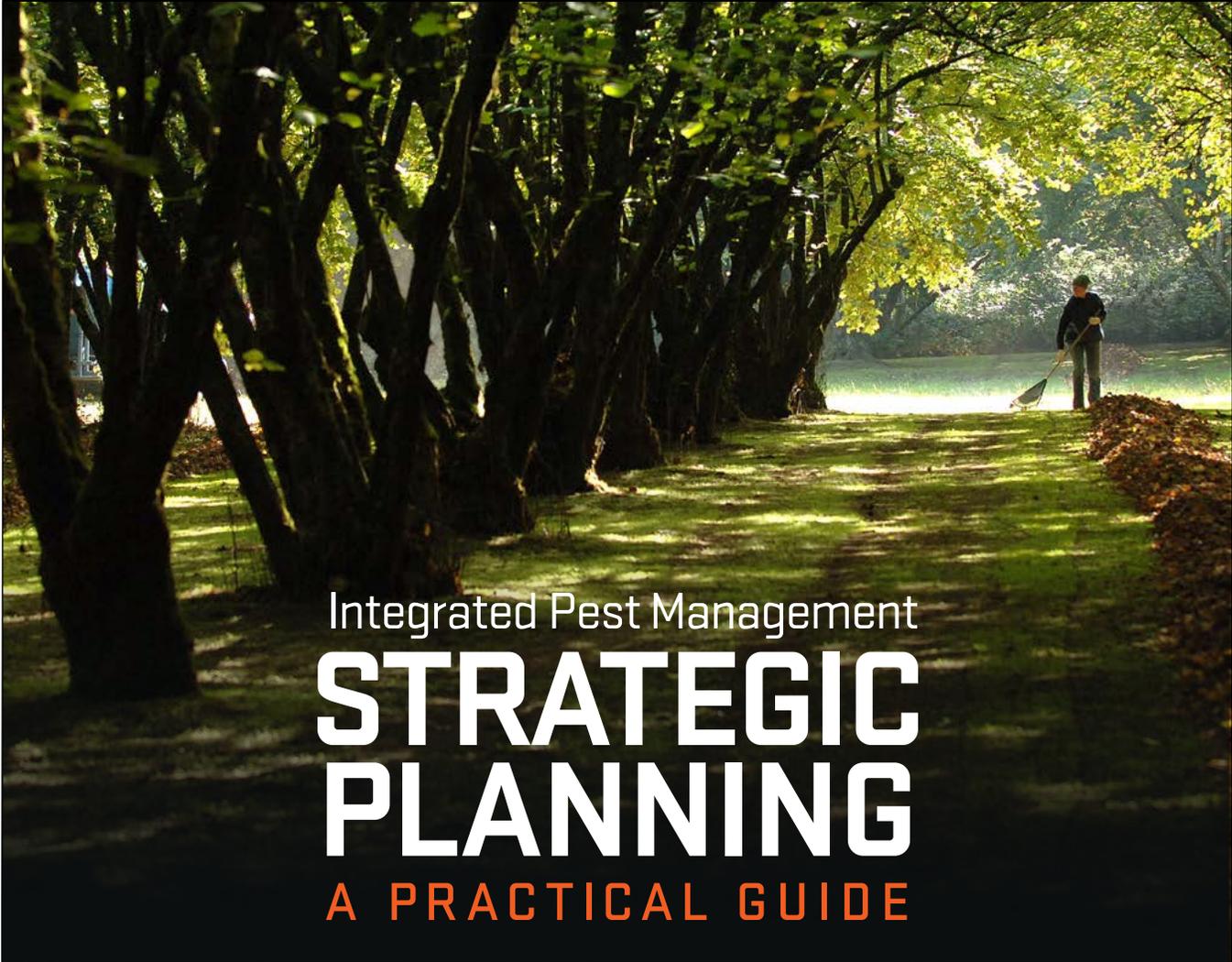


OREGON STATE UNIVERSITY EXTENSION SERVICE



Integrated Pest Management
**STRATEGIC
PLANNING**
A PRACTICAL GUIDE



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Katie Murray and Paul C. Jepson

Integrated Pest Management Strategic Planning is a model for assessing agricultural stakeholders and setting priorities, developed with support from the U.S. Department of Agriculture. This model has become central to Oregon's statewide IPM program. The process refines the USDA's Pest Management Strategic Planning process, bringing IPM to the forefront and revealing critical needs.

The IPM Strategic Planning process produces a formal, living document that describes the major pests, challenges and critical needs of an industry or commodity in detail. The document highlights major pests and pest management strategies; field activities; and critical pest management needs for a geographically defined population of stakeholders. The crop-stage approach to documenting current practices enables progress toward reducing economic, health and environmental risks. The process creates a formal structure for assessing status and progress in IPM, and also leverages targeted research investments, regulatory changes and education programs to encourage systemwide responses.

IPM Strategic Planning strengthens agricultural networks by promoting long-term collaboration and consensus-building among key stakeholders, including farmers, researchers, Extension agents, private consultants, funding agencies and regulatory authorities. The process has earned recognition from commodity groups, regulatory agencies, and funding agencies that support research and Extension. It achieves a high level of stakeholder engagement. IPM Strategic Planning can be adapted to address any aspect of agriculture. It is well suited to addressing pest management issues in other ecosystem settings, and the procedure is readily adaptable for international use.

The IPM Strategic Planning methodology has been refined with six Pacific Northwest crops (onion, cranberry, sweet cherry, hazelnut, potato and mint) and one international crop (Malawi maize, pending publication). The method is widely applicable in the United States and internationally. It builds upon the pest management strategic planning process that has been used in U.S. agricultural commodities since the 1990s, but reflects a refined focus on IPM, and incorporates important additional steps based on lessons learned.

This guide outlines the method for IPM Strategic Planning within agricultural industries or other pest

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Insects trapped outside a field in Silverton, Oregon.

management settings, and is intended to help maximize the use of this process, which is already in use in the Pacific Northwest.

An evolving process

IPM Strategic Planning refines an earlier process: Pest Management Strategic Planning (westernipm.org/index.cfm/searchable-data-sources/pmsps-and-crop-profiles).

Since 1999, over 175 pest management strategic plans have been developed nationwide, across all regions, accounting for over 75 crops as well as bees, cattle and schools. (See ipmdata.ipmcenters.org.)

The process has demonstrated clear evidence of success in leveraging resources to meet stakeholder-identified needs through more targeted research, Extension, and regulation. An average of \$22 has been leveraged for every dollar invested in the process. (See westernipm.org/index.cfm/center-grants/leveraged-funds.) This has led to advancements in IPM resulting from targeted research and education, including increased use of cultural and biological controls. There is also evidence for the process having been used in support of regulatory changes; one study recorded an increase in the number of reduced-risk pesticides available to hop growers.

Despite the clear successes brought about by the pest management strategic plan process, its use has declined over the last decade. The number of plans completed nationally dropped from more than 20 per year in the early 2000s, to six or fewer per year from 2010 to 2019. This decline coincides with a decrease in targeted funding for these plans through the USDA Regional IPM Centers. Along with the decrease in use and funding, understanding of the process and its benefits to agricultural networks have also faded.

The strategic plan process, when used, continues to reveal a vast breadth and depth of unaddressed needs — demonstrating a nationwide demand for research, regulation and education to help farmers transition to alternative practices. This highlights the

Strategic plan process at a glance



need for an evolved process to shift to lower-risk pest management strategies.

IPM Strategic Planning refines the process by:

- Placing current management practices within a PAMS framework (prevention, avoidance, monitoring and suppression tactics).
- Incorporating a crop-stage approach to enable a more holistic, whole-season understanding of current activities and IPM status.
- Incorporating a formal process for collaboratively identifying industry needs to achieve broad IPM goals.
- Increasing efficiency with a shortened process and document, with less repetition.
- Establishing a three- to five-year schedule of routine updates that enable monitoring of changes and progress to keep systems moving forward.
- Pursuing better integration with research, Extension and regulatory nodes of the agricultural system, including increased collaboration with partners.
- Focusing follow-up on decision support and risk management, and providing a mechanism to document and track progress in IPM adoption over time and across pest management settings.

Benefits of IPM Strategic Planning

An IPM Strategic Plan is an effective conduit for communication between farmers and other pest managers to regulators, policy makers, researchers and other interested parties. It also serves as a road map for the industries themselves, to help focus where time, money and energy should be invested in pest management issues. The process and resulting document provide granting organizations with evidence of stakeholder input regarding pest management priorities. They also enable researchers to obtain federal grant funds to work on critical pest management

issues rooted in current practice. Data gathered from the process supports targeted research and Extension education in collaboration with partners.

In the U.S., the Environmental Protection Agency and other regulators consult these documents to understand current production and pest management issues when they evaluate a new pesticide registration or re-registration. These documents can also help an industry obtain or retain pesticide registrations critical for pest management and economic viability. In addition, aspects of the process help reveal pathways for pesticide health and environmental risk reduction based on a more detailed understanding of current practices.

Oregon's statewide IPM program uses the strategic planning process to improve understanding of regional cropping systems and their pest management needs, and to create and strengthen stakeholder networks for addressing priorities.

Process overview

For each industry or pest management setting, a formal document is created in collaboration with a representative work group that includes farmers, researchers, Extension agents, crop consultants, regulators and other relevant stakeholders. This work group offers feedback and expertise to initiate industrywide, adaptive improvements in IPM.

The work group provides details on pest management activities conducted during each of the crop's main growth stages or equivalent phases of pest management. The group is also consulted on critical pest management needs in research, regulation, and education, as well as broad needs related to IPM. The resulting document describes these pests, challenges and critical needs in detail. It incorporates unique data sets including stakeholder-defined pesticide efficacy tables; time lines of field and pest management activities; pesticide use patterns; and pesticide risks to human bystanders, aquatic life, vertebrate wildlife and pollinators. In the U.S., staff at a USDA Regional IPM Center peer-review

and edit the document, and publish it to the National IPM Database, where it is consulted by federal agencies, university representatives, commodity group representatives, and research and Extension programs.

A key feature of the IPM Strategic Planning process is increased follow-up, including more routine updating and revision than has previously been applied to pest management strategic plans (recommended on a three- to five-year cycle). The process provides a mechanism for monitoring trends in IPM and maintaining engagement with the work group. The process also tracks progress in meeting critical needs, and captures new and emerging IPM issues as they arise. In this way, overall progress in IPM adoption can be tracked over time.

The process also provides critical information related to pesticide application management; pollinator and natural enemy protection; and agro-ecological management to support local research and Extension IPM programming. Local Extension agents develop educational events that act upon the critical IPM needs identified by stakeholders.

12 steps to an IPM Strategic Plan

1. DEFINE GOALS

Identify a candidate industry or pest management setting. Considerations include industry interest; awareness of an industry's need for research; Extension and regulatory support to advance IPM; the scale and importance of the industry to the local economy; or known exposure to significant pest or pest-management risks.

2. SECURE GUIDANCE

In the U.S., engage with your Regional IPM Center. Share your ideas for how to organize the work group and the document, and engage in regular check-ins on the process and format. The centers can offer guidance and help with meeting facilitation, document review, inclusion in the National IPM Database and even potential funding through annual grant programs.

3. SET BOUNDARIES

Work with key industry and pest management personnel to identify an appropriate geographic scope for your IPM Strategic Plan, based on the needs of the industry and the local context. The goal of this process is to engage local research and Extension toward solving critical industry needs. These needs often vary by geographic region. In some cases, it can help to include up to three states, with region-specific information within this defined area. In other cases, focusing on one state or geographic region can help to specify current challenges and critical needs, which can greatly amplify the research and Extension impacts.

Tips for a successful IPM Strategic Planning meeting

- Include an introduction that clearly states goals for the process as well as the day, and offers brief detail on agenda items. The meetings can be tedious, and it helps if everyone understands the overall goal and the objectives of each agenda item.
- Allow plenty of time for questions and discussion, and encourage everyone to contribute, asking questions directly to those who are quieter. This is a unique opportunity for open discussion across stakeholder groups and academic disciplines that is not often available within industries. An intentional process ensures that everyone has an opportunity to speak.
- Encourage contributions on current practices and critical needs from growers and consultants, and use research and Extension faculty to fill in questions and uncertainties. This is a time to prioritize feedback from on-the-ground pest managers. It also provides academic faculty with an opportunity to hear how their various programs might be playing out in the field.
- Use a dedicated notetaker for live, on-screen development of Prevention, Avoidance, Monitoring and Suppression tables (Appendix D). Filling in data in advance takes away from the valuable group discussion, and important details could get lost if you wait to fill in notes later.
- Address inevitable conflict by hearing all perspectives, allowing disagreement but encouraging consensus when needed, and remaining neutral on controversial topics. There are multiple perspectives in any stakeholder group, and it's important to keep the environment open and welcoming to all of these.
- Use posters and sticky notes for the broader IPM needs process, asking work group members to fill in actions that would be needed if the broad IPM category goals were to be achieved. This enables full group participation, in contrast with a verbal process in which some might be reluctant to speak.

4. ACQUIRE FUNDING

The budget should cover salaries, meeting costs, and travel reimbursements as needed (see sample budget, Appendix C). In the U.S., the USDA Regional IPM Centers offer competitive funding for these projects (www.ipmcenters.org). Many commodity groups also support the process, in full or in part, through their own competitive funding cycles. Reach out to your candidate group to identify whether there is funding available and when the group calls for proposals. Plan to apply for full or partial funding if needed.

5. CREATE A WORK GROUP

The group of about 25 people should include growers, pest managers, consultants, researchers, Extension personnel, and regulatory representatives. Commodity commissions, Extension faculty, and other growers and pest managers can help identify group members. Membership should reflect the makeup of the local or regional industry. The work group constitutes an advisory body that contributes to the final document, and partners with research and Extension workers to generate capacity for IPM advancement. The makeup of this group is critical to ensuring a document that speaks for an industry; ideally, growers should constitute at least half of the group. Ensure representation of the diversity of farm sizes and production systems within the local industry in the work group makeup, including groups and individuals that may have been historically underserved. An ideal group might contain 12 to 14 growers, two to three consultants, two to three researchers, two to three Extension faculty and one to three others as applicable (regulatory officials, state agency representatives or advocacy group members with connections to the industry).

6. ACQUIRE DATA

Over a period of one to two months, gather information on major pests — insects, diseases, weeds, vertebrates and emerging pests — from the work group by phone and email. Compile information on pest management efforts and the timing of pest management activities relative to crop growth stages. These will form the outline for sections II and III of the document (see Document outline, Appendix B). Attempt to reach consensus on major crop growth stages, which will form the organizing structure of the main section, which discusses current management and critical needs (Document outline, section V).

7. COMPILE A DRAFT

Using the pest and crop growth stage information, compile a document draft that includes all of the sections in the Document outline (Appendix B). This draft should include brief descriptions of pests and damage with links for further information, as well as empty PAMS framework tables for each crop stage (see PAMS table, Appendix D).

8. MEET

At a convenient time for the industry, organize a one-day meeting of work group members. (See Sample Meeting Agenda, Appendix A.)

At this meeting, the work group will detail current management activities for each crop stage, including target pests for each management strategy. They will also develop lists of critical pest management needs.

In most settings, information can be entered into the meeting draft of the document, with the document projected on a large screen and editing taking place live using document review mode. This helps facilitate group input and provides validity checks on the information entered. The group will:

- Review past IPM strategic plans, if applicable, and measure progress on each top critical need.
- Briefly discuss major pests and crop stages.
- Detail current pest management activities conducted during each of the main crop stages of production, and categorized within the PAMS framework tables (Appendix D), assigning target pests to each activity.
- Document critical pest management needs for research, regulation and education for each crop stage. Ensure that farmers, consultants, and other pest management decision-makers are the main source of this information, with input from researchers and others where it clarifies or expands upon industry needs.
- In addition to collaboratively completing the crop-stage and pest-specific PAMS tables and needs, ask the group to work together to identify broader IPM goals. Then, list actionable steps that support the goals. Goals could include reduced pesticide use and alternatives to pesticides; decision-support tools; and protection of human health, soil health, pollinators, and water quality.
- In small groups, complete seasonal pest occurrence, management activity, and pesticide risk and efficacy tables for currently used pesticides. (See IPM Strategic Plan Document Outline, section VIII; and Tips for a successful meeting, below, for important considerations).
- As a final stage, present crop-stage-specific needs and broader IPM needs on posters, and ask each participant to vote for their top three research, education and regulatory needs. From that exercise, develop a short list of priorities.
- Evaluate the meeting against process and learning objectives (see Appendix E for a sample form).

9. REFINE

Within one to two months of the meeting, edit, validate, and refine the document draft with work group members via phone and email, and create a final draft to share with group members for their review and approval.

10. PUBLISH

Submit the document to your university as an Extension publication, and include additional lead authors from the work group as determined by their contributions to the document draft. In the U.S., alert the Regional IPM Centers of the final draft. The appropriate regional center will review, edit, approve and post the document to the National IPM Database, and the center will ensure that the USDA and EPA are aware of the finished document.

11. SHARE IT WIDELY

Maintain engagement with associated research and Extension faculty to publicize the document and promote its use; disseminate the lists of needs; and facilitate targeted research and education. Maintain engagement with industry members, including local commissions or commodity boards. Use the needs identified through the process to set industry funding priorities.

12. UPDATE AND TRACK PROGRESS

Develop a process to check on follow-up and progress, and update the formal process every three to five years with an in-person meeting. In the update, review the last completed document and follow these steps:

- Track completion of “most critical needs” section with the whole group. These can be highlighted in the updated document; see *An Integrated Pest Management Strategic Plan for Hazelnuts in Oregon and Washington*, EM 9223, <https://catalog.extension.oregonstate.edu/em9223>. Review the list of major pests and note changing pest pressures.
- Review PAMS tables and edit current practices and target pests. This will help highlight changes over time, including any IPM advances. Review pesticide risk and efficacy tables to ensure continued accuracy of pesticides used, usage patterns and efficacy ratings.

- Document research, education and regulatory activities that can be attributed to the IPM Strategic Planning process and track investments in these activities over time. The document should request that anyone making use of the critical needs in seeking competitive funding cite the IPM Strategic Plan as the source.

Note: The IPM strategic plan method can be used to update an existing pest management strategic plan using the document format and meeting structure described here. Allowing the work group to fill in the PAMS tables rather than pre-filling with previous information will promote the PAMS framework and ensure a more comprehensive consultation.

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Appendix A: IPM Strategic Plan sample meeting agenda

Integrated Pest Management Strategic Plan for [crop] in [state(s)]

Work group meeting

[Date]

[Location]

8:30 a.m.	Welcome, meeting objectives, group introductions
8:45–9:15 a.m.	Discuss major pests and crop stages
9:15–9:30 a.m.	Identify invasive/emerging pests to include in the document
9:30–9:45 a.m.	Review PAMS (Prevention, Avoidance, Monitoring, Suppression) framework
9:45–10:30 a.m.	Document major pest management activities for each crop stage using PAMS framework and capture pest management critical needs
10:30–10:45 a.m.	BREAK
10:45 a.m.–12:30 p.m.	Resume PAMS documentation
12:30–1 p.m.	LUNCH
1–2:30 p.m.	Small group breakouts to complete: <ol style="list-style-type: none">1. Activity and seasonal pest occurrence tables2. Efficacy tables for insects, diseases and weeds3. Pesticide risk management table
2:30–3 p.m.	Discuss commonly used pesticides, efficacy, toxicity and risk management considerations
3–3:10 p.m.	BREAK
3:10–3:40 p.m.	Exercise to identify IPM-specific critical needs
3:40–4:15 p.m.	Voting on all critical needs to identify top-priority needs
4:15–4:30 p.m.	Review “homework” assignments; conduct workshop evaluations
4:30 p.m.	ADJOURN

Appendix B: IPM Strategic Plan document outline

I. Introductory pages:

- Process for this Pest Management Strategic Plan: Briefly describe the process, workshop setting, participants, goals and overall document structure.
- Work group members: List members present at meeting, contributing members not present and others present.
- Top-priority critical needs: Outline the top of all critical needs included in each section of the document, based on a voting process for reaching group consensus.
- [Crop] production overview: Describe general production statistics — acres, number of farms, crop value, percentage of U.S. production, crop varieties, etc.. Describe production practices — typical crop cycle and number of crops per year (from planting to harvest), crop rotation, irrigation methods, planting dates and depth, soil parameters, etc. Describe irrigation practices — drip, center-pivot, flood, etc. — and conservation practices (tillage, waterways). Describe harvest. Include market information — fresh vs. processing, domestic vs. export, etc. Describe regional differences.
- IPM overview in [crop] production: Discuss general issues with insects, diseases, weeds; historical IPM strategies; current IPM strategies; future plans; and needs.
- Other sections: Discuss pollination, maximum residue limits or export issues, etc., as relevant

II. List of major [crop] pests: List major insects, diseases and weeds to be discussed.

III. [Crop] pest management timing by crop stage: List crop stages and include a list of insects (including nematodes), diseases, weeds and other pests managed within each stage.

IV. Major [crop] pest descriptions: For each pest, include name, scientific name, link to online description of pest and brief description of crop damage.

- Insects and nematodes
- Diseases and pathogens
- Weeds
- Vertebrate pests

V. [Crop] pest management by crop stage, using PAMS framework (see Appendix D: “PAMS Framework”):

For each crop stage, describe crop stage and field activities (mechanical cultivation, hand weeding, planting, pruning, thinning, spot-treating, mowing, harvesting, hand pollination, pesticide and fertilizer applications, irrigation practices, mulch use, cover cropping, etc). Crop stages should be thought of as phases of pest management decision-making, rather than as crop development stages, although these sometimes align well. If IPM activities apply equally to some crop development stages, group these together to avoid unnecessary repetition.

VI. Invasive or emerging pests: Include pest descriptions, management strategies and critical needs for any invasive/emerging pests.

VII. References: List alphabetically by author.

VIII. Appendices: Tables. For examples of these completed tables, see appendices in *An Integrated Pest Management Strategic Plan for Treasure Valley Onions: Oregon and Idaho*, EM 9187, and other publications.

- **Activity table:** Document common time frames (indicated by months/calendar year) for field and pest management activities. Create separate tables by region as appropriate, based on varied timings. This information is used by a regulatory agency when considering risk mitigation requirements for pesticides, including restricted entry intervals for field workers.

Appendix B: IPM Strategic Plan document outline (continued)

- **Seasonal pest management table:** Document management timing for each major pest discussed in the document (insects, mites, diseases, nematodes, weed categories, etc.). Create separate tables by region as appropriate based on varied timings. This information is helpful for IPM educators and also for regulatory agencies in the development of risk assessments to humans, aquatic life, wildlife and pollinators.
- **Pesticide risk or toxicity table:** Include a table that lists commonly used pesticides (insecticides, miticides, nematocides, fungicides, fumigants, herbicides) and their risks and toxicity. Use a credible source for risk information. A publication with a risk classification system is currently under review (Jepson & Murray, submitted, forthcoming). Use label information, including hazard or warning language, protective clothing requirements, restricted entry, and preharvest intervals to develop your own ranking of risks if other sources are not available.
- **Efficacy ratings tables:** These tables document stakeholder-rated efficacy for each commonly used pesticide and pest combination, based on a ratings matrix from excellent to poor. Include comments that capture reasons for lack of use, such as resistance issues, cost and lack of efficacy. Do not substitute research trial data for stakeholder ratings. This is a valuable source of information about what is working and what is not working in the real world and why, and it provides contrast to data obtained in research trials. Include data for:
 - Insect and nematode management
 - Disease and pathogen management
 - Weed management

Appendix C: IPM Strategic Plan sample budget

Category	Estimate
Salaries: at least four weeks for development, implementation and completion	
Benefits	
Equipment/supplies: as needed to support the work and workshops	
Travel (domestic): mileage, lodging, and per diem for staff and participants; some participants need to travel farther than others	
Publication costs: printing and distribution of final document	
Meeting expenses: food, room rentals, A/V, etc.	
TOTAL	

Appendix D: PAMS Framework

The IPM Strategic Plan presents current management practices and critical needs using crop-stage categories to convey actions and constraints across a whole season. This framework divides practices into four classifications: Prevention, Avoidance, Monitoring and Suppression. The PAMS framework helps to demonstrate areas where additional IPM tools may be needed. This handout provides examples of common tactics that fall into each category. This framework also serves as an educational tool, demonstrating a group’s level of reliance on a variety of management tactics (including nonchemical tactics), and highlighting any gaps. The actions in italics define the ecological purpose that lies behind a particular practice.

P PREVENTION

Prevent introduction to the farm

- Pest-free seeds, transplants

Prevent reservoirs on the farm

- Sanitation procedures
- Eliminate alternative hosts
- Eliminate favorable sites in and off crop

Prevent pest spread between fields on the farm

- Cleaning equipment between fields

Prevent pests developing within fields on the farm

- Irrigation scheduling to prevent disease development
- Prevent weed reproduction
- Prevent pest-susceptible perennial crops by avoiding high-risk locations

A AVOIDANCE

Avoiding host crops for the pest

- Crop rotation

Avoid pest-susceptible crops

- Choose genetically resistant cultivars
- Choose cultivars with growth and harvest dates that avoid the pest
- Place annual crops away from high-risk sites for pest development (even parts of a field)

Avoid crop being the most attractive host

- Trap cropping
- Use of pheromones
- Use crop nutrition to promote rapid crop development

Avoid making the crop excessively nutritious

- Use nutrition to promote rapid crop development
- Avoid excessive nutrients that benefit the pest

Avoid practices that increase potential for pest losses

- Narrow row spacing
- Optimized in-row plant populations
- No-till or strip till

M MONITORING

Collect pests

- Scouting and survey approaches
- Traps

Identify pests

- Use of identification guides, diagnostic tools and diagnostic laboratories

Identify periods or locations of high pest risk

- Use weather-based pest-development and risk models
- Use soil and plant nutrient testing

Determine status and trends in pest risks and classify pest severity

- Maintain pest records over time for each field

Minimize pest risks over time

- Plan an appropriate PAMS IPM strategy, based upon pest status and trends

Determine interventions based upon risks and economics

- Use of decision-support tools, economic thresholds

S SUPPRESSION

Outcompete the pest with other plants

- Cover crops

Suppress pest growth

- Mulches

Suppress pest with chemicals from crops or other plantings

- Bio-fumigant crops

Physically injure pest or disrupt pest growth

- Cultivation
- Mowing
- Flaming
- Temperature management
- Exclusion devices

Physically remove pests

- Mass trapping
- Hand weeding

Suppress pest reproduction

- Pheromones

Increase pest mortality from predators, parasites and pathogens

- Conservation biological control
- Inundative release and classical biological control
- Use of pest antagonists

Appendix E: Sample work group meeting evaluation

1. I am a:

- Grower
- Crop consultant
- Chemical company representative
- University researcher/Extension agent
- Regulator
- Other (please specify): _____

2. Please indicate your level of agreement with each of the following statements:

	Strongly agree	Agree	Disagree	Strongly disagree
I can see the value of participating in this process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The outcomes of today's meeting will ultimately benefit the industry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I contributed something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I gained a better understanding of pest management issues today.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Indicate how much you learned about each of the following from your experience:

	A great deal	A lot	A moderate amount	A little	None
General state of pest management for this industry	<input type="radio"/>				
Impacts of pest management methods and tools, including pesticides	<input type="radio"/>				
Potential alternative pest management practices not commonly used	<input type="radio"/>				
Understanding pest management using a PAMS approach	<input type="radio"/>				
Critical needs and priorities for industry pest management	<input type="radio"/>				

4. Indicate your level of agreement with each of the following statements:

	Strongly agree	Agree	Disagree	Strongly disagree
The work group assembled was representative of the industry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The presenters explained the content well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The topics discussed were informative and helpful in identifying pest management priorities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The potential accomplishments of this process are worth the resources invested.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. For each step in the IPM strategic plan process today, please rate our approach to working with the group. If improvement is needed, please provide suggestions below.

	Excellent	Good	Needs improvement
Review of pest management activities by crop stage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Review of current and potential pest management activities using PAMS approach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Review of pesticide efficacy and ratings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Review of pesticide risks and impacts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Outcomes-based process for identifying critical industry needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Please tell us how the meeting, discussion, document or process could be improved:
