

SPM Resource Development

Draft materials for discussion

June 15, 2026

A goal that DPR has for the SPM Advisory Committee is to support communication about SPM, with the recognition that several diverse stakeholders in California have a role in its success.

DPR has drafted materials for internal and external education and outreach on SPM. During the first SPM Advisory Committee meeting, DPR will request feedback on the following questions:

- What can DPR realistically do to help your organization/sector understand SPM and communicate its importance to others?
- Which 1-2 specific audiences should be prioritized in communication and why?
- What are audience needs and barriers (e.g., knowledge gaps, misconceptions, etc.)
- How do you recommend addressing audience needs and barriers?
- What formats (e.g., one-page summaries, short videos, infographics) would be most effective and feasible for your sector to use and share?
- How would you define successful SPM outreach?

DPR is also collecting SPM case studies from different sectors that can be shared broadly. Please come with examples to share that we can build on.

DPR will use this Committee's feedback to improve draft materials, develop more materials, consider different audience needs, and establish or strengthen partnerships to expand delivery of SPM outreach.

Communicating SPM in Practice

Sustainable pest management (SPM) is a holistic, whole system approach applicable to agricultural and other managed ecosystems and urban and rural communities that builds on the concept of Integrated Pest Management (IPM) to include the wider context of the three sustainability pillars: human health and social equity, environmental protection, and economic vitality.

Overview of Matrices:

This matrix framework is designed to provide a more practical definition of SPM by categorizing actions taken at various levels of influence to address each pillar of sustainability. It is intended to be the basis for understanding SPM and developing more communication materials on SPM.

The matrices shows that SPM is a shared responsibility. Transitioning to SPM is not solely the responsibility of individual practitioners. SPM builds on IPM, which is typically practiced by individuals or at a single site, by incorporating the need for regional coordination and statewide systems to increase the use and effectiveness of IPM.

This framework can be adapted to create education and outreach materials on SPM for specific audiences. Matrix 1 is the simplest version and is designed to work across agricultural, urban, and natural space settings. It could be used on a presentation slide or included in printed or digital materials with more context. Matrix 2 is an example of an expanded version with specific practices and actions, and Matrix 3 is an example of a one-page handout tailored for PCAs. These examples focus primarily on agriculture, but other versions could be customized to fit the needs of different audiences.

The framework could be further expanded into a comprehensive living document that compiles all SPM actors and actions, including detailed case studies. This may be useful as a resource for developing continuing education courses on SPM.

Matrix 1: Basic version with high-level statements describing the scope of work for each level of influence to address each sustainability pillar.

	Human Health & Social Equity	Environmental Protections	Economic Vitality
Systems Level (example: state agencies)	Provide statewide leadership, protections, and resources to ensure pest management is safe for all people	Align statewide institutions and land-stewardship programs to safeguard natural resources from pest management impacts	Support innovation, market development, and risk-reduction strategies that make SPM practical and profitable
Regional Level (example: county commissioners)	Support communities through coordinated education, technical assistance, and engagement to reduce pesticide exposure and enable SPM adoption	Coordinate across landscapes and watersheds to protect natural resources, support biodiversity, and strengthen ecosystem services that reduce pest outbreaks	Coordinate across operations to share pest management tools, costs, and strategies that improve effectiveness and reduce economic risk
Individual Level (example: PCAs)	Practice IPM with strong worker protections, and communicate with neighbors to reduce exposure	Practice IPM to protect local air, water, soil, biodiversity, and ecosystems services	Use IPM thresholds and financial incentives to avoid unnecessary applications and expand adoption of alternatives

Matrix 2: Detailed version which includes summary statements and examples of actors at each level and the actions they can take to address each sustainability pillar.

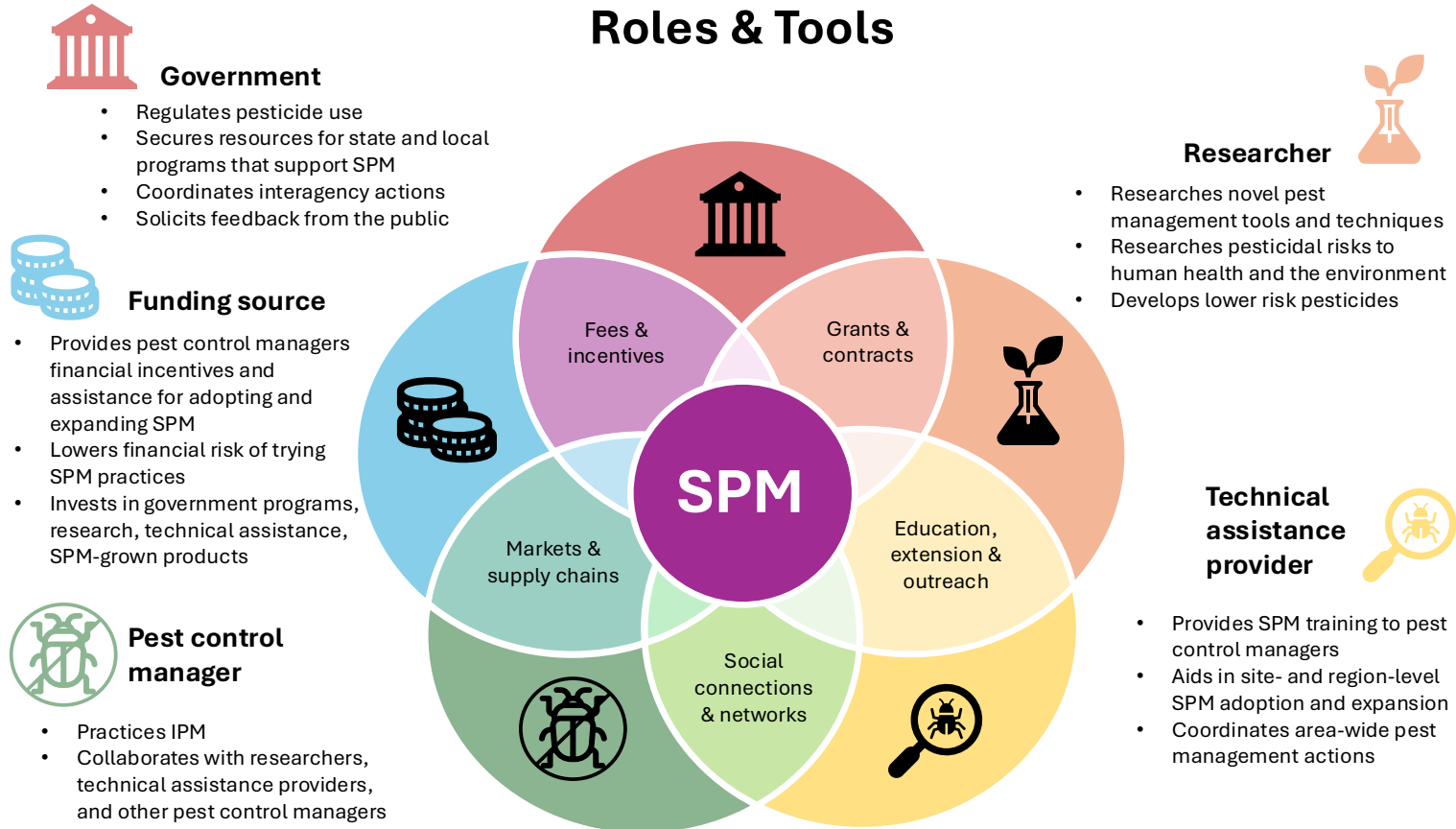
	Human Health & Social Equity	Environmental Protections	Economic Vitality
Systems Level: State leadership, funding, policies and programs Retailers and distributors Industry Academic leaders Investors	Provide statewide leadership, protections, and resources to ensure pest management is safe for all people Strengthening human health protections through regulation and science - Regulate pesticide use to protect communities, workers, and consumers - Collect and share pesticide use, exposure, and hazard data to inform community awareness and public health efforts - Support research on pesticide risks to human health Advancing human health centered pest management practices - Develop and implement statewide IPM/SPM plans that prioritize human health protections - Invest in alternatives that have fewer risks to human health Engaging and empowering communities - Provide education and technical assistance on pesticide-use safety - Engage communities to inform pesticide regulations and development of pest management alternatives	Align statewide institutions and land-stewardship programs to safeguard natural resources from pest management impacts Strengthening environmental protections through regulation and science - Regulate pesticide use to protect air quality, groundwater, surface water, soil health, and ecosystems - Collect and share pesticide ecotoxicity, environmental fate, and exposure data to inform environmental protection efforts - Support research on pesticide risks to biodiversity and environmental quality Enhancing ecologically based pest management practices - Develop and implement statewide IPM/SPM plans that prioritize environmental protections - Invest in alternatives with fewer environmental risks Fostering partnerships for shared environmental stewardship - Provide education and technical assistance on mitigation measures that reduce off-site movement of pesticides - Develop interagency and public-private partnerships to align pesticide-related guidelines with conservation programs and support coexistence between agriculture and biodiversity	Support innovation, market development, and risk-reduction strategies that make SPM practical and profitable Accelerating innovation and adoption of lower-risk pest management tools - Expedite availability of new, effective, lower risk pest management tools - Support research and innovation in new pest management technologies and practices - Provide financial incentives and science-backed guidelines to minimize economic risk of transitioning to SPM Bolstering market and supply chain support for SPM - Promote domestic and export market demand for SPM-grown products - Leverage supply chains and industry partnerships to encourage SPM practices - Collect and share pesticide sales data to inform market demand for alternatives - Improve insurance coverage for crop losses or yield reductions during SPM transitions Enhancing statewide pest prevention and mitigation capacity - Invest in programs that systematically prevent, exclude, and mitigate pests (e.g., improve/expand the CDFA Pest Exclusion Program to reduce pest introductions and establishment)

	Human Health & Social Equity	Environmental Protections	Economic Vitality
Regional Level: Counties Cities California Tribes Watersheds Ecosystems Irrigation districts Sewersheds Resource conservation districts Vector control districts Neighborhoods School & Park districts	Support communities through coordinated education, technical assistance, and engagement to reduce pesticide exposure and enable SPM adoption Supporting coordination of area-wide pest management approaches • Coordinate area-wide IPM to improve pest control efficacy and reduce pesticide use and exposure • Communicate and coordinate pest tolerance with buyers and communities (e.g., tolerance for weeds, non-harmful insects, cosmetically imperfect produce, etc.) • Identify and protect sensitive sites Developing pest prevention policies for urban areas • Update urban design, building codes and regulations to enhance pest prevention Building workforce capacity and professional networks for SPM • Develop PCA workforce knowledgeable in SPM • Organize SPM conferences for knowledge sharing and networking	Coordinate across landscapes and watersheds to protect natural resources, support biodiversity, and strengthen ecosystem services that reduce pest outbreaks Supporting coordination of area-wide environmental monitoring and protection • Coordinate landscape-scale pest monitoring and prevention • Identify and protect sensitive ecosystems and watersheds from pesticide contamination Enhancing biodiversity and ecosystem services across agricultural and wild lands • Conserve wildlife habitat and biodiversity to support ecosystem services (e.g., biocontrols, pollinators) • Coordinate on-farm practices that support biodiversity (e.g., network of raptor perches, area-wide biocontrol releases) • Increase biodiversity in parks and natural spaces Strengthening regional collaboration and planning for environmental protection • Work with regional regulatory agencies (e.g., Regional Water Boards, Air Districts) to include IPM as a mitigation component of local/regional pollution control plans	Coordinate across operations to share pest management tools, costs, and strategies that improve effectiveness and reduce economic risk Supporting coordination of area-wide pest management approaches • Coordinate decision-making about regional pest concerns among neighbors • Develop mitigation plans for abandoned and/or unmanaged properties harboring pests • Share infrastructure, tools, and IPM plans for pest detection, prevention, and management across operations and landscapes Scaling up lower-risk pest management practices • Use lower risk management practices at larger scales for better efficacy (e.g., mating disruption, biocontrol releases) • Use economies of scale and cost-sharing to reduce operational risk (e.g., purchase bulk orders of pheromone traps to share among neighboring farms, share cost of specialized equipment or services such as steam treatment for soil disinfection) Expanding support for innovation and new technology • Apply for funding to conduct field testing for alternatives

	Human Health & Social Equity	Environmental Protections	Economic Vitality
Individual Level: Growers Workers PCAs Professional and private pesticide applicators Land managers Business owners Homeowners/renters Consumers	Practice IPM with strong worker protections, and communicate with neighbors to reduce exposure Practicing safe and responsible pest management • Practice IPM: monitoring, prevention, habitat modification, cultural control, physical control, biological control, etc. • Handle and apply pesticides according to the label and regulations • Keep accurate records of pesticide use Cultivating knowledge and communication on safer pest management • Give and take trainings on IPM/SPM, pesticide safety, etc. • Communicate and coordinate IPM plans, pest management strategies, and tolerance with neighbors and local communities Increasing awareness of human health and community risks • Identify nearby sensitive sites for increased communication, education, and outreach	Practice IPM to protect local air, water, soil, biodiversity, and ecosystems services Practicing safe and responsible pest management • Practice IPM: monitoring, prevention, habitat modification, cultural control, physical control, biological control, etc. • Apply and dispose of pesticides according to the label and regulations • Do more than the minimum mitigation requirements listed on pesticide labels Protecting environmental health and ecosystem services • Protect onsite pollinator and natural enemy resources • Conserve air and water quality and soil health • Increase biodiversity on farms and in gardens	Use IPM thresholds and financial incentives to avoid unnecessary applications and expand adoption of alternatives Preventing pest introductions and supporting early detection • Use practices to prevent introduction or spread of invasive species (e.g., clean and inspect equipment, vehicles, and water vessels to prevent the spread of pests, avoid moving firewood) • Report pests to regional and state authorities Improving long-term IPM planning and adoption • Avoid unnecessary pesticide applications by clearly defining IPM plans and pest thresholds • Apply for grants and incentive programs to adopt or expand IPM practices offered by federal or state agencies, local organizations and commodity groups • Support field trials and other investments into alternatives development to promote the availability and adoption of sustainable, cost-effective pest control strategies Endorsing and advocating for SPM • Buy California-grown foods and products with sustainability certifications to financially support the SPM market

Matrix 3: Example of how the matrix can be customized for a one-page handout for PCAs.

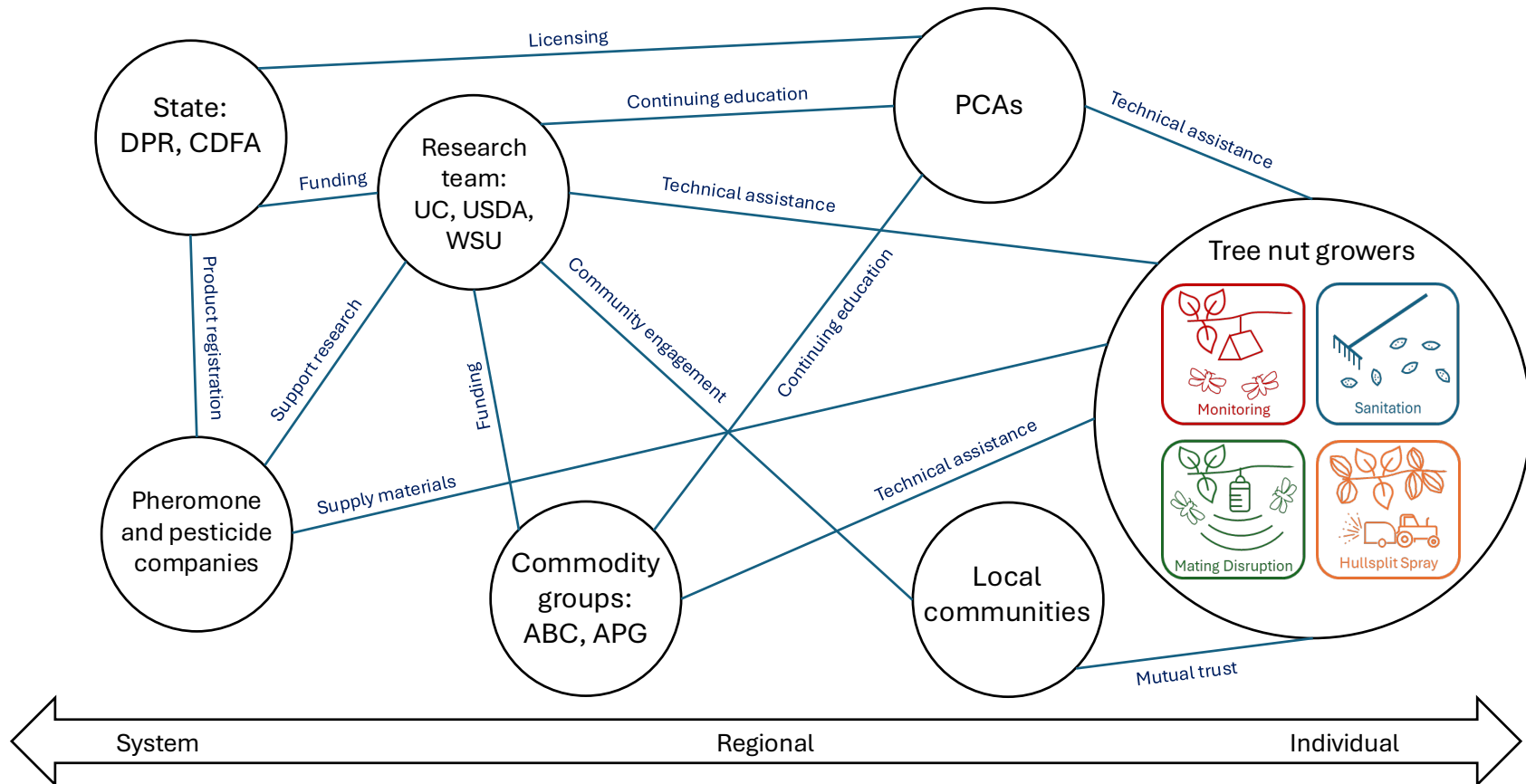
	Human Health & Social Equity	Environmental Protections	Economic Vitality
Systems Level: DPR CDFA UC/CSU CAPCA Industry & commodity groups	To support PCAs and their affiliates, systems level actors will:		
	• Ensure legal pesticide use is safe for workers, communities, and consumers • Support research on pesticide risks to human health • Provide science-based guidance on mitigating human health risks • Invest in alternatives that have fewer risks to human health • Help sponsors develop CE courses that address human health and social equity	• Ensure legal pesticide use is safe for non-target plants and animals • Ensure legal pesticide use does not significantly degrade air, water, or soil quality • Support research on pesticide risks to biodiversity and environmental quality • Provide science-based guidance on mitigating ecological risks • Invest in alternatives with fewer environmental risks • Help sponsors develop CE courses that address environmental protections • Align regulations and guidelines with conservation programs	• Expedite availability of new, effective, lower risk pest management tools • Support research and development in new pest management technologies and practices • Promote domestic and export market demand for SPM-grown products • Leverage supply chains to encourage SPM practices • Provide financial incentives and insurance to minimize economic risk of transitioning to SPM • Invest in programs that systematically prevent, exclude, and mitigate pests
Regional Level: CACs Growing regions AVAs Irrigation districts RCDs UCCE Local colleges Food hubs	To support PCAs, regional actors will:		
	• Translate pesticide health risk and mitigation regulation and research into relevant resources and education materials • Develop and provide CE courses on topics related to protecting human health • Invest in developing PCA workforce knowledgeable in SPM • Organize SPM conferences for knowledge sharing and networking • Organize community engagement events to improve mutual trust between farmers, neighbors, and communities • Help with communication and coordination so nearby residents and communities can avoid exposure when pesticide applications are needed	• Translate environmental regulation and research into relevant resources and education materials • Develop and provide CE courses on reducing impacts to water and soil quality, pollinators, endangered species, etc. • Coordinate landscape-scale pest monitoring and prevention • Coordinate landscape-scale habitat and biodiversity conservation to support ecosystem services (e.g., biocontrol, pollination, nutrient cycling) • Provide technical assistance and resources for on-farm habitat improvement, pesticide mitigation infrastructure, trialing alternatives, etc.	• Share infrastructure, tools, and data for pest detection, prevention, and management across operations and landscapes • Coordinate pest management actions and use economies of scale to reduce operational risk (e.g., purchase bulk orders of pheromone traps to share among neighboring farms, share cost of specialized equipment or services such as steam treatment for soil disinfection) • Coordinate field trials and support other investments into alternatives development • Communicate and coordinate pest tolerance with buyers and communities (e.g., tolerance for weeds, non-harmful insects, cosmetically imperfect produce, etc.)
Individual Level: PCAs Growers Workers Landowners	To support the SPM system, PCAs and other individuals will:		
	• Practice IPM to reduce human health risks • Try and refine new practices and alternatives with lower health risks • Refer to UC or other science-based resources to determine safest and effective practices • Give and take trainings on IPM/SPM, pesticide safety, etc. • Communicate and coordinate IPM plans, pest management actions and pest tolerance with neighbors	• Practice IPM to reduce environmental risks • Try and refine new practices and alternatives with lower environmental risks • Conserve local wildlife habitat and biodiversity • Minimize off-site movement of pesticides • Coordinate with neighbors to manage non-cultivated or natural spaces for ecosystem services and pest reduction (e.g., maintain hedgerows at property boundaries)	• Clearly define IPM plans and pest thresholds to avoid unnecessary pesticide applications • Support research and field trials for development of alternatives • Apply for grants and incentive programs to adopt or expand IPM practices • Use practices to prevent introduction or spread of invasive species



Overview:

This is an example of a slide that can be used in a presentation to show that SPM requires the shared responsibility and coordination of many actors. The icons represent the various roles working within the SPM system. Government bodies, public agencies, academia, private organizations, and individuals can play one or more roles. The areas where the icons overlap in the modified Venn diagram represent the various tools that collaborators can use to advance SPM. The middle of the diagram represents the whole system of SPM that can be achieved when all the roles are acting in concert. Unlike the matrix above which emphasizes the three pillars of sustainability and the levels of influence, this infographic highlights the interactions, collaboration, and coordination that SPM requires.

SPM Case Study: Navel Orangeworm



Overview:

This example figure depicts an agricultural SPM case study. In this case, the pest is navel orangeworm and the crops are tree nuts. The circles represent the actors in this pest management system. They are arranged from the broadest level of influence on the left (system-level), to the intermediate level in the middle (regional-level), to the most site-specific level on the right (individual-level). The labeled blue lines connecting the circles represent the interactions between the actors. While all actors play important roles in this case, the tree nut growers ultimately decide how to manage the pest. The icons within the tree nut

growers' circle represent the IPM practices for navel orangeworm. This is a good example of SPM because the actors are coordinating to create an environment where the best way to manage the pest is with IPM. Community engagement is important in this system for improving transparency between the public and growers and strengthening mutual trust that each party is acting responsibly. Since most growers are already practicing some form of IPM for navel orangeworm, one way to advance SPM in this system is to improve coordination among growers so that the pest control and cost benefits occur on a regional scale for more individuals.