NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

INTEGRATED PEST MANAGEMENT (IPM)

(Ac.)

CODE 595

DEFINITION

A site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies.

PURPOSE

Prevent or mitigate off-site pesticide risks to water quality from leaching, solution runoff and adsorbed runoff losses.

Prevent or mitigate off-site pesticide risks to soil, water, air, plants, animals and humans from drift and volatilization losses.

Prevent or mitigate on-site pesticide risks to pollinators and other beneficial species through direct contact.

Prevent or mitigate cultural, mechanical and biological pest suppression risks to soil, water, air, plants, animals and humans.

CONDITIONS WHERE PRACTICE APPLIES

On all lands where pests will be managed.

CRITERIA

General Criteria Applicable to All Purposes

IPM strategies (Prevention, Avoidance, Monitoring and Suppression or "PAMS") shall be employed to prevent or mitigate pest management risks for identified natural resource concerns.

A comprehensive IPM plan utilizing PAM's strategies will be developed in accordance with this standard to document how specific pest management risks will be prevented or mitigated. The IPM plan must be crop and/or land use specific and adhere to applicable elements and guidelines accepted by the local UCCE or UCIPM.If a comprehensive IPM system is not feasible, utilize appropriate IPM techniques to adequately prevent or mitigate pest management risks for identified natural resource concerns. A comprehensive IPM program is considered feasible when available on the UCIPM website as a Year-Round Program, or if a Pest Management Guideline is available for the crop and pest to be managed.

Additional Criteria to Prevent or Mitigate Off-site Pesticide Risks to Water Quality from Leaching, Solution Runoff and Adsorbed Runoff Losses

For identified water quality concerns related to pesticide leaching, solution runoff and adsorbed runoff, the current version of the USDA-NRCS WIN-PST program will be used to evaluate potential risks to humans and/or fish, as appropriate, for each pesticide considered for use.

The minimum level of mitigation required for each resource concern is based on the final risk ratings in the "WIN-PST Soil/Pesticide Interaction Hazard Ratings" Table below:

WIN-PST Identified Hazard Rating	Minimum Mitigation Index Score Level Needed
Low or Very Low	None Needed
Intermediate	20
High	40
Extra High	60

Use Agronomy Technical Note 4, Pest Management in the Conservation Planning Process - Table II to determine if planned conservation practices provide adequate mitigation. If they do not, use Agronomy Technical Note 4 - Table I to apply appropriate IPM techniques with this practice.

Additional Criteria to Prevent or Mitigate Off-site Pesticide Risks to Soil, Water, Air, Plants, Animals and Humans from Drift and Volatilization Losses

For identified natural resource concerns related to pesticide drift, use Agronomy Technical Note 4, Pest Management in the Conservation Planning Process – Table II to determine if planned conservation practices provide adequate mitigation. If they do not, use Agronomy Technical Note 4 - Table I to apply appropriate IPM techniques with this practice. The minimum level of mitigation required for drift is an index score of 20.

For Volatile Organic Compound (VOC) emission concerns, apply at least one IPM mitigation technique from the Pesticide Volatilization section of Agronomy Technical Note 4 - Pest Management in the Conservation Planning Process.

When applicable, utilize online DPR tools to estimate VOC emissions from fumigants (http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/calculate.htm) and non-fumigant (http://apps.cdpr.ca.gov/voc-calculator/) materials.

Additional Criteria to Prevent or Mitigate On-site Pesticide Risks to Pollinators and Other Beneficial Species through Direct Contact

For direct contact pesticide risks to pollinators and other beneficial species in the application area, apply at least two IPM mitigation techniques from the Pesticide Direct Contact section of Agronomy Technical Note 4 - Pest Management in the Conservation Planning Process. For each crop, consult the table "Relative Toxicities of Insecticides and Miticides used in (crop name) to Natural Enemies and Honey Bees" at the UCIPM website.

Additional Criteria to Prevent or Mitigate Cultural, Mechanical and Biological Pest Suppression Risks to Soil, Water, Air, Plants and Animals

For identified natural resource concerns related to cultural, mechanical and biological pest suppression, (e.g. air quality concerns with burning for weed control, soil erosion, or compaction concerns with tillage for weed control), natural resource concerns shall be addressed to FOTG quality criteria levels.

CONSIDERATIONS

IPM strategies that keep pest populations below economically damaging levels and minimize pest resistance should be utilized because they also help prevent unnecessary pest management risks to natural resources and humans.

For noxious weed and invasive species control, the minimum level of pest suppression necessary to meet natural resource objectives should be used, however, for the eradication of invasive species, the acceptable pest threshold may be zero.

IPM Prevention, Avoidance, Monitoring, and Suppression (PAMS) techniques include:

Prevention – Activities such as cleaning equipment and gear when leaving an infested area, using pest-free seeds and transplants, and irrigation scheduling to limit situations that are conducive to disease development.

Avoidance – Activities such as maintaining healthy and diverse plant communities, using pest resistant varieties, crop rotation, and refuge management.

Monitoring – Activities such as pest scouting, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments.

Suppression – Activities such as the judicious use of cultural, mechanical, biological and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms.

IPM guidelines from UCIPM may be supplemented with information from appropriately certified professionals when UC research has not established effective practices for the pest to be controlled.

When providing technical assistance to organic producers, the IPM approach to managing pests should be consistent with the USDA-Agricultural Marketing Service National Organic Program standard which includes:

A diverse crop rotation that reduces habitat for major pests and increases habitat for natural enemies

Use of "farmscaping" principles to create borders of beneficial species habitat

Farming techniques to improve soil quality

NRCS, CA

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Planting of locally adapted, pest resistant crop cultivars.

Adequate plant nutrients and soil moisture, including favorable pH and soil quality, can reduce plant stress, improve plant vigor and increase the plant's overall ability to tolerate pests.

On irrigated land, irrigation water should be managed to optimize plant vigor, avoid conditions conducive to disease development, and minimize offsite contaminant movement.

Producers should be reminded that they are responsible for following all pesticide label instructions and complying with all applicable Federal, state and local regulations, including those that protect Threatened and Endangered Species.

To address concerns with Threatened and Endangered species consult the DPR "Prescribe" database application at http://www.cdpr.ca.gov/docs/endspec/prescint.htm

Enhancement Considerations

A more intensive level of IPM focused primarily on prevention and avoidance strategies can minimize pest management risks to natural resources and humans.

Precision pesticide application techniques in an IPM system can further minimize pesticide risks to natural resources and humans.

PLANS AND SPECIFICATIONS

The IPM plan shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

The IPM plan shall include at a minimum:

Plan map and soil map of site/affected area, if applicable (use conservation plan maps if available).

Location of sensitive resources and setbacks, if applicable (use conservation plan maps if available).

Interpretation of the environmental risk analysis. Note: all pesticide label requirements and federal, state, and local regulations must be followed for all pesticide applications.

Identification of appropriate mitigation techniques. See Agronomy Technical Note 4 - Table I for pesticide risk mitigation management techniques.

A list of pest prevention, suppression, and avoidance strategies to be implemented.

A scouting plan and threshold levels for each pest, if available.

Other monitoring plans, such as weather monitoring to indicate pest development.

A list of accepted methods to determine thresholds that warrant treatment, if applicable.

Note: Items 5, 6, 7 and 8 are required to document a comprehensive IPM system, and are typically included in the applicable UCIPM technical guidance documents when available. When a comprehensive IPM system is not available items 5, 6, 7, and 8 may not all be applicable when only a limited number of mitigation techniques are sufficient to address identified natural resource concerns.

Record Keeping. The following records, where applicable, shall be maintained by the producer:

Monitoring or scouting results required to implement the IPM system, including, but not limited to, the date, pest population/degree of infestation, and the crop or plant community condition.

When and where each pest suppression technique was implemented.

When and where techniques were implemented to mitigate site-specific risks (e.g. soil incorporation of a pesticide to reduce its surface runoff to a nearby stream).

Other actions taken to avoid or prevent pest problems, such as orchard sanitation, use of resistant cultivars, harvest scheduling, etc.

OPERATION AND MAINTENANCE

Review and update the plan annually in order to incorporate new IPM technology, assure all needed actions are planned and performed, respond to cropping system and pest complex changes, and avoid the development of pest resistance.

Maintain mitigation techniques identified in the plan in order to ensure continued effectiveness.

Calibrate and maintain application equipment according to Extension and/or manufacturer recommendations before each season of use and with each major chemical change.

Maintain records of pest management for at least two years. Pesticide application records shall be in accordance with California Code of Regulations Title 3, Division 6. A list of federally registered Restricted Use Pesticides is available at http://entweb.clemson.edu/pesticid/document/fedrup.htm. California amendments are found at http://www.cdpr.ca.gov/docs/inhouse/calcode/020401.html#6400.0

Maintain records of all pest monitoring for at least five years. There is no required format for these records.

Follow label requirements for mixing/loading setbacks from wells, intermittent streams and rivers, natural or impounded ponds and lakes, or reservoirs. Install and utilize backflow prevention equipment. Check with your County Agricultural Commissioner for regulations that may be more restrictive.

Post signs according to label directions and/or Federal, State, and local laws around sites that have been treated. Follow restricted entry intervals.

Dispose of pesticides and pesticide containers in accordance with the most restrictive label directions. Federal regulations, local regulations and the California Code of Regulations Title 3, Division 6 may require varying disposal techniques.

Read and follow label directions and maintain appropriate Material Safety Data Sheets (MSDS).

Be aware of legal requirements for pesticide application. The following website contains DPR regulations. http://www.cdpr.ca.gov/docs/inhouse/calcode/subchpte.htm#0302

REFERENCES

National Information System for the Regional IPM Centers – IPM Elements and Guidelines: http://www.ipmcenters.org/ipmelements/index.cfm

USDA-AMS National Organic Program, National List of Allowed and Prohibited Substances. http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&navID=NationalListLinkNOPNationalOrganicProgramHome&rightNav1=NationalListLinkNOPNationalOrganicProgramHome&topNav=&leftNav=NationalOrganicProgram&page=NOPNationalList&resultType=&acct=nopgeninfo

USDA-NRCS GM-190-404 Pest Management Policy: http://directives.sc.egov.usda.gov/RollupViewer.aspx?hid=17015

Using Farming Bill Programs for Pollinator Conservation: http://plants.usda.gov/pollinators/Using_Farm_Bill_Programs_for_Pollinator_Conservation.pdf

University or California Integrated Pest Management program: http://www.ipm.ucdavis.edu/

Department of Pesticide Regulation: http://www.cdpr.ca.gov