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 PAMS 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 University of Idaho or other credible source.

Crop specific IPM recommendations for planning alternatives are available from the University of Idaho (http://www.ag.uidaho.edu/pmc/).

Additional IPM recommendations, resources, and website links are available at:

USDA Western IPM Center (http://www.wripmc.org/).

Pacific Northwest Weed Management Handbook http://weeds.ippc.orst.edu/pnw/weeds).

Pacific Northwest Insect Management Handbook (http://insects.ippc.orst.edu/pnw/insects).

On-Line Guide to Plant Disease Control (http://plant-disease.ippc.orst.edu/index.cfm).

Idaho NRCS IPM Checklist/Guidance (http://www.id.nrcs.usda.gov/technical/pest_management.html)

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. Refer to the *Considerations* section for IPM strategies.

All methods of pest management must comply with Federal, State, and local regulations, including management plans for invasive pest species, noxious weeds and disease vectors. Compliance with the Food Quality Protection Act (FQPA); Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); Worker Protection Standard (WPS);National Pollutant Discharge Elimination System (NPDES) permits, and the Endangered Species Act (ESA) is required for chemical pest control.

Clients are responsible for following all label requirements for storage, handling, and application of chemicals. Clients shall be instructed to pay special attention to all environmental hazards and site-specific application criteria listed on pesticide labels, and contained in Extension and Crop Consultant recommendations.

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 to be used.

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 5, 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 5 - 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 5, 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 5 - 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 (for example, soil fumigants), apply at least one IPM mitigation technique from the Pesticide Volatilization section of Agronomy Technical Note 5 - Pest Management in the Conservation Planning Process

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

Pursuant to Idaho state law governing pesticide application, any pesticide that is toxic to bees shall not be applied to any agricultural crop when such crop is in bloom or when bees are actively foraging on blooming weeds in the crop being sprayed, except during evening/night/early morning hours. Refer to IDAPA 02.03.03.400 for exceptions (http://adm.idaho.gov/adminrules/rules/idapa02/0303.pdf).

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 5 - Pest Management in the Conservation Planning Process.

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 or soil erosion concerns with tillage for weed control), natural resource concerns shall be addressed to FOTG quality criteria levels.

Additional Criteria to Protect Humans

Read and follow all pesticide label requirements, as well as local, state, federal, and tribal laws and regulations, regarding posting and field re-entry restrictions to treated areas. Handle and apply pesticides properly to protect the user and the environment from

adverse impacts. . Starting in 2011, application of many soil fumigants will require special methods to reduce risk to humans, including buffer zones and GAPs (Good Agricultural Practices),

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. Refer to the management levels utilized by the Idaho Department of Agriculture – Noxious Weeds at: http://www.agri.state.id.us/Categories/PlantsInsects/NoxiousWeeds/watchlist.php

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 the University of Idaho may be supplemented with information from appropriately certified professionals.

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

Planting of locally adapted, pest resistant crop cultivars (not genetically modified).

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 management should be designed to avoid conditions conducive to disease development and minimize off-site contaminant movement.

When WIN-PST pesticide loss potential exceeds a Low rating, consider mitigating to reduce the loss of pesticide from the target site even if the hazard to humans and/or fish is Low or Very Low. The environmental risk to other non-target species is not provided by WIN-PST, and pesticide products showing a lower risk to humans/fish may have a high risk to other organisms.

Enhancement Considerations

A more intensive level of IPM focused primarily on prevention and avoidance strategies can further 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:

1. Plan map and soil map of site/affected area, if applicable (use conservation plan maps if available).
2. Location of sensitive resources and setbacks, if applicable (use conservation plan maps if available).
3. Interpretation of the environmental risk analysis. Note: all pesticide label requirements and federal, state, and local regulations must be followed for all pesticide applications.
4. Identification of appropriate mitigation techniques. See Agronomy Technical Note 5 - Table I for pesticide risk mitigation management techniques.
5. A list of pest prevention and avoidance strategies that will be implemented, if applicable.
6. A scouting plan and threshold levels for each pest, if applicable.
7. Other monitoring plans, if applicable, such as weather monitoring to indicate when pesticide application for prevention is warranted.
8. A list of accepted pest thresholds or methods to determine thresholds that warrant treatment, if applicable.

Note: Items 5, 6, 7 and 8 are required to document a comprehensive IPM system, but they may not 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 including the date, pest population/degree of infestation, and the crop or plant community condition.

When and where each pest suppression technique was implemented, and what information was used as a basis for the decision to suppress.

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

Note: Applicability will depend on the level of IPM adoption and mitigation requirements.

OPERATION AND MAINTENANCE

The IPM plan shall include appropriate operation and maintenance items for the client. These may include:

- Plans shall be reviewed periodically to incorporate new IPM technology, respond to cropping system and pest complex changes, and avoid development of pest resistance. Periodic review could be when a change occurs in the crop rotation or when new pesticides or bio-controls are labeled for use.
- Maintain mitigation practices and/or management techniques identified in the plan in order to ensure continued effectiveness.
- Develop a safety plan that includes telephone numbers and addresses for the nearest treatment centers for individuals exposed to chemicals, and the telephone number of the nearest poison control center. **The Regional Poison Center can be contacted 24 hours/day at 1-800-222-1222**. The National Pesticide Information Center (http://npic.orst.edu) may also be used in non-emergency cases by calling **1-800-853-7378**. For advice and assistance with emergency spills that involve agrichemicals, contact Idaho State Department of Agriculture **(208)-332-8500**. For large spills, contact CHEMTREC at **1-800-424-9300**.
- Locate all pesticide mixing areas and storage, and supply areas (tanks) at least 150 feet away from any well or surface waterbody, and down slope of wells.
- Prevent the contamination of water supplies by keeping the fillerhose or pipe out of the spray tank at all times. Install an anti-siphon device to prevent backflow. Never leave a spray tank unattended during filling.
- Pesticide used in chemigation shall be labeled for this method of application, shall be applied according to label specifications, and all chemigation systems must be fitted with an anti-siphon device to prevent back flow. Pesticide chemigation must meet all requirements specified by Idaho pesticide and chemigation laws and rules.

- Store pesticides according to label directions and as specified by local, state, and federal regulations.
- Post warning signs around fields which have been treated and observe restricted entry intervals, according to label directions and/or local, state, and federal law
- Maintain appropriate Material Safety Data Sheets (MSDS).
- Calibrate equipment before mixing and loading pesticides. Calibrate equipment at the beginning of each season, periodically during the season, and with each major pesticide change.
- Replace worn nozzle tips, cracked hoses, and faulty gauges.
- Assure that the pesticide applicator knows the exact location of the area to be treated and the potential hazard of spray drift or subsequent pesticide movement onto surrounding areas.
- Dispose of pesticide wastes and pesticide containers in accordance with label directions and local, state, and federal regulations. NRCS and ISDA strongly encourage recycling the empty pesticide and crop production containers through the Container Recycling Operation (CROP). For information on proper container recycling and the recycling program, contact the Idaho State Department of Agriculture at (208) 465-332-8442 (http://www.agri.state.id.us/Categories/Pesticides/container/indexcontainermain.php).
- Maintain records of restricted use pesticide application for two years in accordance with USDA pesticide record keeping requirements and those of ISDA (http://www.agri.state.id.us/Categories/Pesticides/recordKeeping/indexUSDArecordkeepingMain.php).

REFERENCES

How to Reduce Bee Poisoning from Pesticides. 2006. PNW Extension Publication PNW591. http://cru.cahe.wsu.edu/CEPublications/pnw0518/pnw0518.pdf

Idaho Department of Agriculture Rules Governing Pesticide and Chemigation Use and Application. http://adm.idaho.gov/adminrules/rules/idapa02/0303.pdf

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

Pesticide and Pesticide Container Handling and Disposal. 2006. Idaho NRCS Technical Note Agronomy 33. ftp://ftp-fc.sc.egov.usda.gov/ID/technical/technotes/agronomy/agronomy_tn33.pdf

PNW Conservation Tillage Handbook. STEEP. http://pnwsteep.wsu.edu/tillagehandbook/index.htm

PNW Insect Management Handbook http://insects.ippc.orst.edu/pnw/insects.

PNW Weed Management Handbook http://weeds.ippc.orst.edu/pnw/weeds

Pollinators. 2007. Idaho NRCS Technical Note Biology 1. ftp://ftp-fc.sc.egov.usda.gov/ID/technical/technotes/biology/biology_tn1.pdf

University of Idaho Pest Management Center. http://www.ag.uidaho.edu/pmc

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

Using Pesticides Safely. 2006. Idaho NRCS Technical Note Agronomy 29.ftp://ftp-fc.sc.egov.usda.gov/ID/technical/technotes/agronomy/agronomy_tn29.pdf

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