

CHAPTER 31 – PESTICIDES MANAGEMENT

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CHAPTER 31 – PESTICIDES MANAGEMENT

A. INTRODUCTION

1. It is the policy of the Smithsonian Institution (SI) to protect all employees, visitors, guests and the environment, from adverse effects of pesticides used in SI facilities.
2. This Chapter applies to SI employees using and handling pesticides or working in an area where they may be exposed to pesticides. (*e.g. horticultural applications, ongoing Collections treatments, use of over-the-counter products, water treatment and other engineering applications*). Requirements outlined in this Chapter apply to all current applications of pesticides. They do not apply to hazardous substances used historically as pesticides on collections for the purpose of preservation.
3. A pesticide is “any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest or any substance used as a plant regulator, defoliant, or desiccant. (7 U.S.C. 136 et seq). For the purposes of this Chapter, the term “pesticide” will include but not be limited to insecticides, rodenticides, herbicides, fungicides, algaecides, biocides used in HVAC systems, and fumigants used to control pests.

B. CHAPTER-SPECIFIC ROLES AND RESPONSIBILITIES

1. Safety Coordinator shall:
 - a. Ensure that pesticide applicator and registered user licenses, required application documentation and Material Safety Data Sheets (MSDS) for pesticides used are available for regulatory review.
 - b. Assist supervisors to ensure that pesticide applicators are provided the opportunity for exposure assessments and medical monitoring by the Office of Safety, Health and Environmental management (OSHEM).
 - c. Assist supervisors to ensure that project-specific standard operating procedures (SOPs) are developed and implemented for all pesticide applications.
2. Supervisors shall:
 - a. Implement Integrated Pest Management (IPM), whenever possible. IPM can be defined as: A coordinated system of technological and management practices to control pests in a safe, environmentally sound, and economical manner. It is a process for minimizing

- pesticide use and risk while maximizing the control of pests that affect public health, impede operations, or damage property.
- b. Identify pesticide applications in their operations as part of a job hazard analysis (JHA).
 - c. Identify employees involved in these tasks and notify the Safety Coordinator and OSHEM for exposure assessment and medical monitoring.
 - d. Ensure that pesticide applicators under their supervision:
 - (1) are trained in the provisions of this Chapter;
 - (2) possess a valid pesticide applicator or registered users license;
and
 - (3) have met training requirements mandated by the authority having jurisdiction.
 - e. Ensure that project-specific standard operating procedures (SOPs) are developed and implemented for all pesticide applications.
 - f. Report pesticide personnel exposures, spills/leaks, and environmental releases immediately to the Safety Coordinator and OSHEM.
 - g. Maintain an updated written inventory of pesticides stored at the pesticide storage area.
 - h. Maintain documentation pertaining to pesticide application for regulatory review as required by this Chapter and the authority having jurisdiction.
3. Employees who handle and use pesticides shall:
- a. Not do so until be properly trained, licensed and/or certified as required by the authority having jurisdiction.
 - b. Maintain a current pesticide applicator or registered users license.
 - c. Wear required personal protective equipment (PPE) when working with pesticides.
 - d. Participate in the medical surveillance program, as required.
 - e. Report all pesticide personnel exposures, spills/leaks, and environmental releases immediately to their supervisor.
4. Office of Safety, Health and Environmental Management (OSHEM) shall:
- a. Provide assistance to Safety Coordinators and supervisors in reviewing operations, personnel training programs, personnel qualification requirements, and written procedures (SOPs) for proposed pesticide operations.

- b. Review specifications, submissions, and contracts for pesticide contract operations to verify that the requirements of this Chapter are met.
- c. Conduct exposure assessments, and recommend personal protective equipment, engineering, and administrative controls to reduce potential pesticide exposures.
- d. Notify the supervisor(s) and affected employee(s) of the results of monitoring and recommendations for hazard controls, including entry into the SI medical surveillance program, within 5 working days of receipt of monitoring results (per [Chapter 39, "Exposure Assessment and Medical Surveillance"](#), of this *Manual*).
- e. Inspect pesticide storage areas for compliance with the provisions of this Chapter.
- f. Establish and maintain a pesticide medical surveillance program in accordance with EPA and OSHA.

C. IDENTIFICATION OF HAZARDS TO THE ENVIRONMENT AND THE WORKER

1. Pesticides shall be selected that are appropriate to the application and that achieve effectiveness with the least impact on the environment and on human and animal health, based on a review of the EPA label and Material Safety Data Sheet.
2. When notified by the supervisor of work tasks involving pesticide use, OSHEM shall conduct industrial hygiene exposure monitoring of pesticide applicators or other employees potentially exposed to pesticides in the course of their work.
3. Employees potentially exposed to organophosphate and carbamate pesticides greater than 30 days per year shall be identified to OSHEM for initial (baseline) medical monitoring prior to working with the pesticide (per [Chapter 39, "Exposure Assessment and Medical Surveillance"](#), of this *Manual*).

D. HAZARD CONTROL

1. Project Specific Standard Operating Procedures (SOPs). Project-specific standard operating procedures (SOPs) shall be developed and implemented for each pesticide application area/project prior to use. Each SOP shall include (at a minimum):
 - a. The scope and location of the pesticide operation.
 - b. The frequency, duration, and schedule of the operation.

- c. The name, label, and MSDS for each pesticide being used and stored.
 - d. The manufacturer's instructions and precautions for use.
 - e. The control methods (e.g., Safe work practices, PPE required) for prevention of a spill, leak, environmental release, or accidental exposure.
 - f. Names of employees who will be performing the pesticide operation and the name of the responsible supervisor.
2. Selection of Pesticides. Proper pesticide selection is important for effective and economical pesticide performance, protecting human and animal health, and reducing the impact on the environment.
- a. Thoroughly read the Material Safety Data Sheet (MSDS) and label before selecting any pesticide. The pesticide MSDS and label contain all the information needed for proper and safe use of the chemical, treatment for accidental exposure, and directions for use and disposal of the pesticide container. Refer to [Chapter 25, "Chemical Hazard Communication"](#), of this *Manual*, for additional information on MSDSs and labeling.
 - b. Use the selected pesticide only for the purposes listed on the MSDS/label.
 - c. Follow proper mixing, loading and application instruction on the labels.
3. Pesticide Transport. To the extent practical/possible, pesticides used by SI employees for SI operations should be transported using SI vehicles only.
- a. All transport of pesticides shall be approved by the employee's supervisor as part of their official duties.
 - b. Transport of pesticides in privately owned vehicles should be limited.
 - c. If pesticides must be transported, the driver must:
 - (1) Inspect all containers prior to loading, and ensure that all caps, plugs, and bungs are tightened.
 - (2) Ensure that all pesticide containers are secured in the vehicle (e.g., bed of a pickup truck). Load pesticide containers so as to prevent movement during transport. (e.g. over-pack in secondary container)
 - (3) Transport pesticides in their original containers. Keep containers tightly closed to prevent spills.
 - (4) Have a copy of the MSDS for the pesticide being transported.

- (5) Never transport pesticides in the passenger compartment of a vehicle or in an area where food is being transported.
 - (6) Select transportation routes to minimize the impact of a potential spill on water quality.
 - (7) Have a spill kit readily accessible in the event of a small spill. In the event of a large spill while in transport, notify 911 to request assistance with chemical spill clean up.
 - d. Vehicles that transport pesticides shall be inspected by the operator for possible contamination prior to departure and upon return. Vehicles determined to be contaminated must be decontaminated according to the MSDS.
4. Mixing, Loading, and Application of Pesticides
- a. Pesticides shall be mixed and applied as specified on the pesticide label.
 - b. Always wear appropriate personal protective equipment (PPE), as approved by the supervisor, when handling, mixing, or applying pesticides, or when cleaning pesticide application equipment. Refer to [Chapter 17, "Personal Protective Equipment"](#), of this *Manual*, for detailed information on PPE requirements.
 - c. Spill containment shall be provided for pesticide mixing areas.
5. Pesticide Storage
- a. Pesticides shall be stored in a secure and well-identified area that is separate from other chemical storage.
 - b. Purchase only the amount of pesticide needed for a specific project or growing season. Smaller volumes eliminate waste and the need for storage space.
 - c. A current written inventory of pesticides stored in the pesticide storage area shall be maintained on site (at the pesticide storage area) and at the Safety Coordinators' office.
 - d. A firefighting plan shall be developed, if required by state or local regulations.
6. Pesticide Storage Practices
- a. The pesticide storage area shall be:
 - (1) Secured or locked at all times and accessible only to authorized personnel;
 - (2) Cool, dry, well ventilated, and insulated to provide protection from temperature extremes;

- (3) Constructed in accordance with state and local fire codes for storing flammable/combustible materials (as specified in NFPA 30);
 - (4) Clearly marked with pesticide warning signs;
 - (5) Enclosed in such a manner that leaks and spills may be contained and cleaned without compromising the soil and water quality in the vicinity;
 - (6) Inspected weekly for signs of spills, leaks and chemical incompatibility. Inspections shall be documented;
 - (7) Equipped with easily accessible spill clean-up materials and portable fire extinguishing equipment; and
 - (8) Located near emergency eyewash stations and emergency drench showers.
- b. Pesticide containers shall be:
- (1) Stored as specified on the MSDS or label;
 - (2) Inspected weekly to ensure containers do not have any leaks or defects;
 - (3) Tightly sealed;
 - (4) Properly labeled with the label clearly visible;
 - (5) Marked with the date of purchase; use older pesticides first;
 - (6) Stored in an area away from feed, seed, food, or fertilizer;
 - (7) Easily recognizable. Never reuse old bottles or containers (e.g., food containers) because the contents may be mistaken for food or drink for people or animals; and
 - (8) Segregated from flammable materials.
7. Pesticide Waste Management and Disposal. Proper pesticide waste management and disposal is an important part of responsible pesticide use. Improper disposal can lead to contamination of soil and ground and surface water. Many waste pesticides are regulated by the Federal Insecticide, Fungicide and Rodenticide Act, (FIFRA), and many waste pesticides are defined as hazardous waste by Resource Conservation and Recovery Act (RCRA).
- a. Pesticides or pesticide containers should be disposed of in a manner consistent with the labeling information, unless additional and specific regulations require their disposal as a hazardous waste.
 - b. Hazardous waste pesticides must be managed as specified in [Chapter 29, "Hazardous Waste Management"](#), of this *Manual*, and disposed of by a licensed hazardous waste contractor.

8. Emergency Procedures
 - a. In the event of a pesticide spill, immediately report the spill and all pesticide exposures to your supervisor and the Safety Coordinator.
 - b. Follow the facility chemical spill and leak procedures.
 - c. Perform any necessary emergency decontamination procedures as specified by the pesticide label and the MSDS.

E. MEDICAL SURVEILLANCE

1. In order that exposure monitoring and medical monitoring may be accomplished, supervisors must notify OSHEM in advance of the time periods of expected pesticide applications, and the type of pesticide to be applied.
2. Cholinesterase testing, in particular, must be done during periods when the employee is expected to be exposed to pesticides; otherwise the effects of exposure are transient and will not be seen during periods of non-use.
3. General Requirements:
 - a. Baseline examination. All personnel who mix and/or apply significant quantities of pesticides greater than 30 days per year shall have a baseline medical examination to determine the employee's health status. The baseline is to include:
 - (1) Comprehensive medical history;
 - (2) A baseline physical examination emphasizing symptoms of organophosphate/carbamate pesticide toxicity (e.g., excessive salivation, muscle twitching, etc.) including evaluation of the skin for dermatitis;
 - (3) Appropriate tests based on information provided by the employer, such as assigned job duties, potential hazards, and identification of specific pesticides that the employee will handle; and
 - (4) Additional tests, as determined by the attending medical professional, based on current physical condition of the employee with respect to assigned job duties.
 - b. Tests that may be ordered, at the discretion of the OSHEM medical professional, may include:
 - (1) Urinalysis;
 - (2) Pulmonary Function;
 - (3) Chest x-ray;

- (4) Liver enzyme determinations;
 - (5) Complete blood count (CBC); and
 - (6) Preexposure baseline RBC ChE, if employee will be using cholinesterase-inhibiting pesticides.
- c. If an employee is required to use a respirator as part of their assigned job duties, the physician will also determine whether the employee is medically qualified to wear a respirator and/or restrictions for such use.
 - d. Annual Medical Surveillance. OSHEM shall advise the employee and supervisor as to whether the employee is required to have annual medical surveillance, based on the type and quantity of pesticide applied, and whether the employee is required to wear a respirator.
 - e. The results of medical surveillance examinations shall be reported to the screened employee within five days of receipt of results. An employee with 25% depression of red blood cell cholinesterase level is confirmatory for toxicity and will be notified immediately, with appropriate notification to department supervisors.
4. Special Case: Organophosphate and Carbamate Use:
- a. Exposure to organophosphate and carbamate pesticides can inhibit the enzyme cholinesterase and adversely affect the central nervous system. These pesticides can be absorbed readily by inhalation, dermal contact, or ingestion. Acute exposure may initially cause hyper-stimulation, followed by blockage of the affected synapses of the central nervous system. Symptoms of acute exposure may include excessive bronchial secretions, salivation, respiratory distress, incontinence, pinpoint pupils, fasciculations, abdominal cramps, tremors, cyanosis and coma.
 - b. Some chemicals in this group include Dichlorvos (CAS # 62-73-7); Diazinon (CAS# 333-41-5); Chlorpyrifos (CAS# 2921-88-2); Malathion (CAS#121-75-5); and carbamate pesticides--Carbaryl (CAS# 63-25-2); Thiram (CAS#137-26-8); Propoxur (CAS#114-26-1); Ficam (CAS# 22781-23-1).
 - c. Because of these potential health effects, employees using these pesticides shall participate in initial and continued medical evaluation/monitoring if they are handling organophosphates and carbamates in significant quantities over extensive periods of time (greater than 30 days in a year). At a minimum, initial and annual medical monitoring will consist of the following regime:
 - (1) A baseline physical, including a baseline Red Blood Cell ChE.
 - (2) Periodic medical evaluations to include updating of the employee's history of use,

- (3) Past exposure to pesticides, personal use practices for personal protective equipment, general medical history, and physical exam emphasizing symptoms of organophosphate/carbamate pesticide toxicity (i.e. headache, salivation, muscle twitching, etc.).
 - (4) Employees with signs of acute toxicity will require more extensive evaluation, including comprehensive laboratory evaluation, electrocardiography and hospital admission.
 - d. Exams during a single pesticide use season may be limited to cholinesterase testing of employees during maximum pesticide use periods.
 - e. Important Note: Cholinesterase testing, other than to establish a baseline, shall not be done during periods of non-use because the effects of acute exposure are transient and no useful information will be gained by such sampling.
 - f. Supervisors shall notify OSHEM when an employee in the pesticide medical surveillance program no longer handles pesticide, so that a termination of exposure exam can be performed. This exam should consist of a comprehensive physical and tests performed during the pre-employment physical.
5. Medical monitoring requirements for pesticide use other than organophosphates and carbamates.
- a. Specific requirements for annual medical monitoring for other pesticides will depend on toxicity, frequency, and circumstances of use.
 - b. OSHEM, using information provided by the employee and supervisor, shall determine, and notify them of, specific monitoring requirements.
6. Suspected exposure.
- a. Examination and testing shall be performed by OSHEM or emergency response personnel if an employee shows symptoms of overexposure following pesticide use. Employees with acute symptoms require immediate medical evaluation.
 - b. At the discretion of the attending medical professional, the evaluation may consist of a neurological exam (including evaluation of pupillary size, and reactivity and observation for muscle fasciculations and tremor); auscultation of the chest for wheezing, inspection for evidence of cyanosis, and other tests deemed necessary based on the pesticide involved.
 - c. Emergency response personnel and/or the attending medical professional shall be provided with the Material Safety Data Sheet (MSDS) or label information for the specific pesticide involved.

- d. Employees who have been exposed to organophosphate/ carbamate pesticides shall not be returned to the working environment, nor re-exposed to cholinesterase-inhibiting chemicals until all signs and symptoms have been completely resolved, and blood cholinesterase levels have returned to at least 80% of pre-exposed levels.

F. TRAINING

1. All pesticide applicators and registered users are to be trained according to the state or local pesticide applicators program requirements. Certification and training programs are conducted at the state level in accordance with national standards. (Refer to [State Pesticide Programs](#))
2. Where applicable, all pesticide applicators, registered users, handlers and those working in or around areas where pesticides have been applied are to be trained in the Worker Protection Standard for Agricultural Pesticides (WPS). Effective implementation of the WPS will substantially lower the risk of pesticide poisonings among agricultural workers and pesticide handlers. Information on how to comply with the (WPS) can be found at the following sites:
 - a. [How to comply with the Worker Protection Standard for Agricultural Pesticides](#) (Full PDF document)
 - b. [Worker Protection Standard \(individual units\)](#)
 - c. [Worker Protection Standard \(Quick Reference Guide\)](#)
3. The WPS contains basic requirements for:
 - a. pesticide safety training;
 - b. notification of pesticide applications;
 - c. use of personal protective equipment;
 - d. restricted entry intervals following pesticide application;
 - e. decontamination supplies; and
 - f. emergency medical assistance.

G. REQUIRED INSPECTIONS AND SELF ASSESSMENTS

1. Pesticide storage areas shall be inspected weekly.
 - a. Pesticide containers shall be inspected for corrosion and leaks. Containers that are not in good condition should be transferred to a larger container (over-packed) and properly labeled.

- b. Inspection logs shall contain inspection dates, findings, and actions taken to resolve any problems. Inspection logs shall be maintained for 5 years.
2. PPE used while handling pesticides shall be inspected prior to each use for signs of wear and degradation. Damaged PPE shall be discarded and replaced immediately. See [Chapter 17, "Personal Protective Equipment"](#), of this *Manual*.
3. Vehicles that transport pesticides shall be inspected by the operator for possible pesticide contamination prior to departure and upon return. Vehicles determined to be contaminated must be decontaminated as specified on the MSDS.

H. RECORDS AND REPORTS

1. Supervisors shall maintain documentation pertaining to pesticide application for regulatory review as required by this Chapter and the authority having jurisdiction. Documentation is to include, but not be limited to, the following:
 - a. Policy and procedures for use, safety, disposal, storage, security, training, application, etc., of the pesticides used and or stored at the facility.
 - b. Documentation of individual pesticide applications.
 - c. Certified Applicators licenses
 - d. SOPs for pesticide applications
 - e. Training records
 - f. Records of medical surveillance
 - g. Pesticide disposal records
 - h. Firefighting plans for storage areas, if required.
 - i. Release, spill, or accident records and reports
 - j. Pesticide Inventory records
 - k. Restricted use Pesticide (RUP) inventory, applicator certification and application records.
 - l. Copies of current, applicable federal state and local pesticide regulations.

- I. TOOLS FOR COMPLIANCE.** The following documents, included at attachments to this chapter, are useful for maintaining compliance with regulations for management of pesticides:

1. [Maryland Cooperative Extension Service Pesticide Applicator Checklist.](#)
2. [Maryland Cooperative Extension Service Pesticide Safe Use Checklist.](#)
3. [Worker Protection Standard Check-list of Requirements.](#)

J. REFERENCES

1. U.S. Environmental Protection Agency (EPA), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 1996;
2. U.S. EPA Regulations, 40 CFR Subchapter E, Parts 152 – 180, Pesticide Programs (including 40 CFR 170 for reference to Worker Protection Standard for nurseries and greenhouses).
3. Resource Conservation and Recovery Act (RCRA), 1976 (governs the disposal of solid and hazardous waste);
4. Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910, "Labor."
5. National Fire Protection Association (NFPA) Standard 434, "Code for the Storage of Pesticides," 2002;
6. [National Pesticide Information Center \(NPIC\) Guide to State Pesticide Regulatory Agencies](#)

Pesticide Applicator Checklist

Pesticide Information Leaflet No. 18

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This leaflet will help you develop a list of things to work on that will ensure your use of pesticides is legal, cost effective, and as safe as possible. The check list covers the entire Maryland Pesticide Applicator Core Training Manual. Answer all the questions with a yes or no by checking the appropriate box. When you are done, the questions that you answered with a "no" will suggest things you can start to work on in order to use pesticides safely, legally, and effectively.

YES **NO**

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | For each crop you grow, do you know the major pests, how to identify the pests, the type of damage each pest causes, what to monitor for when scouting to determine control timing and action thresholds, and do you know the control options that can be used with each pest? In other words, could you implement your own integrated pest management (IPM) program? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you currently have a monitoring and scouting program in place for each crop? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you rotate pesticides between classes that do not have cross-resistance? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you limit unnecessary chemical treatment to avoid selecting for a resistant population of pests? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you have a currently valid pesticide applicator certificate? |
| <input type="checkbox"/> | <input type="checkbox"/> | If you are a certified applicator, does the Maryland Department of Agriculture (MDA) have your current address? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you keep a copy of the label on hand at the time of pesticide application? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you use all the safety equipment indicated on pesticide labels? |

YES **NO**

- Do you use an anti-siphon device or leave an air gap when you fill pest control equipment with water?
- Have you made sure that your pesticide storage site can adequately control temperature, has adequate lighting, has nonporous flooring, and is situated to prevent runoff into a sensitive area in the event of spills or heavy runoff from firefighting or floods?
- Does your pesticide storage area have a warning sign posted?
- Is your storage area locked?
- Is your pesticide storage area physically separated from living and working areas?
- Do you keep food, feed, and fertilizer out of your pesticide storage area?
- Is your pesticide storage area dry and well ventilated?
- Are all your pesticide containers labeled and free of leaks?
- Do you have an appropriate fire extinguisher and spill control kit on hand near your pesticide storage area?
- Do you store volatile herbicides separately, isolate waste products, keep an accurate inventory of pesticides, and avoid storing unnecessarily large quantities of pesticides for long periods of time?
- Is your pesticide storage area more than 50 feet from a well, or if not, do you use secondary containment?
- Have you determined if you need to contact the State Emergency Response Commission regarding the materials you store? (See page 75 of the Pesticide Applicators Training Manual and obtain a copy of Pesticide Information Leaflet No. 1., Superfund Amendments and Reauthorization Act (SARA): Pesticide Users' Responsibilities from your county Cooperative Extension Office.)
- The worker protection standards apply to farms, nurseries, greenhouses, and forest operations. If you are an employer in one of these operations, have you obtained a copy of the manual Worker Protection Standards for Agricultural Pesticides: How to Comply - What Employers Need to Know?
- If you have employees, have you made a list of the hazardous chemicals in the workplace, obtained a material safety data sheet (MSDS) for each hazardous substance on your list, ensured that all containers of hazardous materials are labeled at all times, trained all workers about the hazardous materials in their workplace, and kept a file (including the MSDS's) on the hazardous chemicals, and made it available to workers?

YES **NO**

- For every pesticide application you make, do you keep a record of all of the following for 2 years?
- " Name of applicator or consultant and name of the certified applicator if different from the applicator.
 - " Date of application, recommendation, or pest identification.
 - " Pest and type of plant, animal, or structure.
 - " Acreage or number of plants or animals, or square footage of structures.
 - " Address of treated property.
 - " Common name and EPA registration number of pesticide or pesticides used or recommended.
 - " Rate of concentration of pesticide used or recommended.
 - " Total amount of pesticide used.
- Have you asked your physician or poison control center to get a copy of the latest edition of *Recognition and Management of Pesticide Poisonings* by Donald P. Morgan, MD, PhD.?
- Do you clean all reusable PPE between each use?
- Do you keep all clothing worn when handling pesticides separate from household laundry?
- Do the persons who clean and maintain your PPE wear gloves and an apron, work in a well ventilated area, and know that they can be harmed by touching the pesticide that remains on contaminated objects?
- After washing contaminated clothing in your washer, do you run the washer through at least one additional cycle without clothing, using detergent and hot water, to clean the machine before any other laundry is washed?
- Do you store respirators and eyewear in an area where they are protected from dust, sunlight, and pesticides and other chemicals? Do you store respirator cartridges in an airtight plastic bag?
- Have you checked with MDA or your county Cooperative Extension recently to find out what you should be doing to protect endangered species?
- Have you chosen a mixing and loading area that is outdoors or in a well ventilated area, that has good lighting, that is away from unprotected people, animals, food, other pesticides, and other items that might be contaminated?
- When mixing and loading do you place your equipment where spills, leaks, and overflows will not flow toward a drain or into the water supply? If you are mixing and loading often at the same site, have you constructed a collection pad or tray?
- When filling spray tanks, is someone always there to be sure nothing goes wrong?

- | YES | NO | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Have you considered transferring your pesticides in a "closed system" or bulk system? |
| <input type="checkbox"/> | <input type="checkbox"/> | Is your equipment free of cracks in hoses, tanks, and containers, and generally well-maintained? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you triple rinse or pressure rinse pesticide containers when appropriate, and do you avoid using pesticide containers for any other purpose, and crush or puncture empty containers prior to disposing of them in a sanitary landfill? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you avoid washing equipment repeatedly in the same area unless you use a containment pad or tray? |
| <input type="checkbox"/> | <input type="checkbox"/> | If you have rinsates from equipment clean-up that you cannot use, do you dispose of them as you would excess pesticides? |
| <input type="checkbox"/> | <input type="checkbox"/> | When transporting pesticides, do you always tie them down or secure them? |
| <input type="checkbox"/> | <input type="checkbox"/> | When transporting pesticides, do you always carry them in a compartment separate from people? |
| <input type="checkbox"/> | <input type="checkbox"/> | When pesticides are temporarily stored or transported in a service container, do you label the container with the common or chemical name of the pesticide, the signal word, the percent concentration, and the EPA registration number? |
| <input type="checkbox"/> | <input type="checkbox"/> | When transporting pesticides, do you carry PPE, a spill kit, a fire extinguisher, a first aid kit, a change of clothes, water, towels, soap, emergency telephone numbers, ropes and tie downs, and anything you need such as tarps to keep the load dry? |
| <input type="checkbox"/> | <input type="checkbox"/> | If you transport reportable quantities (see the MSDS sheet), do you fill out shipping papers acceptable to DOT? |
| <input type="checkbox"/> | <input type="checkbox"/> | Have you checked to see if you need to register as a hazardous materials hauler? (See page 73 of the Pesticide Applicators Training Manual.) |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you correctly and regularly dispose of empty pesticide containers, excess usable pesticides, and waste materials that contain pesticides or their residues? |
| <input type="checkbox"/> | <input type="checkbox"/> | Have you checked to see if you need to register as a generator of hazardous waste? (See page 77 of the Pesticide Applicators Training Manual.) |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you keep records for OSHA and report all work-related deaths as well as injuries or illnesses that involved medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job? (Ask an insurance agent who handles workman's compensation and liability insurance for forms and details.) |

YES **NO**

 Have you considered what insurance is appropriate for your business?

 Have you taken the following steps to reduce fire hazards?

- " Locate storage facilities as far as possible from where people and animals live.
- " Keep the storage facility locked at all times.
- " Post signs indicating that combustible materials are stored in the facility.
- " Store combustible materials away from steam lines and other heating systems.
- " Store glass or pressurized containers out of sunlight which may concentrate heat rays and possibly cause them to explode or ignite.
- " Install fire detection systems in large storage areas.
- " Keep foam-type fire extinguishers that are approved for chemical fires in all storage areas.
- " Notify the servicing fire company of the location and contents of the storage facility.
- " Develop an emergency plan and train all workers in its execution.
- " Keep a written inventory of the pesticides held in storage and file the list in a building away from the storage site.

 Do you have a spill kit containing the following items?

- " Telephone numbers for emergency assistance.
- " Gloves, footwear, and an apron that are chemical-resistant to most pesticides, such as barrier-laminate gear.
- " Protective eyewear.
- " An appropriate respirator, if any of the pesticides require the use of one during handling activities or for spill cleanup.
- " Containment "snakes" to confine the leak or spill to a small area.
- " Absorbent materials, such as spill pillows, absorbent clay, sawdust, pet litter, activated charcoal, vermiculite, or paper to soak up liquid spills.
- " Sweeping compound to keep dry spills from drifting or wafting during cleanup.
- " A shovel, broom, and dustpan (foldable brooms and shovels are handy, because they can be carried easily).
- " Heavy-duty detergent.
- " Fire extinguisher rated for all types of fires.
- " Any other spill cleanup items specified on the labeling of any products you use regularly.
- " A sturdy plastic container that will hold the quantity of pesticide from the largest pesticide container being handled and that can be tightly closed.



Information

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Check out the Pesticide Education and Assessment Program web site at <http://pesticide.umd.edu>

Pesticide Safe Use Checklist

Pesticide Information Leaflet No. 11

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A **pesticide** may be any chemical used to control a pest. The pest may be an insect, fungus, weed, slug, or plant disease agent. Therefore, insecticides, fungicides, and herbicides are all types of pesticides. Some pesticides are extremely toxic, while others are only very slightly toxic to humans, beneficial insects, desirable plants, and wildlife. Each pesticide label contains a great deal of information on how to use that specific material. The importance of reading and following all label directions cannot be overemphasized. This leaflet provides a checklist of safe practices to be used in conjunction with the label directions anytime you plan to use a pesticide.

BEFORE USING A PESTICIDE:

✓ Check the label:

- to be sure the pest you need to control is listed on the label;
- to be sure the site or plant to which you intend to apply the pesticide is listed on the label;
- to see if any special protective clothing or equipment is necessary;
- to find out what equipment to use to apply the pesticide;

- to see whether the pesticide is toxic to certain plants -- it may be necessary to remove or cover plants;

- to be sure you are applying the pesticide at the right time.

- ✓ Buy only enough pesticide for one or, at most, two years. Pesticides stored longer may degrade and become less effective.

- ✓ Remove or cover pet food and water dishes and fish tanks.

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DURING APPLICATION:

- ✓ Always wear long trousers, a long-sleeved shirt, socks, and shoes when applying any pesticide. Other protective equipment, such as a respirator, goggles, impermeable gloves and boots may be necessary or desirable for extra protection.
- ✓ Do not wear leather shoes, boots, or gloves while handling pesticides. Leather absorbs pesticides and cannot be decontaminated easily.
- ✓ Take care to avoid pesticides coming into contact with your eyes, mouth, or skin.
- ✓ Wash your hands with soap and water before eating, smoking, or using the toilet.
- ✓ Avoid breathing spray mists. Open the windows when spraying indoors.
- ✓ Keep children and pets out of the treated area until the spray has dried or the dust has settled; longer if the label lists a longer reentry period.
- ✓ Stand upwind while mixing and applying pesticides.
- ✓ Never apply a pesticide where it could contact food, utensils, or food preparation areas, unless the label allows for such contact.
- ✓ If you are applying the pesticide to a food crop, check the label to see how many days you must wait before harvesting.

- ✓ Unless the label specifically allows such use, never apply a pesticide where it could contact water sources, and avoid applying to bare ground.
- ✓ Follow label directions for method of application carefully. When practical, use spot treatments rather than broadcast sprays. If the label specifies "crack and crevice" treatment, apply only as a very narrow band.
- ✓ Never apply a pesticide at a higher rate than the label directs.

AFTER USING A PESTICIDE:

- ✓ Wash your hands with soap and water immediately after applying a pesticide. Shower as soon as possible.
- ✓ Wash all clothing worn during mixing and application separately from household laundry. Use a heavy duty detergent and hot water. Dry the clothes in a hot dryer or outside in the sun.
- ✓ Keep pesticide measuring utensils separate from household and kitchen utensils.
- ✓ Store pesticides only in their original containers. Keep them away from food, feed, seed, and fertilizers in a locked building or cabinet.
- ✓ Dispose of empty pesticide containers in accordance with label directions and state and local requirements. *Pesticide Information Leaflet Nos. 13 and 38* provide guidelines on proper disposal.

Worker protection standard check-list of requirements

Use this checklist to familiarize yourself with the WPS provisions and requirements. When all questions have been answered "yes", you have fulfilled the requirements.

Immediate family members are exempt for some of the WPS requirements.

WPS PROVISION	REQUIREMENTS	Y/N
A. Central Notification (C.N.)	<p>1. Is the site easily accessible to workers/handlers?</p> <p>2. Is an EPA approved safety poster displayed?</p> <p>3. Is emergency medical information displayed?</p> <p>4. Is pesticide information displayed for each application?</p> <p style="margin-left: 20px;">- location of area treated</p> <p style="margin-left: 20px;">- product name</p> <p style="margin-left: 20px;">- active ingredient</p> <p style="margin-left: 20px;">- EPA registration number</p> <p style="margin-left: 20px;">- time and date of application</p> <p>5. Does the pesticide information remain for 30 days following the REI?</p> <p>6. Is C.N. displayed when handlers or workers are on the ag. Establishment during an application or when an REI has been in effect within the last 30 days?</p> <p>Exception: Need not display C.N. if only immediate family members work on the establishment of if the handler is the only employee.</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p>
B. Decontamination	<p>1. Are handler decontamination sites supplied with clean Water, soap, disposable towels and clean coverall?</p> <p>2. Does handler have decontamination sties at the mix/load area, within 1/4 mile of the application site and where PPE is removed?</p> <p>3. Is the decontamination site provided for the duration of the handling activity?</p> <p>4. Is 1 pt. of eye-flush water immediately available to handlers and early-entry workers if label requires protective eyewear?</p> <p>5. Are worker decontamination sites supplied with clean water, soap, disposable towels?</p> <p>6. Are worker decontamination sites within 1/4 mile of the work site?</p> <p>7. Are decontamination sites provided for workers until 30 days following the expiration of the REI?</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p>

<p>C. Training</p>	<ol style="list-style-type: none"> 1. Are all handlers Certified Pesticide Applicators or Have WPS handler training? 2. Do handlers receive training before performing pesticide application? 3. Are handlers informed of labeling and have access to labels? 4. Are all workers Certified Pesticide Applicators or have received WPS worker training? 5. Do workers receive training before the 5th day of entry into treated areas? 6. Do early entry workers receive required additional training? 7. Do trainers have proper qualifications to train (Certified Pesticide Applicator, WPS handler training, or attended MI Approved Trainer Seminar)? 8. Is training repeated every 5 years? 9. Is training presented orally or audio visually? 10. Is training presented in a language the trainees can understand? 11. Does the trainer respond to trainee's questions and personalize the training to the site? 	<p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p>
<p>D. Notice of Applications</p>	<ol style="list-style-type: none"> 1. When required on the label, are both oral and posted Warnings given? 2. Are oral warnings given clearly and in a language the workers can understand? 3. If posting: <ul style="list-style-type: none"> - is the appropriate sign being used? - is the sign put up no more than 24 hours prior to application? - does the sign come down within 3 days of the end of the REI? - is the sign posted at normal worker points of entry to the treated area? 4. Are all greenhouse application posted? <p>Exceptions: Oral warning or signs are not needed if Employees will not be within 1/4 mils of the treated area for the length of the REI, or if the handler is the only employee, or if no worker will be in the greenhouse during the application and REI.</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p>

E. Entry Restrictions	<p>1. Are workers not allowed in area under REI (Unless early-entry with no contact)?</p> <p>2. Do early-entry workers (with contact) remain in the treated area no more than 1 hr/24 hrs?</p> <p>3. Has early-entry during agricultural emergencies been approved by MDA?</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p>
F. Information Exchange	<p>1. Has your Custom Applicator provided you with required information for your central notification prior to application?</p> <p>2. Have you provided information to the Custom Applicator about REI's in effect on your property?</p>	<p>Y N</p> <p>Y N</p>
G. PPE	<p>1. Is required PPE provided to handlers and early-entry workers?</p> <p>2. Are persons instructed in the proper use of the PPE?</p> <p>3. Is PPE inspected before each day's use?</p> <p>4. Are cleaning/maintenance requirements of PPE met?</p> <p>5. Is a clean place provided for PPE storage?</p> <p>6. Are appropriate measures taken to avoid heat related illness?</p> <p>7. Have those cleaning PPE received special instruction?</p> <p>Exceptions: some of the label-required handler PPE may be omitted if using a closed system, enclosed cab or cockpit.</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p>
H. Equipment Safety	<p>1. Is equipment used for mixing, loading and applying pesticides inspected and repaired before each day of use?</p> <p>2. Have handlers been instructed in proper use of application equipment?</p>	<p>Y N</p> <p>Y N</p>
I. Emergency Assistance	<p>1. Is transportation made available to any employee who becomes sick or is injured by pesticides?</p> <p>2. Are provisions made to supply information about the pesticide to medical personnel?</p>	<p>Y N</p> <p>Y N</p>
J. Application Restrictions and Monitoring of Handlers	<p>1. Are pesticides applied so that no one is contacted or drifted except appropriately trained and equipped handlers?</p> <p>2. Is sight or voice contact made at least every 2 hours With a handlers using a skull and crossbones pesticide?</p>	<p>Y N</p> <p>Y N</p>