

State of Maine

# Best Management Practices for Pest Prevention and Management in Maine Medical Marijuana Cultivation

Maine Department of Agriculture, Conservation and Forestry  
February 11, 2015

# **Best Management Practices for Pest Prevention and Management in Maine Medical Marijuana Cultivation**

## **Introduction**

This document was developed in accordance with Public Law 2013, Chapter 498 (MRSA Section 2428 Title 22 Subtitle 2 Part 5 Chapter 558-C: Maine Medical Use of Marijuana Act) which prohibits a registered dispensary from using a pesticide on marijuana unless it is used ‘consistent with best management practices approved by the Commissioner of Agriculture, Conservation and Forestry’. This document describes best management practices for pest control for cultivation of marijuana by Maine dispensaries.

For prevention and management of pests, best management practices can best be described as the widely accepted principles and practices of integrated pest management (IPM). Maine Revised Statutes Annotated (MRSA) 22 § 1471-X establishes that it is State of Maine policy to promote adoption of IPM to minimize reliance on pesticides. IPM is described in MRSA Title 7 Chapter 413 as ‘the selection, integration and implementation of pest damage prevention and control based on predicted socioeconomic and ecological consequences, including understanding the system in which the pest exists, establishing dynamic economic and aesthetic injury thresholds and determining whether the organism or organism complex warrants control, monitoring pests and natural enemies, and when needed, selecting the appropriate system of cultural, mechanical, genetic, including resistant cultivars, biological or chemical prevention techniques or control for desired suppression, and systematically evaluating the pest management approaches utilized.’

The purpose of this document is to provide guidance for preventing, minimizing and managing pests in the production of medical marijuana. The ultimate aim is to reduce the risk of product contamination and to provide a safe work environment for workers.

## **Integrated Pest Management**

The basic components of IPM are 1) accurate identification of pests and pest-caused damage, 2) systematic pest monitoring, 3) reliance on combinations of biological, mechanical, cultural, or other pest prevention and mitigation methods to keep pests at or below acceptable levels, and 4) documentation and periodic review. Each of the pest prevention and pest management tactics listed in this document have been shown to be effective under certain conditions, however the specific set of tactics selected by a grower may vary depending on the pests encountered, cultivation systems used, economic factors and other conditions.

A pest is any living organism causing economic, aesthetic or environmental harm. Pests can include weeds, insects, mites, plant pathogens, and other living organisms. Any organism can be harmful under some conditions and not harmful or even beneficial in other situations. The aim is not to eliminate all potential pests, but to optimize plant health and avoid unacceptable levels of pest-associated risk.

## **Best Management Practices for Pest Prevention and Control**

The following Best Management Practices are intended to prevent and manage pest-associated losses while minimizing risks of product contamination. *Note: Throughout this document the term 'pest' refers to any living organism posing unacceptable levels of risk and includes but is not limited to insects, mites, plant pathogens, mold and mildew, weeds, birds, and animals. Furthermore, under Maine law, a pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest and includes disinfectants, insecticides, herbicides, fungicides, plant regulators, defoliants and plant desiccants.*

### **BMP 1. Design and maintain facilities to prevent introduction and spread of pests.**

- Enclosed cultivation and processing operations must be equipped with adequate ventilation, drainage, lighting and temperature controls to maintain optimal conditions for good plant growth while discouraging pests and plant disease.
- Facilities and operations must be designed to permit isolation and sanitation processes necessary to restrict introduction, establishment and spread of pests and plant diseases and permit their management while promoting good plant health and worker safety.
- Post-harvest handling facilities must be designed and operated to prevent contamination of product by mold, bacteria, viruses, chemicals or other contaminants.
- Provide adequate hand-washing facilities for workers.

### **BMP 2. Establish and utilize sanitation protocols to prevent the spread of pests within the facility by workers.**

- Develop site-specific pest-preventive protocols for each section of every facility.
- Place emphasis on starting with pest-free plant material.
- Do not allow smoking in the facility.
- Ensure all workers utilize appropriate sanitation protocols.
- Ensure all workers receive adequate training.

### **BMP 3. Provide optimal growing conditions to promote healthy plant growth, encourage natural enemies and minimize pest-conducive conditions.**

- Operate ventilation, lighting and heating systems to optimize humidity, temperatures and patterns of air movement to support plant growth and natural enemies while discouraging establishment, growth and spread of pests.
- Supply proper plant nutrition and pH to support optimal plant growth while discouraging pests.
- Maintain optimal moisture level in growing medium.
- Provide optimal plant spacing to prevent pest movement among plants and to allow adequate air circulation.
- Keep facilities free of weeds, plant debris, pest harborage, mold, mildew and algae.

### **BMP 4. Implement effective procedures to regularly and systematically monitor for pests.**

- Develop site-specific pest monitoring protocols for each section of every facility.
- Train employees in all pest prevention, detection, identification, monitoring and record-keeping protocols.
- Identify unknown insect and disease problems.

**BMP 5. Develop and utilize an integrated pest management plan that includes least-risk protocols for preventing and managing common pests.**

- Develop and utilize site-specific comprehensive integrated pest management protocols for each section of each facility.
- Use pesticides only in strict accordance of all applicable regulations including those specified on the product label. Avoid the use of pesticides on flowering plants. Avoid the use of any liquids on late flowering plants to avoid mold and mildew contamination of product.
- Use only pesticides that are not prohibited for the intended use (See BMP 7, below).

**BMP 6. Keep thorough cultivation, pest monitoring and pest management records including:**

- Detailed records of all pest monitoring and scouting activities. At a minimum record date, numbers of each pest per unit of measure observed, numbers of beneficial organisms observed, amount of pest-caused damage observed, monitoring methods used, and specific locations of pest activity observed.
- Detailed records of all non-pesticide actions taken to prevent or treat the crop for disease, insect, mite or other pest issues including but not limited to detailed records on any use of beneficial organisms.
- Detailed records of all pesticides applied to the crop, growing media, or space or surfaces of the facility before or during cultivation, processing or storage. Pesticide use records must be kept according to Chapter 50 of Maine Board of Pesticides Control regulation. This information can be found at <http://www.maine.gov/dacf/php/pesticides/laws.shtml>.
- Detailed records of all other substances applied to the plants, to the growing media or to the space or surfaces of the facility.
- Detailed records of all fertilizers and soil amendments used in cultivation and, if applicable, steps taken to monitor manure- or compost-based fertilizers for undesirable microbial pathogens and to monitor runoff from sites where composts are produced or stored.
- Information about water sources and equipment used in irrigation systems, as well as records of all tests performed to monitor water supplies used in irrigation and any records that establish conformity to any applicable water-use regulations.
- Cultivation operations must provide the following records to the appropriate Maine state regulatory bodies and other cultivation operations, processing operations, manufacturing operations, and dispensing operations receiving cannabis from the cultivation operation, upon request:
  - a. Nutrients used during cultivation;
  - b. Detailed records of all pesticides applied to the crop, growing media, or space or surfaces of the facility before or during cultivation, processing or storage.
  - c. Detailed records of all other substances applied to the plant(s) surface or used as a fumigant in the cultivation area;
  - d. Detailed records of any other substances used during cultivation that may result in a residue on cannabis.

**BMP 7: Use, store and dispose of pesticides only in accordance with state and federal regulations including the following:**

- Pesticides may only be used in strict accordance with the product label requirements including, but not limited to directions pertaining to application, storage and disposal of the pesticide product.
- Pesticide products must be registered with, and not prohibited for the intended usage by, the Maine Department of Agriculture, Conservation and Forestry Board of Pesticides Control pursuant to Title 7, section 607, and must be used in a manner consistent with these Best Management Practices approved by the Commissioner of Agriculture, Conservation and Forestry. See attached flow chart for product selection guidance.
- Application of nutrients or pesticides through an irrigation system (chemigation), must be performed in accordance with federal, state and local agricultural regulations.
- Home-made pest control substances (including food-based solutions) are not allowed.
- When using a pesticide, ensure that the primary caregiver or the registered primary caregiver's employee is licensed as an Agricultural Basic Pesticide Applicator by the Maine Board of Pesticides Control, pursuant to section 1471-D.
- Ensure that any employee who has direct contact with pesticide-treated plants has completed safety training pursuant to the U.S. Environmental Protection Agency (USEPA) Worker Protection Standards, 40 Code of Federal Regulations, Section 170.130.
- Ensure that an employee of the registered caregiver who is not licensed pursuant to section 1471-D and who is involved in the application of the pesticide or handling of the pesticide or equipment must first complete Pesticide Handler safety training described in 40 Code of Federal Regulations, Section 170.230.
- Pesticide storage, mixing and use must be in compliance with the USEPA Worker Protection Standards and must meet product label requirements for fire and chemical safety. Ensure all necessary personal protective equipment is available, clean, and properly stored.
- Ensure pesticide application equipment is properly calibrated.