

# **Alaska Right-of-Way and Industrial Grounds Pest Control Manual**



## **Category Nine**

In general, applicators who apply pesticides to property other than their own must obtain certification from the Alaska Department of Environmental Conservation (ADEC) Pesticide Program. Applicators who apply restricted-use pesticides, regardless of location, must also be certified.

Individuals who apply pesticides to control pests in rights-of-way (ROWs) in Alaska, including rights-of-way for roads, railroads, airfields, power lines, or pipelines must be certified by the ADEC in this Category. Individuals who apply pesticides on the grounds of tank farms or industrial sites may also be certified in this category.

The information needed to successfully complete the written core examination required for all certified pesticide applicators in Alaska includes:

1. National Pesticide Applicator Certification Core Manual;
2. Alaska Core Manual; and
3. State of Alaska Pesticide Regulations in Title 18, Chapter 90 of the Alaska Administrative Code (18 AAC 90)

The information needed to successfully obtain certification in Category Nine in Alaska includes:

1. This Alaska Manual; and
2. The Washington State University *Rights-of-way Vegetation Management Manual*.

**CALCULATIONS**

Precise and accurate application is important for every pesticide application, but this is particularly true for the types of pesticide applications allowed under Category Nine. Strong math skills, including the ability to calculate odd shaped areas, mixing ratios, rates of application, etc. will be necessary to successfully pass the Category Nine Exam. You will need to carefully review pages 164-165, and 190-192 in the National Core Manual. Additional resources for pesticide applicator math are available online from the [Purdue Pesticide Program](#).

**PERMITTING REQUIREMENTS** (18 AAC 90.500-540)

Permit requirements are covered in the Alaska Core Manual. However, they are repeated here, because they may need to be considered for some Right-of-way applications.

By state law, a DEC Pesticide Use Permit is required before you may apply pesticide under the following circumstances:

<b>Aquatic:</b> Application of pesticide to a water body, including creeks, rivers, streams, ponds, wetlands, and swamps, regardless of who owns the surrounding lands.
<b>Aerial:</b> Application of pesticide from any type of aircraft or hovercraft, regardless of who owns the land being treated.
<b>Public Project On Multiple Properties:</b> Application of pesticide to more than one property by a government entity (state, borough, or city).

**INTEGRATED PEST MANAGEMENT REQUIREMENTS** (18 AAC 90.640-650)

IPM requirements are covered in the Alaska Core Manual. However, they are repeated here, because they will apply to most Right-of-way applications.

Since 2013, regulations require agencies to comply with Integrated Pest Management (IPM) requirements before applying pesticide under the following circumstances:

<b>State Owned Land:</b> Application of pesticide on more than one acre of state owned or leased land.
<b>State Right-of-Way:</b> Application of pesticide on more than one acre of state owned or leased right-of-way.

IPM requirements do not apply to:

- applications of pesticide to less than one acre of state land or state right-of-way, including use of personal insect repellents;
- use of antimicrobial pesticides (sanitizers); or
- applications of pesticides inside buildings or structures.

Prior to applying pesticides on state lands or rights-of-way, agencies must develop an IPM Plan, which must include a description of:

- Preventive methods;
- Pest monitoring activities;
- Threshold for allowable pest presence;
- Potential mechanical or physical controls;
- Pesticide name;
- EPA registration number; and
- Identity of the Person In Charge.

Each agency must identify a Person in Charge, who develops, implements, and ensures compliance with the IPM Plan, keeps records, and acts as the point of contact for the pesticide project or program.

Pesticides applied under an IPM plan must be applied by certified applicator. The IPM Plan must be published on the DEC website prior to use of pesticide. IPM regulations also include specific requirements for notifying DEC, nearby drinking water systems, and the public about the pesticide application. If pesticide is applied to 20 acres or more in one year, the agency must post a report with additional information about the pesticide use.

**WASHINGTON STATE UNIVERSITY RIGHTS-OF-WAY VEGETATION MANAGEMENT MANUAL****Portions to Disregard**

You may disregard the following sections or pages of the Washington State University *Manual*, as they do not apply in Alaska:

- **Laws Affecting Weed Management;** pages 37-38. Washington laws and regulations do not apply in Alaska.

**Learning Objectives****Introduction**

- List various types of areas that are considered rights-of-way
- List some reasons why vegetation management in a right-of-way might be necessary.
- Explain why the characteristics of a right-of-way can make public relations an important issue in vegetation management.

**Basic Weed Science**

- Describe what a weed is.
- Explain why introduced plants can be.
- List some ways that seeds spread.
- List the characteristics of weed seeds that make them difficult to eradicate.
- Describe the identifying characteristics of a grass.
- Describe the identifying characteristics of a broadleaf plant.
- Describe the difference between an annual plant and a perennial plant.
- Describe the various ways that perennial plants may spread that do not involve seeds.

**Integrated Vegetation Management**

- Explain why identifying the weed is essential for adequate control.
- Explain the purpose of scouting a right-of-way on a regular basis.
- Define the term threshold.
- Explain how landscape preparation can help prevent weed outbreaks.
- List some ways to prevent weeds from becoming established.
- Explain some disadvantages to mechanical methods of vegetation control, including use of hand tools, mowing and brush cutting, and fire.
- List some cultural methods of controlling vegetation.

**Herbicides**

- Describe the difference between contact herbicides and systemic herbicides.
- Explain why it is important to get uniform coverage of the entire plant with a contact herbicide.
- Describe the difference between selective and non-selective herbicides.
- Explain how some of the characteristics of plants affect herbicide selectivity.

- Explain how factors such as application rate, timing, formulation, location, and method affect herbicide selectivity.
- For each of the following modes of action, explain how they work to control weeds, and list some common pesticides with this mode of action: growth regulator, amino acid synthesis inhibitors, lipid inhibitors, seedling growth inhibitors, photosynthesis inhibitors, cell membrane disruptors, and pigment disruptors.
- Explain why it is important to know the 17 different herbicide groups.

### **Herbicide Performance**

- Define and explain the difference between adsorption and absorption.
- Explain why herbicides are least likely to adsorb to sand, and most likely to adsorb to clay.
- Explain why herbicides are more likely to adsorb to soils with high organic content.
- Describe the type of soil which herbicides are most likely to leach through.
- Explain why higher air temperatures can lead to less herbicide selectivity.
- Explain why rainfall can result in poor weed control for both foliar and soil-applied herbicides.
- Explain how humidity can affect herbicide efficacy.
- Explain how wind can affect herbicide efficacy.
- List the four growth stages of a weed.
- Name the growth stage of an annual weed that is most susceptible to control efforts.
- Explain why it is important to know when plant sugars flow from leaves towards the roots in perennial plants.
- Name the growth stages of a perennial weed that are generally most susceptible to herbicides, and explain why.
- Name the part of a cut stump that should be treated with herbicide to prevent re-growth, and explain why treating this area is effective.
- Explain the difference between herbicide tolerance, herbicide resistance, and herbicide susceptibility.
- Describe several techniques to help prevent the development of herbicide resistance.

### **Precautions**

- List seven factors that may impact the amount of spray drift from applying herbicide.
- Define the term 'vapor drift'.
- Describe how humidity and temperature can impact vapor drift.
- List several techniques that will help prevent contamination of surface water.
- List some factors that can increase the chance of herbicide leaching into groundwater.
- Explain why it is advisable to dedicate application equipment to one type of herbicide.
- Explain how to dispose of rinsate from cleaning application equipment.
- Explain why wettable powders and other suspensions cannot be left in a sprayer tank without agitation.
- List some factors that determine the length of residual activity of an herbicide.
- List some precautions to take when using long-term residual herbicides.
- Define the term 'photo degradation'.
- Define the term 'microbial degradation'.

- Define the term ‘chemical degradation’.
- Explain how adsorption, leaching, volatilization, uptake by plants, and soil pH can affect the persistence of herbicides.
- Describe several methods to help reduce levels of residual herbicide in soil.

### **Herbicide Application**

- Describe the following types of applications: preplant incorporation, preemergence application, postemergence application, broadcast treatment, spot treatments, band treatment, directed sprays, basal sprays, thin line treatments, cut stump, frill, tree injection, soil treatment, invert emulsions.
- Describe the purpose and characteristics necessary in a sprayer tank, pump, agitator, strainer, and hose.
- List the three basic nozzle patterns.
- List the advantages and disadvantages of the following nozzle materials: tungsten carbide, ceramic, stainless steel, brass, nylon, aluminum.
- List items that should be checked prior to beginning calibration.  
Describe the process for cleaning spraying equipment.
- Describe the process for preparing spraying equipment for storage.

### **Calculations and Calibration**

- List three things that must be determined prior to each pesticide application.
- Calculate irregular shaped areas and perimeters.
- Describe the steps for calibrating a granular spreader.
- State when nozzle tips should be replaced.
- List the three variables that determine sprayer delivery rate.
- State the best way to make major changes to sprayer flow rate.
- Describe the steps for calibrating a boom sprayer.
- Explain guidelines for tank mixing different herbicides.
- Explain the purpose of adjuvants, including stickers, spreaders, penetrants, and buffers.
- Calculate effective application rate and swath width of a granular spreader, application rate of a boom sprayer, and other example problems.

**Before Using Any Pesticide**

**STOP**

**All pesticides can be harmful to health  
and environment if misused.**

**Read the label  
carefully. Use only  
as directed.**