

**DRAFT 1/07**  
**Ohio Private Pesticide Applicator Examination**  
**Private Applicator Category 1**  
**Overview**

The private pesticide applicator certification/licensing program prepares applicators for using Restricted Use Pesticides (RUP). Applicators are tested on their knowledge on competence in using RUP products. The applicators are also tested on general pesticide information for both RUP and general use products. This information includes enforcement issues, potential environmental problems, and pest resistance issues. Applicators need to be aware that products could become restricted if key issues are not dealt with appropriately by growers.

To prepare for the licensing exam, this workbook focuses on the major crops, pests and general pesticide knowledge that pesticide applicators need to know. The category 1 exam reflects the grain and cereal crops grown in Ohio, and applicators should focus on the most common crops and their pests when preparing for the exam. Below is a brief overview of the important crops, pests and issues addressed on the exam.

**Ohio Cereal and Grain Crops**  
(ranked in order of emphasis on exam)

1. Corn and Soybeans
2. Small Grains (distant)

**Pest Problems on Exam**  
(ranked in order of emphasis on exam)

1. Weeds/herbicides
2. Insects/insecticides
3. diseases

**Primary Pests of Ohio Cereal and Grain Crops**

**Weeds and herbicides** – Weeds are an important pest group in Ohio field crops. There is an emphasis on knowing the basics of general weed identification, life cycles and stages of growth in regards to herbicide timing. Applicators should also understand general herbicide modes of action for widely used field crop herbicides such as triazines, glyphosate, 2,4-D, diacamba and ALS inhibitors and factors that affect efficacy. Applicators should understand terminology such as preemergent, post-emergent, pre-plant incorporated, systemic, contact, selective and non-selective.

Applicators should understand environmental concerns with atrazine and other herbicides. Applicators should be able to read herbicide labels and calculate rates from the label. They should understand % of pesticide ingredients and acid equivalent. Applicators should also be able to find information on the label such as harvest intervals, carry-over concerns and recropping restrictions.

Color photo identification questions are included for at least two of the following common weed species. Also, the applicator needs to know life cycle, (perennial, annual, biennial) and general timing of pesticide control, etc.

Lambsquarter	Foxtail
Poke weed	Marestail/Horseweed
Quackgrass	Purple dead nettle
Common ragweed	Giant ragweed
Canada thistle	Yellow nutsedge
Fall panicum	Redroot pigweed
Dandelion	Velvetleaf

**Insects** – Emphasis mainly with corn and soybeans. Need to identify key pests of corn and soybeans, identify damage to crops and understand vulnerable stages in life cycle as they relate to control and management. The exam includes some color photo identification. Key pests to know are:

**Corn**

- Corn rootworm
- European corn borer
- Bt issues for Corn rootworm and European corn borer
- Slugs
- Cutworms/armyworms

**Soybeans**

- Aphid
- Slugs
- Spider mites
- Foliar and pod feeder insects (as a group)
  - Bean leaf beetles
  - Grasshoppers
  - Japanese beetle
  - Mexican bean beetles

**Wheat**

- Hessian fly free date
- Armyworm

**Disease** – Least emphasized area for corn and soybeans. Should understand the role of basic management tactics such as rotation, resistant varieties and tillage and fungicides. Applicators should be able to identify the following diseases and recognize damage:

## **Corn**

Disease resistant varieties and crop rotation  
Leaf blight diseases (as a group)  
Stalk rot diseases (as a group)

## **Soybeans**

Soybean cyst nematode  
Phytophthora  
Soybean rust (identification and pesticide applications)

## **Wheat**

Fusarium head scab  
Leaf diseases (as a group)  
Cultivar resistance/crop rotation  
Yield reducing flag-leaf infection

## **General Pesticide Topics**

**Pesticide Drift** – Understand factors affecting drift: wind, pressure, speed, temperature, boom height, nozzle types, volatility, and additives.

**Resistance Management** – Understand how resistance develops from continued use of a single pesticide type. Understand ALS and glyphosate resistance. Understand basics of IRM – Insect Resistance Management for Bt crops that include stewardship plans. The IRM stewardship plan is to keep these products available for growers.

**Environmental Concerns** – Understand label instructions for set-backs, soil considerations and endangered or sensitive species like bees. Know generally products that have groundwater and surface water concerns. Understand leaching and runoff.

**Application and Equipment** – Know how to effectively clean-out spray tanks and equipment. Understand sprayer calibration and tank mixture calculations.

**Integrated Pest Management** – Understand the basic principles of scouting, thresholds and tactics involved in IPM.

**Reading pesticide labels** – Applicators will be required to read and locate information on several labels such as setbacks/buffers, REI's, PPE, maximum use rates, environmental hazards, crop restrictions, harvest restrictions, and calculate tank fills from label rates. Some active ingredients labels that would be good to look up include commonly used field crop products such as:

Glyphosate  
Atrazine  
2, 4 -D  
Synthetic pyrethroids such as Lambda-cyhalothrin

***Note: This examination summary is presented to facilitate efficient study in preparation for applicators to take the Private Applicator Category 1 (Field Crops) test. It is notable that while the summary (generally and specifically) includes all issues and items that are on the test, it's not limited to only those questions on the test.***