Practical Pesticide Use
Rules and Regulations
Application Technology

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Pesticides
(both conventional and OMRI approved)

• Regulated by Environmental Protection Agency under FIFRA
  – Rigorous testing for safety to humans and the environment
  – Hazardous if misused
    “Keep Out of Reach of Children” appears on all pesticide labels

• Office of the Indiana State Chemist (OISC)
  – Regulates pesticide use in Indiana
  – Trains and certifies applicators (with Purdue Ext)
Pesticide Categories

Classified as general use or restricted use.

Three categories based on toxicity

- Category I: highly toxic
  - Signal Word: DANGER
- Category II: moderately toxic
  - Signal Word: WARNING
- Category III: slightly toxic
  - Signal Word: CAUTION
Pesticide Applicator Certification

• Private applicators license
  – Required to apply restricted use products on land you own, rent, or otherwise control

• Commercial applicators license
  – Required to apply any pesticide “for hire”
  – Apply any pesticide to school property, golf courses, area-wide mosquito control
  – Various categories (for-hire*, not-for-hire, public)
    *Commercial For-Hire Business license and proof of insurance
Purdue Pesticide Programs

Programming With an Impact:

• A Nationally Respected Pesticide Applicator Training Program
• An Advocate for Educating Diverse Groups
• A Source of Innovative Educational Materials
• A Place to Go for Information Clients Can Use

Purdue Pesticide Programs (PPP), a function of the Purdue University Cooperative Extension Service (CES), has a unique, interdisciplinary purpose relative to pesticide issues. Its mission encompasses implementation of pesticide education outreach programs directed at pesticide user groups and the general public.
2015 Pesticide Applicator Training

Registration Fee
The fee is $60, per person, per program. Personal or company checks, money orders, purchase orders, and MC, VISA, or Discover cards are accepted. The fee does not include study manuals, meals, or lodging. Preregistration is requested. There is a 10% fee for registration cancellations or transfers. Purdue Pesticide Programs reserves the right to cancel programs at any time. Purdue University is not responsible for costs incurred due to cancellation. Parking is free of charge at all training sites.

Study Materials
You are encouraged to order a study manual ($30 ea.) for each program for which you register. Training is geared toward those who have studied the manual prior to training. There are NO refunds on study manuals.

Program Schedule
Training programs begin at 8:30 a.m. (local time). Attendees should arrive between 7:30 and 8:25 a.m. to finalize registration. Programs conclude at approximately 3:30 p.m., with the exam offered immediately after. All programs are held at the William Daniel Turf Center, 1340 Cherry Lane, West Lafayette, IN 47906, unless otherwise indicated. Note that these programs are for initial certification ONLY. Recertification credits will not be awarded.

Examination and Photo Identification
The Office of Indiana State Chemist requires that all persons taking a certification exam present a government issued photo ID. This includes any valid state driver license, military identification, passport, state issued identification card, or federal agency identification. No other identification will be accepted.

Remember to bring a single function calculator for use during the examination (cell phone use is prohibited during testing).
Purdue University Cooperative Extension Service is an equal access/equal opportunity institution.

To Register
Mail form with payment to:
Purdue Extension
The Education Store
700 Ahlers Drive
West Lafayette, Indiana 47907-2012
Phone: 765/494-6794 or 888/398-4636
or
Fax form with credit card or P.O. information to:
765/496-1540
To register online: https://mdc.atp.purdue.edu/wk_group.asp?wk_group=Pesticide

For More Information
For conference information, contact
Cindy Myers
Purdue Pesticide Programs
915 W. State Street
West Lafayette, IN 47907-2054
Phone: 765/494-4566 or 888/398-4636
E-mail: cmyers@purdue.edu

For program content and certification information, contact
Andrew Martin
Purdue Pesticide Programs
915 W. State Street
West Lafayette, IN 47907-2054
Phone: 765/494-4566 or 888/398-4636
E-mail: martinag@purdue.edu
or go to:
www.ppp.purdue.edu/certification.html

Purdue Pesticide Programs will not permit electronic recording, either audio or video, of any portion of pesticide applicator training conducted under their direction.

Register Form (Please type or print clearly)
Name
Company
Telephone
Mailing Address
City
State
Zip
E-mail

1) Please send me a training manual for the program(s)
included ($30.00 each) $ _______________________
2) Shipping rate (see table below) $ _______________________
3) Indiana sales tax
(add lines 1 and 2 above and multiply by .07) $ _______________________
4) Training registration fee ($50.00 each) $ _______________________
Total amount enclosed
(add lines 1 through 4 above) $ _______________________

(Payment or Pesticide Order Number is required prior to attending the program)
☐ Enclosed is a check or money order payable to Purdue University.
☐ Enclosed is a purchase order.
P.O. Number: _______________________

☐ Charge to (check one):
☐ MasterCard ☐ VISA ☐ Discover
Account Number _______________________
Exp. Date _____ CVV Code _____ Zip Code: _______________________
Signature _______________________

☐ Auxiliary aids and services are required due to a disability. Please contact this registrant at the above phone number.

Register only one person per form. You may photocopy this form as needed.

Purdue University Cooperative Extension Service is an equal access/equal opportunity institution.
Pesticide label language

Agriculture Use Requirements
- Re-entry intervals (REI)

Worker Protection Standards
- Personal Protective Equipment (PPE)

Pre-harvest intervals (PHI)

EPA registration number

Restricted Use Product (or not)

Much more... (drift, environmental hazards, etc)

Pesticide label is a legal document
RESTRICTED USE PESTICIDE
Toxic to fish and aquatic organisms.
For retail sale to and use only by certified applicators, or persons under their direct supervision and only for the uses covered by the certified applicator's certification.

- License required to purchase or use.
- Record keeping required by both seller and user.
Private applicator record requirements

- Required for Restricted Use Products
- Recorded within 30 days of application
- No specific form required*
- Records kept for 2 years
- Inspection by OISC possible
  - Have authority to enter your property
**RUP required information**

- Location
- Applicator name and permit number
- Date of application
- Crop
- Pest
- Acres treated
- Rate
- Total amount used
- Brand name and formulation
- Manufacturer
- EPA registration number

See PPP-18  Crop Production Record Keeping System
Reasons for Record Keeping

- Required by law (for RUPs)
- Part of a good pest management plan
- Provides liability protection
- Used to justify insurance claims
- Requested in real estate transfers
- Assists medical personnel
Worker Protection Standards

• All employees must undergo Pesticide Training
• WPS Poster must be displayed in the employee workspace
• Labels and MSDS sheets must be available
• Post location of nearest emergency medical facility
• Post facts about each pesticide application
• Treated areas must be posted with warning signs before application
• Much more (decontamination supplies, PPE, etc.)
Pesticide Information

- National Pesticide Information Retrieval System
  http://npirspublic.ceris.purdue.edu/npirs.html
- National Pesticide Information Center
  http://npic.orst.edu/
- Office of the Indiana State Chemist
  http://www.oisc.purdue.edu/pesticide/index.html
- Purdue Pesticide Program
  https://ag.purdue.edu/extension/PPP/Pages/default.aspx
- Crop Data Management Systems
  http://www.cdms.net/LabelsMsds/LMDefault.aspx?
- Greenbook
  http://www.greenbook.net/
- Agrian
  http://www.agrian.com/home/
Questions about pesticides?
Spray Technology Basics
Skid mounted or backpack sprayer
Sprayer Types

• Air-blast (air assist, concentrate)
  – Use air to carry pesticide solution to target
  – Low volume (25 to 100 gallons per acre)
  – Most common in vineyards, orchards, & hopyards

• Hydraulic (dilute)
  – Use high flow rate and high pressure to move liquid to target
  – High volume (200+ gallons per acre)
  – Not common in orchards, etc. where target is large
  – Used for weed control in many crops
Types of Air-blast Sprayers

• Liquid pressure
  – High pressure liquid with hollow cone nozzles
    • Berthoud, FMC John Bean, Durand-Wayland, Air-o-Fan, etc.
  – Low pressure liquid with shear fan or mist nozzles
    • AgTec, Kinkelder, Hardi

• Fan type:
  – Axial fan (air plane), Radial fan (squirrel cage), hydraulic fans (Proptec)

• Head type
  – Cannon head, orchard head, tower, boom

• Trailer or tractor 3 pt hitch
Spraying Hops with axial fan air-blast
Turbo-Mist
(ultra low volume)
Tower/boom-type

Being tested in Ontario by Dr. Jason S.T. Deveau
Airblast 101 (OMAFRA & Croplife Canada)

http://www.sprayers101.com/
General Guidelines

• Choose sprayer based on needs
  – Acreage, tractor hp, trellis type, etc.
• Understand sprayer operation and calibration
• Adjust rate according to canopy development
• Determine coverage by using water sensitive paper
• Adjust speed, flow rate, etc. if coverage is not adequate
Weed Control in the Hops Row

- Mechanical cultivation
- Mulching
- Chemical
  Pre-emergent and/or post-emergent herbicides
    - Band-applied - one or both sides of each row

Hydraulic sprayer with single of double sided boom
  - Even fan nozzles, offset nozzle body
  - Low volume (20-40 gpa) (small target)
  - Low pressure (15-30 psi) to reduce drift

Low-volume CDA Sprayers (Controlled Droplet Atomizer)
  - Shielded to prevent drift
  - For post-emergent herbicides only
Boom and Nozzles
Low volume shielded CDA sprayer
Post-emergent only

12 V electric pump
Pesticides and Sprayer Technology Summary

Hops require intensive management of pests

- Proper pest and disease identification
- Choose appropriate control measures
- Timely and effective application
  - Appropriate spray equipment
- Stay current on pesticide registrations and rules
- Be a good neighbor and land steward
Questions about pesticides or sprayers?