

# Pesticides: Safe and Effective Use

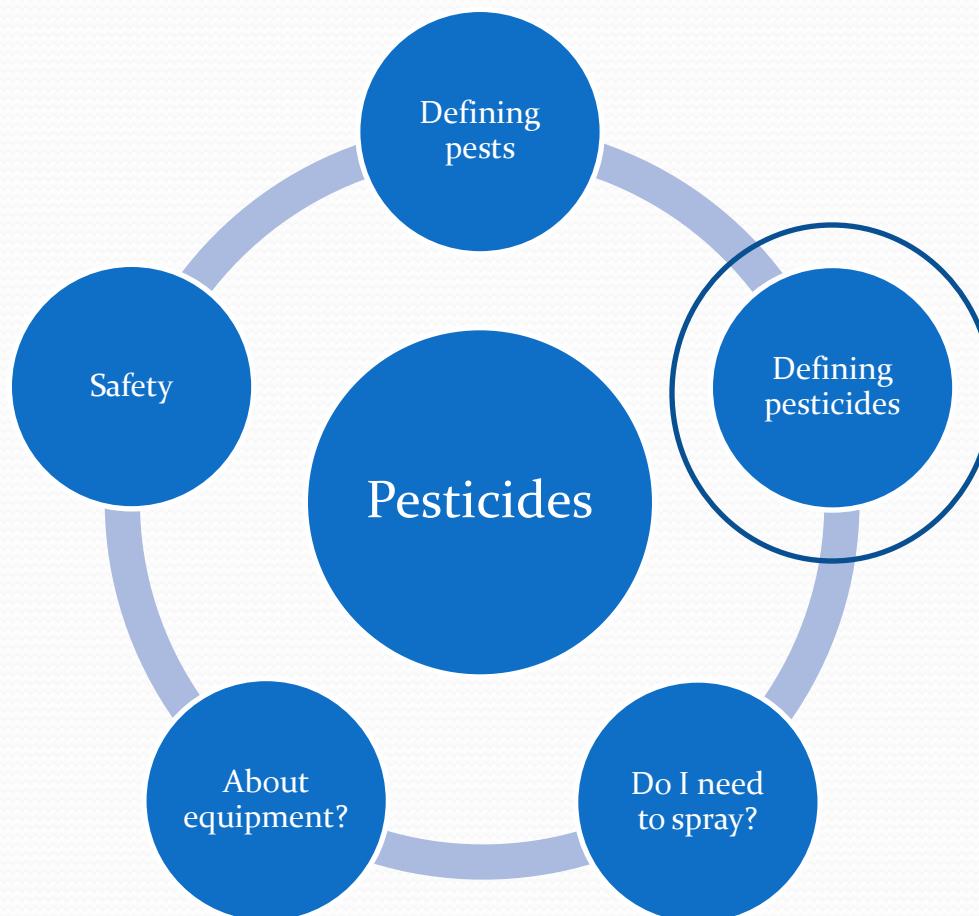
Prepared by Mark Bell, Mark Henderson and  
Frank Zalom with input from  
Ehsan Ehsanullah  
and Tom Brown



# Course objectives

- Know key points in the application and safe use of pesticides
- Note: At the end, participants will take a review quiz to show they can recall all the key points.
- Support materials – fact sheets and check lists, review quiz,

# Course structure



# Defining Pesticides

- What is a pesticide?
- A pesticide is any material (natural, organic, or synthetic) used to control, prevent, kill, suppress, or repel pests.

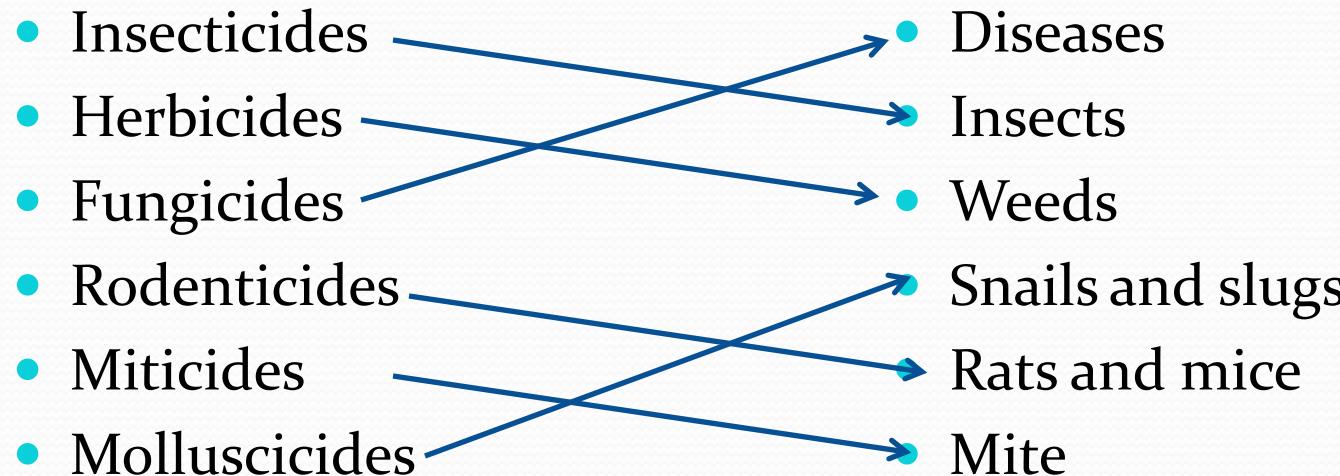


UC Statewide IPM Project  
©2000 Regents, University of California

# Defining Pesticides



Match the pesticide with... what it controls...



# Defining Pesticides

- Will different pesticides control other types of pests?
  - For example, will a herbicide control insects?
  - Almost never!

# Defining Pesticides

- If you have more than one type of problem pest (say a disease and an insect), can you mix pesticides?
  - Sometimes, but read the label
  - Many times mixing products will mean products do not work



# Defining Pesticides

- "Pesticides" come in different forms. The most common are:
  - Water soluble (WS)
  - Emulsifiable concentrates (EC)
  - Wettable powders (WP)

# Defining Pesticides

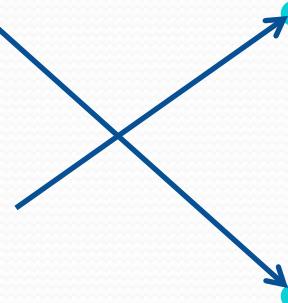
- Which requires constant agitation in the tank?
  - Water soluble
  - ✓ ● Emulsifiable concentrates
  - ✓ ● Wettable powders
- Why?
  - Because they separate out of solution
- What happens if they separate out of solution?
  - Uneven chemical application – uneven control
  - Unhappy customers!

# Defining Pesticides

- Which causes greater nozzle wear?
  - Water soluble
  - Emulsifiable concentrates
  - ✓ • Wettable powders

# Defining Pesticides

Match the following:

- Contact pesticide
  - Systemic pesticide
- 
- Moves through the plant to have its effect.
  - Must hit the target pest or coat the plant being protected. Requires complete coverage of the plant for best effect.

# Defining Pesticides

- What is the difference between a selective and a non-selective herbicide?
- A non-selective herbicide ....
  - Kills all weeds (and the crop!)
- A Selective herbicide....
  - Kills certain weeds in certain crops

# Defining Pesticides

- What was used here – a selective or a non-selective herbicide?
- A Selective herbicide....
  - has only affected the weed – not the crop



# Defining Pesticides

What is LD<sub>50</sub>?

- LD<sub>50</sub> tells about the toxicity or danger of a product to humans and animals.
- LD<sub>50</sub> is the dose required to kill half a non-target population of animals (usually rats).
- Which is safer?
  - Product A LD<sub>50</sub> = 750
  - Product B LD<sub>50</sub> = 1750
- Why?
  - Because more of product B is required to have the same toxic effect.
- Aim to use products with an LD<sub>50</sub> of more than 1000.



# Defining Pesticides

- All products carry key “signal” words on the label telling about the potential dangers of a product
- Look for
  - Caution
  - Warning
  - Danger
- Which do you think is most dangerous?
- Which is least dangerous?