

Pesticides: Safe and Effective Use

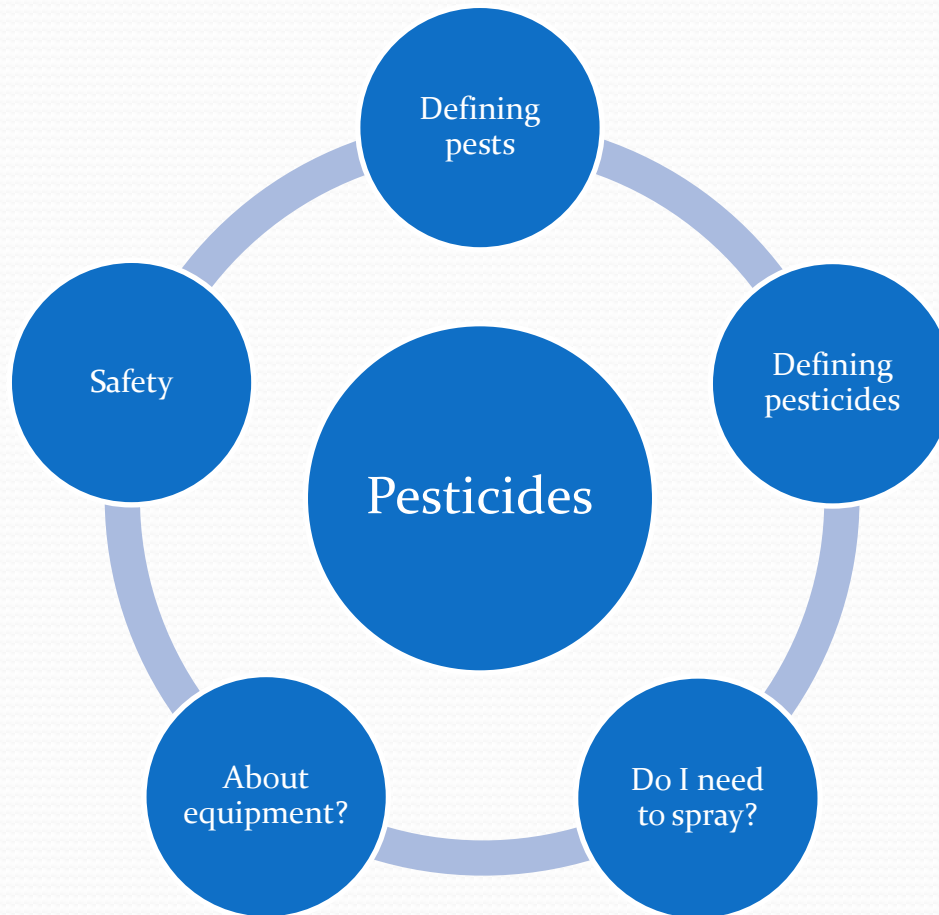
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Course objectives

- 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 pests

- What is a pest?
- “Any organism that damages crops”
- Do all pests need to be controlled?
- No
- Why?
- Only important if cause economic loss
Other reasons?
- e.g., Long term build up



Defining pests

- What are the options for controlling pests?
- Cultural – such as variety and hand weeding
- Biological control - e.g., Lady bugs eat aphids
- Pesticide



Note: All photos UC IPM – unless otherwise indicated

Defining pests

What are the major types of pests?

Weeds

Insects

Diseases

Mites

Rodents

Snails & slugs



Defining pests – why important?

	Weeds	Insects	Disease	Mites	Rodents	Snails/ slugs
Compete for water nutrients and light	✓					
Reduce fruit quality	(✓)	✓	✓	(✓)	(✓)	(✓)
Reduce leaf area (PS)		✓	✓	✓	✓	✓
Reduce nutrient flow in plant			✓			

PS = photosynthesis

About Weeds

Not all
weeds are
the same

Grasses

Broadleaves

Sedges



About Weeds

What characterizes Grasses?

- Leaves are narrow, arranged in sets of two; stems are rounded or flattened.



About Weeds

What characterizes Broadleaves?

- Leaves are wide, veins branch out in different directions.



About Weeds

What characterizes Sedges?

- Leaves are narrow, arranged in sets of three; stems are triangular in cross section.



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About weeds

- Why is this important?
- Can you control a grass with a broadleaf herbicide?
- Rarely!
- Do different broadleaves need different types of herbicide?
- Often – as do different grasses and different sedges
- The exception to all is when a **non-selective** herbicide can be used to control everything



About Diseases

Not all
diseases are
the same

Bacteria

Fungal

Viruses



About Diseases

Just like weeds, each disease and each type almost always needs a different treatment

- Viruses can almost never be controlled by chemicals
- Viruses are usually spread by insects
 - so insect control may be the best form of control for viruses



About Diseases

- Note that many diseases (especially bacteria and viruses) spread by contact.
- Thus it is important to advise orchard growers to sterilize any pruning equipment or other equipment used to chop branches, etc..

