

PLNT 1213
Note outline

Pest management

Chapter 16

Objectives

Define weeds, diseases, and insects and describe crop losses caused by those pests

Understand pest management strategies

Calculate herbicide application rates

Describe why pesticide resistance occurs and how it can be prevented

Define integrated pest management and describe IPM practices

Weeds

What is a weed?

Weeds cost American farmers approximately 40 billion dollars each year!

Why do weeds cause crop losses?

The more closely a weed is related to the crop,

Examples of weed control methods:

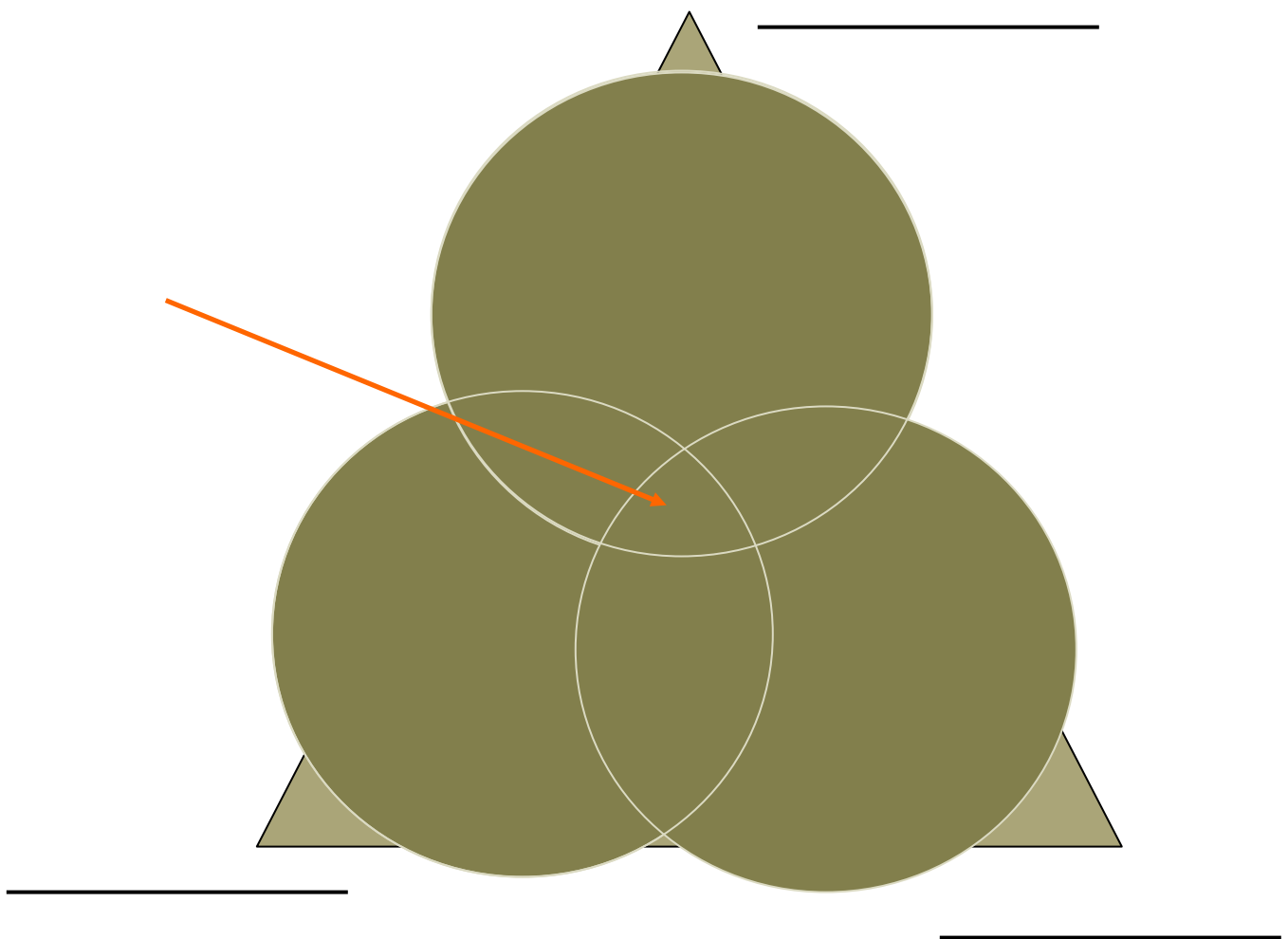
10 weeds commonly found in OK (see identification slides posted with homeworks):

Diseases

What is a disease?

Pathogen:

The disease triangle: in order for a disease to occur, all three conditions must be conducive to the development of the disease



Most economically important disease are caused by _____.



Examples of disease management

Insects

There are approximately 600 species of insects and arachnids that are harmful to crops.

How do insects damage crops?

- 1.
- 2.
- 3.

Examples of insect management:

Pest Management Strategies

1. _____

Carried out by

Three key concepts are:

2. _____

Examples:

3. _____

4. _____

5. _____

Pesticides can be classified according to:

Pesticide application

Applying the correct rate is critical because

Over application is likely to

Under application is likely to

To apply pesticide correctly, you need to know:

The amount of

The amount of

The volume of

The number of

Example:

You want to control johnsongrass in your 55 acre RoundUp Ready soybean field. The state extension specialist recommends you apply 1 pound of the active ingredient, glyphosate in 25 gallons of water per acre.

1. If you have a 300 gallon spray tank, how many times will you need to fill the tank?

2. If each gallon of RoundUp contains 3 pounds of glyphosate, how much RoundUp do you need for the field and for each tank?

Solutions:

1. $55 \text{ A} \times 25 \text{ gal water per A} = 1,375 \text{ gallons of water}$

$1,375/300 = 4.58 = \mathbf{5 \text{ times}}$

2. $55 \text{ acres} \times 1 \text{ lb per A} = 55 \text{ lbs glyphosate}$

$55 \text{ lbs glyphosate}/3 \text{ lbs per gal} = \mathbf{18.33 \text{ gal RoundUp total}}$

$300 \text{ gal water}/25 \text{ gal per A} = 12 \text{ A per tank}$

$12 \text{ A} \times 1 \text{ lb per A} = 12 \text{ lbs glyphosate}$

$12 \text{ lbs}/3 \text{ lbs per gal} = \mathbf{4 \text{ gal glyphosate per tank}}$

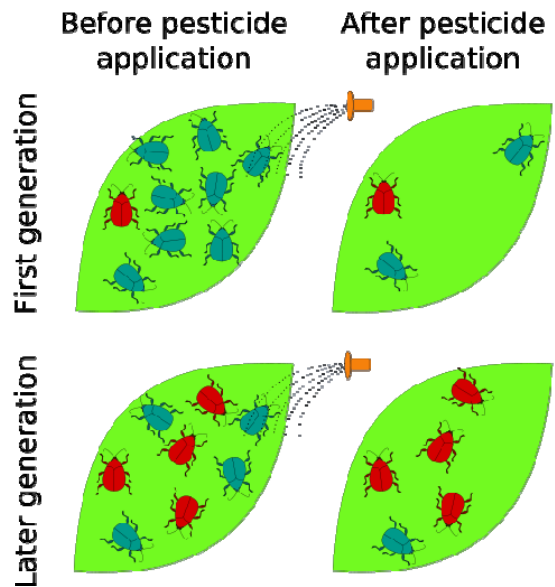
Pesticide resistance

It is not uncommon for pests to develop resistance to pesticides. This is largely because

Any pests that survive the application will
produce additional resistant pests. This is

_____ , not a

_____ !



Pesticide resistance can be prevented by:

Integrated pest management (IPM)

One concept that has become important in pest management is IPM. IPM is a series of pest management evaluations and decisions that consider

There are four principles of IPM:

Prevention

Thresholds

Monitor

Crop scouting

1.

2.

3.

Scouting patterns

Control