# Managing Weeds

# Timeliness of weed control

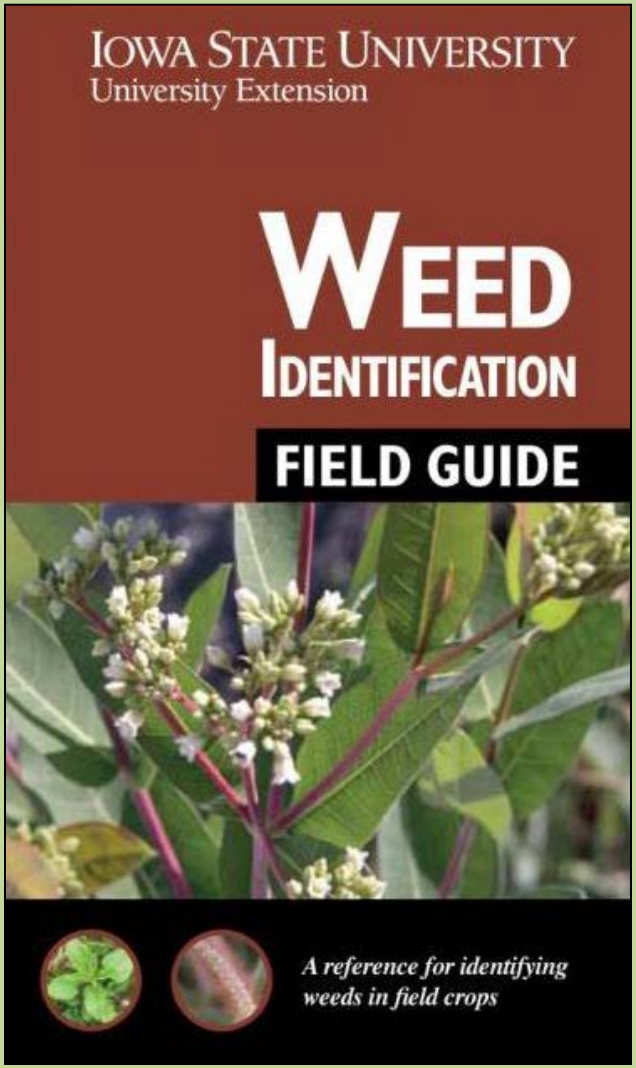
- Weeds are best controlled within the first several weeks after a crop is planted
- Herbicides are more effective against smaller weeds
- Smaller weeds are less competitive than larger weeds

# Maximize profit

- Weed management programs should maximize profit, not just weed control
- Some weeds may need 100% control if they are particularly competitive, persistent, or difficult to control

# Proper identification

Identifying weeds is important for developing effective management plans



# Weed Control

- Preventative
- Cultural
- Mechanical
- Chemical

# Weed Control – Prevention

## Not allowing weeds to become established

- Control in non-cropland areas
- Plant weed-free crop seed
- Not spreading manure, hay, or crop residue on fields that is contaminated with weed seeds
- Clean machinery between fields
- Eliminate “new” weeds that appear

# Weed Control – Cultural

## Altering the environment

- Crop rotation
- Cover crops and canopies

Photos courtesy Laura Greiner

# Weed Control – Cultural

## Giving crops competitive edge

- Narrow row spacing (soybeans)
- Proper planting date and seeding rate
- Using resistant varieties
- Insect control
- Adequate soil fertility
- Adequate drainage
- Seed treatments (soybeans)

# Weed Control – Mechanical

**Physical disruption of the environment**

- Tillage (both vegetative and seed)
- Cultivation and rotary hoeing
- Mowing
- Mulching

# Weed Control - Chemical

## Herbicide use

- Selective
- Nonselective
  - Burn-down treatment
- Rate and timing are critical

# Herbicide Decisions

## Soil-applied herbicides (preemergence)

- Control weeds as seeds germinate
- Reduce early-season weed competition
- Protect yield potential
- Provide residual activity
- Provide greater flexibility in timing of postemergence herbicides

# Herbicide Decisions

## Postemergence herbicides

- Target weed species not controlled by soil applications
- Some control weeds emerged at the time of application
- Others control emerged weeds and provide residual activity against later emerging weeds

# Selecting Herbicides

**Considerations from the previous year**

- Weed escapes the previous year
- Environmental conditions that may be favorable for carryover
- Herbicide-tolerant crops used

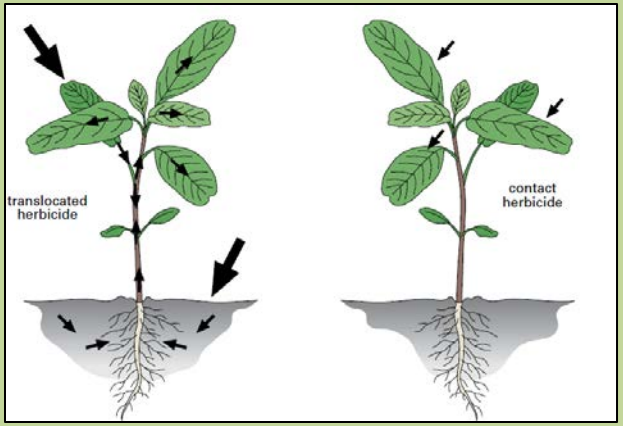
# Selecting Herbicides

**Considerations for the current year**

- Weeds present
- Herbicide-tolerant crop plans
- Tillage plans
- Herbicide resistance development
- Timing
- Crop rotations for future years (carryover)
- Label restrictions

# Herbicide Classes

- Different classes of herbicides
- Mode of action - mechanism by which a herbicide kills a plant
- Site of action - Specific protein to which a herbicide binds, disrupting a physiological process in plants
- Herbicides with the same mode of action may or may not have the same site of action



# Summary

- Weed management is vital for maximizing crop production.
- Because weed species vary in their response to different management strategies, proper identification is essential to develop effective management plans.
- Weed management plans include preventative, cultural, mechanical, or chemical control methods that are specific to the particular cropping system and weeds present.
- Control methods must be employed at the appropriate time for optimum results.