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.