

# Bramble Weed Management

## Cultural Control Options

# Weeds

## What Makes a Plant a Weed?

### Competition

- For light
- For water
- For nutrients



# Weeds

Identification is key to effective management

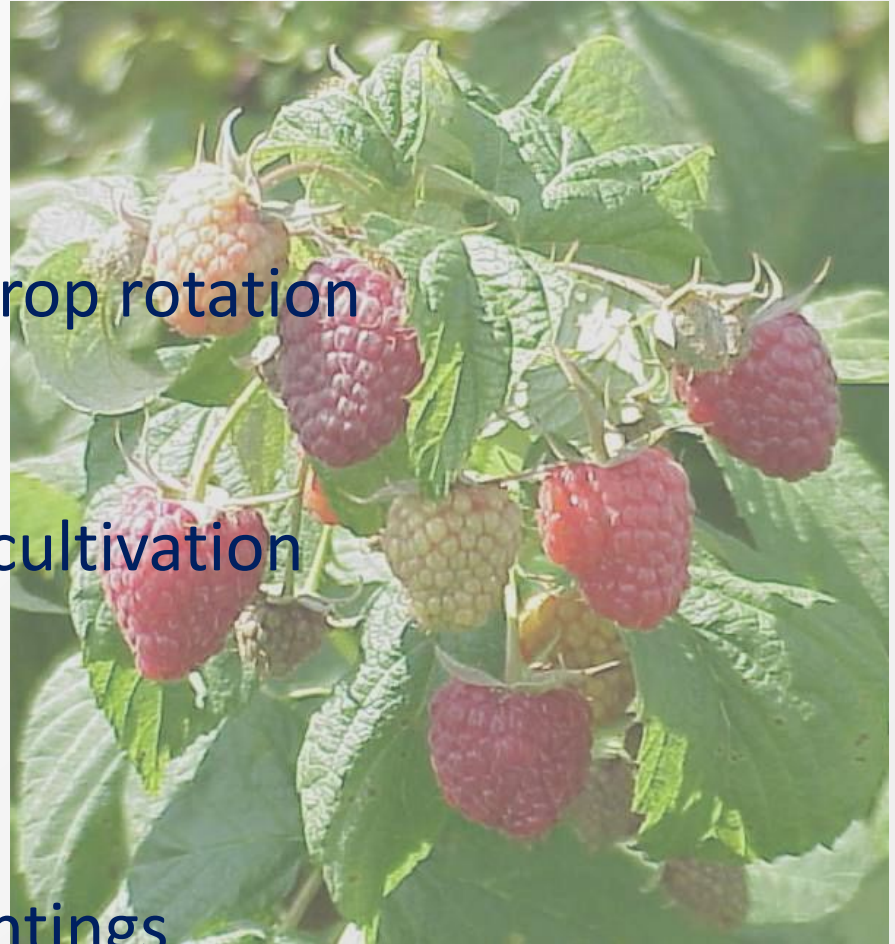
- Grass
- Broadleaf
- Annual
- Winter Annual
- Biennial
- Perennial



# Raspberries & Weeds

## Raspberries:

- Perennial
  - No opportunity for crop rotation
- Shallow rooted
  - Not suited for close cultivation
  - Poor competitors
- Herbicide sensitive
  - Especially young plantings



# Weeds

Pre-plant weed control is the cornerstone of a successful weed management program

- Should begin 1-3 years pre-planting
- Site selection
- Soil amendments
- Cover Crops
- Fallowing
- Stale seedbed/Strip tillage



# Weeds

## Site selection

- Review site history
  - Previous crops
  - Weed history
  - Weed management history
- Examine site for existing weed problems
  - Annual species
  - Perennial species
    - Wild brambles



# Weeds

## Site preparation

### Soil Amendments

- Animal Manures
  - Often contain weed seed
- Compost
  - May contain weed seed
    - Should be “finished”
      - Hot enough to destroy seeds
    - Cover piles to prevent weed seed contamination



# Weeds

## Site preparation

### Cover crops

- Improve soil structure
- Reduce weed pressure?
  - Shade out some species
  - Use allelopathic species
    - Inhibit weed seed growth
    - Sorghum/Sudan grass





# Cover Crop Options

Crop	Weed Suppression	Planting time	Organic Matter	Management	Seeding Rate lbs	Comments
Buckwheat	Very good	Summer	Very low	Moderate	35-100	Fast-growing, don't allow to go to seed
Oats	Good	Spring or fall	Medium	Easy	100	Winter kills=mulch, decays quickly
Dutch white Clover	Good	Summer or Fall	Medium	Difficult	7-14	Legume (N); difficult to control
Red Clover	Fair	Summer	Medium	Moderate	7-20	Deep-rooted; needs two seasons
Annual Ryegrass	Fair	Mid-summer	Medium	Easy	15-35	Heavy feeder; may survive winter
Cereal rye	Good	Summer-Fall	High	Moderate	90-150	Winter hardy; mines soil nutrients
Sorghum-Sudan	Fair	Summer	Very high	Difficult	30	Rapid growth; hard to incorporate



Winter Rye

Sorghum/Sudan



# Weeds

## Management Strategies

### Fallowing

- Repeated tillage throughout growing season
  - Deplete annual weed seed bank
  - Deplete perennial plant reserves
- Problems
  - Energy intensive
  - Soil structure
  - Erosion

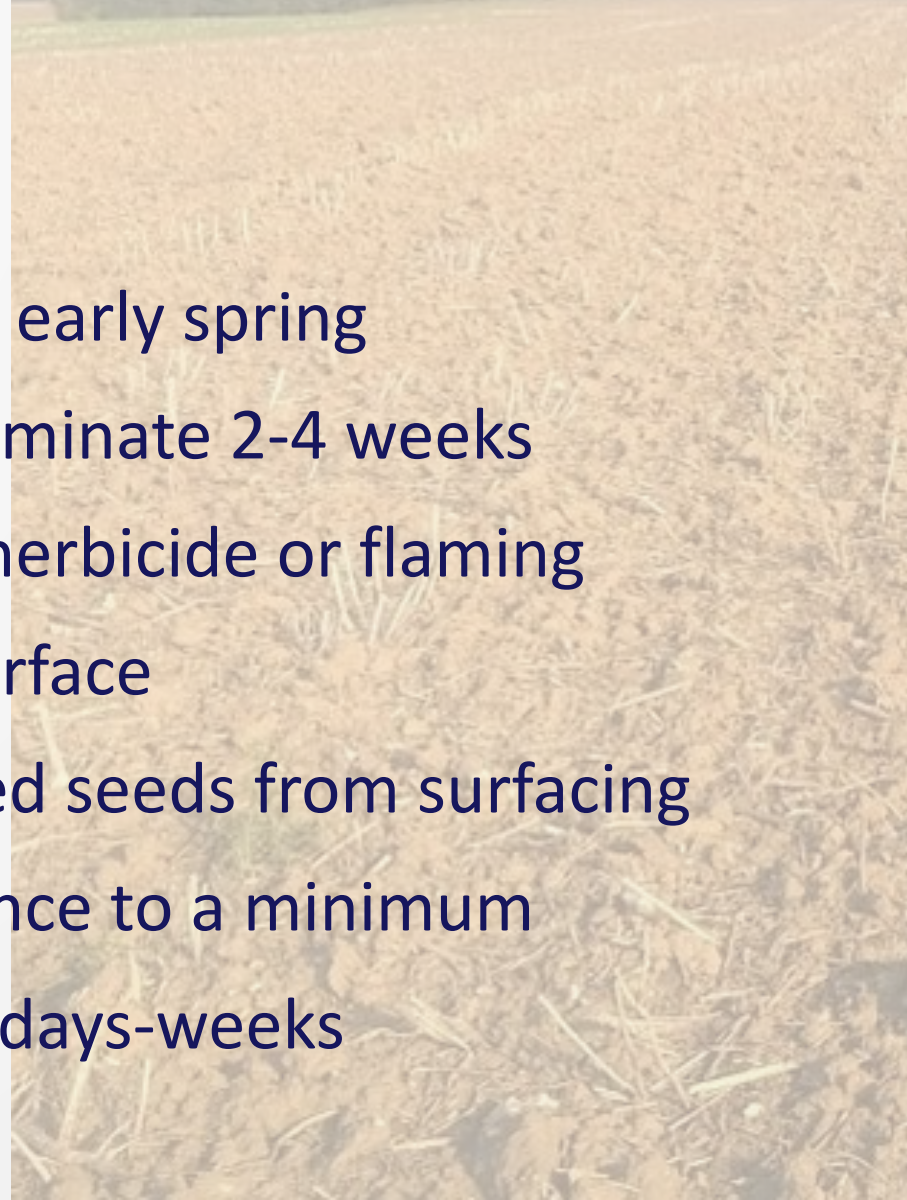


# Weeds

## Management strategies

### Stale Seedbeds

- Prepare ground in fall or early spring
- Allow weed seeds to germinate 2-4 weeks
- Kill weeds with contact herbicide or flaming
  - Do not disturb soil surface
    - Prevents new weed seeds from surfacing
- Plant, keep soil disturbance to a minimum
  - Slows new weeds by days-weeks



# Planting Year

## Delayed Planting

- Plant in mid-late June
  - Allow spring weeds to germinate
  - Lightly till, spray or flame
  - Disturb soil as little as possible
- Advantages:
  - **weed control**, labor distribution
- Disadvantages:
  - Plant quality, availability, irrigation



# Weeds



## Management Strategies

### Increase crop plant density

- Less space for weeds to grow
- Avoid intra-crop competition
  - Crops can be weeds too
  - Yield per plant vs yield per acre

# Weeds

## Management strategies

### Strip Tillage

- Prepare ground in early fall, seed cover crop
  - Winter rye, annual rye, oats
- Kill cover crop in spring (oats winter-kill)
- Till narrow (8-16") strips through dead cover
  - Requires specialized equipment
- Plant crop into strips
- Dead vegetation inhibits weed growth



# Weeds



## Strip tillage

- Specialized equipment (\$)
- Horsepower
- Cool soil
- Weeds within rows

Photo: U. Mass.



# Planting Year

## Mulch

- Between rows
  - Strip tillage residue
  - Straw
    - No hay (weeds)
  - Landscape fabric
- Cost
- Maintenance



# Planting Year

## Mulch

- Within rows
  - Straw
    - Remove in fall
  - Woodchips, shavings
    - Sawdust problems
  - Compost
    - Temporary



# Planting Year

## Mulch

- Plastic?
  - Expensive
  - Inhibits root growth?
  - Inhibits primocanes
    - Must slit plastic
    - Biodegradable types
      - More expensive



# Cultivation



# Planting Year

## Management strategies

### Cultivation

- Tines, blades, etc.
- Disturb weed roots
- Best when weeds very small
- Disturb soil as little as possible



Some hand weeding will be needed



# Planting Year

## No competition

- Cultivation
  - Between rows
    - Shallow cultivation
    - Flaming
  - Within rows
    - Hand pulling
    - Detail cultivators



# Established beds

## Clean cultivation

- Frequent, light tillage
- Directed flaming
- Hand-pulling
- Energy intensive
- Difficult with perennials
- Erosion
- Dust



# Established beds

## Clean Cultivation + Fall Cover Crop

- Frequent, light tillage spring-summer
- Seed oats in late summer, early fall
  - Oats winterkill
  - Residue acts as mulch in spring
- Summer tillage still needed
- Mulch crop needs N
- Not practical for primocane fruiting?





# Established beds

## Living Mulch (turf)

- Between plant rows (aisles)
  - Leave 3-5' width for plant rows
  - Sow August-September
  - Weak perennial grass species
    - Hard fescues, perennial rye
    - Slow to establish
- Mow regularly



# Established beds



Turf establishment in aisles

# Established beds

## Mulch

- Within rows
  - Woodchips, shavings
    - Free of weed seed
    - 4-8" thick
    - Add more as needed
    - Effect on fertility
      - N, pH



# Established beds

## Annual Maintenance

- Keep grass aisles mowed
  - Don't over fertilize
  - Control encroachment
    - Burning, herbicide
- Replenish mulch
  - Shading reduces need
- Hand weeding
- Keep surrounding area mowed



# Weeds

## Management strategies

### Herbicides

- Pre-Emergent
- Post-Emergent
  - Costly
  - Won't control all weeds
  - May injure crop plants
  - Requires specialized equipment
  - Follow all label directions and precautions



# Planting Year Herbicides

## *Pre-emergent*

- *Devrinol* (napropamide, 4-8 lb)
  - Controls some annuals, grasses
- *Surflan* (oryzalin 2-6 qt)
  - Controls some annuals, grasses
- *Princep* (simazine, 1-2 qt)
  - Broadleaf control compliments Devrinol, Surflan



# Planting Year Herbicides

## *Post-emergent - Grasses*

- *Poast* (sethoxydim, 1-2 pt)
  - Must add crop oil
  - Don't use when hot
- *Select Max* (clethodim, 6-8 oz)
  - Must add crop oil
  - Repeat application for perennial grasses



# Planting Year Herbicides

## *Post-emergent*

- *Must use shielded sprayer*
  - No pre-emergent activity
- *Roundup (glyphosate)*
- *Scythe (pelargonic acid, 3-10%)*
  - Burn down only





# Established Bed Herbicides

## *Pre-emergent*

- *Devrinol* (napropamide, 4-8 lb)
- *Surflan* (oryzalin 2-6 qt)
- *Princep* (simazine, 1-2 qt)
- *Sinbar* (terbacil 1-2 lb)
- *Casoron* (dichlobenil 1.4-2.8 gal)
- *Sandea* (halosulfuron 0.5-1.0 oz)



# Established Bed Herbicides

## *Post-emergent*

### Grasses

- *Poast* (sethoxydim, 1-2 pt)
- *Select Max* (clethodim, 6-8 oz)

### Grasses + Broadleaves

- *Gramoxone* (paraquat 2-4 pt)
- *Aim* (carfentrazone 1-2 oz)
- *Roundup* (glyphosate 1-5 qt)
- *Scythe* (pelargonic acid, 3-10%)
- *Sandea* (halosulfuron 0.5-1.0 oz)

# Raspberry Weed Management

## Summary

- Average bed life 10-15 years
- Most common reason for early bed failure: **Weeds**
- **Path to Success:**
  - Pre-plant preparation
  - Cultivation
  - Mulch
  - Hand-pulling
  - Vigilance!



