Preemergence Weed Control

Before Weeds Emerge
-- more importantly --
Before Weeds Germinate

Preemergence weed control options

- Mulches prevent germination and establishment by excluding light
- Preemergence Herbicides Prevent seedling establishment

Mulches: #1 defense against annual weeds

Bare ground Mulched

Mulches
- Control many annual weeds from seed
- Do not control perennial weeds from roots, tubers or rhizomes
- Must be replenished yearly

Kinds of mulches

Mulches
- Types: organic, inorganic, geotextile
- Function: exclude light to prevent seed germination and seedling establishment
- Also, holds moisture and improves aesthetics

Pigweed: an annual weed controlled by mulches
Horsenettle: a perennial weed not controlled by mulches
What makes a good Mulch?

- Coarse texture to dry out
- Aesthetically pleasing
- Will not wash
- Relatively weed free
- Not phytotoxic

Phytotoxic mulch?

- Anaerobic mulches can burn tender plants. Make sure mulches are properly composted and stored
- Pine straw can stunt pansy growth

Pansy beds

- Use a fine textured mulch around the plants – composts will do fine because they will be rototilled into the bed the following spring
- Edge the bed with pine straw to prevent washing

Most annual beds are done this way

Mulches -- How Much?

- Organic mulches: ~ 3-4 in
- Inorganic mulches: ~ 3 in
- With a geotextile: ~ 2 in

How much mulch is enough?

Source: Greenley and Rakow, 1981
How Much Mulch Do You Need?

- Bark mulch: 1 cu yd covers ~ 100 sq ft to a depth of 3 inches
- Pine Straw: 1 bale covers about 35 sq ft.

Geotextile fabrics

- Woven or spun-bonded plastic fabrics
- Allow water and air to penetrate
- Often sold at “weed mats” or “weed fabrics”

Geotextile fabrics -- Advantages

- Long term annual weed control
- Soil stabilization
- Holds moisture
- Possible add-on service $$

Geotextile fabrics -- Disadvantages

- Cost – materials and installation
- Site preparation: eliminate perennial weeds
- Must cover with mulch
- Perennial weeds can penetrate
- Annual weeds grow on top
- Mulches slip off
- In heavy soils, it may hold too much moisture
- Decomposing organic mulches create a humus layer where weeds can germinate

Geotextile fabrics do not control perennial weeds

- Vegetatively propagated perennial weeds can emerge through geotextile fabrics
- Bermudagrass
- Nutsedge
- Mugwort

Many perennial weeds can grow through geotextile fabric mulches

- Equisetum will emerge through geotextiles
Weeds germinating on top can grow through the mulch

- Roots penetrate the fabric more easily than shoots

![Weeds growing through the mulch damage the geotextile](image1)

Biggest problem with geotextiles is proper installation

- Not installed correctly: Edges come up, mulch washes off. Unsightly and ineffective.

![Biggest problem with geotextiles](image2)

Steps in proper installation

- Dig trench around perimeter of bed

![Steps in proper installation](image3)

Step 2: place geotextile over bed

- Install geotextile over plants. Don’t try to plant through the bed
- Dirt on top of the fabric leads to weeds.

![Step 2: place geotextile over bed](image4)

Step 3: Anchor edges in SOIL (not mulch)

- Bury edges in soil. [remember, roots will grow through the fabric]
- Mulch-only will allow edges to come up

![Step 3: Anchor edges in SOIL](image5)

Step 4: Cover with enough mulch to prevent light degradation

![Step 4: Cover with enough mulch to prevent light degradation](image6)
Types of Geotextile fabrics

- Lots of different types:
  - Spun bonded
  - Woven
  - Needle punched
- Yes, between consumer and professional grade products.
- Smooth vs. textured can make a difference on slopes. Mulches slip off smooth more easily. Install with fiber side up.

Advice: if you use a geotextile

- Control perennial weeds before planting
- Use shallow layers of mulch
- Keep geotextiles totally covered
- Remove / kill emerged weeds when small
- Consider using inorganic mulches
- Consider preemergence herbicide with geotextile when weeds become abundant or for yellow nutsedge control

Relative Weed Control Costs

<table>
<thead>
<tr>
<th></th>
<th>2 in. bark</th>
<th>4 in. bark</th>
<th>Geotex. + Herb + bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbicide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geotextile</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bark</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Biobarrier: An Alternative?

- Geotextile fabric impregnated with trifluralin
- Prevents most weeds from growing through the fabric

Some Weeds Like Growing in Mulches

Herbicides are sometimes needed