Cool Season Annuals

Germinate in **fall**

Common cool season annuals found in Sacramento
- Bur medic - Annual Ryegrass
- Sowthistle - Filaree
- Common Groundsel
- Woolypod vetch
- Cheeseweed (Mallow)

**Annual Weeds**

- Live and die within one year.

Annual weeds can produce MANY seeds

<table>
<thead>
<tr>
<th>Weed Name</th>
<th># Seeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>redroot pigweed</td>
<td>117,400</td>
</tr>
<tr>
<td>purslane</td>
<td>52,300</td>
</tr>
<tr>
<td>groundsel</td>
<td>25,000</td>
</tr>
<tr>
<td>sunflower</td>
<td>7,200</td>
</tr>
</tbody>
</table>

It is important to control weeds BEFORE they produce seeds

Name: **Groundsel**
Notes: Shallow tilling or hoeing young plants.
Name: **Filaree**  
Controls: solarization, hand weeding.

Name: **Sowthistle**  
Controls: easily controlled with Roundup. Solarization.

Name: **Woolypod vetch**  
Controls: post-emergent herbicides
Name: **Mallow**
Controls: Cut off crown of young plants (older plants can regrow from the crown), hoeing, shallow tillage.

Name: **Bur medic**
Controls: Resistant to fumigants, hand weeding, solarization.

Name: **Annual Ryegrass**
Controls: solarization, tillage.
Warm Season Annuals

Germinate in **March**.

- Purslane
- Crabgrass
- Junglerice
- Prostrate spurge
- Barnyard grass
- Lambsquarters
- Pigweed

Name: **Purslane**
Controls: remove plants from field to prevent re-rooting, solarization.

Name: **Barnyard Grass**
Controls: solarization, hand weeding.

Name: **Lambsquarters**
Controls: hand weeding, solarization.
**Name: Crabgrass**
Controls: mow before it produces seed, mechanical tillage, solarization.

**Name: Redroot Pigweed**
Controls: solarization (kills seeds), hand weeding.

**Name: Junglerice**

**Name: Spurge**
Controls: solarization, hand weeding.
### Perennial Weeds

**Perennial Weeds**

-Live longer than 2 years

Common perennial weeds found in Sacramento County:
- Bermuda grass
- Yellow nutsedge
- Field bindweed
- Curly Dock

Perennials weeds can reproduce from plant parts and from seeds.
- Yellow nutsedge: 1 tuber = 1,918 plants in one year
- Bindweed: roots can grow 25 inches deep

Remove entire plants from field so they don’t return

Name: **Bermuda grass**

Controls: Hand weeding - must remove plant from the field, solarization.
Name: **Field Bindweed**
Controls: rotations with lettuce or cole crops, solarization. Fumigation only kills down to 12 inches.

Name: **Nutsedge**
Controls: Solarization kills top 3 inches. No registered herbicides control nutsedge, but can spray fallow field. Hand weeding.

Name: **Curly Dock**
Controls: hand weeding (remove root), cultivation.
# Integrated Weed Management

For best results use a combination of methods to control weeds

## Methods of Control:
- Mechanical
- Plastic mulches
- Crop Rotation
- Solarization
- Herbicides

Control weeds EARLY before they become established and spread. Weed frequently BEFORE they set seed. When the crop is finished or when a field is fallow, don’t let weeds go to seed.

## Mechanical Control
- Prepare your beds
- Irrigate beds to make weeds sprout
- Remove or kill weeds
- Lay plastic mulch

**Tractors** can also be used to control weeds in the furrows.

If **hand weeding** remove weeds **entirely** from the field in order to prevent them from producing seeds or re-rooting.

**Flame weeders** use fire to burn and kill plants. Best if used prior to laying plastic.
Black, brown, or green plastics prevent or slow weed germination by preventing light from penetrating onto the soil.

**Solarization**

Clear plastic mulch placed over the beds for 4-6 weeks in the summer. The plastic acts as an oven and heats the soil, killing weeds and soil-borne diseases. Rows should be oriented north to south.

**Crop Rotations**

Rotations break the life cycle of weeds. Cereal crops can be competitive and effective in suppressing weeds. Herbicides that are not permitted for use in strawberries, may be registered for use in other crops. Furthermore, tractor tillage can be used to control weeds between crops.
Pre-emergent herbicides kill seedlings as they germinate.

- Need water or mechanical incorporation to activate.
- Can persist 3-6 months in the soil (or longer).

### Pre-Emergent Herbicides

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Chemical</th>
<th>Pre Harvest Interval (PHI)</th>
<th>Restricted Entry Interval (REI)</th>
<th>Rate</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 2XL</td>
<td>Oxyfluoren</td>
<td>Apply 30 days prior to laying plastic</td>
<td>24 hours</td>
<td>1-2 pints/acre</td>
<td>$246/2.5 gal ($12-25 per acre)</td>
</tr>
<tr>
<td>Devrinol 2-EC</td>
<td>Napropamide</td>
<td>Do not apply after first bloom</td>
<td>24 hours</td>
<td>2 gal/acre</td>
<td>$93/2.5 gal ($18-36 per acre)</td>
</tr>
<tr>
<td>Dacthal 75WG</td>
<td>Dacthal</td>
<td>Do not apply after first bloom</td>
<td>12 hours</td>
<td>8-12 lbs/acre</td>
<td>$15/lb.</td>
</tr>
</tbody>
</table>
Post-emergent herbicides control the plant after germination.

- No water or incorporation needed.
- Break down in the soil.
- Used only in the furrows.

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Chemical</th>
<th>Pre Harvest Interval (PHI)</th>
<th>Restricted Entry Interval (REI)</th>
<th>Rate</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup Weather Max</td>
<td>Glyphosate-phosphate</td>
<td>14 days</td>
<td>4 hours</td>
<td>Depends on height of weeds</td>
<td>($10-27 per acre)</td>
</tr>
<tr>
<td>Poast</td>
<td>Sethoxydin</td>
<td>7 days</td>
<td>12 hours</td>
<td>2.5 pints/acre maximum.</td>
<td>$190/2.5 gal. ($9-24 per acre)</td>
</tr>
<tr>
<td>Scythe</td>
<td>Pelargonic Acids</td>
<td>0 days</td>
<td>12 hours</td>
<td>Depends on type of weed</td>
<td></td>
</tr>
</tbody>
</table>
**Pesticides- Fumigants**

**Fumigants**

Fumigants help control the weeds, seeds, and diseases.

Highly toxic!

Must have a permit with the county to utilize.

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Chemical</th>
<th>Treatment to Planting Interval</th>
<th>Restricted Entry Interval</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapam**</td>
<td>Metam Sodium</td>
<td>14-21 days</td>
<td>48 hours</td>
<td>$450</td>
</tr>
</tbody>
</table>

**Permit required from county agricultural commissioner for purchase or use.**
<table>
<thead>
<tr>
<th>Weeds</th>
<th>Fumigant</th>
<th>Pre-Emergent</th>
<th>Post-Emergent</th>
<th>Cultural Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vapam</td>
<td>Dacthal</td>
<td>Devrinol</td>
<td>Goal</td>
</tr>
<tr>
<td>C =Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P =Partial Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T =Top kill only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-- =Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Annuals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barnyard Grass</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>P</td>
</tr>
<tr>
<td>Bur medic</td>
<td>N</td>
<td>N</td>
<td>P</td>
<td>N</td>
</tr>
<tr>
<td>Filaree</td>
<td>P</td>
<td>P</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Common Groundsel</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Lambsquarter</td>
<td>C</td>
<td>C</td>
<td>P</td>
<td>C</td>
</tr>
<tr>
<td>Cheeseweed/Mallow</td>
<td>P</td>
<td>P</td>
<td>C</td>
<td>C</td>
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<tr>
<td>Pigweed</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Purslane</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Sowthistle</td>
<td>C</td>
<td>P</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Spurge</td>
<td>--</td>
<td>P</td>
<td>C</td>
<td>P</td>
</tr>
<tr>
<td>Junglerice</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Crabgrass</td>
<td>--</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Woolypod Vetch</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Annual Ryegrass</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>N</td>
</tr>
<tr>
<td><strong>Perennials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bermudagrass</td>
<td>C</td>
<td>P</td>
<td>C</td>
<td>N</td>
</tr>
<tr>
<td>Bindweed</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Nutsedge</td>
<td>P</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>
Resources

**Plastic Mulch**

Bob: 916 8259735  
rick 5308466780  
peter 805-549 9540

**Clear Plastic**

MIP Co  
PO Box 3156  
San Luis Obispo, CA 93401-3156  
Contact: Pieter de Groot  
Tel: (805) 549-9540  
Fax: (805) 549-0384  
Cell: (805) 431-3119  
*Contact Chuck Ingles at (916)835-7458 to borrow the mulch applicator

**Herbicides**

Crop Production Services  
10210 Systems Parkway  
Sacramento, CA 95827-3074  
(916) 369-2891  
14442 West Walnut Grove Road  
Walnut Grove, CA 95690  
(916) 776-1781

Harvey Lyman Ag Services  
14301 Railroad Ave  
Walnut Grove, CA, 95690  
916-776-1744

Wilbur Ellis Co  
4707 Twin Cities Road  
Elk Grove, CA 95757-9730  
(209) 794-2551

**Fumigants**

Bill Clark (PCO) (209) 649-6719.