Peach Orchard Weed Management

W.E. Mitchem
Extension Associate
N.C. State Univ., Univ. of GA, and Clemson Univ., Cooperatively
Dept. of Horticultural Science
N.C. State University

Weed Control Program Expectations……
- Prevent competition
- Prevent erosion
- Assist with IPM
- Maximize radiant heat benefit
- Crop management and worker efficiency

Soil Influences Herbicide Rate, Activity, and Tree Health
- Soil variation within a field can result in the need to vary herbicide rates by 30%
- Chronic exposure over time will reduce tree productivity and health

Weeds Will Reduce Yields in Mature Orchards
- Yield was maximized when orchard was maintained weed-free for 11 to 12 weeks bud break
- Weed control resulted in a 40% increase in yield
- Weed control for 3 weeks after bud break was no different than doing nothing.

**Weed Management in Newly Planted Orchards**

- **PRE herbicides**
  - Chateau
  - Sinbar
  - Oryzalin
  - Prowl

- **POST herbicides**
  - Paraquat
  - Clethodim (Select)
  - Fusilade

- **Tree protection**
  - Exterior latex paint
  - Milk containers

<table>
<thead>
<tr>
<th>Herb</th>
<th>Palmetto Crab</th>
<th>Blue Crab</th>
<th>Crab Control</th>
<th>Lg Crab Control</th>
<th>% BG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch 6 oz</td>
<td>95 a</td>
<td>98 a</td>
<td>100 a</td>
<td>93 ab</td>
<td></td>
</tr>
<tr>
<td>Ch 8 oz</td>
<td>90 a</td>
<td>100 a</td>
<td>100 a</td>
<td>94 a</td>
<td></td>
</tr>
</tbody>
</table>

August 1st

March 29th and June 13th were the two application dates. Gramoxone and X-77 were included at each application time for POST weed control.

**Weed Management Program for Established Orchards**

- **Fall**
  - PRE in Oct. - Nov.
  - Alion
  - Chateau
  - Simazine
  - Karmex

- **Winter**
  - Winter annual broadleaf weed control
  - Perennial grass sod
  - Native vegetation

- **Spring/Summer**
  - Timing depends on herbicide limitations
  - Alion
  - Rimsulfuron + Oryzalin
  - Sinbar tank mix
  - Chateau (before bloom)
  - Karmex
  - Simazine + oryzalin or Slicer

**Start a Summer Weed Control Program with a Fall Applied PRE Herbicide**

- Benefits of a Fall PRE
  - Frees up time in the spring
  - Extends residual weed control into harvest
  - Radiant heat benefit
  - IPM of stink bug complex
- Apply after harvest (mid November)
- Use paraquat or glufosinate for POST control
- Herbicide options (suggested)
  - Karmex @ 2 lbs
  - Simazine @ 2 qt
  - Chateau @ 6 oz
  - Alion @ 3.5 fl oz

**Fall PRE Options**
Winter Annual Broadleaf Weeds in Row Middle

- Apply 6 to 8 weeks before bloom
- Herbicide options
  - 2,4-D amine
  - 2,4-D amine + Rimsulfuron
  - Glyphosate + 2,4-D amine

Alion 1.67SC

- Indaziflam
  - Mode of Action
    - Cellulose biosynthesis-inhibitor
    - First AI in this herbicide family
- Use rates
  - 3.5 to 5 fl. oz/A
- Trees established 3 years and longer
- 14 day PHI
- Programs:
  - Fall Summer
    - Alion 3.5 to 5 fl. oz
    - Chlorsulfuron 6 oz/A + Alion 5 fl. oz
    - Simazine 2.4 fl. Alion 5 fl. oz
    - Karmex 2 lb/A + Alion 5 fl. oz

Sequential

Alion Herbicide Label

- Rate restrictions based on soil organic matter
- 90 day interval between applications

Dose Rate Chart for Pome and Stone Fruit, Tree Nuts, and Olive

| Soil Texture | Alion Herbicide (fl oz product/1000 ft
<table>
<thead>
<tr>
<th></th>
<th>Dose Rate per Application</th>
<th>Max Rate Per Year</th>
<th>Minimum Days Between Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>fl each</td>
<td>fl each</td>
</tr>
<tr>
<td>&lt;1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 3</td>
<td>3.5 to 5 fl oz/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.045 lb ai/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 3</td>
<td>5 to 6.5 fl oz/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.060 lb ai/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*OC @ 4 hrs + AMS @ 6.5 lb/100 gal
### Reduced Rate Alion Trial

**May 5**

- **Horseweed**
- **Henbit**
- **Bareground**

Research Funded by SC Peach Council

![Graph showing Horseweed, Henbit, and Bareground compared to Simazine 2 qt, Chateau 6 oz, and Alion 3.5 fl. oz.]

### Reduced Rate Alion Trial

**August 14**

- **P. Amar**
- **P. Parslane**
- **Lg. Crab**
- **Bare Ground**

Research Funded by SC Peach Council

![Graph showing P. Amar, P. Parslane, Lg. Crab, and Bare Ground compared to Sim fb Alion 5 fl oz, Ch fb Kar + Sin, and Alion 3.5 fb 3.5.]

### Sinbar 80 WDG

- **Use rates**
  - 1 to 2 lb
- **Tree age**
  - 1 lb or less on newly planted
  - Full rate trees at 3 years
- **Tank Mix Partner**
  - Karmex @ 1 to 2 lb (1 yr)
  - Solida @ 2 oz/A
- **Programs**
  - Fall Summer
  - Chateau @ 6 oz fb Sinbar + Karmex @ 2 lb
  - Simazine @ 2 qt fb Sinbar + Karmex @ 2 lb

### Rimsulfuron Products

- **Use rates**
  - 4 oz/A
- **Cost**
  - Sinbar vs generic
- **14 day PHI**
- **Uces est. 1 year**
- **Tank Mix Partner**
  - Ch @ 2 qt fb Rim @ 4 oz
  - Sinbar
  - Karmex
- **Programs**
  - Fall Summer
  - Simazine @ 2 qt fb Rim @ 4 oz + Ch @ 4 qt

### Tangible Benefits

- **Added POST Punch**
  - Dandelion
  - Yellow nutsedge
  - Horseweed
  - Fleabane
  - Mallow
  - Mallow

**Matrix** vs. **Sinbar**
Other Tank Mix Options

- Simazine tank mixes
  - Simazine + Oryzalin @ 4 qt
  - Simazine @ 4 qt + Solicam @ 3 lb
- Karmex
  - Karmex @ 2 to 3 lb + Solicam @ 3 lb
- Prowl H2O as substitute for Oryzalin

Pindar GT

- Penoxsulam + oxyfluorfen
- Mode of Action
  - ALS inhibitor
  - PPO inhibitor
- Use rates
  - 1.5 to 3 pt/A
- Trees established 4 years and longer
- Application time
  - Fall (post harvest)
  - Late Winter (before bloom)
- Programs
  - Fall/Winter
  - Pindar GT + Pindar GT + Oryzalin
  - Chateau + Pindar GT + Oryzalin
  - Simazine + Pindar GT + Oryzalin

POST Herbicides

- Glyphosate
  - RoundupPowerMax @ 22 fl. oz/A ($4.10)
  - Generic Glyphosate @ 1 pt/A ($3.95)
  - Bulk packaging (30 gal drum and larger) will save you money
- Gramoxone
  - Gramoxone SL @ 3 pt/A
  - Generic paraquat @ 2 pt/A
- Stinger
  - Clopyralid
  - 1/3 to 2/3 pt/A
  - 30 day PHI
  - 2 applications not exceeded per year
  - Excellent on horseweed, clover, vetch, thistle, ragweed, groundsel, prickly lettuce, goosefoot

POST Herbicides

- Glufosinate (commit this to memory)
  - Non-selective
  - DO NOT allow contact with immature bark, fruit, or leaves
  - 48 fl. oz/A (DO NOT exceed 164 fl. oz/A per year)
  - Several formulations cleared for use in fruit
  - Rely (floral)
  - Reckon (Solera)
  - Life Line (MANA)
  - Expect more favorable pricing!
Weaknesses of Glyphosate and Paraquat

• Glyphosate
  - Crop sensitivity issue
  - Flooded application equipment
  - Do not apply 90 days past bloom
  - Weed Resistance

• Paraquat
  - Toxicity to handlers
  - Limited effectiveness
    - Horseweed
    - Virginia pepperweed
    - Grasses
    - Perennials

Non-Selective POST Herbicides

- Non-Selective POST
  - Paraquat
  - Glyphosate
  - Glufosinate

Costs are Important…Finding a Program with Value is Critical

- Excellent Control
  - Broad spectrum
  - Persistence
  - Impact beyond competition
  - Worker efficiency
  - IPM
- Save time
  - Minimal trips
  - Initial and follow up
  - Does it save time at the right time

Preemergence Herbicides are the Cornerstone .IMHO

In Closing

- Sometimes less is more
- You can “Get What You Pay For!”
- Easiest money made is what you can save!
- Don’t spend $10 trying to save $5!
- Don’t put all you eggs in one basket
  - Find 2 or 3 herbicide programs and rotate
Questions

Multiple GREAT PRE Options

Karmex + Sinbar

Herbicide Stewardship

Alion

Resistance Management

Chateau

This Group of PRE Herbicide Programs Represents 4 MOA's