Florida Sugarcane Production and Weed Control Strategies

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WSSA Seminar Series
Outline

- Sugarcane in Florida
- Sugarcane production practices
  - Planting to harvesting
- Common weeds in Florida sugarcane
- Weed control methods
  - Cultural weed control
  - Mechanical weed control
  - Chemical weed control
    • Commonly used herbicides
    • Application methods
Sugarcane in Florida

- Sugarcane is cultivated in the Everglades Agricultural Area (EAA) and surrounding region.
- EAA - 700,000 acres of land, organic or muck soils.
Other crops:
Sweet corn, radish, celery, cabbage, green bean
Sugarcane in Florida

- Cultivated in the Everglades Agricultural Area (EAA) and surrounding region
  - Sugarcane - main crop
  - Vegetables, rice, sod - other crops

- Four sugarcane mills
  - US Sugar mill
  - Okeelanta sugar mill
  - Osceola sugar mill
  - Sugar Cane Growers Cooperative mill
Sugarcane in Florida

- 400,093 acres cultivated in Florida in 2020
  - 71% on organic/muck soils
    - 20 to 30% organic matter
  - 29% on sand/mineral soils
    - <20% organic matter

- Organic soils - Histosols
- Sand soils - Entisols and Spodosols
Sugarcane production practices

Planting season: late August/September to December/early January
Furrows 5 ft apart, 4 - 6 in. deep  
Band fertilizer  

Seed cane planting  

Seed cane covering  

Thimet
Sugarcane production practices

- Planting season: late August/September to December/early January
- 1st year is referred to as **plant cane** and the successive years are **ratoon** crops
- Harvest season: October to April/May
  - Mechanical harvesting
Burning prior to harvest

Green cane harvest
Sugarcane production practices

- Planting season: late August/September to December/early January
- 1\textsuperscript{st} year is referred to as \textit{plant cane} and the successive years are \textit{ratoon} crops
- Harvest season: October to April/May
  - Mechanical harvesting

<table>
<thead>
<tr>
<th>Crop age</th>
<th>Crop duration</th>
<th>% of total acreage 2020</th>
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</thead>
<tbody>
<tr>
<td>Plant cane</td>
<td>12 - 14 months</td>
<td>30.2</td>
</tr>
<tr>
<td>1\textsuperscript{st} ratoon</td>
<td>11 months</td>
<td>30.4</td>
</tr>
<tr>
<td>2\textsuperscript{nd} ratoon</td>
<td>10 - 11 months</td>
<td>29.5</td>
</tr>
<tr>
<td>3\textsuperscript{rd} ratoon</td>
<td>10 - 11 months</td>
<td>7.6</td>
</tr>
<tr>
<td>4\textsuperscript{th} ratoon or older</td>
<td>8 - 10 months</td>
<td>2.3</td>
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Typically replanted every 3 to 5 years following fallow period or successive
Flooded fallow sugarcane field
Sugarcane growth and production practices

**Plant cane:** Germination establishment  
**Ratoon:** Regrowth

- **Tillering**
- **Growth/grand growth**
- **Ripening**
- **Harvesting**

**Weed control**

- **Jan**
- **Feb**
- **Mar**
- **Apr**
- **May**
- **Jun**
- **Jul**
- **Aug**
- **Sep**
- **Oct**
- **Nov**
- **Dec**

**August**  **May**  **July**  **Aug**

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Weeds in Florida sugarcane

Burning fields prior to harvest

Limited to no straw

Small seeded grasses and broadleaf weeds are the most common and problematic
Common weed species

Grass & grass-like weeds
• Fall panicum*
• Goosegrass
• Bermudagrass*
• Elephantgrass
• Yellow and purple nutsedge*

Broadleaf weeds
• Common lambsquarters*
• Amaranth species*
• Common ragweed*
• Common purslane
• American black nightshade
Fall panicum
Weed control

- Major cost associated with sugarcane production in Florida
- Weeds can reduce sugarcane yields by 60% or more
- Weed control is most critical early in the season prior to sugarcane canopy closure over the row middles
Sugarcane canopy closure
Weed control

- Major cost associated with sugarcane production
- Weeds can reduce sugarcane yields by 60% or more
- Weed control is most critical early in the season prior to sugarcane canopy closure over the row middles
- Weeds that mature and produce seed become a source of re-infestation in subsequent years

Weed control
- Cultural
- Mechanical
- Chemical
Weed control: cultural

50,000 acres of fallow land
Weed control: mechanical

Plant cane

Ratoon cane
Weed control: chemical

- Main method of weed control
- Herbicides applied preemergence, postemergence, post-directed
- Two to three applications
- Accurate herbicide application timing and proper calibration of application equipment are extremely important to maximize weed control and herbicide selectivity
Preemergence herbicides

Atrazine, metribuzin, pendimethalin, S-metolachlor + atrazine + mesotrione
Postemergence herbicides: broadleaves

Atrazine, metribuzin, ametryn, S-metolachlor + atrazine + mesotrione, mesotrione, 2,4-D amine, dicamba, topramezone
Postemergence herbicides: grasses & sedges

Ametryn, S-metolachlor + atrazine + mesotrione, topramezone, asulam, trifloxysulfuron, halosulfuron
Postemergence herbicides: fallow

Glyphosate for bermudagrass control
Herbicide application

Mixing unit
Herbicide application

Source of water: canals
Herbicide application
Herbicide application

Aerial
Thank you

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