Weed Management in Rice

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Common weeds in rice in the EAA

- **Grasses**
  - Fall panicum (*Panicum dichotomiflorum*)
  - Bearded sprangletop (*Leptochloa fascicularis*)
  - Amazon sprangletop (*Leptochloa panicoides*)
  - Goosegrass (*Eleusine indica*)
  - Coast cockspur grass (*Echinochloa walteri*)
- **Broadleaf weeds**
  - Common purslane (*Portulaca oleracea*)
  - Spiny amaranth (*Amaranthus spinosus*)
  - Alligatorweed (*Alternanthera philoxeroides*)
  - Smartweed (*Polygonum spp.*)
- **Sedges**
  - Yellow nutsedge (*Cyperus esculentus*)
- **Others**
  - Dayflower (*Commelina communis*)
Weeds and rice production

Weeds + rice

Compete for light, water, nutrients

Yield loss

Interfere with combine operation

Increased
- Combine cost
- Drying cost

Weed seed contamination

Low grain quality
- Low cash value
Factors affecting weed management

- Planting date and climatic conditions
  - Rainfall

![Mean monthly rainfall from 2007-2016, Belle Glade](image-url)
Factors affecting weed management

- Seedbed preparation
  - Well prepared seed bed = no emerged weeds at planting
- Seed quality
  - Certified seed = reduced weed seed bank
- Stand establishment
  - Rolling provides more precise planting depth
  - Flushing immediately after planting when dry ~ 48 hours

Above factors provide rice with a competitive advantage over weeds
Water management and weed control

- Permanent flood suppresses weed seed germination
- Most weeds are semi-aquatic, growth impeded by standing water
- Rice tolerates submergence better than many weeds
- Timing of flooding depends rice growth stage – from 4 leaf stage
- Permanent flood is applied 3–6 weeks after planting
Chemical weed control

- Few herbicides used in the EAA
- Use limited by rotational restrictions
- Underlying strategy
  - Kill or stunt weeds to allow rice to grow and achieve a competitive height advantage
  - Effective height differential allows flood water to control weeds by keeping them submerged while rice grows above the water surface after permanent flood
Preemergence herbicides

**Prowl H₂O (pendimethalin)**
- Annual grass and some broadleaf weed control
- Apply after planting to soil that has been sealed by rain or a flush

**Command 3ME (clomazone)**
- Annual grass and some broadleaf weed control
- Apply after planting before rice and weed emergence

Rarely used because of dry conditions, especially for early planting
Postemergence herbicides

• Common POST herbicides used in the EAA
  – Stam 4E (propanil): 2-3 pt/acre
  – Sandea/Profine (halosulfuron): 0.67-1.33 oz/acre
  – Basagran (bentazon): 1.5-2.0 pt/acre
  – Londax (bensulfuron): 1-1.67 oz/acre
  – Aim: 1.6-3.2 fl oz/acre (0.75 fl oz/acre for 2-leaf rice)

• Control broadleaf weeds, sedges, grasses*
  – *Control of problematic weeds sometimes not acceptable
  – Fall panicum, sprangletop
Postemergence herbicides

Other POST herbicides

• **Clincher (cyhalofop):** 13-15 fl oz/acre at 1 to 2-leaf rice
  – Annual, seedling perennial grasses (fall panicum, sprangetop)
• **Grasp (penoxsulam):** 2-2.8 fl oz/acre at 1 to 2-leaf rice
  – Barnyardgrass, many broadleaf, annual sedge weeds
  – Tank-mix with Clincher
• **Grasp Xtra (penoxsulam + triclopyr):** 16 to 22 fl oz/A at 1 to 2-leaf rice
  – Grasses, broadleaf, annual sedge weeds
• **RebelEX (penoxsulam + cyhalofop):** 16 to 20 fl oz/A at 1 to 2-leaf rice
  – Grasses, broadleaf, annual sedge weeds
POST tank-mixes

- **Grasses + sedges + broadleaves**
  - Stam + Sandea
  - Stam + Basagran
  - Clincher + Sandea
  - Clincher + Basagran
  - Stam + Sandea + Basagran
  - Stam + Sandea + Aim

- **Grasses + broadleaves**
  - Stam + Londax
28 days after POST herbicide application

Stam 4E + Sandea
(2 PT/A + 0.75 OZ/A)

Stam 4E + Sandea
(1.5 PT/A + 0.5 OZ/A)

Stam 4E + Sandea + Basagran
(2 PT/A + 0.75 OZ/A + 1.5 PT/A)

Stam 4E + Sandea + Basagran
(1.5 PT/A + 0.5 OZ/A + 1 PT/A)
28 days after POST herbicide application

Stam 4E + Sandea + Aim
(2 PT/A + 0.75 OZ/A + 2 FL OZ/A)

Stam 4E + Sandea + Aim
(1.5 PT/A + 0.5 OZ/A + 2 FL OZ/A)

Stam 4E + Londax
(2 PT/A + 1.2 OZ/A)

Stam 4E + Londax
(1.5 PT/A + 1 OZ/A)
28 days after POST herbicide application

Clincher (13.5 FL OZ/A)
Clincher + Basagran (13.5 FL OZ/A + 1.5 PT/A)
Clincher (15 FL OZ/A)
Clincher + Basagran (15 FL OZ/A + 1.5 PT/A)
28 days after POST herbicide application
28 days after POST herbicide application
28 days after POST herbicide application
Efficacy of postemergence herbicides used in rice + proper water management

<table>
<thead>
<tr>
<th>Herbicide Combination</th>
<th>Sprangletop</th>
<th>Fall Panicum</th>
<th>Nutedge</th>
<th>Amaranthus Species</th>
<th>Alligatorweed</th>
<th>Dayflower</th>
<th>Smartweed</th>
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<tbody>
<tr>
<td>Stam</td>
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1. Rating scale: 0-3 = none to slight control; 4-6 = fair control; 7-8 = good control; 9-10 = excellent control
2. Control ratings apply to herbicides applied when weeds are small in size (from 3-4 leaf stage)
Remember

Product label should be consulted and understood prior to use

IT’S THE LAW!