The Importance of **YOU** and what you **DO**!

- Pest control is a critical factor in crop production
- Proper pesticide application protects the crop, saves money and protects the health of humans and the environment
- Attentive and professional applicators are a key factor in any successful agricultural operation
Attentive and professional applicators are a key factor in any successful agricultural operation.
Improper Application is Serious Business

- Arkansas has instituted limitations and new regulations on the use of the herbicide Dicamba because of drift damage to sensitive crops.
Pesticide Drift
Movement of Pesticide Beyond the Designated Target

Undesirable Consequences of Drift

Inefficient use of equipment and time

Ineffective control

Damage to susceptible off target crops

Litigation concerns

Environmental contamination = water pollution

Human health & safety concerns
Ways to reduce drift

1. Only spray when weather conditions are acceptable

2. Calibrate the sprayer

3. Nozzle selection: higher volume nozzles have larger droplet size, reducing the tendency for drift

4. Spray pressure: higher pressure causes smaller droplets, increasing the tendency for drift

5. Lower boom if possible
Nozzle Selection

Droplet Size Makes a Difference
Advantages and Disadvantages of Different Droplet Sizes*

Equivalent droplet volume in each quadrant

Med to Coarse (AIXR to GA)
- Callisto
- Status
- Laudis
- Impact/Armezon
- Roundup Power Max

Coarse (AI to ULD)
- Roundup Power Max
- Dual
- Harness
- Outlook

Fine to Med (XR to TT)
- Stratego Yld
- Headline
- Quilt Xcel
- Maxin Micronutrients
- Liberty
- Flexstar
- Cobra
- Tundra Supreme

Low potential for active hitting the intended target
- Wasted AI
- Off Target
- Drift
- Evaporation

100 micron
200 micron
350 micron
600 micron

*Relative comparisons. Results vary depending on environment, products included, adjuvants, canopy characteristics and other factors.

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What Pesticides Should We Be Concerned With?

All Of them!

ESPECIALLY

- Triazines!!!!
  - Atrazine
  - Ametryn
  - Metribuzin
### Commonly used herbicides

<table>
<thead>
<tr>
<th>PRE</th>
<th>POST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Atrazine</strong></td>
<td><strong>2,4-D</strong></td>
</tr>
<tr>
<td><strong>Metribuzin</strong></td>
<td><strong>Ametryn</strong></td>
</tr>
<tr>
<td>Pendimethalin</td>
<td><strong>Asulam</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Atrazine</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Dicamba</strong></td>
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<tr>
<td></td>
<td><strong>Halosulfuron</strong></td>
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<tr>
<td></td>
<td><strong>Mesotrione</strong></td>
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<tr>
<td></td>
<td><strong>Metribuzin</strong></td>
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<tr>
<td></td>
<td><strong>Trifloxysulfuron</strong></td>
</tr>
</tbody>
</table>
Reasons for Concern

– Triazines are important herbicides for weed control in FL sugarcane and sod production

– Triazines are commonly found in low concentrations in surface water sampling

– Usage of atrazine has been limited in other areas due to high levels in water
Atrazine (Aatrex, others)

- Widely used in FL sugarcane production
  - Cheap, Effective, kills more weeds per $$ than most other herbicides
  - Safe on cane – no Phyto-toxicity
  - Both preemergence and postemergence applications
Ametryn (Evik)

• Commonly used in FL sugarcane production
  – Postemergence application
  – Not as heavily used as atrazine
  – under certain conditions and at higher rates, can be phyto-toxic to sugarcane
Metribuzin (Sencor, TriCor, others)

• Commonly used in FL sugarcane production
  – Labeled in Florida for Post-emergence application only!!
  – Not as heavily used as atrazine
  – SPECIAL PRECAUTIONS (Florida Only): Do not use on sand soils
SUGARCANE  
(Florida Only)

Post-emergence over-the-top or directed spray applications of TriCor 4F are recommended for the control of the following weeds in sugarcane in Florida.

<table>
<thead>
<tr>
<th>Broadleaves</th>
<th>Grasses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amaranth, Spiny (seedling) (Amaranthus spinosus)</td>
<td>Crabgrass, large (Digitaria sanguinalis)*</td>
</tr>
<tr>
<td>Butterweed (Cressleaf groundsel) (Senecio glabellus)</td>
<td>Foxtail, bristlegrass (Setaria magna)</td>
</tr>
<tr>
<td>Cudweed (Gnaphalium spp.)</td>
<td>Goosegrass (Eleusine indica)</td>
</tr>
<tr>
<td>Purslane (Portulaca oleracea)</td>
<td>Panicum, broadleaf (Panicum adspersum)</td>
</tr>
<tr>
<td></td>
<td>Signalgrass, Broadleaf (Brachiaria platyphylla)</td>
</tr>
</tbody>
</table>

* Best control is achieved when applications are made when this weed is less than 4" in diameter.

### APPLICATIONS – SUGARCANE – FLORIDA ONLY

<table>
<thead>
<tr>
<th>TriCor 4F (Pt./Acre)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 to 4</td>
<td>GROUND APPLICATION: TriCor 4F may be used in one or two applications with a minimum of 14 days between each application. Apply when weeds are less than 6 inches tall in 10 to 40 gallons of spray mixture per acre. <strong>POST-EMERGENCE BROADCAST OR BAND:</strong> Apply over the top of stubble or plant cane while sugarcane is less than 14 inches tall. <strong>POST-EMERGENCE DIRECTED SPRAY:</strong> Apply to sugarcane that is a minimum of 14 inches tall and before row closing.</td>
</tr>
<tr>
<td>2 to 3</td>
<td>AERIAL APPLICATION: Apply when weeds are less than 4 inches tall in 5 to 10 gallons of spray mixture per acre. Apply to stubble or plant cane while the sugarcane is less than 14 inches tall.</td>
</tr>
</tbody>
</table>

**TriCor 4F PLUS Atrazine TANK MIX:** TriCor 4F may be used with atrazine as a pre-emergence or post-emergence (before row closing) application to sugarcane. Rates for TriCor 4F are 1-1/2 to 4 pts./acre and atrazine 80% WP (4L) are 2-1/2 to 5 lbs./acre (2 to 4 qts./acre). For additional information on precautions, instructions, limitations, application, and weeds controlled, refer to this label and the atrazine label.

**RESTRICTIONS (Florida Only):** Do not use more than 4 pts. per acre in a single growing season. Do not use on sand soils. Spray contact with sugarcane foliage may result in minor leaf margin chlorosis and/or necrosis. Do not apply within 60 days of harvest. Do not use treated crop for feed or forage. Avoid spray overlaps or variations in application speed that may result in insufficient or excessive rates of application. To assure that spray will not adversely affect adjacent sensitive nontarget plants, apply this product by aircraft at a minimum upwind distance of 400 ft. from sensitive plants.
Detection in water sampling

Samples are taken at stations throughout the EAA

• 20+ years data available

• Triazine herbicides are commonly detected at stations in EAA

• Levels are generally very low
  – But they are often found!!!
What Can We Do To Minimize Triazine Herbicides In Our Surface Waters?

• Minimize physical spray drift into bodies of water

• Use care when mixing, loading, and spraying herbicides
  – Spills near water bodies can result in large amounts of concentrated product entering water

• Alternative Herbicides
  – Atrazine can provide effective control at lower rates, when tank mixed with other herbicides
Anti-Back-Siphoning

- Make sure all equipment used to supply water is equipped with devices to prevent back-siphoning

- Always keep your fill hose above the level of your spray mix
Do not apply to saturated soils

- More runoff of both water soluble herbicide, and soil particles.
Take Care When Mixing/Loading
Nutrient BMP’s Impact Herbicide Movement

Vegetative buffers on field edges
- Can reduce movement of herbicides attached to soil particles

Practices that minimize sediment transport
- Herbicides often bound to sediment
Take Home Message

• Atrazine, ametryn and metribuzin are important!!
  – Good stewardship can minimize the amount of triazine pesticides entering our waters

  – When you are out in the field, mixing or spraying; always remember to:
    • Use common sense
    • Follow label directions
Correct Pesticide Application Methods

Thank You
Any Questions

Stewart Swanson