

# Pesticide BMPs

**BMP Training**  
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# What Pesticides Should We Be Concerned With?

All Of them!

ESPECIALLY

• Triazines!!!!

- Atrazine
- Ametryn
- Metribuzin



# Should We Be Concerned?

- 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

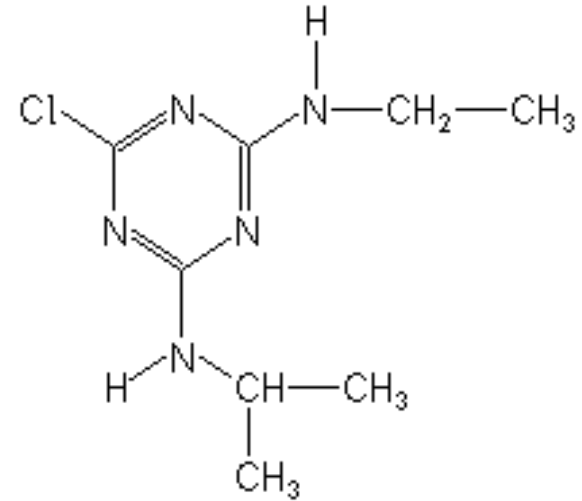


# Atrazine (AAtrex, others)

- **Widely used in FL sugarcane production**
  - Cheap, effective, kills more weeds per \$\$ spent than most other herbicides
  - Safe on sugarcane – no phytotoxicity
  - Both preemergence and postemergence applications
  - The label allows up to 10 lb/A of atrazine applied per growing season for sugarcane
  - The label allows up to 6 lb/A of atrazine applied per growing season for sod on muck (3lb/A on sand)
  - Applied to a large percentage of sugarcane acreage in Florida

# Atrazine Chemical Characteristics

- Water solubility not particularly high (33 mg/L)
- Binding to soil organic matter not extremely strong (Koc=100)
- Atrazine is less bound, but less water soluble than ametryn
- Average field half-life of 60 days
- LD50 = 672 mg/kg

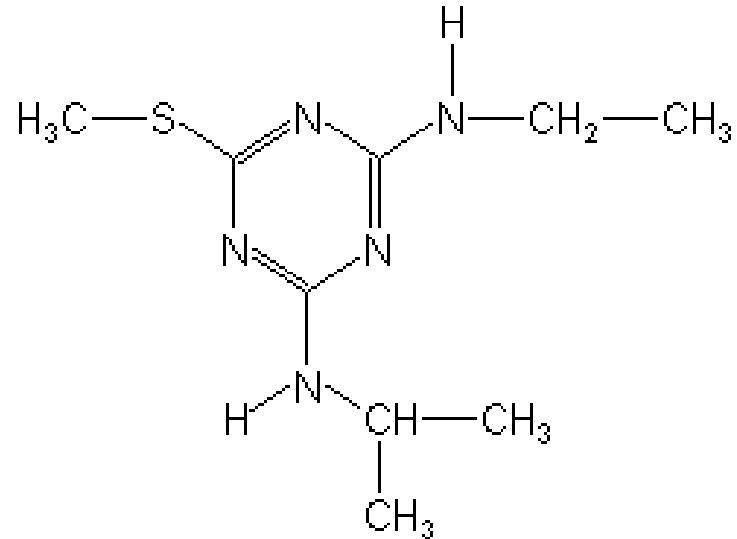


# Ametryn (Evik)

- **Commonly used in FL sugarcane production**
  - Postemergence application
  - Up to 1.5 lb per application (2 applications)
    - Usually used at much lower rates
    - Not as heavily used as atrazine
    - Under certain conditions and at higher rates, can be phyto-toxic to sugarcane

# Ametryn Chemical Characteristics

- Water solubility higher than atrazine (194 mg/L)
- Binding to soil organic matter strong relative to atrazine ( $K_{oc}=362$ )
- In field half-life of 60 days
- Ametryn is more bound, but more water soluble



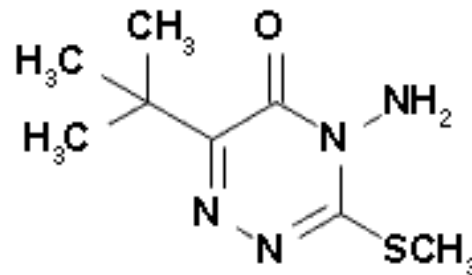
# Metribuzin (Sencor, others)

- **Commonly used in FL sugarcane production**
  - Labeled in Florida for Postemergence application only!!
  - 1 1/3 lb – 2 2/3 lbs per application (up to 2 applications per year – no more than 2 2/3rds lbs per acre per year)
  - Not as heavily used as atrazine
  - **SPECIAL PRECAUTIONS (Florida Only):** Do not use on sand soils



# Metribuzin Chemical Characteristics

- Water solubility higher than atrazine and ametryn; 1050 mg/L
- Binding to soil very weak ( $K_{oc} = 41$ )
- Soil half life ~ 60 days
- Less bound and more water soluble
- LD50 = 2200 mg/kg



# Ground Water Advisory

**Metribuzin** is a chemical which can travel (seep or leach) through soil and can contaminate groundwater which may be used as drinking water. Metribuzin has been found in ground water as a result of agricultural use. Users are advised not to apply metribuzin where the water table (ground water) is close to the surface and where the soils are very permeable, i.e., well drained soils such as loamy sands.

# Detection in Water Sampling

## Sampling at stations throughout EAA

- 20+ years data available
- Triazine herbicides are commonly detected at stations in EAA
- Levels are generally very low
  - But they are often found!!!



# Detection in Water Sampling

- Historically Atrazine is the second most commonly detected pesticide in American waterways!
- 1974 Congress passed the “Safe Water Drinking Act”
- Set the Maximum Containment Level for Atrazine in Drinking Water at 3 ppb
  - Strike 1 = Enhanced Water Sampling
  - Strike 2 = Mitigation Plan
  - Strike 3 = Ban from using in that watershed!



# What Can We Do To Minimize Triazine Herbicides In Our Surface Waters?

- Minimize physical spray drift into bodies of water
- Use care when mixing and loading 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

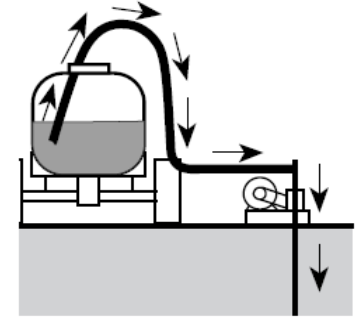
# Follow Setback Requirements

- Always follow label requirement regarding setbacks (Found on all atrazine labels)
  - DO NOT mix/load within 50 ft of any well, sinkhole, stream, river, or lake
  - DO NOT apply within 66 ft of where field runoff enters a stream or river
  - DO NOT apply within 200 ft of any lake or reservoir

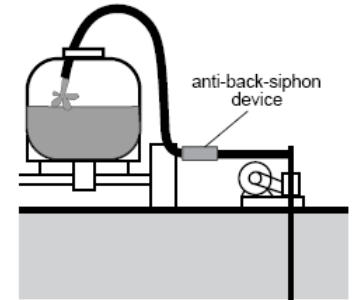


# Anti-Back-Siphoning

- Make sure all equipment used to supply water is equipped with devices to prevent back-siphoning from the spray/mix tank if the motor shuts off
- Always keep your fill hose above the level of your spray mix



Avoid back-siphoning into water source



Keep fill hose above water level

# What Can We Do To Minimize Triazine Herbicides In Our Surface Waters?

- Do not apply to saturated soils
  - More runoff of both water soluble herbicide, and soil particles with herbicide attached
- Holding water
  - Allows the herbicide to be absorbed by soil particles and settle out, or degrade



# Nutrient BMPs Impact Herbicide Movement

- Practices that minimize sediment transport
  - Herbicides often bound to sediment
- Vegetative buffers on field edges
  - Can reduce movement of herbicides attached to soil particles



# Take Home Message

- Atrazine, ametryn and metribuzin are important!!
  - Good stewardship can minimize the amount of triazine pesticides entering our surface waters
  - When YOU are out in the field, mixing or spraying; always remember to:
    - Use common sense
    - Follow label directions
    - Phosphorus BMP's also help reduce occurrence

# Thank You

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