

BMP's For Herbicides In The EAA

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What Herbicides Are We Primarily Concerned With?

- Triazines!!!!
 - Atrazine
 - Ametryn
 - Metribuzin



Should we be concerned?

- Important herbicides for weed control in FL sugarcane and sod production
- 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
 - 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





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

Metribuzin (Sencor, others)

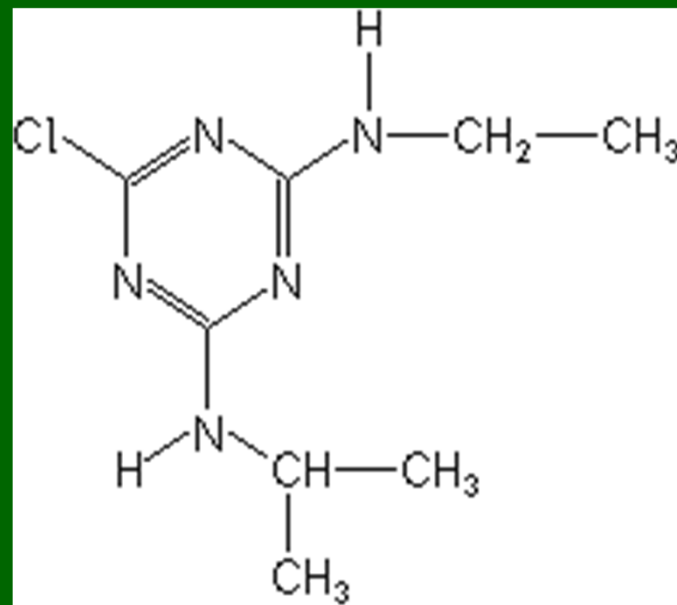
- Commonly used in FL sugarcane production
 - Postemergence application
 - 1 1/3 lb – 2 2/3 lbs per application (up to 2 applications per year – no more than 2 2/3rds per acre per year)
 - Not as heavily used as atrazine
 - SPECIAL PRECAUTIONS (Florida Only): Do not use on sand soils

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.

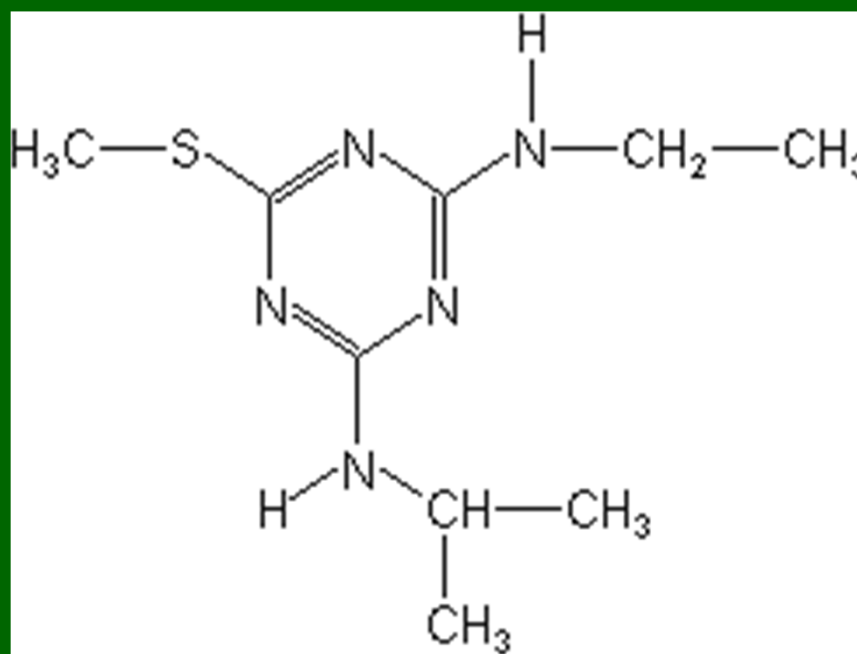
Atrazine Chemical Characteristics

- Water solubility not particularly high (33 mg/L)
- Binding to soil organic matter not extremely strong ($K_{oc}=128$ ml/g)
- Atrazine is less bound, but less water soluble than ametryn
- Average field half-life of 60 days
- $LD_{50} = 672$ mg/kg



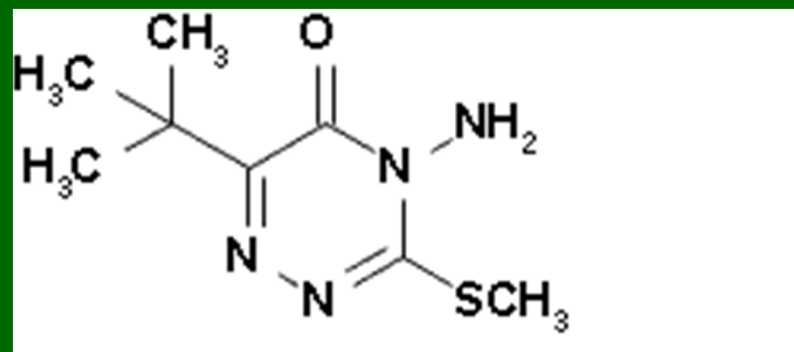
Ametryn Chemical Characteristics

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



Metribuzin Chemical Characteristics

- Water solubility higher than atrazine and ametryn; 1050 mg/L
- Binding to soil very weak; $K_{oc} = 41 \text{ ml/g}$
- Soil half life ~ 60 days
- Less bound and more water soluble
- $LD_{50} = 2200 \text{ mg/kg}$



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!!!



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



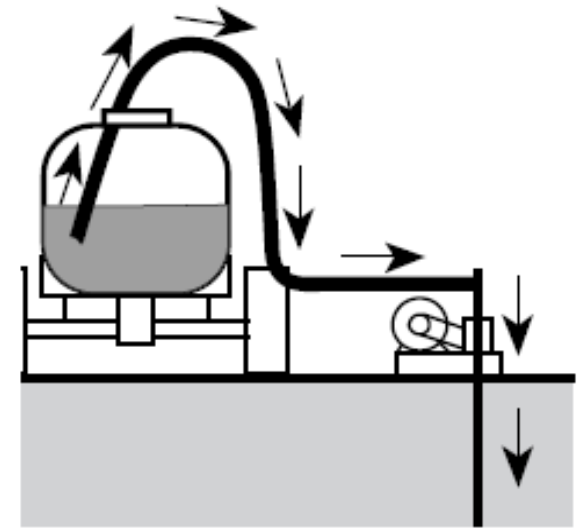
Setback Requirements

- 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

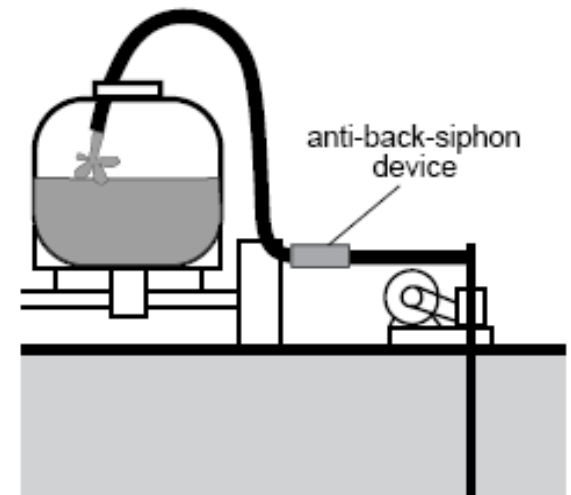


Anti-Back-Siphoning

- 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



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 BMP's 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 found in surface waters
 - Use common sense
 - **Follow label directions**
 - Phosphorus BMP's also help reduce occurrence

A photograph of a cormorant standing on a rock in a body of water, surrounded by grass and debris. The bird is black with a yellowish-orange patch on its neck. The background shows a mix of green grass and brown, dry vegetation. A white plastic bottle is visible on the ground behind the bird. The water in the foreground is dark blue with some ripples.

**<http://pested.ifas.ufl.edu/>
UF/IFAS Pesticide Info**

**<http://erec.ifas.ufl.edu/WD/Ewdmain.htm>
Latest EREC weather conditions**