BMP’s for Herbicides in the EAA

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What Herbicides Are We Primarily Concerned With?

- **Triazones!!!!**
  - 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
Amethryn (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 (Koc=128 ml/g)
- Atrazine is less bound, but less water soluble than ametryn
- Average field half-life of 60 days
- LD50 = 672 mg/kg
Ametryn Chemical Characteristics

- Water solubility higher than atrazine (194 mg/L)
- Binding to soil organic matter strong relative to atrazine (Koc=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; Koc = 41 ml/g
- Soil half life ~ 60 days
- Less bound and more water soluble
- LD50 = 2200 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-siphononing from the spray/mix tank if the motor shuts off
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
http://pested.ifas.ufl.edu/
UF/IFAS Pesticide Info

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