BMP’s for Atrazine and Ametryn

University of Florida
Why 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
  - Up to 10 lb/A of atrazine applied per growing season for sugarcane
  - 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
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
Amethyn 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
- Amethyn is more bound, but more water soluble
Detection in water sampling

Sampling at stations throughout EAA

• 18+ years data available

• Atrazine and ametryn both commonly detected at stations in EAA

• Levels are generally very low
  – But they are often found!!!
How do they get in the water?

- Spray drift from field
- Spills during mixing
- Back-siphoning into water body when filling spray tanks
- Water soluble portion moves with runoff water
- Portion bound to organic matter moves with sediment erosion
How can we minimize atrazine and ametryn in water?

- 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
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.
How can we minimize atrazine and ametryn in water?

• 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 and ametryn 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
UF/IFAS Pesticide Info

Latest EREC weather conditions