

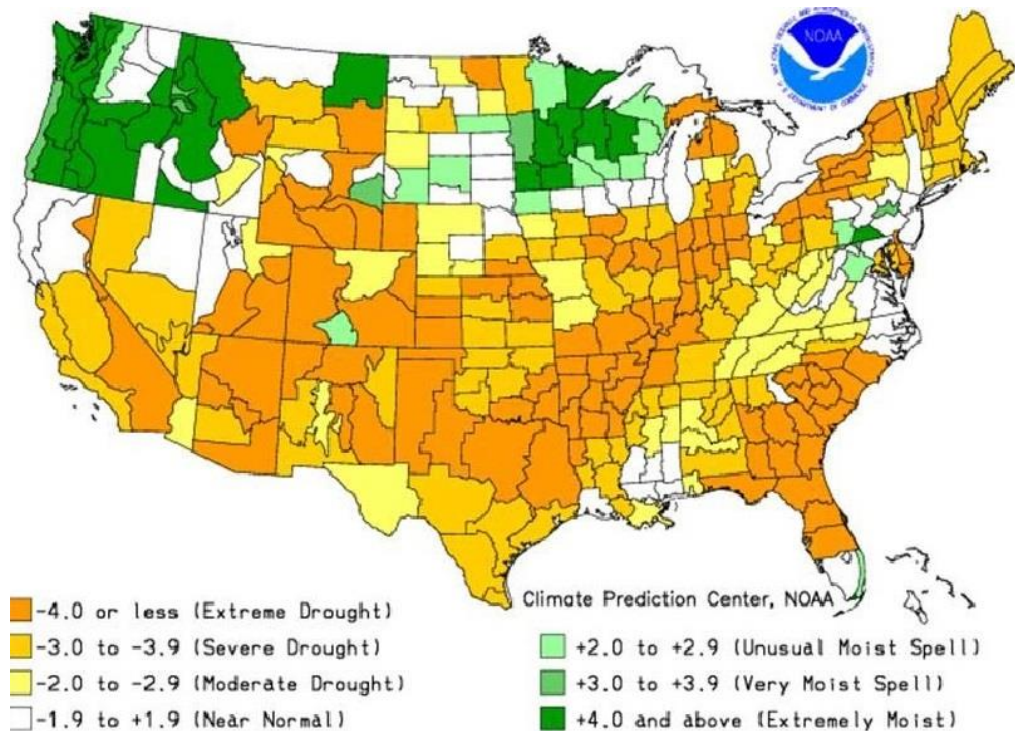
# The Importance of Aquatic Plant Management: An Agricultural Perspective



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# Managing Our Water

- Irrigated farm land in the Mid-South, 71% increase 1988-2008
- Groundwater depletion
- Water conservation, replacement of groundwater sources with surface water sources
- Adequate drainage systems to prevent water logging of crops



Source: NOAA (2012) from Vories and Evett 2014

# Impact of Excessive Aquatic Vegetation

- Clog valves, pumps, gates used for water diversions
- Reduced holding capacity and flow
- Increase flood potential
- Public health concerns (mosquitos)
- Negatively impact native flora/fauna



# Aquatic Plant Management

- Physical/Mechanical Control
- Biological Control
- Chemical Control
- Integrated Management



# Issues Managing Aquatic Plants

- Limited tools
  - 14 registered aquatic herbicides
- Efficacy varies by species
- Water-Use Restrictions
  - Irrigation
  - Livestock
  - Potable water intakes
- Plants can be emergent, floating, or submersed



# Pumping/Draining water

- Awareness of aquatic plants in source water and/or drainage system (bayous, irrigation canals, storage reservoirs, etc.)
- Know label restrictions if an herbicide treatment is needed
- Well maintained drainage systems to avoid scenarios such as these



# Things to Consider when Applying Aquatic Herbicides

- Which herbicides are available?
- Which product is efficacious for the target plant?
- What are the water use restrictions?
- Best management practices?
- Treating Submersed vs. Emergent/Floating Plants?

# Available Aquatic Herbicides

- 2,4-D
- Bispyribac-sodium
- Carfentrazone
- Copper
- Diquat
- Endothall
- Flumioxazin
- Fluridone
- Glyphosate\*
- Imazamox
- Imazapyr\*
- Penoxsulam
- Topramezone
- Triclopyr

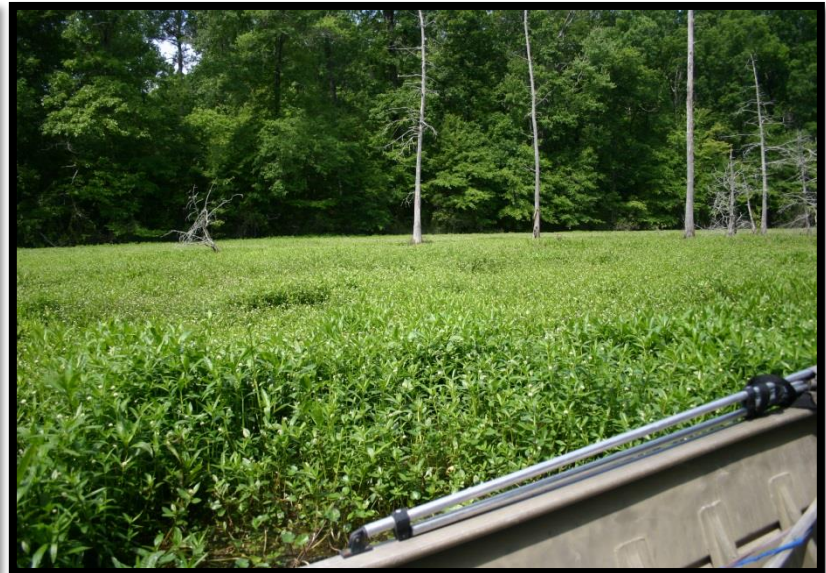
\*Foliar Applications Only



# Efficacy Variability/Water Use Restrictions

Products with great efficacy may impose irrigation restrictions

- **crested floating heart management:** Flumioxazin applications in crawfish/rice irrigation canals
- **alligatorweed/water primrose management:** imazapyr/triclopyr – 120 day irrigation restriction



# Herbicide Resistance Management

## Resistance in Aquatic Plants

Hydrilla (*Hydrilla verticillata*)

- Fluridone (Michel et al. 2004)

Landoltia duckweed (*Landoltia punctata*)

- Diquat (Koschnick et al. 2006)

BMP to decrease establishment of resistance?

*Herbicide Rotation*



# Exploring alternative giant salvinia (*Salvinia molesta* D.S. Mitchell) management strategies

- Free floating aquatic fern
- Native to South America
- #1 Aquatic weed in Louisiana
- Extremely rapid growth
- Develops thick “mats” of plant material, up to 3 feet thick



# Current Research

- Herbicide Screening
- Unconventional Application Timings
- Remote Sensing to Monitor Herbicide Efficacy
- Mesocosm/Field Trials



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