

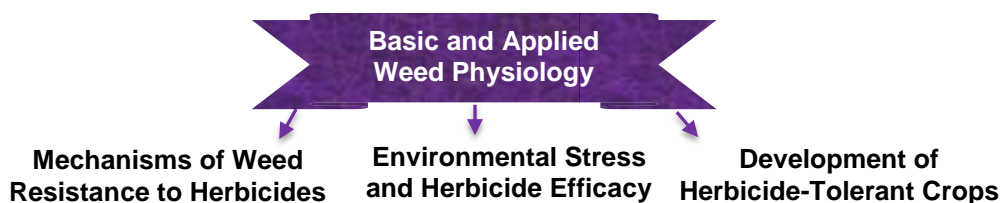
# K-STATE RESEARCH SHOWCASE

Mithila Jugulam | Associate Professor | Department of Agronomy

## RESEARCH FOCUS

Jugulam's Weed Physiology and Molecular Biology Laboratory investigates basic and applied aspects of herbicide-resistant weeds and crops. Use of herbicides is an integral part of modern agriculture, but extensive and often exclusive use of herbicides results in the evolution of weed resistance, a challenging constraint to crop production for growers, weed scientists, and the agri-chemical industry.

**We work to help growers use herbicides prudently and manage weeds effectively**



**Basic:** Physiological, biochemical, molecular and cytogenetics research  
**Applied:** Transfer of technology and extension education



## RESEARCH CAPABILITIES

- **Molecular cytogenetics and mapping:** Our lab has unique expertise in developing fluorescence *in-situ* hybridization (FISH) and fiber-FISH-based mapping to illustrate the distribution of herbicide target and non-target genes in the genome.
- **Physiological, genetic and molecular assays:** We use HPLC, DNA-diagnostics, qPCR, protein analyses, phosphor imaging and classical genetic approaches to determine how weeds develop resistance to herbicides and to help design best weed management strategies.
- **Environmental stress and herbicide efficacy:** We are equipped with controlled environmental chambers and greenhouses to evaluate the effect of abiotic stress on herbicide efficacy.

## EXPERIENCE AND COLLABORATIONS

Jugulam has nearly 15 years of experience in weed physiology and molecular biology. She conducts collaborative research with regional, national, and international scientists and industry personnel. She has also established a laboratory facility for cutting-edge research in weed science.

## CONTACT



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