

PROGRESS REPORT

Project Title: Multiple herbicide resistance in Palmer amaranth and use of gene editing for its management

c. Principal Investigators:

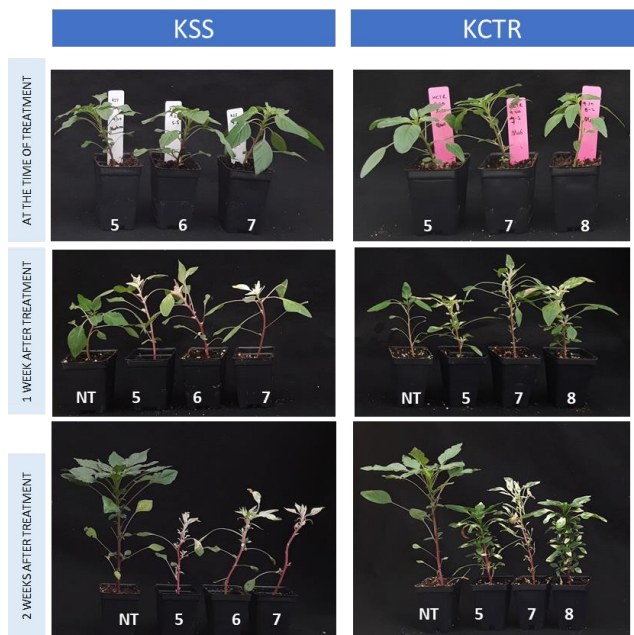
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The year-1 research of this project was started July 1, 2022. Personnel was hired to work on this project and work was started. First Palmer amaranth multiple resistant (KCTR) and susceptible biotypes (KSS) were grown under greenhouse conditions. To achieve the Objective I, the vegetative clones of the multiple-herbicide-resistant and susceptible Palmer amaranth have been produced. When plants were at 4-6 leaf stage the young and actively growing leaf tissue was collected from these plants. Following the sample collection, the plants were treated with five herbicides 2,4-D (Group 4) and mesotrione (27) at field recommended dose (per herbicide label). After 4 hours of treatment, leaf tissues were collected from the herbicide treated plants. RNA were extracted from non-treated and treated leaf samples following the procedure optimized in Jugulam lab. The RNA samples were sent for sequencing and results are awaited. The raw sequence reads will be trimmed and aligned to reference genome. The protocols are being optimized toward achieving the 2nd Objective.

Treated with 1X 2,4-D (560 g ai/ha)



Treated with 1X mesotrione (105 g ai/ha)



RNA extracted from non-treated and treated (6 HAT) plants of KSS and KCTR

