

**WIU CENTENNIAL HONORS COLLEGE**  
**Thomas E. Helm Undergraduate Research Day 2022**

**Abstract**

Poster

Major Agriculture Science

Faculty Mentor: Mark Bernards

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**Screening WIU waterhemp for potential resistance.**

**Luke Bergschneider**

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Worldwide, weeds are one of the leading contributors to agricultural yield loss and production challenges. Increasing weed resistance to several herbicide modes of action has been documented throughout the US in the past two decades. As known resistant populations continue to grow, herbicide active ingredient discovery and development are slowing, leading to increasing difficulty in managing resistant weeds in agricultural fields. Common waterhemp (*Amaranthus tuberculatus*) is one of the most problematic weeds in the Midwest and has become a poster child for resistance due to its ability to quickly develop mechanisms allowing survival of herbicide applications. At the WIU Agriculture Field Lab and Kerr farm, there are several populations with suspected resistant genotypes. The objective of our research project is to screen these populations with suspected resistance to groups 14 and 15 (PPO and HPPD) herbicides along with a known susceptible population for the resistance levels within the populations. This study took place in the WIU greenhouse where the three populations were started, transplanted, and then thinned into individual pots. Herbicide ratings took place weekly over a three-week period where the injury was assessed on a percentage basis. Results from the study will be presented in poster form and utilized to inform weed management decisions and strategies on WIU AFL fields in the future.