

# Shock and Awe?

## Some Thoughts on Electrocution as a Weed Control Tactic



Kevin Bradley, University of Missouri



# How the Weed Zapper™ Works:

- Copper boom attached to front of tractor which electrocutes any plant that it contacts
- <110,000 watt generator attached to back of tractor
- Up to 15,000 volts translocating through plants contacted





# There are other companies...



# Why would we look at these “weird” weed control options?

- We have been conditioned to think of herbicides as our only real method of weed management (herbicide-centric)
- Most expect herbicides/traits to “solve” this problem of resistant weeds (techno-optimism)
- Waterhemp has evolved resistance to 8 different herbicide modes of action in a 25 year period of time (depressing)





**What if we could do something about waterhemp escapes once there are no longer any herbicide options?**





# Impressions of Electrocution as a Weed Control Tactic

- #1 disadvantage – it can be dangerous!





# Impressions of Electrocution as a Weed Control Tactic

- The bigger the weed(s), the better! And results are immediate.





# Electrocution of Tall, Flowering Horseweed/Marestail Plants

non-treated control



electrocuted 7 days previously





# Electrocution of 24-inch Tall Ragweed Plants

non-treated control



electrocuted 7 days previously





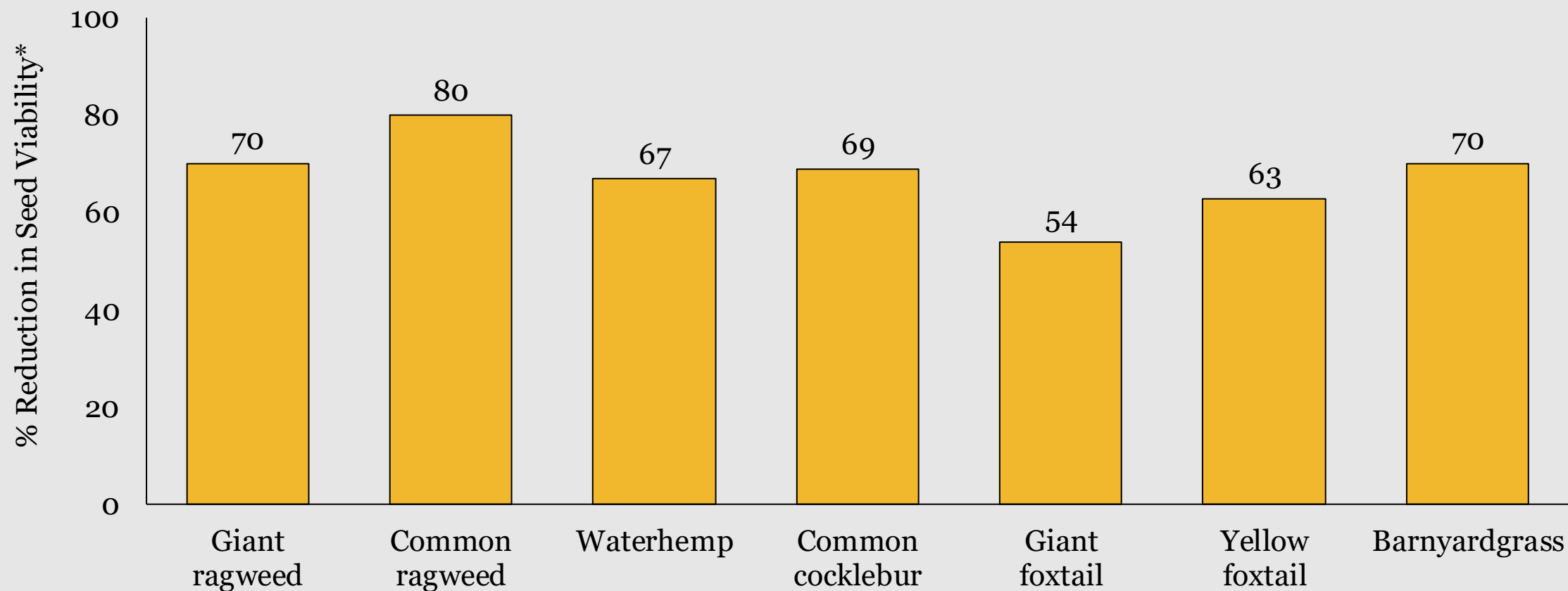
# Impressions of Electrocution as a Weed Control Tactic

- Most current electrocution implements are a better fit for control of weed escapes rather than full season weed management.





# Influence of Electrocution on Weed Seed Viability



\*Based on viability of non-treated seed of that species



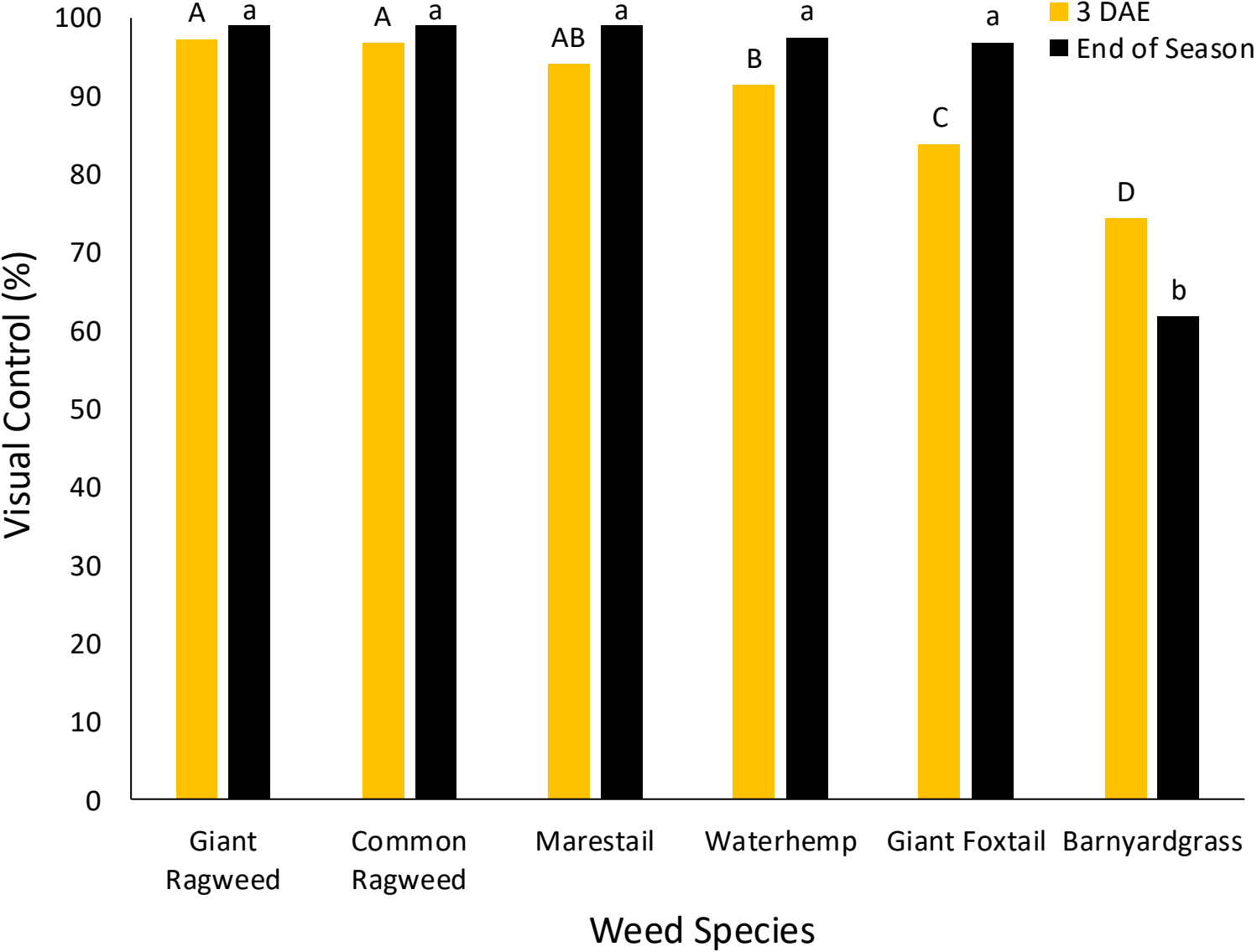
# Impressions of Electrocuting as a Weed Control Tactic

- Not all weeds are controlled equally.





# Control of Different Weed Species 3 Days After Electrocuting (DAE) and at End of Season

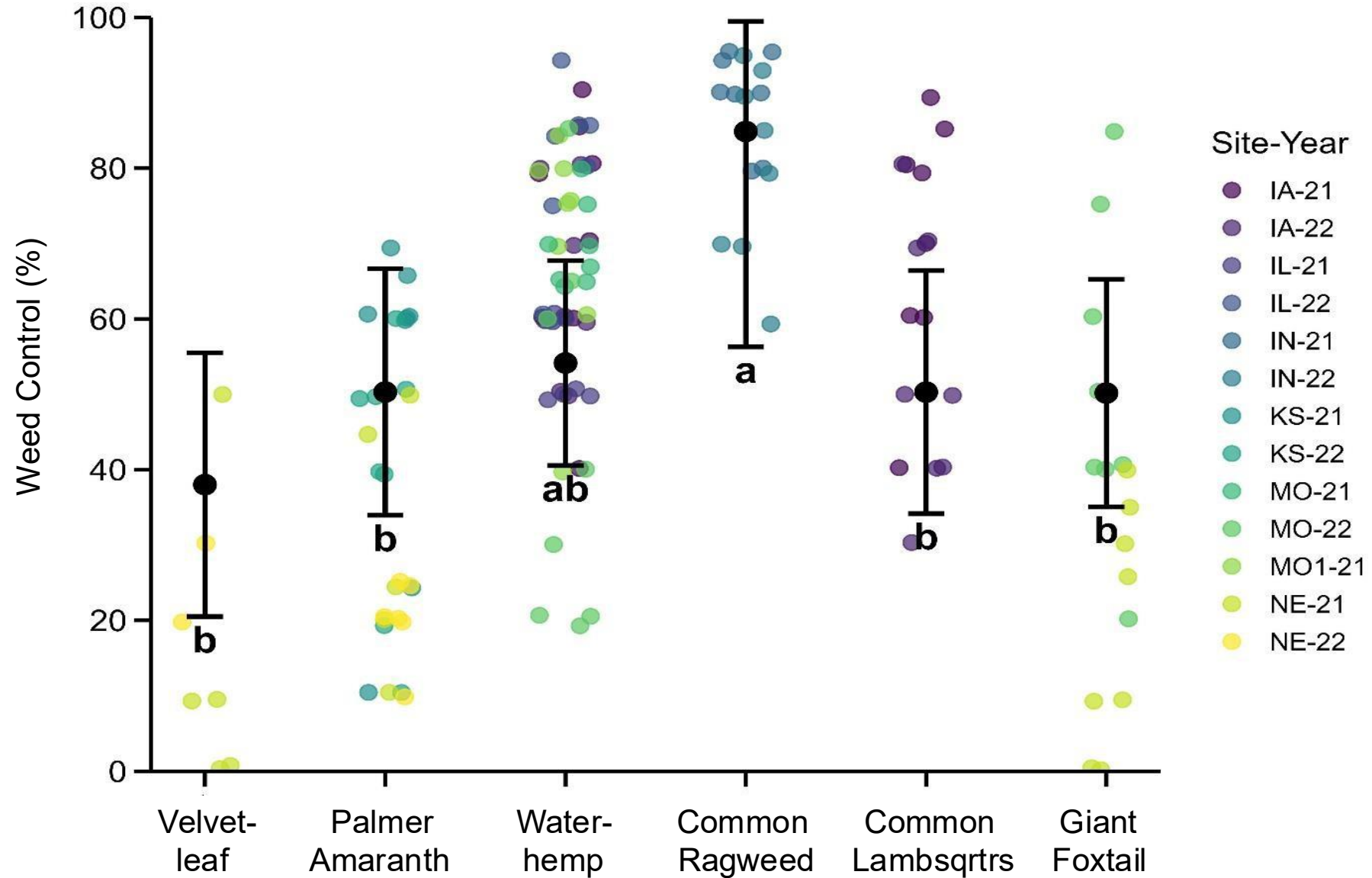


\*Bars within a timing followed by the same letter are not different, LSD=0.05





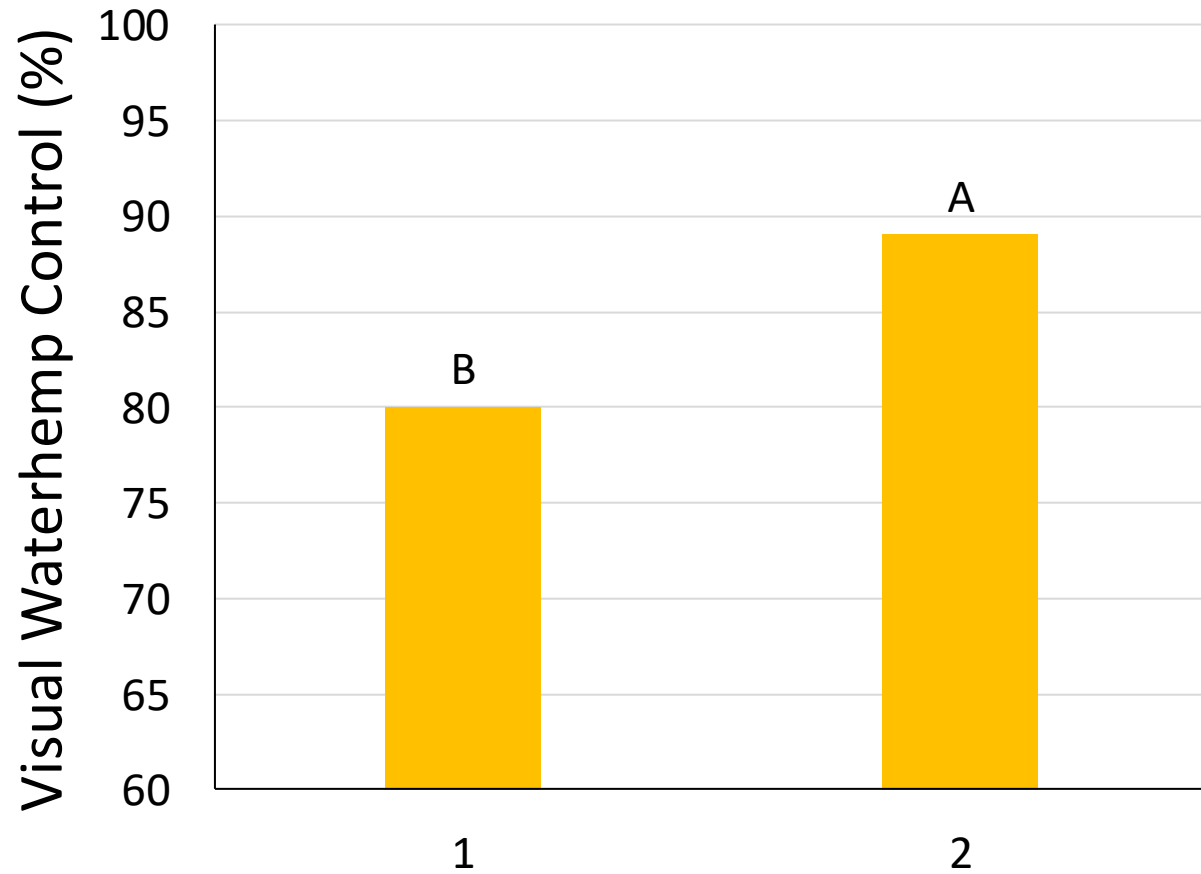
# Multi-state Assessment of Electrocutation for Late-season Weed Control



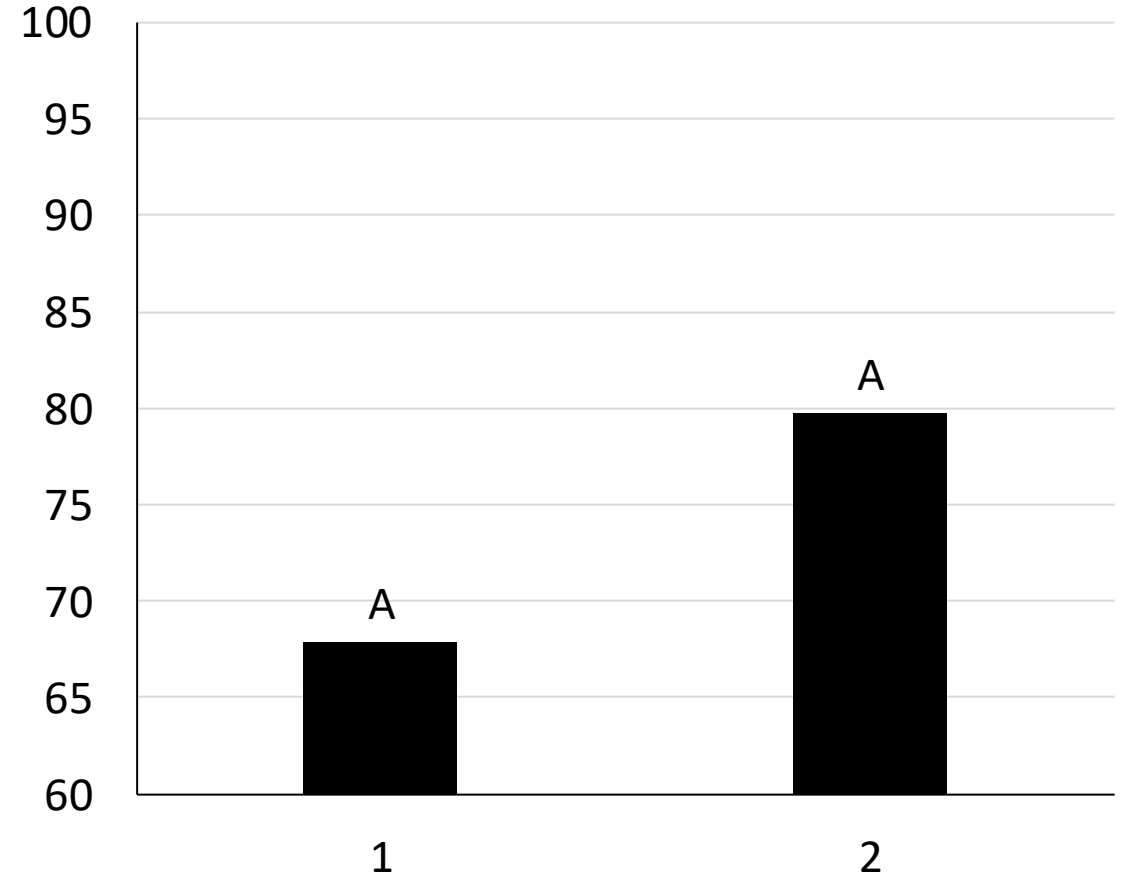


# The Effect of Number of Passes on Waterhemp Control

**7 Days After Treatment Rating**



**End of Season Rating**



Number of Passes



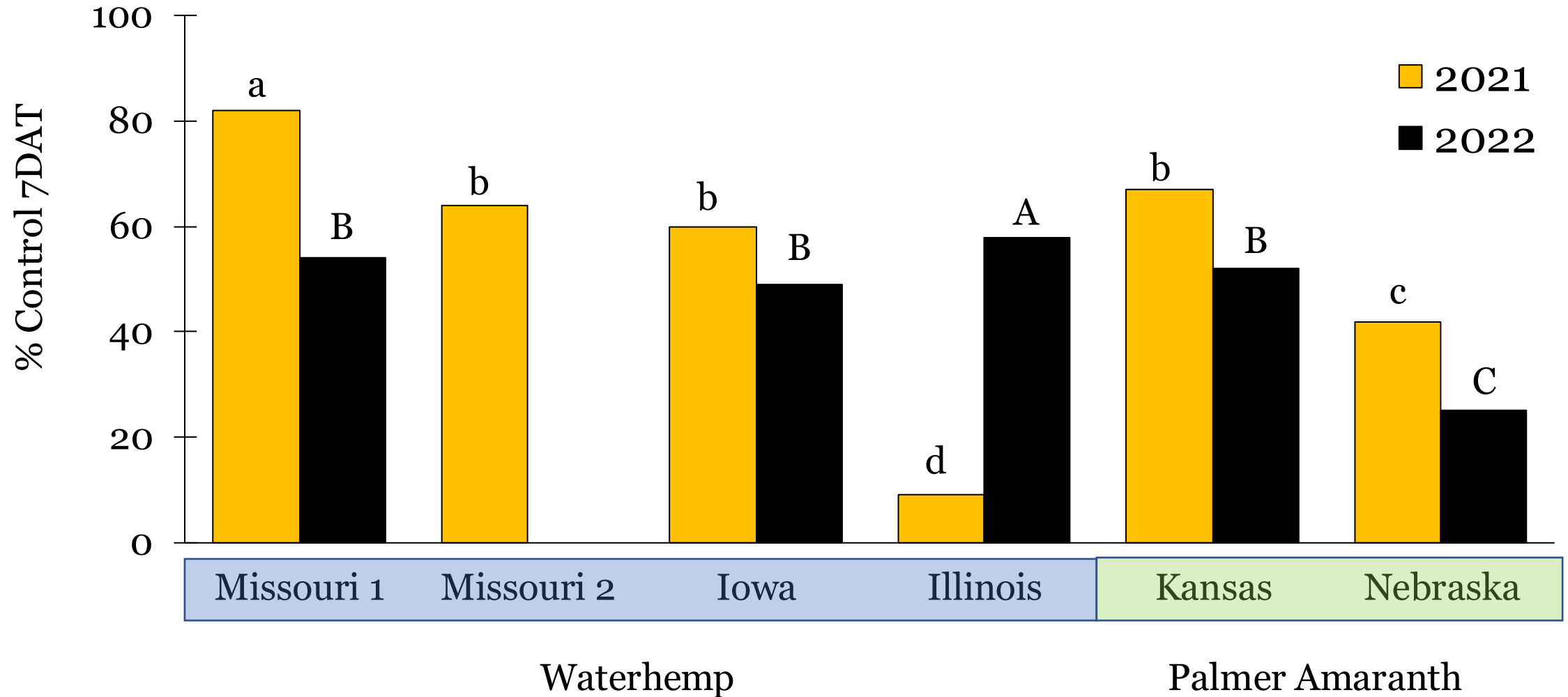
# Impressions of Electrocuting as a Weed Control Tactic

- There can be variability in control (and we're trying to figure out the reasons why).





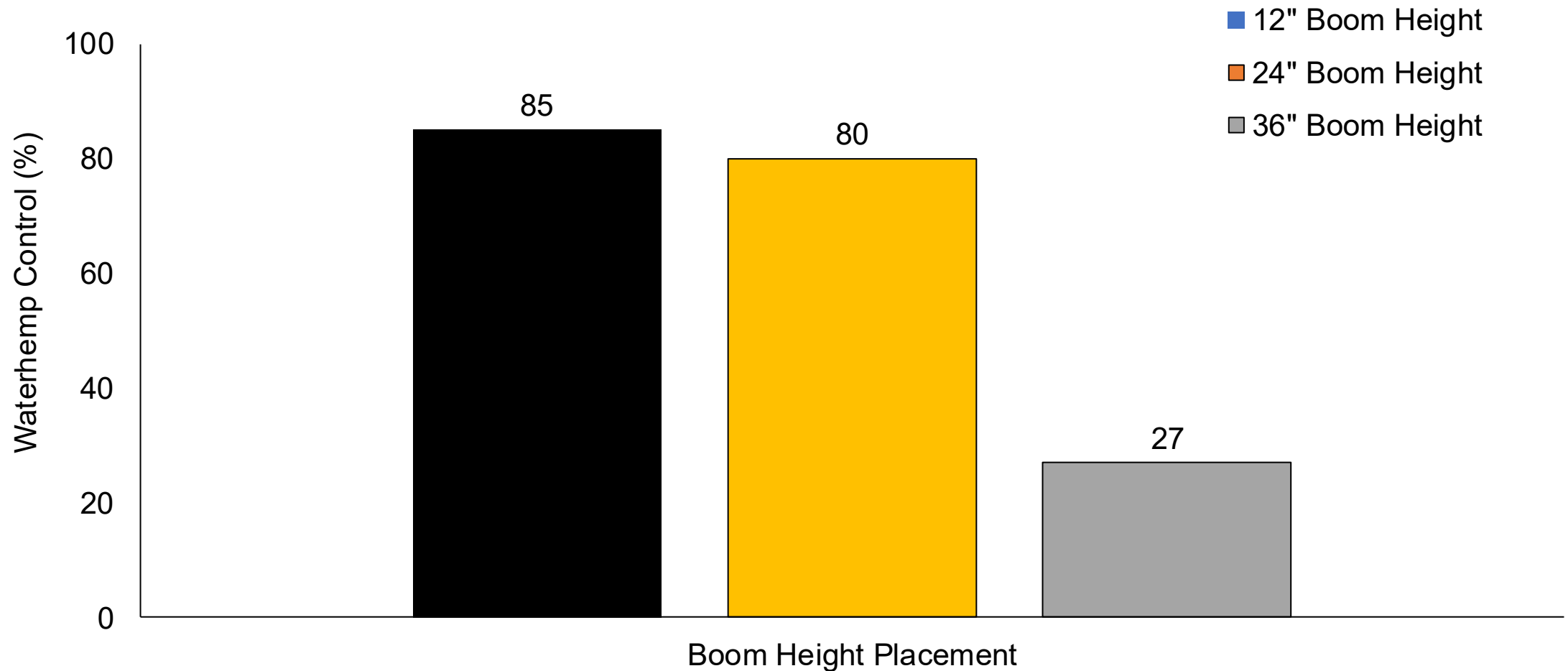
# Response of Pigweed Species To Electrocutation



\*Bars followed by the same letter within a year are not different, LSD <0.05

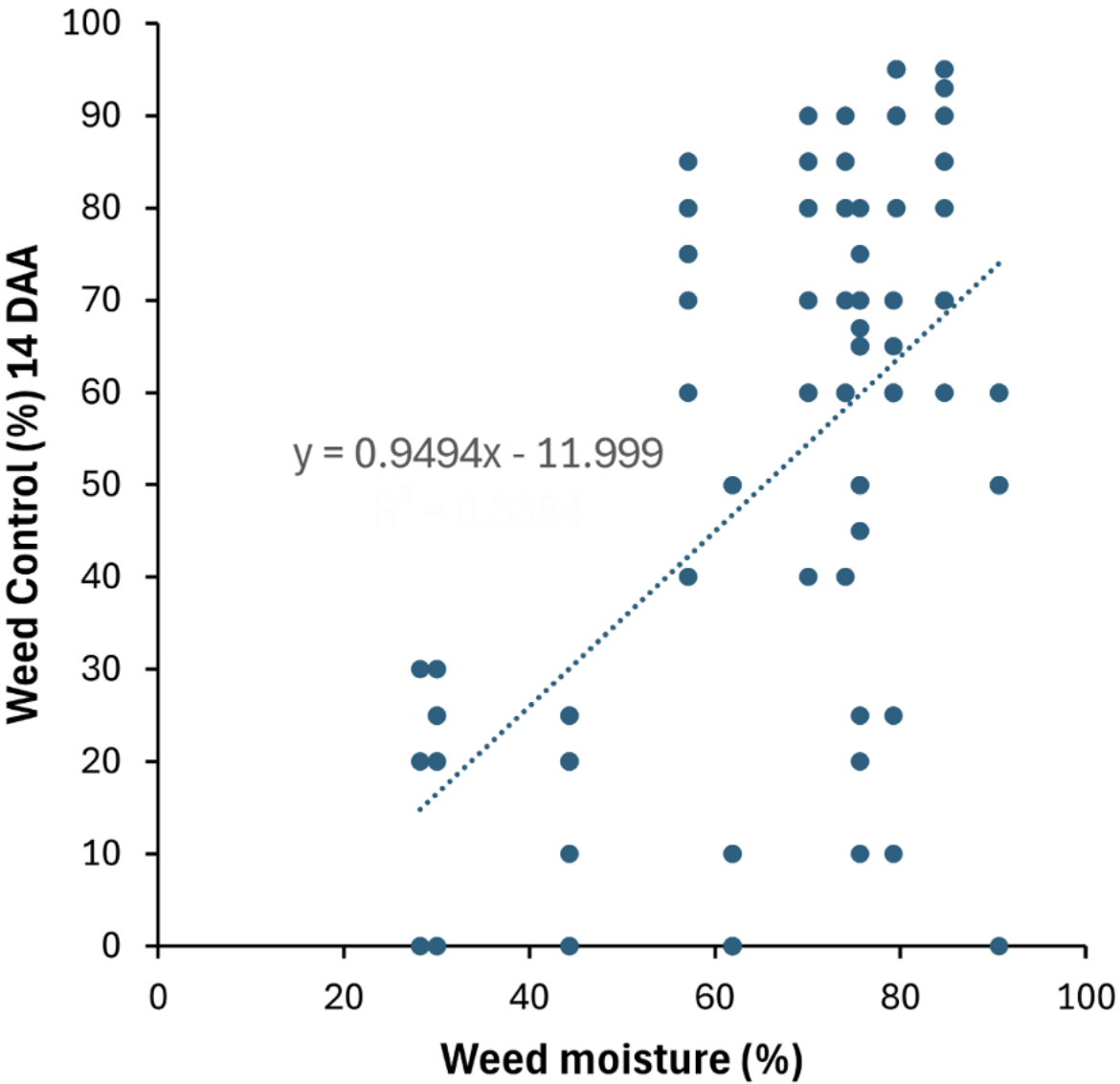


# Influence of Electrocuting Boom Height Placement on the Control of Tall (38-40") Waterhemp Plants





# Relationship Between Weed Moisture Content at the time of Electrocutation on Weed Control





# Impressions of Electrocution as a Weed Control Tactic

- These implements could have a fit in other crops as well.





# Electrocution for Weed Control in Pastures

*Table 1. Weed control relative to the best broadcast herbicide treatment(s) evaluated.*

Alternative Treatment Type	Common Ragweed	Common Cocklebur	Bull Thistle	Ironweed Species	Buckbrush	Horsenettle
Single pass electr	↓	↓	=	=	=	↓
Two-pass electr same day	=	=	=	=	↑	↓
Two-pass electr 14-d apart	=	=	=	=	↑	↓
Single pass weed wiper	↓	=	=	=	↑	↓
Two-pass weed wiper	↓	=	=	=	↑	↓

↑, ↓, and = indicates higher, lower, and similar control than the best broadcast herbicide treatments, respectively





# Mizzou<sup>®</sup> Weed science

**Email:** [bradleyke@missouri.edu](mailto:bradleyke@missouri.edu)

**Phone:** 573-882-4039



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