

Preliminary Report:

Evaluation of dry edible bean tolerance to the herbicide metamitron (year 1 of 2)

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Metamitron is likely to see widespread use as a preemergence weed control in sugar beets in the coming years. It provides excellent control of common lambsquarters and most pigweed species including Palmer amaranth. In years when the sugar beet crop is lost due to late freeze, hail, wind, or other problems, dry edible beans are commonly planted. It is unknown whether dry beans will be a viable re-plant crop after sugar beets where the herbicide has been used. The objective of this study is to determine whether dry edible beans are sufficiently tolerant to metamitron to allow dry bean planting after this herbicide has been applied. Results from this project will inform dry bean growers' decisions and may impact the herbicide label language as it relates to rotational crop restrictions.

METHODS:

A field study was conducted at the James C. Hageman Sustainable Agriculture Research and Extension Center near Lingle, Wyoming, in 2024 to evaluate dry edible bean response to soil residues of metamitron herbicide.

Metamitron (Goltix 700 SC) was applied with and without ethofumesate (Nortron SC) 7 days before planting (Torero = metamitron plus ethofumesate) at rates of 1x, 0.5x, and 0.25x field use rate (Torero 128 fl oz = 1x). Visual injury was evaluated 18 days after planting (Figure 1), and dry bean stand was evaluated 18, 28, and 47 days after planting (Figures 2, 3, and 4, respectively).

RESULTS:

Results from 2024 suggest replanting beans after a failed sugar beet stand *should be* okay under most circumstances, but injury potential is high if beans are planted too soon after herbicide application.

When applied 7 days before planting, 35 fl oz/A of Torero caused 5% dry bean stand loss (35 fl oz = 27% of the field use rate). Under typical use patterns, metamitron will be applied >30 days before dry bean planting. Reported metamitron soil half-life ranges from 3 to 25 days. More research should be done to ensure metamitron will not cause stand problems in dry edible beans if planted after a failed sugar beet crop.

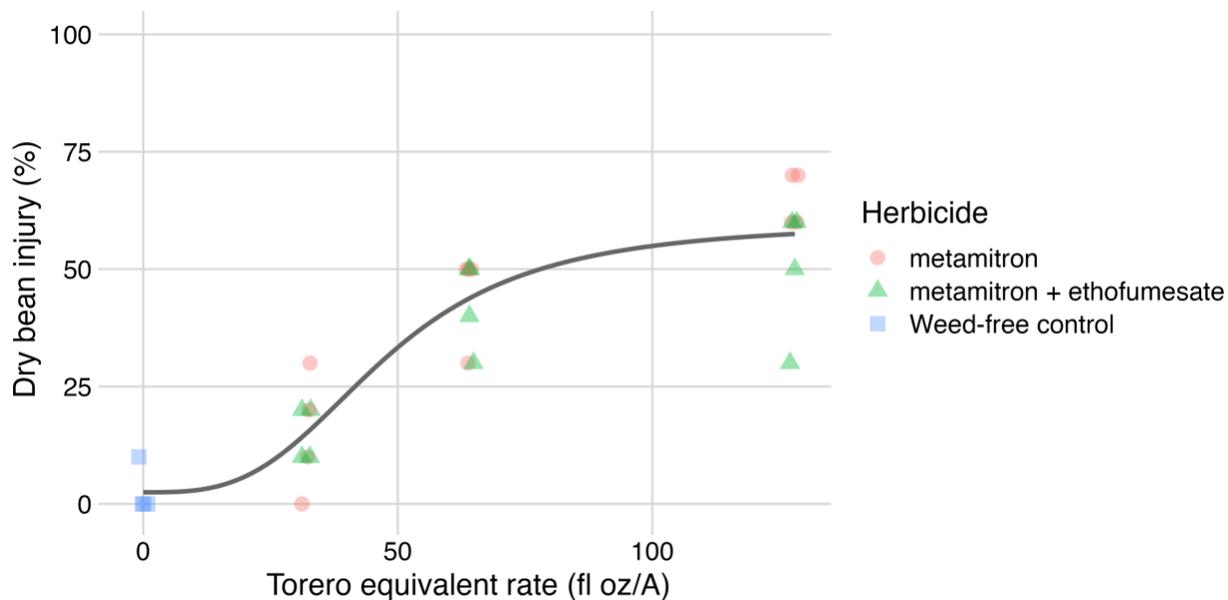


Figure 1. Visual dry bean injury 18 days after planting. Lingle, Wyoming, 2024.

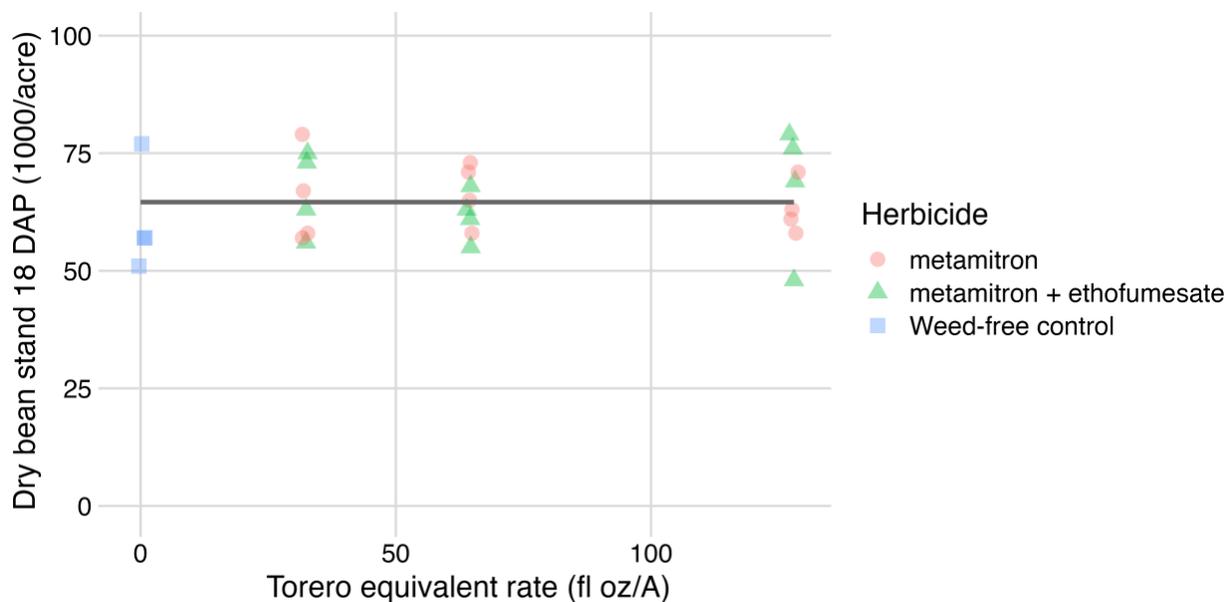


Figure 2. Evaluation of dry bean stand 18 days after planting. Lingle, Wyoming, 2024.

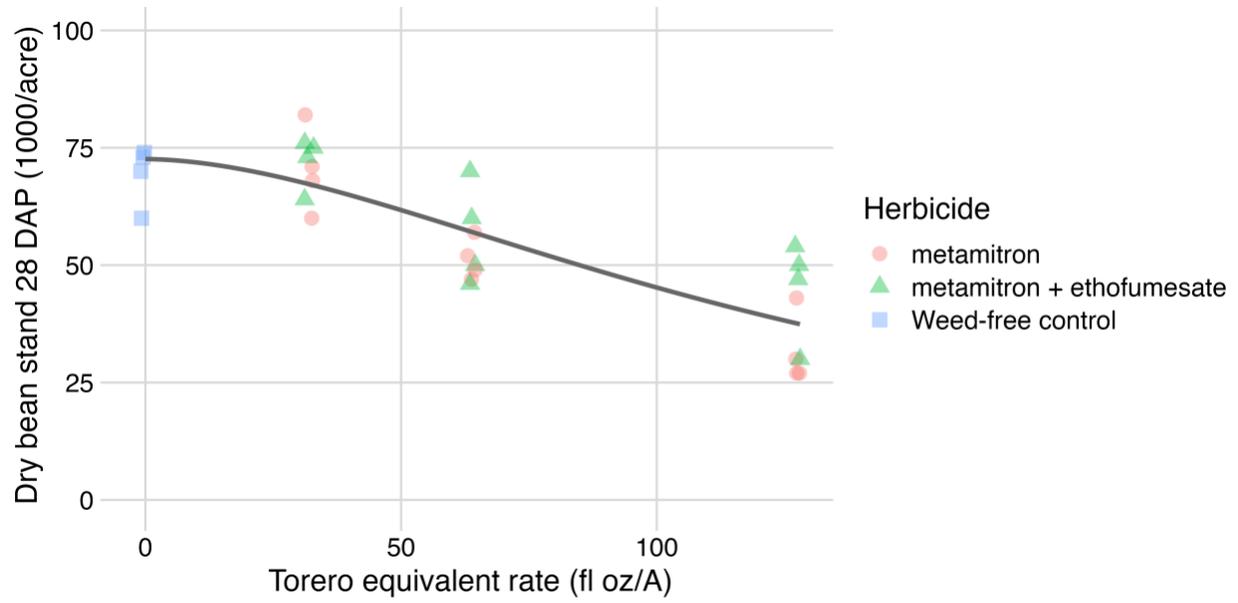


Figure 3. Evaluation of dry bean stand 28 days after planting. Lingle, Wyoming, 2024.

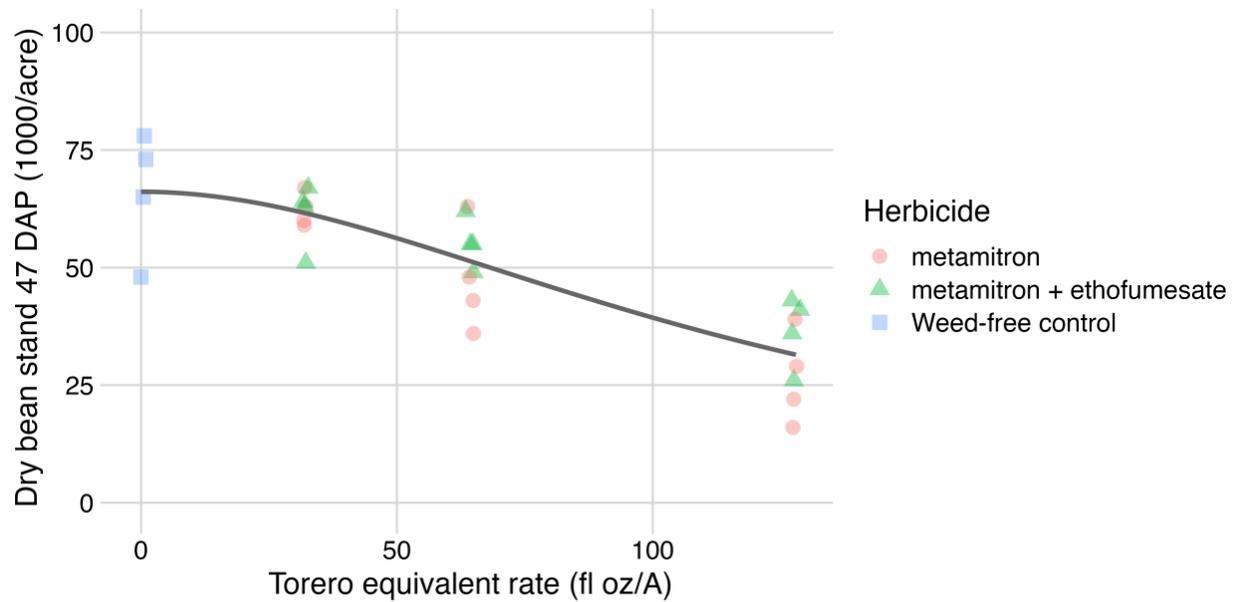


Figure 4. Evaluation of dry bean stand 47 days after planting. Lingle, Wyoming, 2024.