

Roundup and Grazing: An Integrated Approach to Control Medusahead

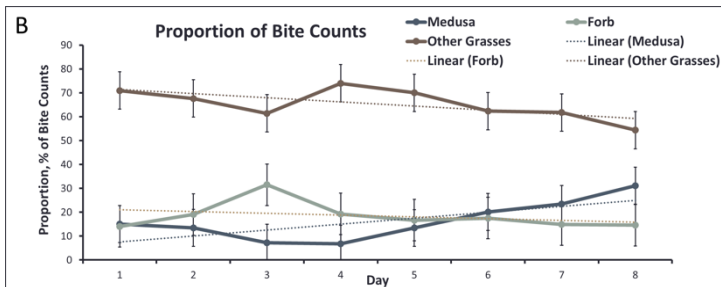
Spackman, C., Panter, K., Stonecipher, C., and Villalba, J.

In fall of 2015, Ranchers in eastern Washington made a discovery. Spraying medusahead with Roundup increased the palatability of medusahead. Based on Ranchers Name observation Folks from the ARS Poisonous Plants Lab and Utah State University conducted the following trail described below.

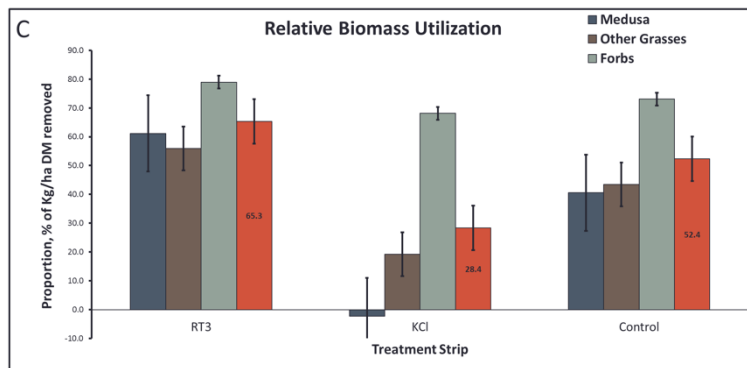
Objective: To determine if spraying medusahead with the herbicide glyphosate (Roundup) to increase use of the weed by livestock.

Medusahead-infested plots (0.13 acres) were divided into three 20 by 100 foot strips and sprayed with:

- 1) glyphosate (Roundup) at a rate of 154 g ae/acre or 0.35 lbs ae/acre
- 2) potassium chloride (KCl; salt in RT 3) at a rate of 174 g/ha (.13 lbs/acre or 2.5 oz dry weight/acre)
- 3) Control (CTRL, no chemical application).

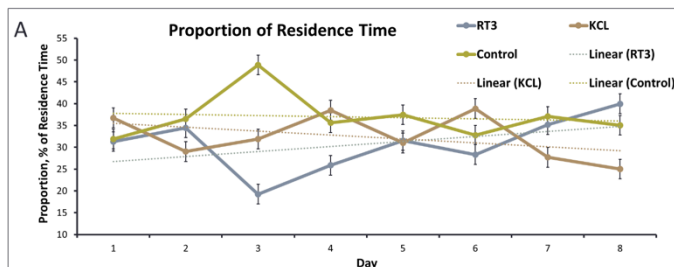


From June 14 to June 18, the percentage of bites taken of medusahead in a minute of increased from 7 to 31% of bites, while the percentage of bites taken of other grasses declined from 77% to 56% and the percentage of bites of forbs was fairly constant (16 to 13% of bites)



During the grazing study, medusahead biomass declined by 61% in the roundup sprayed strips and 40.6% in the control strips while the biomass of medusahead in the salt sprayed strips remained unchanged (blue bars above). which may have been caused by the amount of variation in the plant communities in adjoining plots. The salt content of the roundup did not increase preference for medusahead; on the contrary, cattle avoided the strip

treated with KCl (Spackman et al. 2017).



Overall there was no difference in the proportion of time cattle spent in each strip (*graph A*). As the trial progressed, the amount of time spent in the roundup-treated strip increased whereas amount of time spent in the salt-treated strip in decreased and amount of time spent in the control was the same.

Glyphosate application increases cattle preference for medusahead, however, it is unknown whether the herbicide alters the medusahead cellular constituents of medusahead or if it is the ingredients within the herbicide increase palatability. Differences in preference between herbicide treated plants and control were marginal. Abundant and palatable perennial bunch grasses may decrease consumption of herbicide treated medusahead. The greater use of glyphosate-treated medusahead plants and strips suggests that an integrated approach of herbicide and grazing treatments is an efficient tool to control medusahead spread in rangelands.



Fig. 1: Ungrazed medusahead treatments. From left to right; untreated, Roundup RT3, potassium salt.



Fig. 2: Grazing experiment during Day 5. From left to right; potassium salt, Roundup RT3, untreated.



Fig. 3: Research site with six replications selected and an average medusahead density of 34.1%.