

# Research Report 2016

## Roundup and Grazing: An Integrated Approach to Control Medusahead

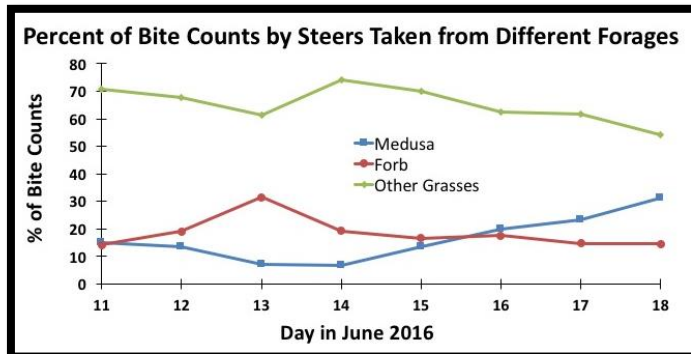
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Luke Mcrae is a cattle producer from Mcrae Ranch near Ritzville, Washington. In 2014, he sprayed his fencelines before turning his cows out. He noticed his cattle spent a lot of time grazing where he had sprayed. Apparently, spraying glyphosate (Roundup) on medusahead before boot dramatically increases its palatability. Based on Mcrae's observation, scientists from the ARS Poisonous Plants Lab and Utah State University conducted the following research trial in Paradise, Utah.

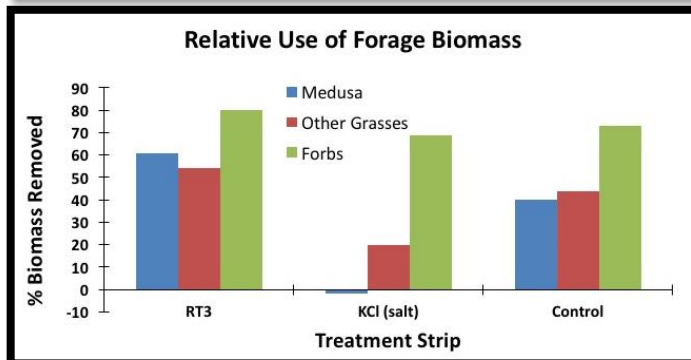
Medusahead-infested plots (0.13 acres) were divided into three 20 x 100 foot strips and sprayed with:

- 1) glyphosate with potassium salt (Roundup RT3) at a rate of 154 g ae/acre or 0.35 lbs ae/acre
- 2) potassium chloride (KCl; salt in Roundup RT3) at a rate of 0.15 lbs/acre
- 3) Control (CTRL, no chemical application).

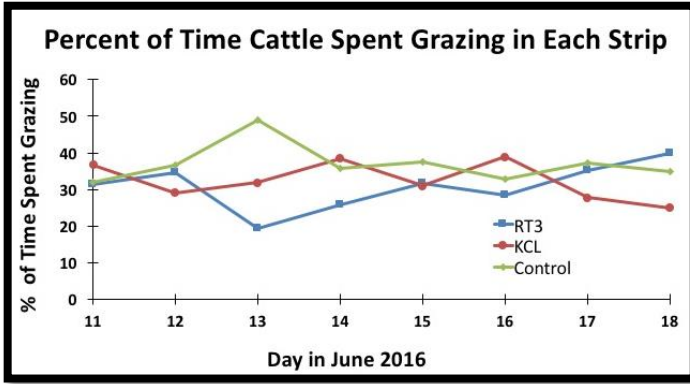
Medusahead was sprayed in the boot stage just before seedhead emergence. Beef steers were paired (2 per/pasture) and randomly assigned to each plot.



From June 14 to June 18, the percentage of bites taken from medusahead in five minutes increased from 7 to 31% of total bites, while the percentage of bites taken of other grasses declined from 77% to 56%. The percentage of bites of forbs remained fairly constant (16 to 13% of bites) throughout the trial (graph left). The abundant perennial bunchgrasses in the plots likely decrease consumption of herbicide-treated medusahead.



During the grazing study, medusahead biomass declined by 61% in the Roundup RT3 sprayed strips and 40.6% in the control strips while the biomass of medusahead in the salt sprayed strips remained unchanged (graph left). The salt content of the roundup did not increase preference for medusahead. On the contrary, cattle tended to avoid 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 left). However, as the trial progressed (June 17 and 18), the amount of time cattle spent in the roundup-treated strip increased whereas amount of time spent in the salt-treated strip decreased and amount of time spent in the control was the same.

Glyphosate (Roundup RT3) application increases cattle preference for medusahead. It is unknown whether the herbicide alters the

cellular constituents of medusahead or the ingredients in the herbicide increases palatability. The greater use of Roundup-treated medusahead plants and strips suggests that an integrated approach of herbicide and grazing is an efficient tool to control medusahead spread on rangelands.



Ungrazed Medusahead Treatments  
From Left to Right: Control, RT3 and KCl (potassium salt)



Grazing experiment on day 5  
From Left to Right: Control, RT3 and KCl (potassium salt)



Research site with six replications (photo above). Average medusahead density in plots was 34%.



Roundup RT3 treatment in May 2017,  
(one year after the grazing trial).  
Bunchgrasses look healthy and  
medusahead thatch is gone (photo left).

