

Using Molasses as an Attractant for Concentrating Grazing on Medusahead

Morgan Doran (Professional + Producer Grant Program)

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Title: Using Molasses as an Attractant for Concentrating Grazing on Medusahead

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Molasses was sprayed on with a simple hand sprayer

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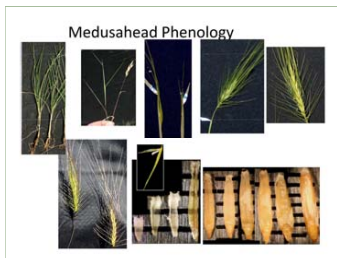
Situation

Medusahead is an invasive annual grass of Eurasian origin that has infested 5 million acres of rangeland in California and millions more in other states. These infestations result in a loss of \$20/acre/year in grazing value, reduced recreational value, and extremely low biodiversity.

Research has shown that properly timed high-density grazing can effectively control medusahead. Spraying an attractant, like molasses, on medusahead could induce sheep to increase foraging on this noxious weed.

Objectives

Test the effectiveness of different concentrations of molasses in attracting sheep to consume medusahead. The hypothesis: The impact of sheep on medusahead would be greater than in the control plots and would increase as the molasses concentration increased.



Medusahead Phenology

Medusahead phenological stages, from left to right and top to bottom: early vegetative, late vegetative, seedhead emergence, fully emerged seedhead, flowering, early seed formation, seed elongation, seed in dough stage, seed maturity. The strategic time to graze is in stages depicted in the second and third pictures.

Actions

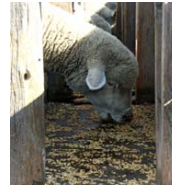
Four treatments were applied in April 2006 when about 80% of the medusahead plants were in the boot stage of grass development:

1. Control; 100% water applied at 50 gallons/acre
2. 12.5% molasses, 87.5% water applied at 50 gallons/acre
3. 25% molasses, 75% water applied at 50 gallons/acre
4. 50% molasses, 50% water applied to 50 gallons/acre

Plots were sampled for botanical composition and forage biomass before and after application to see if higher concentrations enticed a greater impact on the medusahead and other plant species.



Grain with molasses in the feed bunk



During the training process, sheep were encouraged to associate the flavor of molasses with positive nutritional feedback, such as that provided by grains.

Results

Observations and data collected showed that the sheep impact for each molasses treatment was not different from the control treatment, with respect to both botanical composition and biomass, and was not successful in controlling medusahead.

In January 2007, Yeager and Doran attended a meeting providing information and techniques on how to train livestock to consume specific plants (conducted by Kathy Voth, who had worked with Dr. Fred Provenza and the BEHAVE program at Utah State University).

This prompted them to train 25 sheep over 12 days in October 2007 by offering dry medusahead sprayed with molasses, then without molasses; the sheep readily consumed all the residue. In a field test, where a patch of medusahead residue was sprayed, the sheep readily consumed the medusahead even when alfalfa hay was offered in an adjacent corral.

To assess whether such training would work when the medusahead was in the phenological stage most susceptible to grazing, 20 sheep were trained in April 2008 using a process that successfully taught them to seek out molasses. The training failed to influence sheep foraging.

It is speculated that although the sheep were trained to like molasses, the attractant was not strong enough to entice them away from more desirable food sources.

Some California ranchers have successfully attracted livestock to medusahead with molasses, but only during summer and fall, when rangeland forage in the state is typically dry and low in quality. However, livestock impacts on medusahead in summer and fall will not provide effective control.

Potential Benefits

Spraying molasses on medusahead is not an effective control method.

Though this approach failed, it is still recognized that using intensive grazing for weed control reduces the use of and dependency on herbicides that will kill target and non-target plants and increase the risk of impairing water quality.

Rangelands can be restored to systems with higher plant species diversity and higher forage value, thus increasing the overall value for livestock, wildlife, ranchers, and recreationists.



Medusahead never tasted so good.

Outreach

Though the experiments did not yield results hoped for, outreach was conducted to educate the community for future experiments.

- July 20, 2007, field day at the project site for 25 livestock producers, cooperative extension farm advisors, and agency personnel to share information from both grazing projects and to solicit recommendations from participants
- October 15, 2008, field day for visiting livestock producers from Utah to extend the results of this and other medusahead-control research projects occurring in California



Several sheep readily consumed a patch of medusahead thatch sprayed with molasses after the training process in August 2007.



This patch of medusahead, sprayed April 30, 2008, with a solution of 50% molasses and 50% water, is mostly in the boot stage with a few plants already producing seed.



The sheep were not interested in the molasses-sprayed medusahead, instead moving to more desirable forages.