



*The Newsletter for the  
BEHAVE Research and  
Outreach Program*

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## You Are What You Eat

Researchers are increasingly more interested in the nutrition welfare of livestock because many consumers are demanding that livestock are humanely reared, transported, and slaughtered. Adequate nutrition is one of the requirements for humane treatment.



However, many livestock operations feed the same ration day

after day or their pastures are planted to a single plant species. Food intake and

## Greetings!

Hey there! I know that it has been a while since you've seen a newsletter, but that is going to change! My name is Jamie Keyes and I am an agricultural communication and journalism student at USU. I am currently working for Beth taking care of her newsletters and blog, while she takes care of her 'other irons in the fire.' Please feel free to contact me if you have any suggestions or comments about the newsletter, my email is [jaik10@yahoo.com](mailto:jaik10@yahoo.com). Enjoy!

## Goats Against Grass

**Below are excerpts from a letter I received from a seed grower who wanted to know if goats could be averted to grass. He did avert the goats on his own with coaching from me. Here's how it worked.**



Part of working the magic with food aversion is giving the animals an experience where they believe a particular food is bad. I compare it to going to the Chinese Restaurant and having the black bean shrimp. If the shrimp makes you sick, you never want to eat black bean shrimp again.

In a corral, I gave the goats a big feed of the grass I wanted them to avoid and then gave them each a very carefully measured dose of LiCl, based on their body weight (200 mg/kg). If you've ever had a dose of Ipecac you understand how a sick feeling can be induced chemically. The goats stood around looking morose for a few hours and then resumed normal activities.

The goats ate weeds. They had a preference for the growing tips of kochia, the lambsquarter disappeared and they kept the prostrate knot weed and pig weed suppressed; they had more than they could really eat so they simply gained weight and got fat. The one clump of grass that one of the goats was forced to eat when it was tied up got nipped now and then as the goats traveled through the field.

My Bozoiski II Russian Wildrye gets tall, easily five feet, and the rows are spaced three feet apart. When it got tall, the goats lost interest in going down the little tunnels between the rows. They pretty much stayed out the grass when it was tall. That means that when the seed was close to harvest and ready to shatter the goats

preference depend on how animals are built physically and their body chemistry.

Substantial variation exists between individuals in their need for nutrients and tolerance to toxins. Offering only one ration or a single forage may cause excesses, deficiencies and imbalances of nutrients for many individuals possibly compromising their welfare.

#### The benefits of choice are:

**1. Individuals** can better meet their needs for nutrients and regulate their intake of toxins and consequently reduce stress.

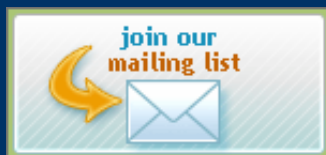
**2. Food choice** may enable animals to cope with toxins because certain food combinations may lessen the effects of toxins.

**3. A diverse diet** may increase disease resistance because animals can choose forages with antimicrobial or antiparasitic effects or immunity-enhancing properties.

**4. Observing feeding** behavior in livestock may help detect of pain or sickness before the appearance of clinical signs.

**5. Dietary choice** will likely improve animal welfare and performance and increase the profitability of livestock operations.

*Photo: ewanr / Foter / Creative Commons Attribution-NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0)*



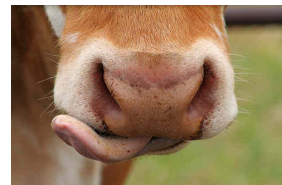
were not around; they stayed in the open edges of the field.

After harvest they resumed patrolling the whole field looking for weeds.

*Photo: Doug Greenberg / Foter / Creative Commons Attribution-NonCommercial-NoDerivs*

### It's the flavor. It's always the flavor.

Many of the studies on food aversion have used concentrates or food flavors. A few have used shrubs. I've often been asked if animals would generalize an aversion to all grasses if they were averted to one grass. My answer has always been: "No not all grasses."



Generalizing the aversion to other grass species would depend on how similar the flavors are between grasses and the strength of the aversion.

A study by Ginane and Dumont answer the question at least between perennial ryegrass and tall fescue. Researchers used a fairly low dose of LiCl (70 mg/kg body weight) to condition an aversion with sheep to ryegrass that was tall in stature. They also looked if animals would avoid a plant based on height. After conditioning, sheep avoided short ryegrass, but readily ate tall fescue that was tall in stature. Sheep did not avoid grass based on height.

Researchers also conditioned sheep to avoid timothy hay but sheep continued to eat red fescue hay after conditioning.

Sheep may use physical characteristics to search out certain foods. But when it comes to eating a food, it's flavor that matters, not height, not color, or other physical characteristics of the food.

Reference: Ginane, C., and B. Dumont. 2006. Generalization of conditioned food aversions in grazing sheep and its implications for food categorization.

Behavioural Processes 73:178-186. doi:10.1016/j.beproc.2006.05.006

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Let me know what I can do to improve the newsletter!!

Sincerely,

A handwritten signature in cursive script that reads "Beth Burritt".

Beth Burritt

Utah State University - Department of Wildland Resources

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action/equal opportunity institution



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