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# Oh BEHAVE!

Behavioral Education for  
Human, Animal, Vegetation  
& Ecosystem Management

BEHAVE Outreach Program • 435-797-3576



The Newsletter for the  
BEHAVE Research and  
Outreach Program

## BEHAVE Principle of the Month:

**Individual variability:**  
Scientists hate variability. Too much and it's hard to achieve statistical significance. But for managers, variability has benefits and can form a basis for selection. Animals range in their abilities to digest nutrients, detoxify compounds, and select a varied diet. Identifying and keeping animals with desirable behaviors such as eating noxious weeds or sagebrush, grazing away from streams, or calving every year despite poor forage quality can help improve rangelands and profits. Select for the behaviors you want. Whether they're due to genetics, learning or both, they'll likely be passed on to the next generation.

## Palatability and Novelty

I have a confession to make. I have a Canada thistle problem. I blame it on my neighbor because just across our fence is a healthy crop of thistle. This year, I noticed a new, welcomed invader on my pasture, red clover. When I looked over the fence, I saw healthy red clover growing with the thistle. Last weekend, five horses grazed that tiny pasture but the red clover was untouched. Red clover must be unpalatable.

Isn't that what we often think when an animal refuses to eat a plant? In the photo above, horses ate the forage on the right but not the red clover or the Canada thistle on the left. Thistle



is often thought to be unpalatable but red clover? In reality, both can be good forage provided animals are familiar with the plants.

Most animals won't eat a plant if it's novel. When animals won't eat a plant, we need to understand why. Is it low in nutrients, high in toxins or just novel? If novelty is the problem, training is the solution.

## Does Flavor Matter?

Can you name the five senses of taste? The first four, sweet, bitter, salty, and sour, are probably easy to recall but the fifth may be a bit more difficult. It's umami. Umami? Recently, scientists identified new taste receptors in the mouth that recognize protein, called umami receptors. Umami means tasty in Japanese.

Juan Villalba recently conducted a study to examine how flavor affects intake and preference. Flavors

used in the study are made by a Spanish company to encourage livestock to eat new foods and keep them on food. Flavors stimulate taste receptors in the mouth and show promise for use in feedlots.

During the study, lambs received an alfalfa-barley diet flavored with: 1) sweet, 2) bitter or 3) umami flavor, 4) no added flavor or 5) a choice of all 4 diets.

Continued  
On Page 2

Your Source  
for All Things  
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## Flavor con't

Not surprisingly, when given a choice, lambs preferred to eat all four diets. The lambs' favorite flavor was umami, they preferred sweet and plain equally and bitter was their least favorite flavor.

Flavor didn't affect total intake but affected pattern of intake. Lambs given a choice tended to eat

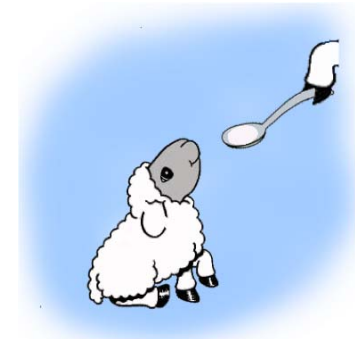
throughout the day whereas lambs with a single diet ate large meals early and late in the day but little food during the day.

Villalba plans to continue his study this fall to determine if exposure to flavors early in life affects intake and acceptability of novel foods and toxins.

## Lambs Learn to Take Their Medicine

This summer, graduate student, Udita Sanga, conducted a study to see if ewes can teach their lambs to eat polyethylene glycol (PEG) when eating a food high in tannins. PEG binds to tannins and lessens their harmful effects.

Before the trial began, one group of ewes was trained to eat a tannin-grape pomace diet. Another group was trained to eat PEG when eating the tannin-grape pomace diet. After ewes were trained, lambs were fed the tannin-grape pomace diet and PEG. They were offered the diet and PEG: 1) without their mothers, 2) with mothers experienced eating the tannin diet, or 3) with mothers



experienced eating the tannin diet and PEG. Following training, lambs were separated from their mothers and offered a choice between the tannin diet and PEG.

Lambs exposed with their mothers learned to eat PEG whether or not their mothers were familiar with the benefits of PEG. Lambs without mothers never ate PEG. The interaction between mom and her offspring during feeding was important in getting lambs to use PEG regardless of the experience of their mothers.



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