

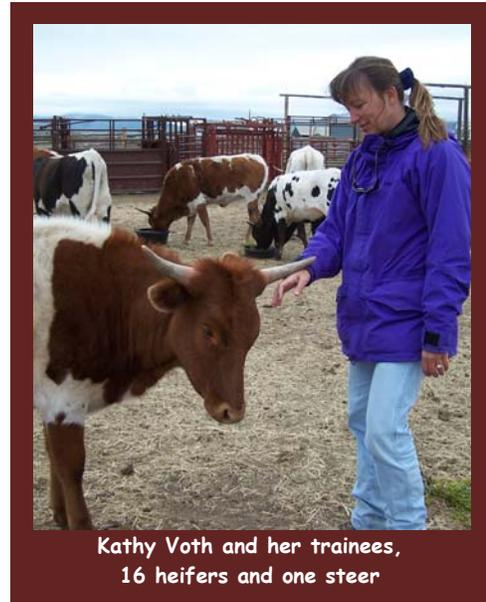
## COWS EAT WEEDS!

Kathy Voth, Livestock for Landscapes and Utah State University

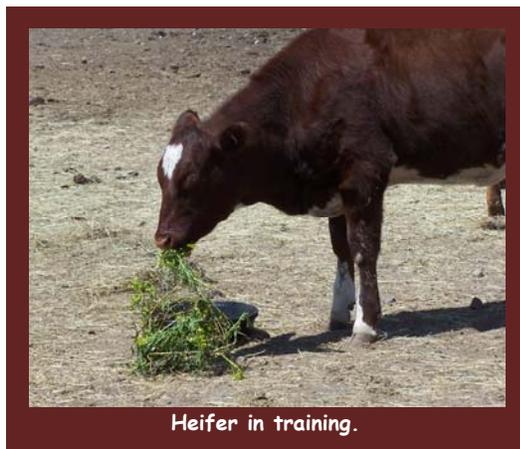
Grant-Kohrs Ranch in Deer Lodge, Montana has a history of contributing to the growth and improvement of ranching. Today as a National Historic Site, the ranch continues that tradition as the site where a new technique for managing weeds was developed: training cattle to eat them.

In 2004, as part of a CIG grant with GRKO and Utah State University, I developed a process for training cows to eat weeds, based on two decades of research done by Dr. Fred Provenza and his colleagues into how animals choose what to eat and where to live. The purpose of the project was to look at ways to use livestock as a tool to reduce weed populations and enhance landscapes at GRKO. If livestock could be trained to eat weeds they could help manage them in areas inaccessible to other weed management tools and catch them as they attempted to pioneer in new areas.

Working with 5 Tehabi Interns, Ranch Technician Dawn Kidwell, and then Chief of Resources, Ben Bobowski, I trained 16 heifers and one steer named Sundae to eat Canada thistle, leafy spurge and spotted knapweed. Trainees ate all three weeds in pasture, added others to their diets on their own, and trained their offspring as well. This successful launch has led to projects at ranches and on public open space in California, Colorado and Montana. Along the way, I have improved the process which can now take as little as 10 hours over 10 days. Over 700 cattle have been trained and they have spread weed-eating behaviors to hundreds more.



Kathy Voth and her trainees,  
16 heifers and one steer



Heifer in training.

The training process is uncomplicated and takes advantage of animals' physiology and behaviors. Because research demonstrates that animals choose what to eat based on internal feedback from nutrients and toxins in foods, I first look at the makeup of the target weed. The weeds we first trained cattle to eat at Grant-Kohrs Ranch NHS are all equivalent to or better in nutritional value than alfalfa. Over the past 5 years I have found that most plants, when green and growing are equally nutritious. Toxins then become the limiting factor. All plants contain toxins, but very few contain them in toxic doses. Their primary purpose is to reduce the quantity an animal eats of a particular forage. Again, what I

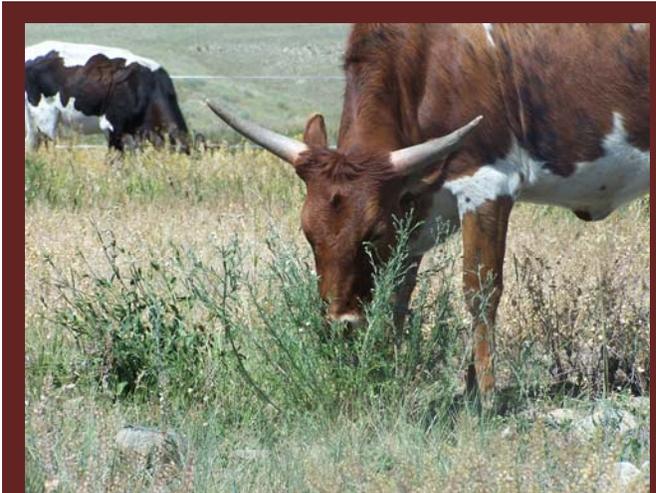
have found over the last five years is that there are very few dangerous plants and cattle can successfully eat a wide variety of weeds. In fact, as I continue to explore this area my rule of thumb is that if a sheep or goat can eat something, it is likely a cow can eat it too.

Once I know a weed is safe to eat, I choose my trainees: Young females, because young animals are more likely to try new things and females teach their young what to eat; Healthy and well-fed because research shows that animals need to be in a good nutritional state to process toxins in foods, and a reasonable number (from 20 to 50) so that I can easily pick weeds for them during the weed portion of the training.

#### **Weeds Trained Cattle Eat:**

Canada, musk, distaff, Italian, sow, bull and milk thistle, Leafy Spurge, Spotted and Diffuse Knapweed, Dalmatian and Yellow Toadflax, Black Mustard, Canada Goldenrod, Coyote bush, multiflora rose, and rhubarb spp.

Experiments at Utah State University showed that mother is the single greatest influence on what an animal eats, and that animals are "neophobic" or afraid of new things and foods. To get over their fear of new things I took a page from Pavlov and his dog. I feed them unfamiliar, nutritious foods morning and afternoon for 4 days, using the same tubs and feeding at the same times. Cows soon drool when I arrive, knowing that the tubs and I mean "good eats." On the fifth day of training I feed them a snack of the target weed mixed with something else they've eaten before.



Heifer eating spotted knapweed in pasture

Once they've tried the weed, they experience the nutritious feedback it provides and are ready to eat more of it. Cows train for the new weed for two more days, eating them plain on the last day. Then they practice in a small pasture before heading back to their regular pastures.

GRKO's next step in the process is to verify changes in the herd. Research tells us that herd mates learn from each other, but there is little work done on the speed with which learning occurs. Trained animals and their offspring will be observed in small

pastures to see that they continue to eat weeds. Likewise, animals that were never trained will be observed to see if they have picked up the new weed-eating habits.

In the past five years I have found that as few as 12 trained animals can train as many as 120. Verifying learning among trained and untrained animals at GRKO will provide additional evidence of learning taking place. GRKO is also exploring grazing management techniques to enhance the animal's weed management efforts. Thus, the ranch may once again provide an important contribution to ranching and its future.

If you'd like to learn more about the training process visit my website at <http://www.livestockforlandscapes.com>