

## Training Cows to Graze Weeds Reduces Costs and Increases Profits

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In 2004, I began developing a process for teaching cows to eat weeds based on decades of research about how animals choose what to eat. Why cows? Because they beat goats when it comes to working with cattle producers. I researched the use of goats to solve vegetation problems from 1997 to 2002, but when I suggested to cattle producers that they add goats to their herds as a weed control measure, not one took me up on the idea. My familiarity with research about how animals choose what to eat led me to believe that it could be possible to teach a cow to eat a weed, thus providing a useful and inexpensive tool to ranchers looking for ways to improve their bottom line.

Today, I can teach a cow to eat a weed in as little as 10 hours over 10 days. Trainees teach their offspring and herd mates, they remember the weeds every year, and they add new weeds to their diets without additional training. I've trained cattle to eat many of our most problematic weeds from Canada thistle to white top/hoary cress, knapweeds, toadflaxes and more. Weed-eating cattle grow sleek and fat, breed back as expected, and have healthy calves. In fact, not one trainee has ever suffered an injury or illness as a result of eating weeds in the 8 grazing seasons I've been training weed-eaters.

In spite of this success, ranchers remain skeptical. So today I'd like to share some information about weeds and about how turning cattle into weed eaters can improve a cattle producer's life in ways that other weed control methods never can.

### Weeds are Nutritious

Weeds that I've had analyzed over the last 8 years have generally had protein values equivalent to, or better than, alfalfa and are usually more digestible than typical pasture

#### Process for Teaching Cows to Eat Weeds

- 1. Know your weed.** Before you begin training an animal to eat a new plant be sure that it is safe for them to eat.
- 2. Choose your trainees.** You don't have to train your entire herd. Heifers or cow calf pairs that will remain on the ranch long enough to teach the rest of your herd to eat weeds is the best choice.
- 3. Build on how animals learn.** A 4-day routine of feeding a variety of unfamiliar but nutritious feeds from the local feed store teaches the animals that all kinds of foods can be tasty, even though they may look a little strange. When you add weeds on the 5<sup>th</sup> day, they will eat them as if they are just another food in a series of strange things.

grasses. This is because weedy species usually have a higher leaf to stem ratio than grasses that have relatively little leaf and more stem.

So what does this mean for a cattle producer? First, we know that cattle on a higher protein diet gain weight more quickly. For example, cattle can gain 2.2 pounds per day on a diet of 16% protein. It makes sense then that weed-eating cattle experience similar gains.

High protein weeds can also help cattle meet their nutritional needs when range and pasture grasses fall below the 8% cattle require to maintain themselves. In the past, one of our solutions to low protein grass has been to provide our cattle with supplements to make up the protein deficit. The additional protein provided by the supplement has helped rumen microbes turn what would have been unpalatable forage into something cattle can actually use. Weed-eating cattle can get the same benefits when they mix weeds with other available forages. One of the most interesting cases of this I've seen is a group of trained cattle that ate cheat grass with their weeds, even though it had dried out weeks before.

### **Cattle Can Mix Forages Safely**

One of the concerns ranchers have expressed about weeds is that they might be toxic or cause harmful side effects or abortion. That's a valid concern, so before training begins it's critical that I know I am training them to eat something safe.

What I've discovered is that all plants contain toxins. A toxin's job is to reduce the amount an animal eats of that plant and research done at Utah State University over the last two decades demonstrates that animals do reduce what they eat when they encounter toxins in a food. Danger comes in the dose that an animal gets. Very few plants are so toxic that they will kill an animal outright, giving the animal time to quit eating. However, because toxin levels in a plant can change over the growing

### **Got a problem? EAT IT!**

Resorting to comfort foods when we have problems may have caused problems for our waistlines, but when it comes to problem weeds, eating them may be our best bet. Here are a few weedy forages that trained cows are eating in pasture, along with their protein values:

Rabbitbrush – 21%  
White top/Hoary Cress – 20%  
Canada thistle – 12 - 21%  
Knapweeds – 16 – 18%  
Other thistles – 13 – 25%

### **Cows Didn't Always Eat Grass**

Google Books' collection of books on agriculture from 1750 to 1850 shows that farmers used to feed their cattle primarily turnips, potatoes, carrots and beans. In fact, one farmer fed his 20 work horses, 4 bullocks, and 6 milk cows for five months with the carrots he produced on three acres. An 1844 feed trial also showed that cows fed a steamed diet of turnips, potatoes, beans and salt gained more weight than cows eating those same veggies raw.

I'm not saying we should go back to this method. But it does point out that our cattle have the ability to be more flexible about their diets than we may have thought.

season, an animal can get itself in trouble if it doesn't have enough variety in pasture, and so continues to eat something that is no longer safe.

My trainees have shown me that as they learn to eat one weed, they will experiment with others they find in their pasture. This means that they have much more variety available to them than does the average cow. My trainees have even eaten things that I probably wouldn't have offered to them, but they've remained safe because they ate small amounts of everything.

### **When Your Cows Eat Weeds, You Have More Forage**

On average, scientists say that about 1/3 of pastures and rangelands are made up of what we consider inedible, weedy species. Based on this number, and using the low average of what other weed-grazers eat (i.e. sheep and goats), economist John Morley determined that by teaching his cows to eat weeds, a rancher could increase his forage availability by 43%. That's a significant number, particularly in times of drought.

As John Wick and Peggy Rathmann put it, after training their cows to eat distaff and Italian thistle, "Economically, if you're comparing equipping, supplying and applying yourself [to use herbicide], all you're doing is focusing on weeds. If you're training cows to go out, in addition to all the other beneficial things they're doing, to also feed themselves on a nutritious plant like distaff, it's all good, there's no down side to cows."

### **Cows in Nevada are Learning to Eat Weeds**

In March I put on a day-long workshop for ranchers in Ruby Valley, Nevada. We covered the concepts that make it possible for us to teach cows or any other animal to eat a new plant, and adapted the basic training process to their individual operations. Lance Knudsen says his trainees are now eating Russian knapweed and he is working on teaching them white top and rabbit brush. Gary Wines tried to teach his cows to eat wild iris, but we still need to work out some kinks on that particular plant. Jon Griggs at Maggie Creek Ranch outside of Elko is also teaching his cows to target white top.

### **Herbicides Are Expensive, Don't Increase Forage, and Aren't Doing the Job**

The cost of herbicides includes the chemical, and the equipment and labor to apply it. This runs in the billions nationally, and in the millions for states. For example, North and South Carolina spent \$250 million and did not eradicate their target weeds. The state of Montana would like to increase its budget from \$20 million to \$30 million just to control the weeds it already has. Meanwhile, a recent study shows that the use of herbicides doesn't actually increase the amount of grass. Oklahoma researchers found that grass populations were more dependent on precipitation and that cattle gained the same amount whether they grazed in treated or untreated pastures. This means that we are spending a lot of money without getting one of the promised results. Further, in spite of all our efforts, weeds continue to spread at about 14% per year.

## **Turning Cows into Weed Managers is Logical**

For about \$250 in materials and 10 hours in labor spread over 10 days you can reduce your costs for weed control and increase your forage by 43%. Your animals should also gain weight more rapidly thanks to their higher protein diet, reducing the time to market and increasing the value of your product. If you'd like to learn more about the process you can visit my web site at <http://www.livestockforlandscapes.com> . Videos of the training process are available at: <http://www.youtube.com/kathyvoth> .