

Forage Palatability

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Livestock have forage preferences! Most people think that if the forage is nutritionally adequate, then it doesn't matter about what they like best. If we confine animals to a pasture with only one grass or legume species, then they will eat it since they have no choice. However, in most pastures, there are often several grasses and/or legumes and weeds. Like human beings who have a choice in foods, livestock will choose certain plant species in preference to others. This preferential grazing can affect forage quality, persistence of certain species, and increase of weed species in a pasture. As you watch your animals graze, you may discover why certain changes occur in a pasture.

Palatability or high acceptance of a forage by an animal may be affected by texture, aroma, succulence, hairiness, leaf percentage, fertilization, sugar content, tannins, alkaloids, green vs dead leaves, and maturity or lignin content. High palatability may improve intake by the animal but it does not necessarily improve animal performance. Palatability alone can be a misleading indicator of forage quality.

Pasture plant species preferences

When animals have access to a number of different pasture plant species, they definitely show preferences. Research in New Zealand by W.F. Hunt and J.M. Hay is especially interesting since they ran cafeteria trials with many cool season species using separate experiments grazed by cattle, red deer, and horses. They ranked the most favored species from 1 to 8 with 1 being the most palatable to the animal.

Grass or legume species	Palatability ranking		
	Red deer	Cattle	Horses
Red clover	1	8	8
White clover	2	6	3
Alfalfa	3	7	7
Rescuegrass	4	5	1
Annual ryegrass	5	4	2
Orchardgrass	6	1	6
Tall fescue (endophyte-free)	7	3	5
Timothy	8	2	4

These results show that cattle preferred grasses to legumes while red deer selected legumes in preference to grasses. Horses were different and chose rescuegrass and annual ryegrass in preference to tall fescue, orchardgrass, and timothy. Horses selected white clover in preference to red clover and alfalfa.

In cafeteria grazing trials with horses during two years near Athens, Julia McCann and I found annual ryegrass to be by far the most palatable cool season annual grass, followed by oats and wheat with triticale the least liked. These preference rankings are similar with cattle. This means that part of a pasture should not be planted to oats and the other part to rye or triticale unless a fence is placed between them. Otherwise, the oats will be overgrazed and the rye or triticale undergrazed.

Grass	% of forage consumed
Annual ryegrass	92
Oats	47
Wheat	40
Rye	30
Triticale	22

In other cafeteria grazing trials with annual clovers, Julia McCann and I found that horses did not like arrowleaf clover. This may be a result of tannins in the leaves which contribute to bloat resistance for cattle. Cattle seem to find arrowleaf quite acceptable.

Clover	% of forage consumed
Crimson	78
Berseem	73
Subterranean	66
Arrowleaf	22

Effect of nitrogen and maturity on palatability

Nitrogen fertilization can improve the palatability of grasses. G. W. Burton,

B. L. Southwell, and J. C. Johnson, Jr. grazed steers in a cafeteria trial with Coastal Bermudagrass at Tifton, GA using different rates of nitrogen fertilizer (split into applications on March 17 and July 14) at two stages of maturity (2 and 4 weeks). A strip of forage was clipped from each plot before mob grazing for two hours, then another strip clipped to determine approximate consumption.

Nitrogen lb/acre	Forage consumed	
	2-week	4-week
0	3	4
50	18	8
100	25	6
200	42	23
300	37	26

The results show that palatability was improved substantially by nitrogen fertilization. Dry matter content of the forage decreased and crude protein content increased with nitrogen fertilization, indicating greater leaf content and less stems. Although the 4-week old grass was taller, cattle selected the shorter 2-week old grass which was leafier. Cattle prefer green leaves and seek them out in a pasture when available. Older more mature grass is rejected and continues to accumulate in an undergrazed bermudagrass pasture.

Some final thoughts

Forage palatability is based on a combination of many things such as plant species, nitrogen fertilization, and maturity. Other aspects of palatability are a result of acquired preferences or aversion (based on satisfaction or discomfort), learning experiences in early life with the mother, and desire for variety in the diet. Grazing management or mismanagement can affect palatability of forage available in a pasture. Careful observation of livestock during grazing can assist in getting better utilization of the forage.