Where it Grows, Matters

Legumes are often grown with grasses in pastures to increase their protein content, and ruminants generally prefer forages high in protein. But how is forage preference affected when an increase in protein is accompanied by an increase in a toxic alkaloid? That's exactly what happens when endophyte-infected tall fescue (TF-E+) is grown with alfalfa.

Visiting scientist, Michael Friend, determined if sheep preferred TF-E+ grown near alfalfa (0.6 to 3 feet) (NEAR) or TF-E+ grown more than 15 feet away from alfalfa (FAR).

In his first experiment, lambs were offered a choice of freshly harvested TF-E+ NEAR and FAR for 12 days. Intake was measured each morning for one hour and at three more times during the day. As expected, NEAR contained more protein (8%) and the alkaloid ergovaline (360 ppm) than FAR (6% protein and 219 ppm ergovaline). Lambs preferred NEAR to FAR during the first hour of feeding, but not during feeding bouts later in the day.

In a second experiment, he examined the affect of odor on forage preferences by lambs. Lambs were offered TF-E+FAR in both feeders but one feeder contained the scent of freshly harvested alfalfa, the other the scent of freshly harvest TF-E+ FAR. Preference was greater for FAR with alfalfa scent than for FAR offered with FAR scent on two days of the eight-day experiment.

This research suggests that: 1) lambs initially preferred NEAR due to its higher protein content, but during the day the preference disappears due to the greater alkaloid content of NEAR compared to FAR, 2) olfactory cues influence preference, but to a lesser extent than the nutrients and alkaloids in TF-E+, 3) lambs adjusted their intake of forge and preference for forages during the day to balance their intake of nutrients and alkaloids.

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How Pasture Structure effects Grazing Behavior

Most grazing management is based on making sure there is enough feed for the number of animals in a certain period of time. Structure is not normally
on its coat color. Four breeds of cattle, with four different coat colors were tested to see where they spent their time in the sun or the shade.

The percentage of time each breed spent in shade (standing and lying down) was: 89% for Angus (black), 81% for MARC III (dark-red), 57% for MARC I (tan), and 55% for Charolais (white). There was a direct correlation (R² = 0.90) between absorption of solar load, by hair coat color and percent of time the heifers spent in shade. Providing shade alleviated heat stress by lowering body temperature, especially for black and dark-red colored cattle.


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Brazilians researchers working in the temperate Pampa grassland system in southern Brazil, Uruguay, and Argentina evaluated the relationship between pasture structure and livestock grazing behavior. Pasture structure refers to forage height and type, such as bunchgrass or sodforming grass, and distribution of preferred plant species versus non-preferred. These researchers found that regardless of the season or forage allowance, cattle balanced their time eating against a relatively narrow window of structural conditions in this environment.

In extensive grazing management systems, the type of species in a pasture and how they're arranged may be more important than how much forage is in your pasture in terms of grazing efficiency.

Future research will further illuminate this relationship and evaluate the costs and benefits of modifying an easy to use and vetted forage allowance management approach.


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

Sincerely,

Beth Burritt
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