

PUBLICATIONS

2004

NUTRITIVE VALUE OF STOCKPILED BERMUDGRASS UNDER CONTINUOUS OR STRIP-STOCKED MANAGEMENT

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Background. Animal performance is inseparably linked to nutritive value and dry matter quantity of the diet whether it be forage for grazing livestock or concentrate rations for dry lot. Under grazing conditions in which forages are actively growing, cattle select leaves which are higher in nutritive value, crude protein (CP) and energy, compared to stems. And, when given adequate supply of forage under low to moderate stocking rates, cattle will graze forage regrowth in preference to more mature forage. Stockpiled bermudagrass has little opportunity to make forage regrowth due to season of the year; thus, awareness of nutritive value is important for management decisions related to grazing management, supplementation, etc. Coastal bermudagrass hay meadows (COS) were late-summer fertilized and allowed to accumulate DM (stockpiled) until grazing in mid-Oct. (companion report) at TAMU-Overton. Percent CP and acid-detergent fiber (ADF) were analyzed on forage from both continuously stocked (CONT) and strip-stocked (STRP) areas. The COS was measured at initiation of grazing and partitioned into top (TOP), middle (MID), and bottom (BOT) thirds. For the STRP areas, forage was sampled at the initiation (INIT) of stocking of each strip; thus, each strip has two nutritive value assessments. The CONT area was also sampled at INIT of each STRP.

Research Findings. The CP and ADF of stockpiled COS in mid-Oct. was in line with numerous other studies and analyses of bermudagrass for the TOP, MID, and BOT components for this stage of forage maturity (Table 1). As stocking was initiated on each new stockpiled strip on Oct. 15, Oct. 28, Nov. 11, and Nov. 26, CP of COS declined and ADF increased as anticipated. The companion report showed that the 12-inch COS canopy was approximately 12% TOP, 30% MID, and 58% BOT. Forcing cattle to graze the BOT strata has deficient nutrient status implications for most all classes of livestock on this stockpiled COS in Oct. Status of COS at initiation and throughout the stocking period further revealed the rapid decline in nutritive value (Table 2). At grazing initiation, CP was 9.2% and ADF was 35%. After 2 weeks of grazing, forage available in STRP I, for example, was 7.5% CP and 37% ADF. By mid-Dec., the STRP COS was 5.9% CP and 43% ADF; whereas, on CONT stocked areas, CP was 7% and ADF was 42%. The COS forage on CONT was also low in nutritive value, but was slightly higher than that in STRP stocked areas as a consequence of the method of use. This is a similar nutritive value scenario for continuous vs. rotationally stocked bermudagrass pastures.

Application. Nutritive value of bermudagrass is affected primarily by physiological maturity and chronological age (season). In addition, crude protein is also directly related to available soil nitrogen whether by natural fertility or by fertilizer application. Stockpiled COS does not improve in nutritive value; thus, management should have knowledge (forage test) of existing nutritive value, and implement stocking methods that do not force prolonged consumption of low nutritive value forage. The desire to obtain maximum forage utilization on an area prior to movement to another area or the reluctance to offer hay often has negative implications with respect to desired-expected animal performance from lactating cows.

Table 1. Percent Crude Protein and Acid Detergent Fiber (ADF) of top, middle (MID), and bottom (BOT) thirds of stockpiled bermudagrass (BG) canopy under continuous (CONT) or strip stocking.

FORAGE USE	DATE	BG CANOPY			BG CANOPY		
		TOP	MID	BOT	TOP	MID	BOT
		% Protein			% ADF		
CONT	10-15-02	10.8	10.1	8.8	34	35	36
STRIP I	10-15-02	10.6	10.3	8.3	32	33	36
STRIP II	10-28-02	10.0	11.0	8.0	34	33	35
STRIP III	11-11-02	8.2	7.6	6.2	35	35	36
STRIP IV	11-26-02	8.6	7.5	7.6	36	35	38

Table 2. Percent Crude Protein and Acid Detergent Fiber (ADF) of stockpiled bermudagrass at initiation (INIT) and movement of cattle on strip stocked vs. continuous stocked (CONT) areas.

FORAGE USE	STATUS ¹	DATE	CRUDE PROTEIN	ADF
			%	%
CONT		10-15-02	10.5	35
STRIP I	INIT	10-15-02	9.2	35
STRIP I		10-29-02	7.5	37
CONT		10-29-02	6.9	39
STRIP II	INIT	10-29-02	9.1	34
STRIP II		11-11-02	7.5	39
CONT		11-11-02	7.7	38
STRIP III	INIT	11-11-02	7.0	36
STRIP III		11-26-02	7.4	40
CONT		11-26-02	7.2	42
STRIP IV	INIT	11-26-02	7.7	37
STRIP IV		12-12-02	5.9	43
CONT		12-12-02	7.0	42

¹Bermudagrass sampled at initiation (INIT) of stocking each strip. Forage was also sampled from continuous (CONT) stocked and in strips that were continually stocked after opening of a new paddock.