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## **The productivity and hay requirements of beef cattle in a Year-Round grazing system in North Cameroon**

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**Key words :** productivity , hay requirements , beef cattle , grazing system

**Objective** This research was conducted to evaluate a replicated ( $n=2$ ) year-round grazing system's hay needs and animal production compared with a replicated ( $n=2$ ) conventional (minimal land) system over 3 years . Because extended grazing systems have decreased hay needs for the beef herd , it was hypothesized that this year-round system would decrease hay needs without penalizing animal production .

**Methods** In the minimal land (ML) system , two replicated 8 .1-ha smoothbrome grass-orchard grass-birds foot trefoil (SB-OG-BFT) pastures were rotationally stocked with six mature April-calving cows and calves and harvested as hay for winter feeding in a drylot . After weaning , calves were finished on a high-concentrate diet . Six mature April-calving cows , six mature August-calving cows , and their calves were used in the year-round (YR) grazing system . During the early and late summer , cattle grazed two replicated 8 .1-ha SB-OG-BFT pastures by rotational stocking . In mid-summer and winter , April-and August-calving cows grazed two replicated 6 .1-ha , endophyte-free tall fescue-red clover (TF-RC) and smooth brome-grass-red clover (SB-RC) pastures , respectively , by strip-stocking . In late autumn , spring-calving cows grazed 6 .1-ha corn crop residue fields by strip-stocking . Calves were fed hay with corn gluten feed or corn grain over winter and used as stocker cattle to graze SB-OG-BFT pastures with cows until early August the following summer . First-harvest forage from the TF-RC and SB-RC pastures was harvested as hay .

**Results** Body condition scores of April-calving cows did not differ between grazing systems , but were lower ( $P<0.03$ ) than those of August-calving cows from mid-gestation through breeding . Preweaning calf BW gains were 47 kg/ha of perennial pasture ( $P<0.01$ ) and 32 kg/cow ( $P=0.01$ ) lower in the YR grazing system than in the ML system . Total BW gains of preweaning calf and grazing stocker cattle were 12 kg/ha of perennial pasture less ( $P=0.07$ ) , but 27 kg/cow greater ( $P=0.02$ ) in pastures in the YR grazing system than in the ML system . Amounts of hay fed to cows in the ML system were 1,701 kg DM/cow and 896 kg DM/cow-stocker pair greater ( $P<0.05$ ) than in the YR grazing system .

**Conclusions** Extended grazing systems in the Midwest that include grazing of stocker cattle to utilize excess forage growth will decrease stored feed needs , while maintaining growing animal production per cow in April-and August-calving herds .