

Using Perennial and Annual Forage Grazing for Yearling Steers to Delay Feedlot Entry and Improve System Profitability

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Cattle feeding is a high risk, low profit margin business. Integrating crop and beef cattle systems may provide way to offset normal perennial season forage quality decline (Greenquist *et al.*, 2009). Yearling and long-yearling cattle make up 45 to 55 percent of total feed lot placements (Brink, 2011). Using an extended grazing season of 6 months reduces the number of feedlot days on feed (DOF) (Senturklu, *et al.*, 2014). Grazing a sequence of perennial and annual forages improved ribeye area (REA) and percent intramuscular fat (IMF) and integrated crop and beef cattle grazing system profit (Senturklu, *et al.*, 2014).

The research objective was to compare, within an integrated crop and beef cattle system, two frame score types and two growing-finishing systems to determine the effect of delayed feedlot entry on yearling steer performance and system economics.

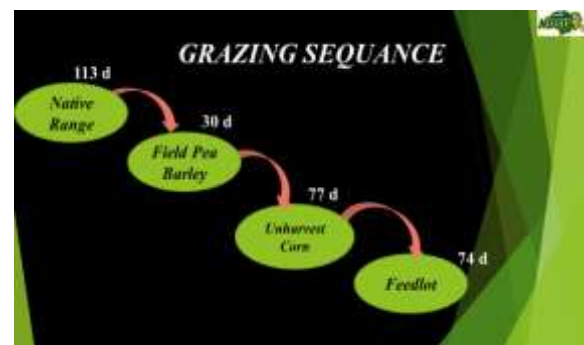
MATERIALS AND METHODS

Over a 2 year period 192 yearling beef steers were wintered as a common group for modest ADG of 1.10 lb/h/d. In May, steers were divided into 2 treatments & 2 frame score groups within treatment after weaning each fall (2012 and 2013).



Treatments: 1) feedlot control (FLOT), 2) perennial grass pasture (GRAZ).

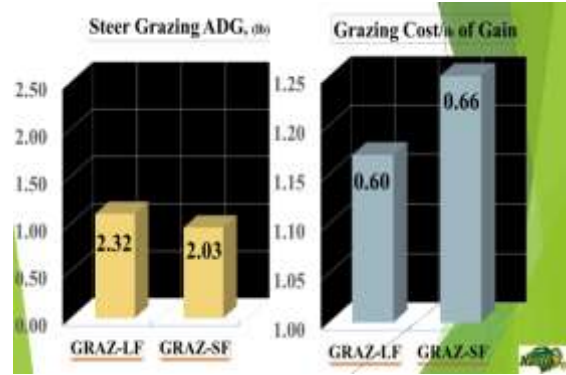
Frame Score Compared: Small Frame (SF: average 3.64) and Large Frame (LF: average 5.44). The feedlot control group steers were shipped directly to Lingle, WY on May 1. The GRAZ treatment steers grazed a sequence of perennial and annual forages before being moved to the UWY feedlot for final finishing.



Grazing Sequence: Native Range (NAT) > field pea-barley (PBL) > unharvested corn (CN) > Feedlot (FLOT).

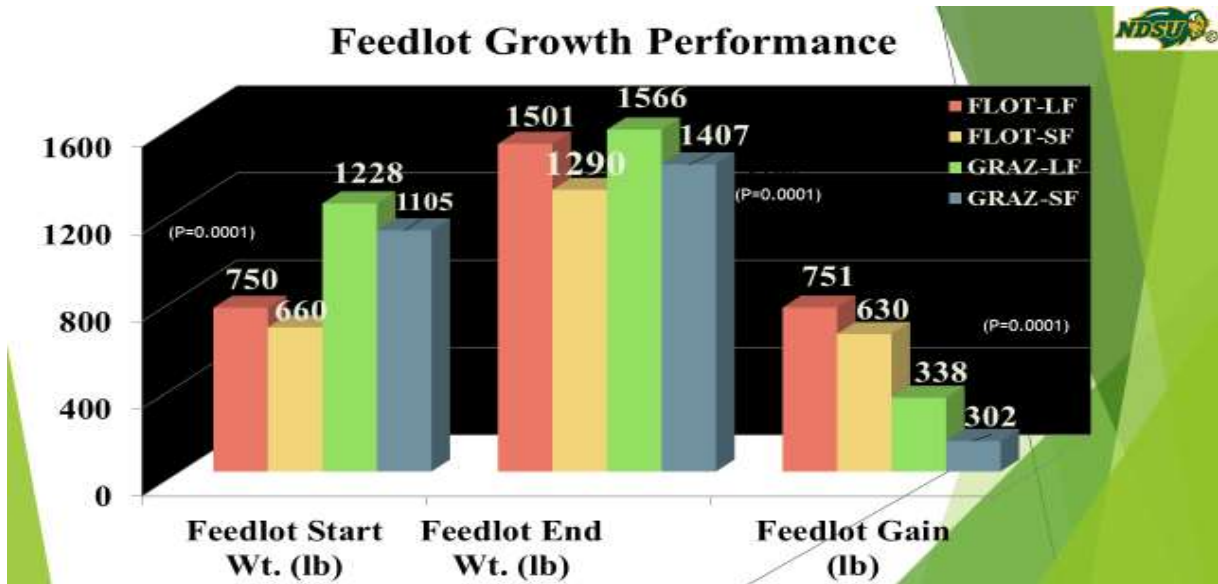
The native range major plant species: Blue Gramma (*Bouteloua Gracilis*), Western Wheatgrass (*Pascopyrum Smithii*), Green Needlegrass (*Nassella Viridula*), Needle And Thread (*Stipa Comate*), Little Bluestem (*Schizachyrium Scoparium*), And Prairie Sandreed (*Calamovilfa Longifolia*).

The design was to graze each forage type until forage crude protein (CP) content declined to a range of 8.0 to 10.0 percent CP or the pasture, or field was sufficiently grazed.

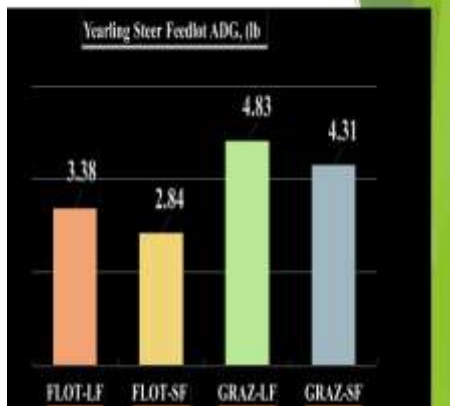


The steers grazed 219 d. SF steers were lighter at the beginning and end of the grazing period. Under grazing conditions, the SF steers had a lower cost/Head (\$293 vs. \$303).

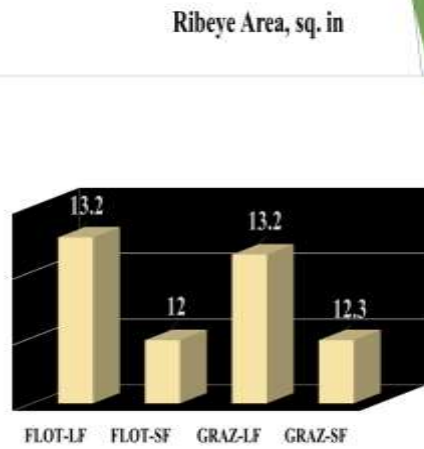
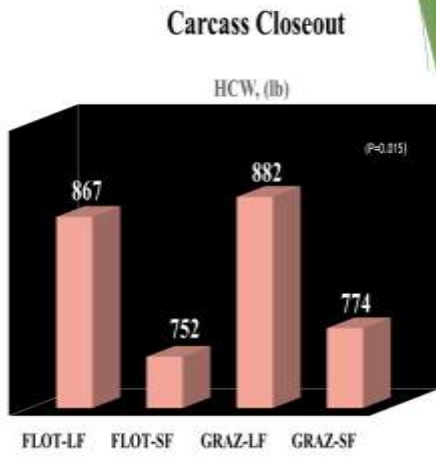
LF steers gained 12.7% faster during the grazing period. Total grazing cost was higher for the LF steers. However, due to their slower growth rate, grazing cost/lb of gain was higher for the SF steers (\$0.60 vs. \$0.66).



Feedlot starting weight was significantly heavier for the GRAZ steers that grazed for 219 days before feedlot entry. Ending weight for the GRAZ steers were significantly heavier at the end of the finishing period and total feedlot gain was significantly less than the FLOT steers.

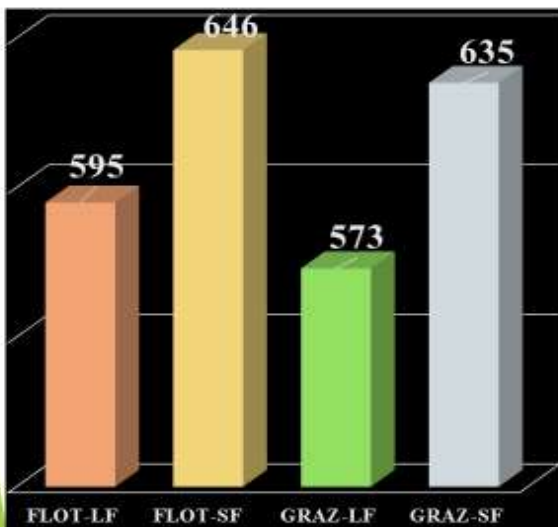


Compensatory gain response among GRAZ steers resulted in ADGs that were 31.9% than the FLOT control steers. In total and compared with the FLOT control, extended grazing systems that delay feedlot entry resulted in better FE, feed cost per head, feed cost per kg of gain, and feedlot ADG. Comparing the average FLOT and GRAZ systems, feed cost/lb of gain was 31.8% less ($P = 0.01$) for the GRAZ system.

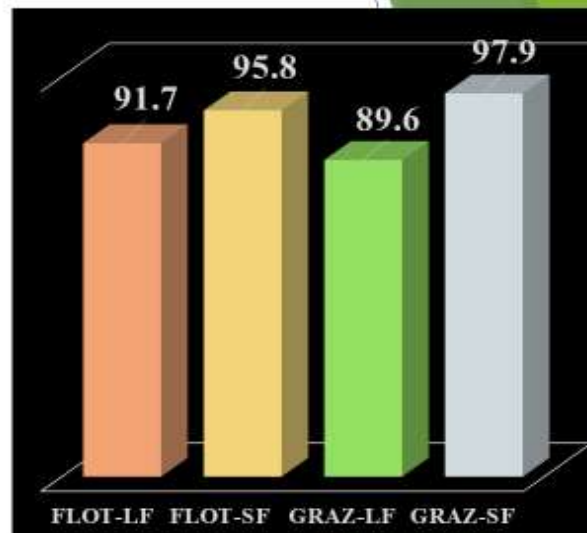


For hot carcass weight (HCW), there were numerical difference between treatments, but did not differ statistically (P=0.15). Ribeye area was greater for LF steers in both FLOT and GRAZ treatments.

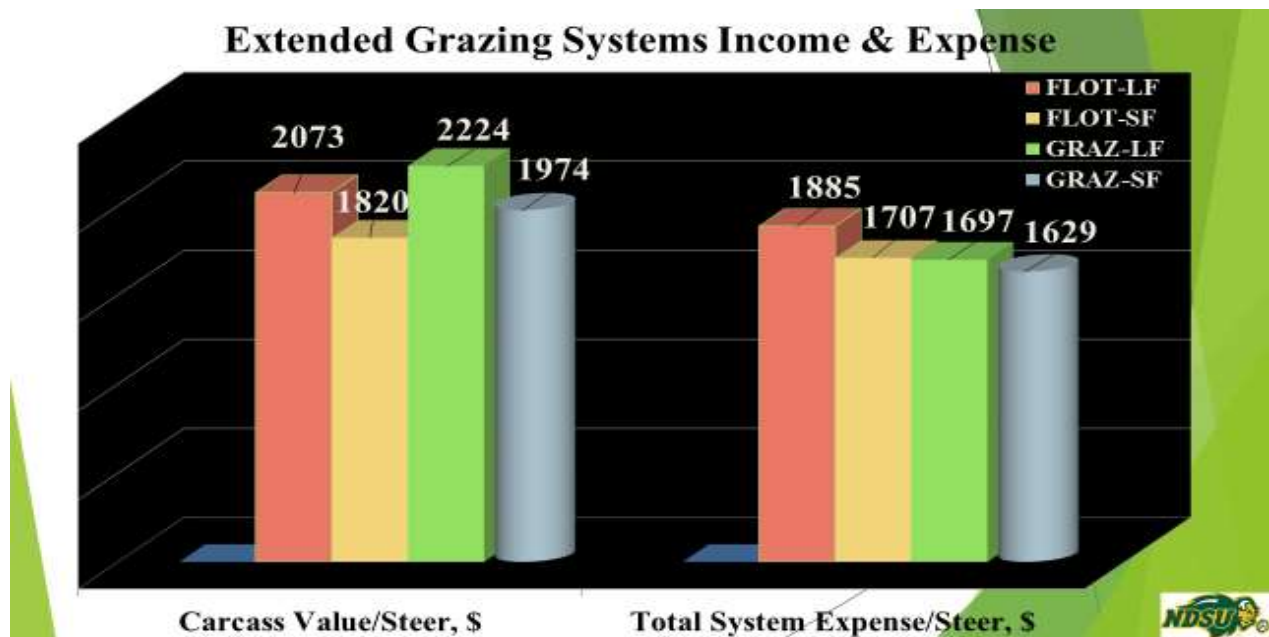
Marbeling Score



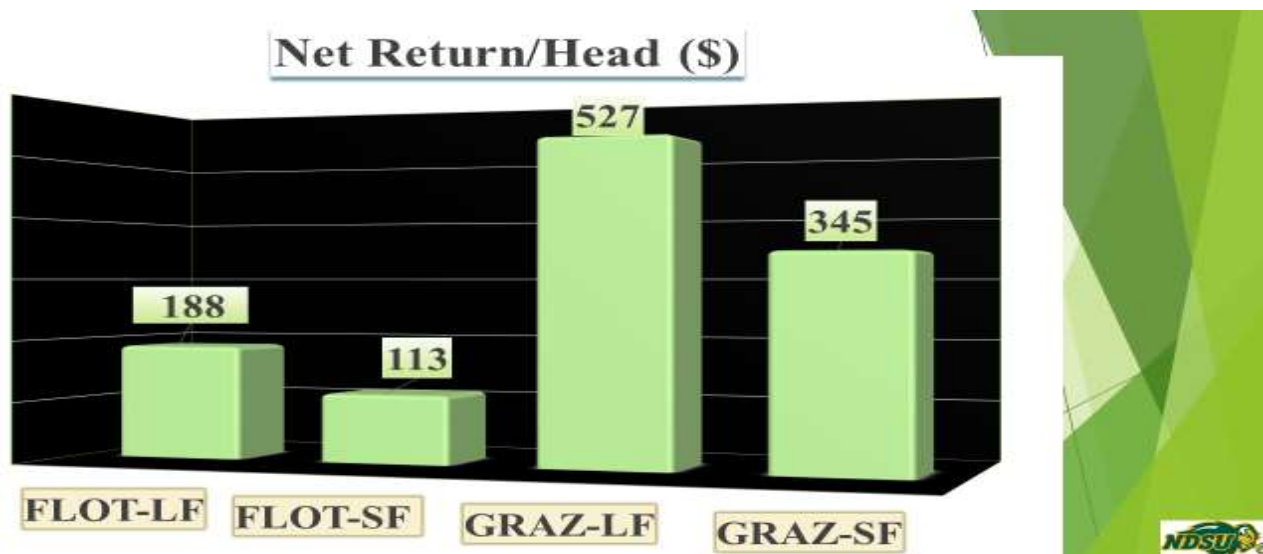
Percent Choice, %



For marbling score, there was a trend for SF steers in both FLOT and GRAZ treatments to be greater than for LF steers. Percent Choice carcass quality grade was greater for SF steers (P=0.05).



As previously stated, HCW was not statistically different and quality grade for SF steers was significantly greater than LF steers. However, higher HCW value and lower total system expense contributed to greater gross return/carcass for the LF and SF GRAZ steers.



Net return was determined by subtracting system expenses (steer placement cost, grazing and feedlot finishing expenses, transportation and brand inspection) from the gross carcass value. The 2-year average system net return was greater for the GRAZ treatment system steers. The large net

return difference was due to the combination of lower feedlot and grazing expenses compared to feedlot expenses and GRAZ system steer compensatory gain.

CONCLUSION

The results of this study indicate that extended grazing systems can reduce the cost of production among steers held for retained ownership and long-term extended grazing periods that hold cattle out of the feedlot result in significantly shorter feedlot finishing periods and greater GRAZ system profitability.