Subsequent Feedlot and Carcass Performance of Stockers Grazed on Differing Cool-Season Grass Swards

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Maintaining high growth rates for stocker cattle over the grazing season is a goal for many graziers and is a key factor in profitability. However, high growth rate on pasture is perceived to be associated with lower feedlot performance and feed efficiency. Limited research evaluating potential effects of different upper Midwest summer beef stocker grazing systems on subsequent feedlot performance or carcass characteristics has been reported. The objectives of this research were to determine if differences in typical Midwestern stocker steer performance can alter the feedlot performance or the carcass characteristics.

Table 1. Grazing tall or meadow fescue with or without white clover in pasture swards during the stocker phase and effects on feedlot and carcass characteristics.

Treatment[1]	Grazing ADG, lbs	Feedlot ADG, lbs	Feedlot DMI, lbs	HCW[2] lbs	12th Rib Fat, inches	LM Area, inches[2]	Marbling Score[3]
TF	1.54^{d}	3.92	24.4	801^{b}	0.43^{c}	13.5^{b}	587
MF	1.87^{c}	4.07	25.1	860^{a}	0.52^{ab}	14.4^{a}	565
TFC	2.00^{b}	3.89	24.9	854^{a}	0.55^{a}	14.0^{ab}	565
MFC	2.27^{a}	3.89	25.1	876^{a}	0.48^{bc}	14.0^{ab}	570
Year 1	1.96	3.81	23.8	836	0.45	14.0	553
Year 2	1.89	4.09	25.7	860	0.55	14.0	591
SEM	0.042	0.143	0.484	11.4	0.03	0.26	11.3
P-Value							
Year	0.08	0.06	0.001	0.05	0.01	0.97	0.001
Grass Type	0.001	0.61	0.44	0.01	0.97	0.07	0.44
Clover Inclusion	0.001	0.50	0.73	0.01	0.08	0.83	0.48

a-c Within a column, means without a common superscript letter differ (P < 0.05);
[1]TF = tall fescue, MF = meadow fescue, TFC = tall fescue plus white clover, MFC = meadow fescue plus white clover;
[2]HCW= hot carcass weight; [3]500 = USDA Small[00], 600 = USDA Modest[00]

Over two years, 120 non-implanted and non-supplemented beef steers were followed from the stocker through feedlot and slaughter phases at the UW-Arlington Beef Research unit. Steers were managed similarly over the entire grazing season across four different treatments: meadow fescue monoculture (MF), meadow fescue plus white clover (MFC), tall fescue monoculture (TF), and tall fescue plus white clover (TFC), each of which was replicated three times and considered an experimental unit. Upon completion of the grazing season, five steers from each experimental unit were transported to a nearby feedlot, maintained in their original treatment groups, and managed identically through the feedlot phase to detect pasture treatment carryover effects. During the feedlot phase, steers were de-wormed, vaccinated, and implanted with commercial products as per typical industry recommendations and were fed a high concentrate diet to a common end date (129 and 137 days on feed in year 1 and 2, respectively).

Grazing sward composition resulted in differing stocker average daily gains (ADG), resulting in differences in feedlot initial body weights (BW) (926, 891, 876, and 823 lbs, for MFC, TFC, MF, and TF, respectively). Starting BW was heavier in year 1 than year 2, which was a result of a shorter grazing season in year 2 (188 vs. 137 days) despite greater ADG and larger animal BW at grazing initiation. During the finishing period, no differences were detected in ADG, dry matter intake (DMI) or feed efficiency (G:F) across all treatments ($P > 0.05$). However, year effects were detected for ADG and DMI while G:F was similar between both years. Compensatory growth was not expressed in the feedlot finishing phase for grazing steer growth rates between 1.50-2.31 lbs/day. This result is consistent with previous research that suggested backgrounding growth rates above 1.10 lbs/day did not alter feedlot ADG.

Carcass weights increased when meadow fescue or white clover were incorporated into the grazed sward ($P < 0.01$) which is consistent with grazing treatment effects on initial BW. As shown in Table 1, no significant differences due to grass species or clover inclusion were detected for most carcass measurements ($P > 0.05$). However, the inclusion of white clover into the grass swards tended to increase 12th-rib fat thickness and calculated yield grade ($P < 0.10$).

These findings generally agree with previous research that concluded there were no differences in carcass quality due to type of growing or backgrounding program or rate of BW gain during the pre-feedlot phase when steers were finished to a common 12th-rib fat thickness. It can be concluded from these trials that stocker growth rate between 1.50-2.31 lbs/day has little carryover effect on feedlot performance and carcass composition when animals are fed to a common end date. Because increasing stocker growth rate is desirable, this study suggests a grazing goal to maximize ADG (within the range mentioned) should have negligible carryover effects on feedlot performance or carcass characteristics.