compared with the other wheat varieties (Table 1). Forage production of Bonel rye was similar to that of Triumph 64 wheat. On the March 18, 1980, harvest date forage production of Tam 101 was the greatest among the four wheat varieties. Bonel rye produced the most forage.

Dry matter digestibility (IVDMD) of the four wheats ranged from 74.5 to 68.4 percent (Table 1). Digestibility of Bonel rye was 73.2 percent even though it was jointed and in the pre-boot stage of growth.

Production of digestible dry matter (DDM) on the March 18 harvest date was similar for Tam 101 and Newton wheats (i.e., 771 and 696 pounds per acre) and was about 46 percent greater than Triumph 64 and Osage wheats. Bonel rye produced the greatest amount of DDM per acre.

These data indicate that varietal differences among wheats, in regard to amount of forage production and digestibility, may be important.

Table 1. Forage production and *in vitro* dry matter digestibility (IVDMD) of small grain forages[a]

	Wheat				Kerr	Walken	Bonel
	Triumph 64	Tam 101	Newton	Osage	barley	oats	rye
Forage production[f], lb/acre							
Harvest date							
11-13-79	623[a]	280[bc]	334[bc]	227[c]	401[b]	350[bc]	664[a]
3-18-80	750[cd]	1129[b]	933[bc]	664[d]	684[cd]	532[d]	1982[a]
IVDMD, %							
Harvest date							
3-18-80	72.0[ab]	68.4[c]	74.5[a]	69.9[bc]	65.8[d]	64.8[d]	73.2[a]
DDM[g] produced, lb/acre							
Harvest date							
3-18-80	541[cd]	771[b]	696[bc]	464[de]	452[de]	345[e]	1454[a]

[abcde]Means in a row with common-lettered superscripts are not different (P > .05).
[f]Pounds of oven-dried forage per acre.
[g]Digestible dry matter (DDM).

Effect of Initial Weight on Daily Gain of Stocker Cattle Grazed on Wheat Pasture

G. W. Horn, T. L. Mader, R. W. McNew, C. L. Streeter and S. L. Armbruster

Story in Brief

The relationship between initial weight and gain of fall-weaned steer calves that grazed wheat pasture during the past 4 years was examined by regression. With the exception of Year 2, regression coefficients (measures of the change in daily gain expressed as pounds for each 100 lb increase in initial steer body weight) ranged from

−.13 to −.22. The results indicate that daily gains of lightweight steers (e.g., 300 lb) on wheat pasture are greater than those of heavier steers (e.g., 500 lb). Since a greater number of lightweight steers than heavier steers could be grazed on a given acreage of wheat pasture, total gains per acre would be greater for lightweight steers. The extent to which differences in fleshiness of the steers may have influenced the results is not known. Also, since only calves were used, the results are not applicable to the question of differences in gain between calves and yearlings.

Introduction

The relationship between initial weight of stocker cattle and their subsequent weight gain on wheat pasture is a frequent point of discussion. The data reported herein are relative to this question.

Experimental Procedure

The data used consisted of initial weights and daily weight gains of fall-weaned steer calves that grazed wheat pasture, as a part of other research projects over the past 4 years, at the Southwestern Livestock and Forage Research Station (El Reno, Oklahoma).

Data relative to wheat pasture grazing interval, breed of cattle, number of steers, range in initial weight and mean daily gains are listed for each of the years in Table 1. Steers of Years 1 and 2 were purchased at auction, whereas those of Years 3 and 4 were from a single ranch.

The steers grazed clean-tilled wheat pasture and were not fed any supplemental feed. Bermudagrass hay was fed for 29 days (Year 2) and alfalfa hay was fed for 36 days (Year 3) due to snow and/or ice cover of wheat forage.

Daily gain of the steers was regressed on initial body weight. Initial steer weight, year and weight-by-year interaction were included in the model.

Results and Discussion

Regression coefficients (i.e., measures of the change in daily gain expressed as pounds for each 100-lb increase in initial steer body weight) are listed in Table 2. With the exception of Year 2, all the regression coefficients were negative and indicated that daily gain of steers was decreased by .13 to .22 lb (depending on year) for each 100-lb increase in initial steer weight. The initial steer weight-by-year interaction was not significant ($P>.22$). The regression coefficient for the data pooled across the 4 years was −.14 and was significantly different ($P<.001$) from zero.

Table 1. Data relative to each of the wheat pasture years

Year	Wheat pasture grazing interval	Breed[a]	Number of steers	Range in initial wt (lb)[b]	Mean daily gain, lb
1	11-16-76 to 3-16-77(119 days)	H x A	57	305-510	1.88
2[c]	11-9-77 to 3-29-78(140 days)	H x A	47	385-555	1.16
3[d]	11-17-78 to 3-28-79(131 days)	H	19	225-535	1.66
4	11-27-79 to 4-22-80(147 days)	H	22	255-495	1.92
		Total:	145		

[a]H x A = Hereford x Angus and H = Hereford.
[b]At the time the steers began grazing wheat pasture.
[c]Bermudagrass hay was fed to steers on wheat pasture for a total of 29 days due to snow and/or ice cover of wheat forage.
[d]Alfalfa hay was fed to steers on wheat pasture for a total of 36 days due to snow and/or ice cover of wheat forage.

Table 2. Regression coefficients of regressions of daily gain on initial body weight of steers grazed on wheat pasture

Year	Regression coefficient[a]	Probability level[b]
1	−.22	.001
2	.002	.98
3	−.13	.10
4	−.15	.06
All 4 years	−.14	.001

[a]Change in daily gain (lb) for each 100-pounds increase in initial steer body weight.
[b]Probability that regression coefficient is significantly different from zero.

The data used in this study were from fall-weaned steer calves that were placed on wheat pasture. The results do not apply to the question or differences in gain of calves versus yearlings. Also, the extent to which differences in fleshiness of the steers may have influenced the results is not known.

The results indicate that daily gains of lightweight steers (e.g., 300 lb) on wheat pasture will be greater than those of heavier steers (e.g., 500 lb). Since a given acreage of wheat pasture can be stocked with more lightweight than heavy steers, total gains per acre would be greater for lightweight steers.

Effect of Feeding Wheat Straw or Sorghum-Sudan Hay on Gains and Wheat Forage Utilization of Stocker Cattle

T.L. Mader, G.W. Horn and W.E. Phillips

Story in Brief

Grazing and metabolism trials were conducted during the 1979-80 wheat pasture grazing season to determine the effect which feeding wheat straw (WS) or sorghum-sudan hay (SS) to wheat pasture stockers had on gains and wheat forage intake and utilization. Live and carcass daily weight gains were not significantly altered by feeding either WS or SS. A single pulse dose of Ytterbium-labeled wheat forage was used as a particulate phase marker to measure total gastrointestinal tract (GIT) dry matter (DM) turnover rates of wheat forage (percent/hr) and fecal outputs. Wheat forage intakes were calculated by dividing estimates of fecal outputs (corrected for the undigested portion of WS or SS in feces) by wheat forage indigestibility (one minus estimated *in vivo* digestibility). In the grazing trial, steers were grazed on a single wheat pasture and fed nothing (control) or WS or SS. Wheat forage intakes were significantly ($P<.05$) greater for steers fed SS; however, GIT DM turnover rates of wheat forage were not significantly ($P>.05$) different among treatments. In a metabolism stall trial, steers were fed 90 percent *ad libitum* of harvested wheat forage (control) or harvested wheat forage plus SS. Differences in wheat forage intake and digestibility and total GIT turnover rates were not significant ($P>.05$). The data indicate that feeding WS or SS to wheat pasture stockers does not alter wheat forage utilization or significantly decrease wheat forage intake.

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