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319 Single Timed-Ai Heifer Development and Delayed Feedlot Entry of Non-Pregnant Heifers. Douglas G. Landblom[1], Songul Senturklu[2], Lauren L. Hanna[3], Bryon Parman[3], George A. Perry[4], Steve Paisley[5], [1]*North Dakota State University Dickinson Research Extension Center,* [2]*Canakkale Onsekiz Mart University,* [3]*North Dakota State University,* [4]*Texas A&M AgriLife Research, Overton, TX,* [5]*University of Wyoming*

Abstract: To ranch managers, reproduction is the single most important element of profitability, because heifers that calve early with their first calf produce more pounds of beef product and have greater longevity and productivity. Artificial insemination affords ranchers access to elite sires known for above average production potential and replacement heifers bred to elite sires replace themselves with offspring having genomic enhanced genetic potential. This long-term multi-year project is designed to compare control heifers reared in drylot (DLOT) to heifers managed grazing either native range (NR) or a combination of native range and annual forages (field pea-barley, corn, cover crop) grown in a diverse cropping system (ANN), which are bred using a common single Timed-AI protocol (14 d CIDR-PG) and all non-pregnant heifers are finished for grid marketing. As such, following synchronization cleanup bulls are placed with the DLOT control heifers; however, there are no cleanup bulls placed with the grazing treatments. The project objectives were to evaluate reproductive and economic efficiencies among the three systems. Grazing heifer gains during the 121 d grazing period for the DLOT, ANN and NR were 33.7, 119.5, and 126.5 kg, respectively (P = 0.001). Synchronized timed-AI pregnancy rates were 59.4, 43.8, and 62.5% (P = 0.27) for the DLOT, ANN and NR treatments, respectively. Total pregnancy rate was 90.6, 43.8, and 62.5% (P = 0.002) for the DLOT, ANN and NR treatments, respectively. Grazing heifer feedlot performance (ANN vs. NR) did not differ for start weight (452 vs 456 kg, P = 0.29), end weight (610.0 vs 600.0 kg, P = 0.74), gain (157 vs 164 kg, P = 0.69), ADG (1.42 vs 1.48 kg, P = 0.70), daily DM feed intake (15.0 vs 14.7 kg, P = 0.73), G:F (0.04298 vs 0.04554 kg, P = 0.42), daily feed cost ($4.38 vs $4.30, P = 0.73), feed cost/kg gain ($3.11 vs $2.95, P = 0.51), and feed and yardage cost/kg gain ($3.42 vs $3.24, P = 0.55). Grazing heifer carcass measurements did not differ for, HCW (369 vs 365 kg, P = 0.83), Dressing Percent (60.7 vs 61.0, P = 0.69), marbling score (524 vs 531, P = 0.78), and percent Choice (100% vs 100%). Gross pregnant heifer and gross carcass return for DLOT, ANN and NR was $1,325, $1,702, and $1,601, respectively. These data indicate that grazing systems combining bred heifer value and grid-based carcass value are competitive.

Keywords: estrus synchronization, grazing systems, pregnancy rate

Table 1.Influence of replacing DRC with Hybrid Rye grain on interim period steer growth performance

	Dietary Treatment[1]				Contrasts (*P*-value)			
	CON	RRYE	GRYE	SEM	Corn vs Rye	GRYE vs RRYE	RRYE vs CON	GRYE vs CON
Initial BW, kg	261	259	260	2.1	-	-	-	-
Initial to day 28								
BW day 28, kg	310	304	305	2.0	0.06	0.53	0.06	0.16
ADG, kg	1.62	1.48	1.52	0.05	0.11	0.61	0.11	0.23
DMI, kg	7.03	6.90	6.83	0.19	0.33	0.69	0.61	0.30
G:F,	0.230	0.216	0.223	0.006	0.20	0.40	014	0.47
Day 29-64								
BW day 64, kg	350	345	352	3.2	0.73	0.12	0.27	0.59
ADG, kg	1.17	1.14	1.39	0.1	0.28	0.03	0.78	0.05
DMI, kg	8.9	9.2	9.4	0.2	0.18	0.60	0.35	0.16
G:F,	0.133	0.125	0.149	0.008	0.68	0.06	0.78	0.20
Day 1-64								
ADG, kg	1.39	1.31	1.46	0.05	0.89	0.05	0.25	0.35
DMI, kg	8.0	8.1	8.1	0.15	0.57	0.84	0.70	0.55
G:F,	0.181	0.170	0.186	0.005	0.59	0.04	0.13	0.50

[1]CON = Control, RRYE = Rolled rye, GRYE = Ground rye