2014 Heifer Pasture Summary

Heifer Pasture SE-23-61-26 W4

Manager: Christine Buchanan, GRO Forage & Livestock Agronomist

Stocking Rate: 82 heifers & 3 bulls (7 contributors)

112 total grazing days

Entry Date: June 6, 2014 (Average heifer weight 919lbs)

Exit Date: October 6, 2014 (Average heifer weight 1098lbs, ADG 1.5lbs/day)

Objectives:

1. To demonstrate a rotational grazing system and its effect on carrying capacity.
2. Provide a site for further research and producer learning activities.

History & Field Design

The pasture was established in 1979 and was originally used for steers. In 1988 the first heifers were put into the pasture, and have remained ever since. The 160 acre pasture is split into 16 paddocks; approximately 10 acres each. There is a central watering/ loafing area as well as a handling facility. The perimeter is fenced with 4 double strand barbed wire, and cross fencing is done with 2 single strand barbed wire that is powered with a solar electric fencer. Each paddock is rotationally grazed to allow alternate periods of grazing and rest. If managed properly, these rest periods allow the grass a chance to replenish nutrients after defoliation and therefore increase grass production. In a continuous grazing situation some forage resources are continually stressed (no rest); while others may be underutilized as the animals will repeatedly graze the most palatable species. In this situation the preferred species will begin to decline and less palatable species or weeds will begin to dominate the pasture.

Water

In September 2002, the dugout and Dutch Industries windmill water system was replaced with a free flowing well delivering a rate of approximately 2 gal/min (cut back from 4 gal/min). A 580 gallon poly trough was installed with an over-flow pipe to prevent over filling, and spillage into the watering area. In 2014 flow rate was assessed again, it took approximately 2mins and 54.6 seconds to fill a 20 liter pail which transfer to a flow rate of 1.5 gal/min.

Herd Health

All heifers were weighed and inspected for overall health and soundness on entry day in June. The heifers were weighed again on exit day in October. CyLence® pour-on insecticide was applied at entry during weigh in for on pasture fly control. Six heifers showing signs of hoof rot were treated on June 27th, and additional 14 heifers showing signs of hoof rot were treated July 16th. All livestock were fed granular Panacur as per products indications to treat for internal parasites. A pasture blend of loose mineral was fed as per product indications in each paddock.

Breeding

Three red angus bulls , two owned by Maurice Kruk and one held by GRO were used in the pasture, and entered heifer pasture at the same time as the heifers (June 16) and remained in the pasture until October 6th when the heifers were removed. The heifers were palpated for pregnancy upon exit it was determined that the overall open rate was 3.6%.

Grazing

The order that the paddocks were grazed was determined by the quantity of growth and species composition on a visual inspection. Paddock size was also determined and used as an indicator for grazing days. Those paddocks containing a high proportion of meadow foxtail were grazed earlier in the rotation then those paddocks containing a high proportion of legume species. Grazing periods in 2014 were altered from the 2-3 day rotation to a 7 day rotation on average and when the situation allowed. This strategy was to increase rest period on paddocks and allow for each paddock to experience only one defoliation event through the season. This allowed legume species to set seed and litter accumulation. Table 1 contains the number of grazing days supported by each paddock, as well as the rotation schedule.

Above: Curt Pate demonstrating his methods to gather and move cattle using Gateway Research Organizations contributor heifers.

GRO Heifer Pasture Map

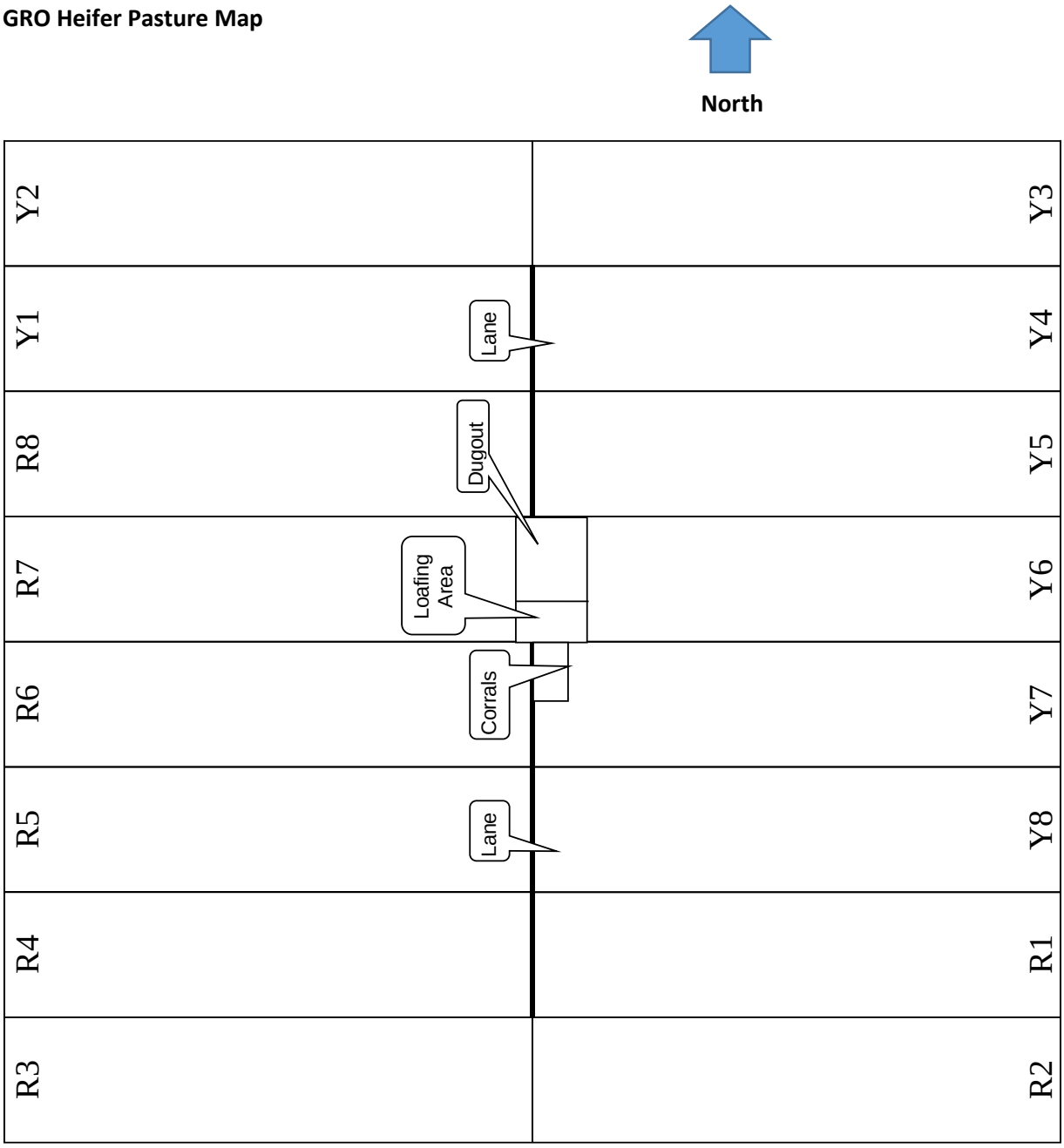

Table 1 2014 Paddock Rotation Schedule (Days)

Pasture	Entry	Exit	Days
R1	September 10	October 1	20
R2	September 2	October 6	33
R3	July 8	July 15	8
R3 & R4	August 19	September 4	17
R4	June 16	June 17	1
R5	August 27	September 4	8
R6	July 4	July 10	7
R7	June 27	July 4	8
R8	August 7	August 13	7
Y1	June 18	June 23	6
Y2	June 23	June 27	5
Y3	July 30	August 7	8
Y4	August 13	August 19	7
Y5	July 23	July 30	8
Y6	July 16	July 23	8
Y8 & Y7	September 16	October 6	21

NOTE: days will not be full days as animals are typically moved in the middle of the day or evening, 8 days will be closer to 7 full days in hours on pasture.

Above: side by side comparison of two paddocks at the heifer pasture, the left is ungrazed and the right had recently been grazed.

Below: Shrub that has been browsed by cattle at the heifer pasture.

Table 2 AUM for Replacement Heifers on Pasture (2005-2014)

Year	# of Animals	Grazing Days	# AUM on 150 Acres	# AUM/Acre
2005	101	117	291	1.94
2006	98	127	307	2.05
2007	110	135	366	2.44
2008	78	133	256	1.71
2009	103	118	300	2.00
2010	94	126	292	1.95
2011	82	112	226	1.51
2012	76	133	249	1.66
2013	108	126	364	2.28
2014	**85**	**112**	**309**	**2.06**
Average	94.44	**125.22**	**254.11**	**1.7**

Below: Jim Gerrish talking to members about pasture productivity at our July 8th Pasture Walk.

Table 3 Summary of Production (1988-2014)

Year	Entry Weight	Exit Weight	Gain (lbs.)	ADG (lbs.)
1988-2004	922	1124	208	1.74
2005	891	1059	168	1.44
2006	907	1083	176	1.38
2007	873	1117	244	1.82
2008	843	1106	263	1.98
2009	869	1073	204	1.73
2010	913	1049	136	1.08
2011	953	1134	181	1.62
2012	867	1052	185	1.39
2013	928	1146	218	1.7
2014	**919**	**1098**	**179**	**1.5**
Average	**896.6**	**1094.3**	**198.3**	**1.59**

Table 2 Heifer Pasture Paddock Size (acres)

Paddock	Size (ac)	Paddock	Size (ac)
R1	8.90 ac	Y1	9.53 ac
R2	9.53 ac	Y2	10.36 ac
R3	9.5 ac	Y3	9.93 ac
R4	10.49 ac	Y4	9.75 ac
R5	10.25 ac	Y5	10.15 ac
R6	10.35 ac	Y6	9.04 ac
R7	9.14 ac	Y7	9.50 ac
R8	9.82 ac	Y8	9.81 ac

Contributor heifers loafing at the far west end of a paddock.

Table 3 Heifer Pasture Precipitation in Inches

Year	May	June	July	August	September	October	Total
1988-2004	1.11	2.67	3.21	2.24	0.78	0.36	9.17
2005	1.44	4.08	1.64	1.20	0.56	0.80	9.72
2006	4.50	3.12	1.36	2.28	1.76	0.12	13.14
2007	3.10	5.36	2.52	1.10	0.72	0.04	12.84
2008	3.60	2.04	3.60	1.40	0.96	0.00	11.60
2009	0.18	0.39	3.43	1.06	0.74	--	5.80
2010	1.54	1.69	1.64	2.06	1.00	0.10	8.01
2011	0.03	3.32	0.48	0.98	0.41	0.02	5.24
2012	0	1.63	4.77	1.47	.61	.26	8.74
2013	1.16	2.68	3.26	2.98	.98	.89	11.95
2014	**1.57**	**2.16**	**4.33**	**2.08**	**0.86**	**0.47**	**11.49**
Average	**1.65**	**2.64**	**2.74**	**1.71**	**0.85**	**0.30**	**9.79**

Table 4 Heifer Pasture Vegetation Production (lbs/ac)

Pasture	Date Sampled	Grasses	Forbes	Litter	Total
R1	August-29-14	3478.8	0	1873.2	3478.8
R2	August-29-14	2408.4	0	356.8	2408.4
R3	August-29-14				
R4	August-29-14	3032.8	0	981.2	3032.8
R5	August-29-14	1873.2	0	89.2	1873.2
R6	August-29-14	2765.2	0	624.4	2765.2
R7	August-25-14	2943.6	0	89.2	2943.6
R8	August-25-14	1248.8	0	0	1248.8
Y1	August-25-14	1806.3	0	156.1	1806.3
Y2	August-25-14	2073.9	0	133.8	2073.9
Y3	August-25-14	2230	0	1115	2230
Y4	August-25-14	2029.3	0	379.1	2029.3
Y5	August-25-14	2742.9	0	267.6	2742.9
Y6	August-25-14	2519.9	0	691.3	2519.9
Y7	August-29-14	1962.4	178.4	0	2140.8
Y8	August-29-14	2408.4	446	89.2	2854.4
					36148.3

Notes: R3 has no values as all cages in pasture were damaged leaving no site to sample. Small frame was used to sample one average cage per pasture. Litter is not included in total production.

2014 Contributors: Back Row L - R Calvin Wruk, Matt Haisan, George Kerkhoff, Maurice Kruk, Richard Geiger Front Row L - R Alex Bowen (summer staff), Anita Wruk, Christine Buchanan (Staff), Michelle Holden (Manager), Chelsea Geiger

Discussion

The GRO Heifer Pasture was established in 1979, making the pasture 35 years old, which is a well-aged pasture. From 1979 to 1988 steers were grazed on the pasture, it was in 1988 that the pasture started grazing heifers and has done so to this date. This is interesting in the sense that steer and heifer grazing behavior may be different, especially with the added influence on bulls on pasture. The pasture was originally seeded to a mixture of grasses and legumes, but is now predominantly meadow foxtail. A variety of other grass species including orchard grass, timothy, meadow brome and other brome species can still be found out on pasture. In terms of forbs or legume type species, these are limited on the pasture with some paddocks having no broad leaf species other than Canada thistle. The species that do still exist in some of the paddocks are clovers, alfalfa and cicer milkvetch. With our adjusted rotational system we attempted to naturally allow those paddocks with these legumes species to set seed. While those paddocks dominated by grasses, especially meadow foxtail were used earlier in the season.

In addition to promoting seed set there was the hope that by allowing the heifers to access a paddock only once in the season for roughly seven days would promote an even use of the 10 acres paddocks, as the extension in time on that paddock would force them to search out forages past the gate. There was an obvious visual observation that those areas located farthest from the main alley were underutilized. It was also assumed that by only accessing a paddock once in the grazing season would allow the paddock a longer than normal rest period in which some litter and carryover could be accumulated. Litter is important for temperature regulation, water conservation and nutrient cycling, from hand

raking it is noted that the pasture currently has minimal litter. There was good intention to allow each paddock to be grazed only once for a certain amount of days, however as with all farm operations some situations cannot be controlled entirely. Due to cross fence damage and cattle creeping or jumping over, some pastures were used in conjunction with another or cattle were not entirely restricted from entering. It was an operational learning experience and it will be interesting to see the vegetation data collected from the cages in 2015.

In terms of heifer health, we had zero death loss and a lower open rate than the previous year. We did see a lot of lameness in the heifers this year and treated them on two occasions.