

Heifer Raising Analysis Report

Skyview

UMN Team

2023-12-29

Introduction

This is an summary of the heifer raising data and performance of purchased and KDD heifers since heifers went to KDD

Description of animals gone to KDD

Table 1 shows descriptive information of the calves that have gone to KDD since 2023-07-21 .

Table 1: Descriptive info of calves that went to KDD

Variable	Breed				
	Overall	Holstein	HoJo	Other	Missing
	N = 2,218	N = 1,065	N = 1,024	N = 83	N = 46
Disease Status					
Healthy	704 (32%)	350 (33%)	314 (31%)	25 (30%)	15 (33%)
Pneumonia	711 (32%)	361 (34%)	307 (30%)	26 (31%)	17 (37%)
Diarrhea	252 (11%)	81 (7.6%)	160 (16%)	9 (11%)	2 (4.3%)
Ear	83 (3.7%)	47 (4.4%)	27 (2.6%)	6 (7.2%)	3 (6.5%)
Navel	15 (0.7%)	7 (0.7%)	6 (0.6%)	1 (1.2%)	1 (2.2%)
Multiple	453 (20%)	219 (21%)	210 (21%)	16 (19%)	8 (17%)
1st Weight (lbs)	214 (198, 225)	215 (200, 232)	210 (195, 218)	205 (194, 215)	223 (208, 287)
Unknown	42	18	16	2	6
Age at 1st weight (lbs)	88 (83, 92)	89 (84, 93)	88 (82, 92)	81 (77, 90)	92 (89, 95)
Sold	161 (7.3%)	105 (9.9%)	47 (4.6%)	6 (7.2%)	3 (6.5%)
Back at Skyview	818 (37%)	608 (57%)	198 (19%)	4 (4.8%)	8 (17%)
Days at Grower	541 (509, 581)	551 (510, 589)	521 (500, 548)	516 (505, 541)	NA (NA, NA)
Unknown	1,408	457	826	79	46

¹ N = n; n (%); Median (IQR)

Growth of Heifers

Figure 1 shows how calves are growing at KDD according to their breed and the disease status.

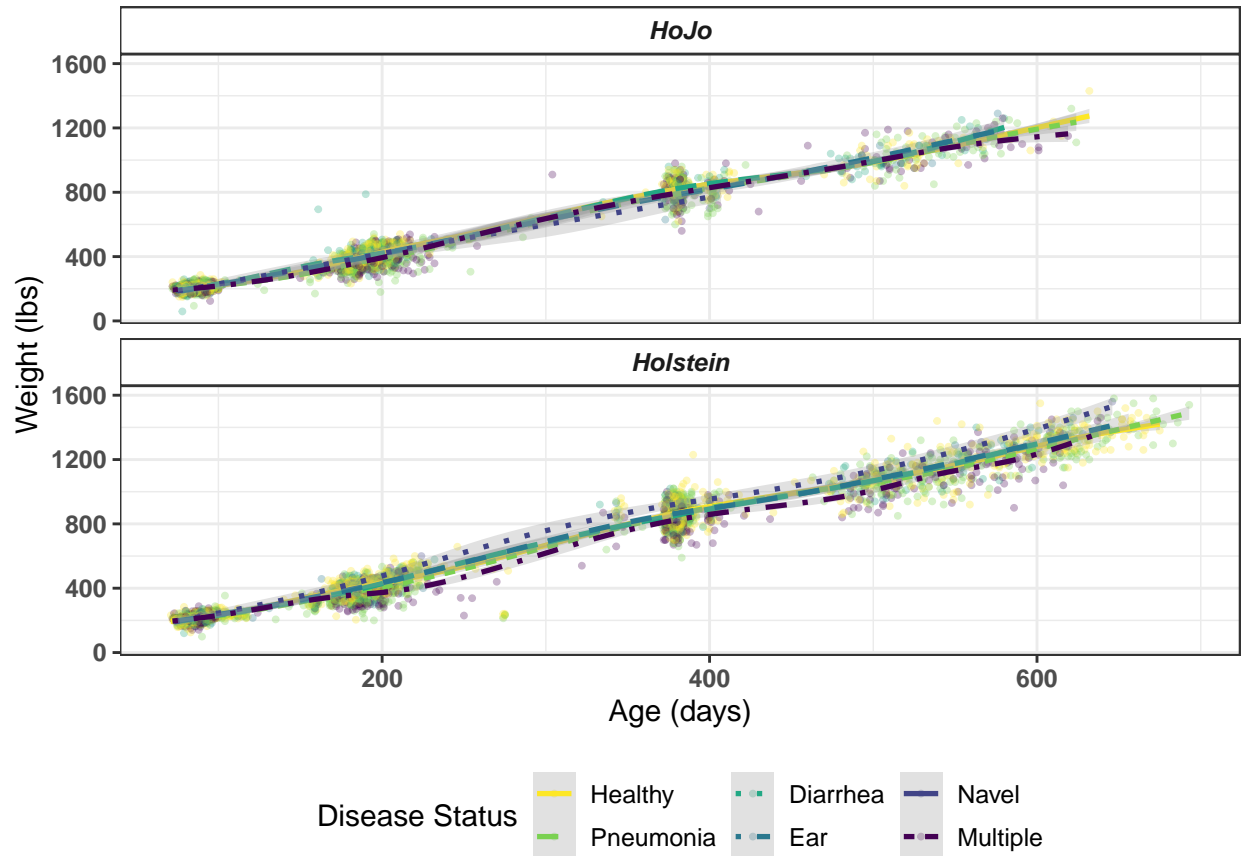


Figure 1: Disease does not seem to impact weights

Growth Rate Table

Table 2 show the growth rates for animals that have returned to Skyview according to their breed and disease status.

Table 2: Growth rates for animals that have returned to Skyview

Disease Status	Average Daily Gain (IQR) at the Grower		
	Overall	Breed	
		Holstein, N = 608	HoJo, N = 198
Healthy	2.05 (1.93, 2.18)	2.08 (1.97, 2.19)	1.90 (1.79, 2.01)
Pneumonia	2.03 (1.92, 2.15)	2.07 (1.98, 2.17)	1.89 (1.80, 1.99)
Diarrhea	2.02 (1.86, 2.14)	2.09 (1.99, 2.21)	1.91 (1.82, 1.99)
Ear	2.08 (1.99, 2.20)	2.12 (2.04, 2.22)	1.94 (1.79, 2.08)
Navel	2.25 (2.18, 2.28)	2.25 (2.18, 2.28)	NA (NA, NA)
Multiple	1.95 (1.82, 2.08)	1.98 (1.87, 2.10)	1.88 (1.74, 2.00)

Effect of Disease on Age of Return Home

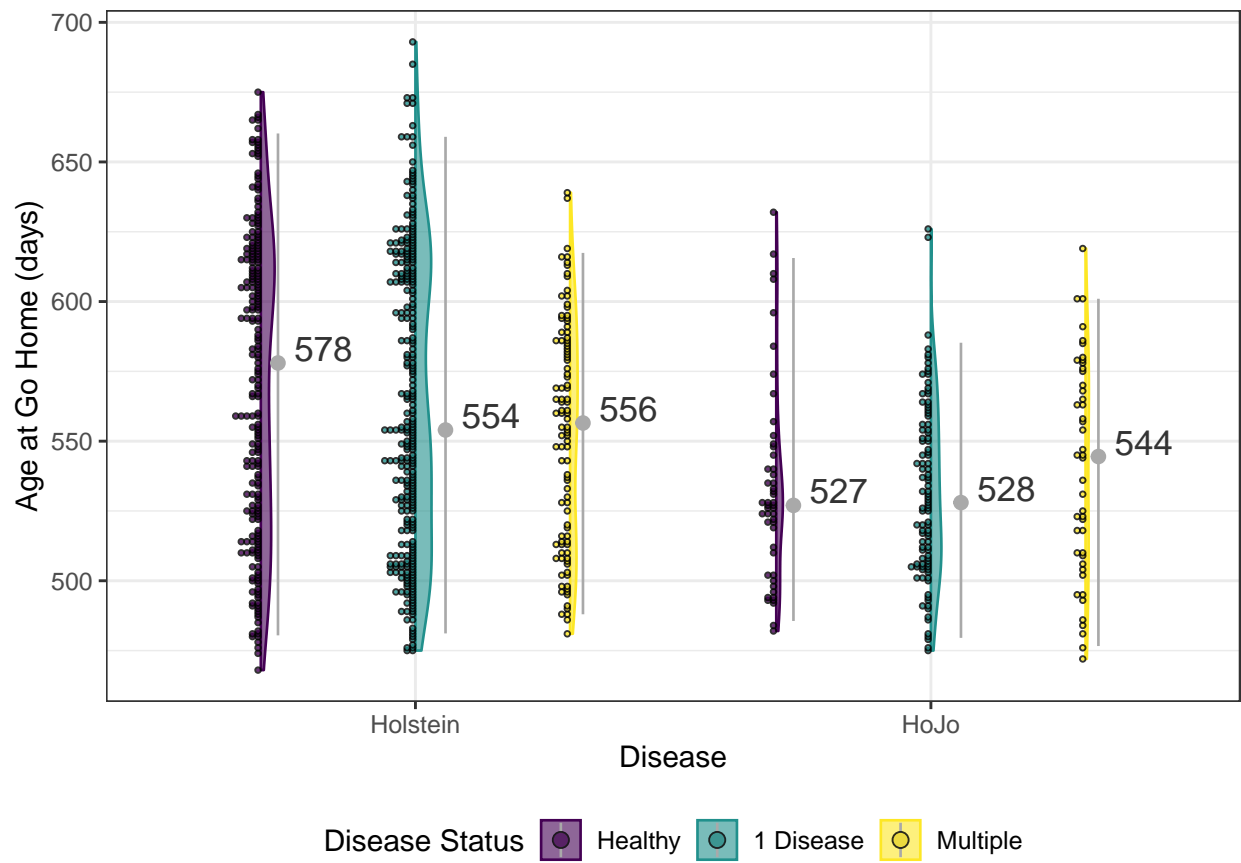


Figure 2: Effect of Disease on age of returning to Skyview

Performance of Purchased vs KDD (Holstein Only)

Comparison of purchased heifers vs KDD heifers is show in Figure 3. This for Holsteins only has not a lot of HoJo's are milking yet. The higher cull rate and the 2-3 lbs difference at 4 and 8 weeks raises the question if that is enough of a difference to pay to raise more heifers at KDD.

Table 3: Descriptive data on KDD and purchased animals that freshened at Skyview

Variable	Source		Difference	95% CI
	KDD	Purchased		
	N = 341	N = 353		
Days in Close Up	11 (7, 16)	8 (0, 14)	2.1	0.01, 4.3
Age fresh (days)	674 (663, 708)	693 (668, 747)		
Times sick during Lactation			-0.21	-0.36, -0.06
0	247 (72%)	219 (62%)		
1	70 (21%)	101 (29%)		
2	18 (5.3%)	21 (5.9%)		
3	6 (1.8%)	10 (2.8%)		
4	0 (0%)	2 (0.6%)		
Times mastitis			0.00	-0.15, 0.15
0	291 (85%)	307 (87%)		
1	46 (13%)	38 (11%)		
2	4 (1.2%)	6 (1.7%)		
3	0 (0%)	2 (0.6%)		
Milk in Week 1 (lbs)	43 (37, 49)	41 (36, 48)	0.62	-0.89, 2.1
# with No Test	10	15		
Milk in Week 4 (lbs)	65 (56, 74)	63 (53, 72)	2.3	0.03, 4.6
# with No Test	38	76		
Milk in Week 8 (lbs)	76 (67, 84)	73 (63, 82)	3.3	0.51, 6.0
# with No Test	78	158		
LS First Test	2.20 (1.10, 4.00)	2.30 (0.70, 3.80)	-0.02	-0.36, 0.32
% Sold/Died	25 (7.3%)	38 (11%)	-3.4%	-8.0%, 1.1%

¹ N = n; Median (IQR); n (%)

² CI = Confidence Interval

Milk Production

Figure 3 compares average daily milk production at week 1, 4 and 8.

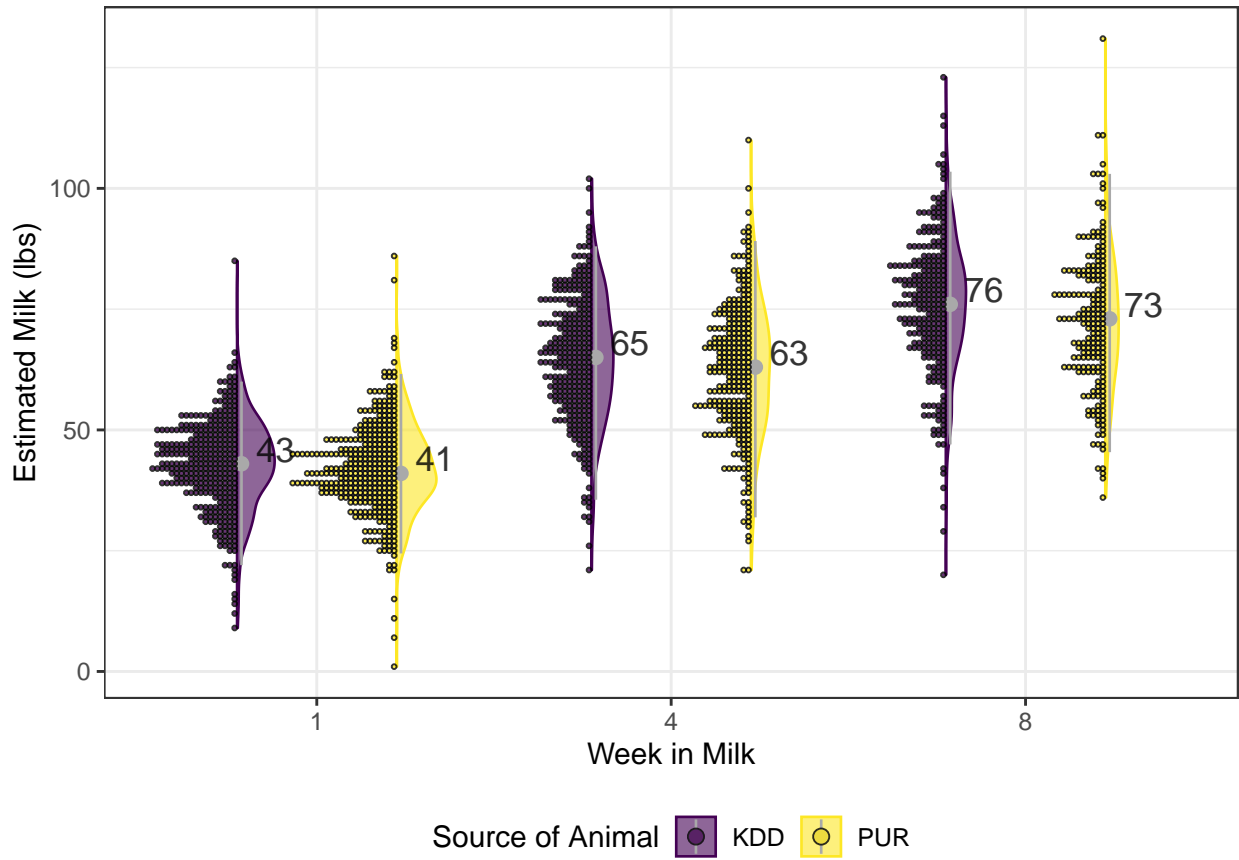


Figure 3: KDD heifers make more milk

Culling Difference between KDD and purchased animals

Data is presented as survival curves and tables. Survival curves should be interpreted as longer the line stays close to 100% the better. Due to small numbers the faded out areas all overlap and indicate the uncertainty around the estimated line. Survival time is counted as time calving.

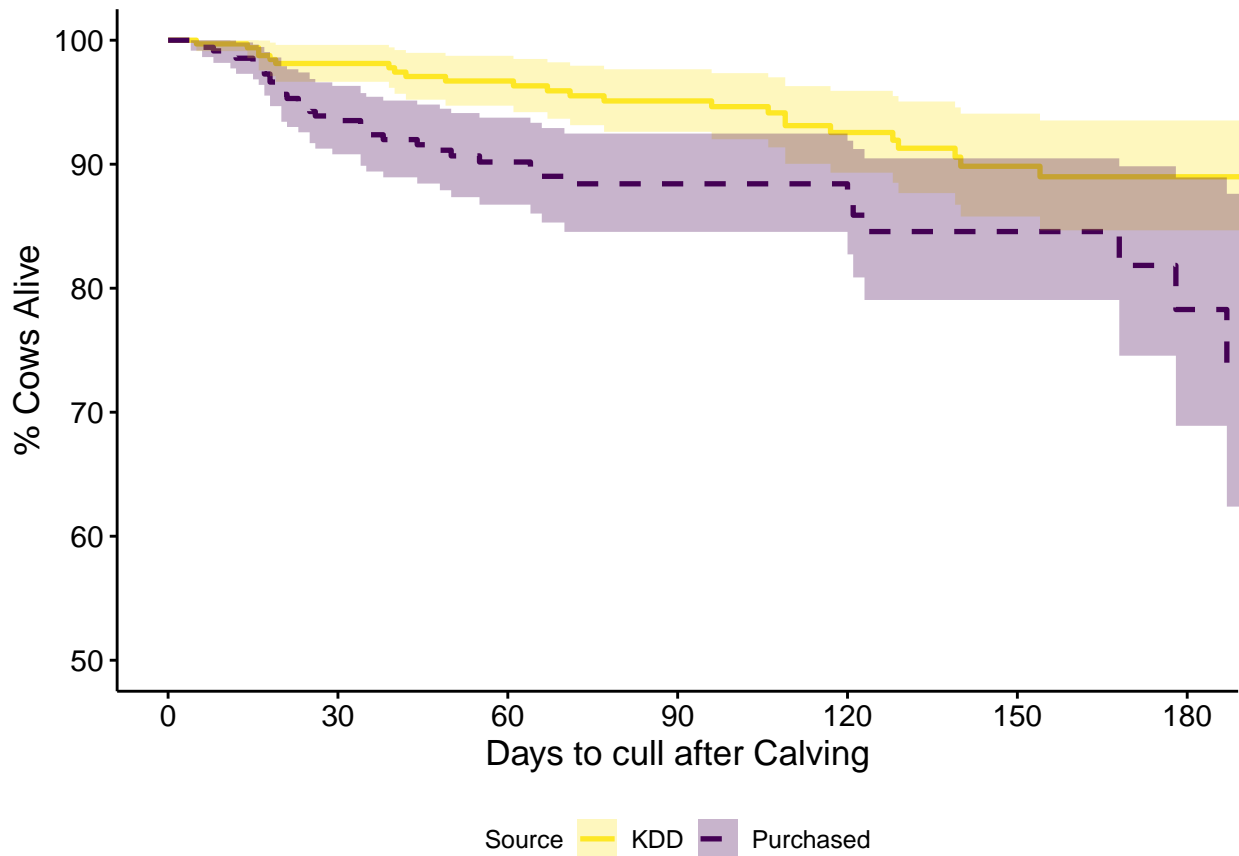


Figure 4: KDD heifers last longer

Table 4: Probability of being culled is much higher for purchased heifers

Source	Probability of Culling (Confidence Interval) at				
	30 Days	60 Days	90 Days	120 Days	180 Days
KDD	1.9% (0.4%, 3.4%)	3.3% (1.3%, 5.3%)	4.9% (2.3%, 7.4%)	7.4% (4.1%, 11%)	11% (6.5%, 15%)
Purchased	6.5% (3.7%, 9.2%)	9.8% (6.2%, 13%)	12% (7.5%, 15%)	13% (8.1%, 17%)	22% (11%, 31%)

Impact of Disease on Milk Production

For animal raised at KDD the following graph and table show impact of disease on productivity

Table 5: Disease as calf does not seem to impact performance early in lactation

Variable	Healthy	1 Disease	Multiple
	N = 116	N = 162	N = 58
Days in Close Up	11 (7, 16)	11 (7, 16)	11 (8, 16)
Age fresh (days)	678 (665, 715)	674 (663, 706)	677 (661, 697)
Times sick during Lactation			
0	81 (70%)	118 (73%)	44 (76%)
1	27 (23%)	33 (20%)	9 (16%)
2	7 (6.0%)	8 (4.9%)	3 (5.2%)
3	1 (0.9%)	3 (1.9%)	2 (3.4%)
Times mastitis			
0	97 (84%)	138 (85%)	51 (88%)
1	18 (16%)	24 (15%)	4 (6.9%)
2	1 (0.9%)	0 (0%)	3 (5.2%)
Milk in Week 1 (lbs)	41 (35, 48)	44 (38, 50)	45 (38, 47)
# with No Test	2	8	0
Milk in Week 4 (lbs)	61 (54, 72)	67 (57, 74)	65 (56, 73)
# with No Test	12	18	8
Milk in Week 8 (lbs)	75 (65, 83)	77 (68, 85)	77 (68, 85)
# with No Test	26	35	17
LS First Test	2.75 (1.00, 4.10)	1.90 (1.00, 3.80)	2.10 (1.40, 3.70)
% Sold/Died	11 (9.5%)	9 (5.6%)	5 (8.6%)

¹ N = n; Median (IQR); n (%)

Impact of Disease on Milk Graph

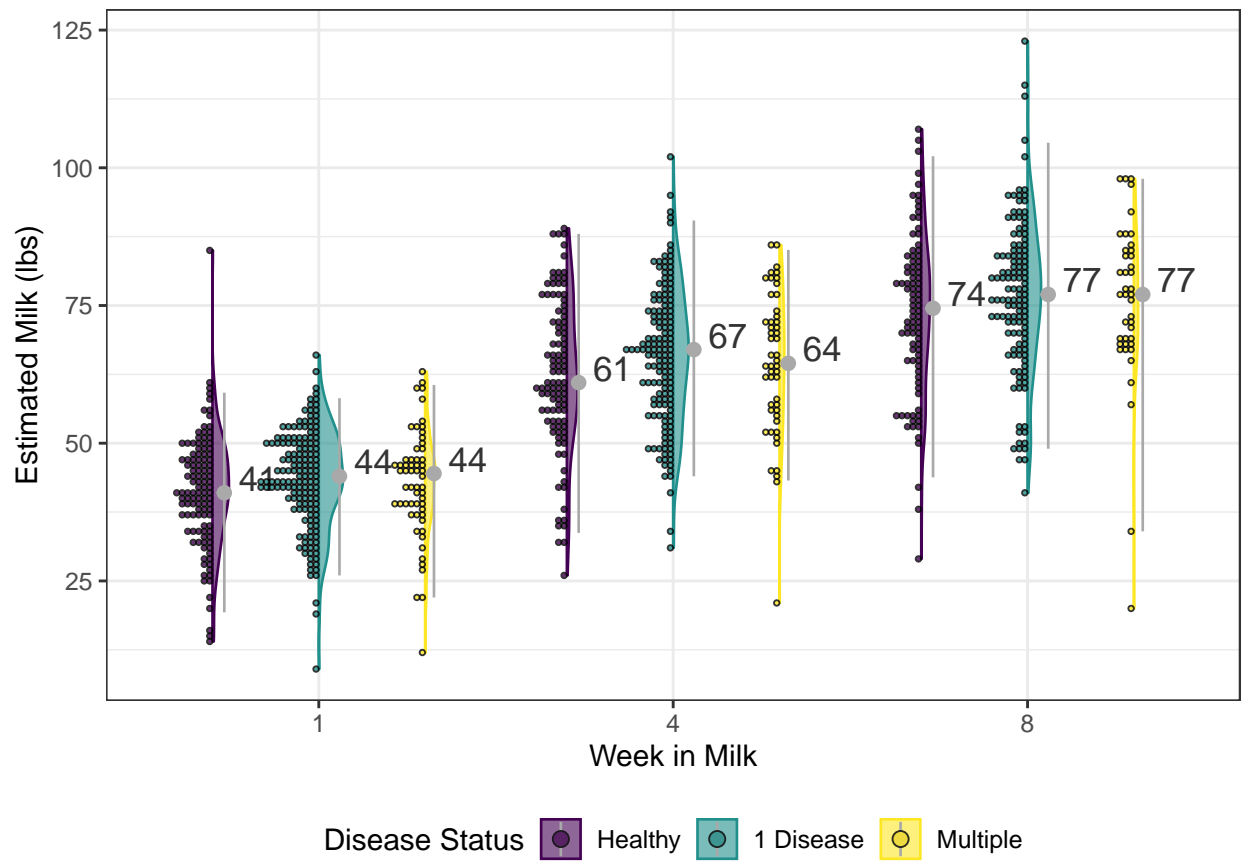


Figure 5: Having a disease as a calf does not impact milk