

ANALYZING COSTS ASSOCIATED WITH GROUP HOUSING AND FEEDING OF PRE-WEANED DAIRY REPLACEMENTS

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With increasing interest in group housing and feeding of new born calves up to weaning, there have been many questions raised on the costs and performance associated with this management approach. The costs associated with this management approach are impacted by many different factors, with feed, labor, health, bedding, and housing being the significant costs. These costs are influenced by several different areas, which vary across farms. How much inputs are utilized, the cost of the inputs, age and cost of housing systems, age of weaning, and management all impact the costs of the raising the calf up to weaning, and are influences that impact costs regardless of what type of housing or feeding system is utilized.

The following discussion focuses on the factors that influence the total costs associated with raising the calf through weaning. The differences in performance resulting from differences in growth rates, health issues, or other areas impacting the quality of the calf are not covered in this discussion.

Feed

The cost of feed is generally the largest cost associated with raising calves up to weaning. The amount and type of feed utilized and the cost of the feed significantly impacts these costs. The housing system may also impact this cost if there is feed not fully utilized, or rations change with the temperature of the facility over time. Example: Grain that gets wet and is thrown out; Cold design versus warm design barn and amount of milk replacer fed during winter vs summer.

Tables 1-4 highlight the range in cost per day per animal and per pound of gain based on amounts of feed utilized and the cost or value of that feed source. When analyzing the cost of feed for the wet calves, it is important to capture the total cost of all feed fed, not just what was consumed by the animal. With a focus on cost per day per animal, the total amount of feed delivered is utilized to calculate costs, not what was consumed. Example: 10% of acidified milk not consumed and thrown out over time.

Farms feeding whole milk have the largest range in cost per day per animal (Table 1). The ratio of saleable to non-saleable milk that is utilized, additional costs to harvest the non-saleable milk, and current price of saleable milk all impact the cost per animal per day and per pound of gain. Farms participating in replacement costs analysis projects have ranged from 100% waste milk to 100% saleable milk for what is fed to the calves.

Table 1. Impact of Amount Fed and Charge for Whole Milk On Feed Cost per Day per Heifer

Amount Fed, Pounds	Cost Per Cwt, Waste and Saleable Milk Fed to Calves											
	\$1.00	\$3.00	\$5.00	\$7.00	\$9.00	\$11.00	\$13.00	\$15.00	\$17.00	\$19.00	\$21.00	\$23.00
8.50	0.09	0.26	0.43	0.60	0.77	0.94	1.11	1.28	1.45	1.62	1.79	1.96
9.00	0.09	0.27	0.45	0.63	0.81	0.99	1.17	1.35	1.53	1.71	1.89	2.07
9.50	0.10	0.29	0.48	0.67	0.86	1.05	1.24	1.43	1.62	1.81	2.00	2.19
10.00	0.10	0.30	0.50	0.70	0.90	1.10	1.30	1.50	1.70	1.90	2.10	2.30
10.50	0.11	0.32	0.53	0.74	0.95	1.16	1.37	1.58	1.79	2.00	2.21	2.42
11.00	0.11	0.33	0.55	0.77	0.99	1.21	1.43	1.65	1.87	2.09	2.31	2.53
11.50	0.12	0.35	0.58	0.81	1.04	1.27	1.50	1.73	1.96	2.19	2.42	2.65
12.00	0.12	0.36	0.60	0.84	1.08	1.32	1.56	1.80	2.04	2.28	2.52	2.76
12.50	0.13	0.38	0.63	0.88	1.13	1.38	1.63	1.88	2.13	2.38	2.63	2.88
13.00	0.13	0.39	0.65	0.91	1.17	1.43	1.69	1.95	2.21	2.47	2.73	2.99
13.50	0.14	0.41	0.68	0.95	1.22	1.49	1.76	2.03	2.30	2.57	2.84	3.11
14.00	0.14	0.42	0.70	0.98	1.26	1.54	1.82	2.10	2.38	2.66	2.94	3.22
14.50	0.15	0.44	0.73	1.02	1.31	1.60	1.89	2.18	2.47	2.76	3.05	3.34
15.00	0.15	0.45	0.75	1.05	1.35	1.65	1.95	2.25	2.55	2.85	3.15	3.45
15.50	0.16	0.47	0.78	1.09	1.40	1.71	2.02	2.33	2.64	2.95	3.26	3.57
16.00	0.16	0.48	0.80	1.12	1.44	1.76	2.08	2.40	2.72	3.04	3.36	3.68
16.50	0.17	0.50	0.83	1.16	1.49	1.82	2.15	2.48	2.81	3.14	3.47	3.80
17.00	0.17	0.51	0.85	1.19	1.53	1.87	2.21	2.55	2.89	3.23	3.57	3.91
17.50	0.18	0.53	0.88	1.23	1.58	1.93	2.28	2.63	2.98	3.33	3.68	4.03
18.00	0.18	0.54	0.90	1.26	1.62	1.98	2.34	2.70	3.06	3.42	3.78	4.14
18.50	0.19	0.56	0.93	1.30	1.67	2.04	2.41	2.78	3.15	3.52	3.89	4.26
19.00	0.19	0.57	0.95	1.33	1.71	2.09	2.47	2.85	3.23	3.61	3.99	4.37
19.50	0.20	0.59	0.98	1.37	1.76	2.15	2.54	2.93	3.32	3.71	4.10	4.49
20.00	0.20	0.60	1.00	1.40	1.80	2.20	2.60	3.00	3.40	3.80	4.20	4.60

Table 2 Impact of Amount Fed and Cost of Milk Replacer on Feed cost per Day per Heifer

Amount Fed, Pounds	Cost Per 50Lb Bag of Milk Replacer											
	\$50	\$54	\$58	\$62	\$66	\$70	\$74	\$78	\$82	\$86	\$90	\$94
1.00	1.00	1.08	1.16	1.24	1.32	1.40	1.48	1.56	1.64	1.72	1.80	1.88
1.10	1.10	1.19	1.28	1.36	1.45	1.54	1.63	1.72	1.80	1.89	1.98	2.07
1.20	1.20	1.30	1.39	1.49	1.58	1.68	1.78	1.87	1.97	2.06	2.16	2.26
1.30	1.30	1.40	1.51	1.61	1.72	1.82	1.92	2.03	2.13	2.24	2.34	2.44
1.40	1.40	1.51	1.62	1.74	1.85	1.96	2.07	2.18	2.30	2.41	2.52	2.63
1.50	1.50	1.62	1.74	1.86	1.98	2.10	2.22	2.34	2.46	2.58	2.70	2.82
1.60	1.60	1.73	1.86	1.98	2.11	2.24	2.37	2.50	2.62	2.75	2.88	3.01
1.70	1.70	1.84	1.97	2.11	2.24	2.38	2.52	2.65	2.79	2.92	3.06	3.20
1.80	1.80	1.94	2.09	2.23	2.38	2.52	2.66	2.81	2.95	3.10	3.24	3.38
1.90	1.90	2.05	2.20	2.36	2.51	2.66	2.81	2.96	3.12	3.27	3.42	3.57
2.00	2.00	2.16	2.32	2.48	2.64	2.80	2.96	3.12	3.28	3.44	3.60	3.76
2.10	2.10	2.27	2.44	2.60	2.77	2.94	3.11	3.28	3.44	3.61	3.78	3.95
2.20	2.20	2.38	2.55	2.73	2.90	3.08	3.26	3.43	3.61	3.78	3.96	4.14
2.30	2.30	2.48	2.67	2.85	3.04	3.22	3.40	3.59	3.77	3.96	4.14	4.32
2.40	2.40	2.59	2.78	2.98	3.17	3.36	3.55	3.74	3.94	4.13	4.32	4.51
2.50	2.50	2.70	2.90	3.10	3.30	3.50	3.70	3.90	4.10	4.30	4.50	4.70
2.60	2.60	2.81	3.02	3.22	3.43	3.64	3.85	4.06	4.26	4.47	4.68	4.89
2.70	2.70	2.92	3.13	3.35	3.56	3.78	4.00	4.21	4.43	4.64	4.86	5.08
2.80	2.80	3.02	3.25	3.47	3.70	3.92	4.14	4.37	4.59	4.82	5.04	5.26
2.90	2.90	3.13	3.36	3.60	3.83	4.06	4.29	4.52	4.76	4.99	5.22	5.45
3.00	3.00	3.24	3.48	3.72	3.96	4.20	4.44	4.68	4.92	5.16	5.40	5.64
3.10	3.10	3.35	3.60	3.84	4.09	4.34	4.59	4.84	5.08	5.33	5.58	5.83
3.20	3.20	3.46	3.71	3.97	4.22	4.48	4.74	4.99	5.25	5.50	5.76	6.02
3.30	3.30	3.56	3.83	4.09	4.36	4.62	4.88	5.15	5.41	5.68	5.94	6.20

Farms feeding milk replacer have less variation in the cost of the feed, with the major differences between farms being the amounts of powder fed per animal per day (Table 2).

Cost per pound of gain is also an important measure to look at when tracking the performance of the feeding program and changes over time. Table 3 shows the impact of the cost per day per animal and rate of gain in determining cost per pound of gain. Table 4 highlights the cost per lb of dry matter and the feed conversion ratio, which are the two principal drivers that impact this measure. Feed conversion is an important measure to be tracking over time as this is one that management can influence through day to day activities. In calculating feed conversion, total feed delivered to the animals is utilized, not the actual amount consumed by the animals. The range in amounts of feed disposed of after being fed to the animals across farms increases the variation in the feed conversion ratio.

Table 3 Impact of Rate of Gain and Feed Cost per Day per Animal on Feed Cost per Pound of Gain

Daily Rate of Gain	Feed Cost per Day per Animal								
	\$1.00	\$1.50	\$2.00	\$2.50	\$3.00	\$3.50	\$4.00	\$4.50	\$5.00
1.0	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
1.1	0.91	1.36	1.82	2.27	2.73	3.18	3.64	4.09	4.55
1.2	0.83	1.25	1.67	2.08	2.50	2.92	3.33	3.75	4.17
1.3	0.77	1.15	1.54	1.92	2.31	2.69	3.08	3.46	3.85
1.4	0.71	1.07	1.43	1.79	2.14	2.50	2.86	3.21	3.57
1.5	0.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33
1.6	0.63	0.94	1.25	1.56	1.88	2.19	2.50	2.81	3.13
1.7	0.59	0.88	1.18	1.47	1.76	2.06	2.35	2.65	2.94
1.8	0.56	0.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78
1.9	0.53	0.79	1.05	1.32	1.58	1.84	2.11	2.37	2.63
2.0	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
2.1	0.48	0.71	0.95	1.19	1.43	1.67	1.90	2.14	2.38
2.2	0.45	0.68	0.91	1.14	1.36	1.59	1.82	2.05	2.27
2.3	0.43	0.65	0.87	1.09	1.30	1.52	1.74	1.96	2.17
2.4	0.42	0.63	0.83	1.04	1.25	1.46	1.67	1.88	2.08
2.5	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
2.6	0.38	0.58	0.77	0.96	1.15	1.35	1.54	1.73	1.92
2.7	0.37	0.56	0.74	0.93	1.11	1.30	1.48	1.67	1.85
2.8	0.36	0.54	0.71	0.89	1.07	1.25	1.43	1.61	1.79
2.9	0.34	0.52	0.69	0.86	1.03	1.21	1.38	1.55	1.72
3.0	0.33	0.50	0.67	0.83	1.00	1.17	1.33	1.50	1.67

Table 4 Impact of Feed Conversion and Cost per Lb of Dry Matter on Feed Cost per Pound of Gain

Feed Conversion	Cost per Pound of Dry Matter											
	\$0.20	\$0.40	\$0.60	\$0.80	\$1.00	\$1.20	\$1.40	\$1.60	\$1.80	\$2.00	\$2.10	\$2.20
0.45	0.44	0.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.67	4.89
0.46	0.43	0.87	1.30	1.74	2.17	2.61	3.04	3.48	3.91	4.35	4.57	4.78
0.47	0.43	0.85	1.28	1.70	2.13	2.55	2.98	3.40	3.83	4.26	4.47	4.68
0.48	0.42	0.83	1.25	1.67	2.08	2.50	2.92	3.33	3.75	4.17	4.38	4.58
0.49	0.41	0.82	1.22	1.63	2.04	2.45	2.86	3.27	3.67	4.08	4.29	4.49
0.50	0.40	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	4.20	4.40
0.51	0.39	0.78	1.18	1.57	1.96	2.35	2.75	3.14	3.53	3.92	4.12	4.31
0.52	0.38	0.77	1.15	1.54	1.92	2.31	2.69	3.08	3.46	3.85	4.04	4.23
0.53	0.38	0.75	1.13	1.51	1.89	2.26	2.64	3.02	3.40	3.77	3.96	4.15
0.54	0.37	0.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	3.89	4.07
0.55	0.36	0.73	1.09	1.45	1.82	2.18	2.55	2.91	3.27	3.64	3.82	4.00
0.56	0.36	0.71	1.07	1.43	1.79	2.14	2.50	2.86	3.21	3.57	3.75	3.93
0.57	0.35	0.70	1.05	1.40	1.75	2.11	2.46	2.81	3.16	3.51	3.68	3.86
0.58	0.34	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.62	3.79
0.59	0.34	0.68	1.02	1.36	1.69	2.03	2.37	2.71	3.05	3.39	3.56	3.73
0.60	0.33	0.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.50	3.67
0.61	0.33	0.66	0.98	1.31	1.64	1.97	2.30	2.62	2.95	3.28	3.44	3.61
0.62	0.32	0.65	0.97	1.29	1.61	1.94	2.26	2.58	2.90	3.23	3.39	3.55
0.63	0.32	0.63	0.95	1.27	1.59	1.90	2.22	2.54	2.86	3.17	3.33	3.49
0.64	0.31	0.63	0.94	1.25	1.56	1.88	2.19	2.50	2.81	3.13	3.28	3.44
0.65	0.31	0.62	0.92	1.23	1.54	1.85	2.15	2.46	2.77	3.08	3.23	3.38

With liquid feed generally being the most expensive source of nutrients for the animal, the last area that impacts the total feed costs for the animals up to weaning is the number of days that they are on liquid feed. Table 5 highlights the impact that number of days fed and the average cost per day per animal has in determining total feed cost for the calf up to weaning.

Table 5 Impact of Days to Weaning and Feed Cost per Day on Total Feed Costs at Time of Weaning

Weeks till Weaning	Feed Cost per Day per Animal											
	\$1.50	\$1.75	\$2.00	\$2.25	\$2.50	\$2.75	\$3.00	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25
4.00	42	49	56	63	70	77	84	91	98	105	112	119
4.50	47	55	63	71	79	87	95	102	110	118	126	134
5.00	53	61	70	79	88	96	105	114	123	131	140	149
5.50	58	67	77	87	96	106	116	125	135	144	154	164
6.00	63	74	84	95	105	116	126	137	147	158	168	179
6.50	68	80	91	102	114	125	137	148	159	171	182	193
7.00	74	86	98	110	123	135	147	159	172	184	196	208
7.50	79	92	105	118	131	144	158	171	184	197	210	223
8.00	84	98	112	126	140	154	168	182	196	210	224	238
8.50	89	104	119	134	149	164	179	193	208	223	238	253
9.00	95	110	126	142	158	173	189	205	221	236	252	268
9.50	100	116	133	150	166	183	200	216	233	249	266	283
10.00	105	123	140	158	175	193	210	228	245	263	280	298

Labor

The costs and investments associated with housing that need to be measured and calculated when analyzing housing for wet calves are:

- Labor Efficiency
- Capital Investment
- Bedding
- Treatments

Labor expense is the generally the second largest expense associated with raising wet calves. It is important to analyze labor associated with the enterprise. To measure labor efficiency within a dairy replacement business or enterprise, a measure known as “heifers per labor hour¹” is used. Heifers per labor hour measures how many dairy replacements are taken care of in one labor hour. This measure includes time to feed, clean, bed, move, and manage heifers. The higher the value, the more efficient labor is being used and the lower the labor costs on a per animal basis. Table 6 summaries labor efficiency measures from the cost study performed in 2007. A form that can be used to calculate this measure for the heifer enterprise is in appendix 1.

¹. Total number of pre-weaned heifers on farm divided by the hours of daily labor required to maintain the pre-weaned heifers or enterprise. Daily labor required equals the amount of time to complete everyday chores, along with an estimate of the average daily time required to bed, clean, move, and manage youngstock even though they may not be done every day.

Table 6 Labor Evaluation, 17 New York Dairy Farms, December 2007

	Average	Low Third Farms	Middle Third Farms	High Third Farms
Number of Heifers	865	445	895	1,261
All Heifers per Labor Hour	43.6	29.6	37.6	62.6
Pre-Weaned Heifers/Labor Hour	11.2	7.4	8.8	16.9
Post-Weaned Heifers/Labor Hour	65.9	42.8	59.0	95.0
Corresponding Labor Costs/Animal	\$234	\$326	\$246	\$132.9
Cost per Worker Equivalent	\$36,778	\$38,002	\$37,380	\$35,051
Worker Equivalents per 865 Heifers	3.0	4.0	3.05	1.86

Focusing on wet calves and based on data collected from seventeen New York dairy farms, the average heifers per labor hour was 11.2¹ for the pre-weaned animals, ranging from an average of 7.4 for the low farms to 16.9 for the high farms. (Table 6).

A study on the costs associated with dairy replacements and labor efficiency on 62 Wisconsin dairy farms done in 1998 also showed a similar range in labor efficiency.² For pre-weaned calves, the average heifers per labor hour were 9.1, with a range from 1.9 to 25.7.

The design of the housing system for the pre-weaned animals significantly impacts the labor efficiency and labor requirements to raise the wet calf. The easier the system can be made in terms of feeding, cleaning, moving, and managing heifers, the more efficient the labor will be and the lower total labor costs.

Utilizing group housing provides the potential to increase labor efficiency in the pre-weaned calf system. However, just because group housing is being utilized has not directly led to labor savings, as the role of management also impacts this number. Depending on the cost per labor hour and the change in labor efficiency the farm experiences from the old system to the group housing system, the change in labor costs per animal per day can be quite significant. Table 7 highlights the impact of labor efficiency and labor costs per hour on labor costs per heifer per day.

² Hoffman, Patrick, Et Al, "Economic Cost and Labor Efficiencies Associated with Rearing Dairy Herd Replacements on Wisconsin Dairy Farms", Research Report, Department of Dairy Science, University of Wisconsin – Madison, 1999

Table 7 Impact of Labor Efficiency and Cost per Hour on Labor Costs per Heifer Per Day, Pre-Weaned Calves

Heifers per Labor Hour	Labor Cost Per Hour, All Costs											
	\$8.50	\$9.50	\$10.50	\$11.50	\$12.50	\$13.50	\$14.50	\$15.50	\$16.50	\$17.50	\$18.50	\$19.50
2	4.25	4.75	5.25	5.75	6.25	6.75	7.25	7.75	8.25	8.75	9.25	9.75
3	2.83	3.17	3.50	3.83	4.17	4.50	4.83	5.17	5.50	5.83	6.17	6.50
4	2.13	2.38	2.63	2.88	3.13	3.38	3.63	3.88	4.13	4.38	4.63	4.88
5	1.70	1.90	2.10	2.30	2.50	2.70	2.90	3.10	3.30	3.50	3.70	3.90
6	1.42	1.58	1.75	1.92	2.08	2.25	2.42	2.58	2.75	2.92	3.08	3.25
7	1.21	1.36	1.50	1.64	1.79	1.93	2.07	2.21	2.36	2.50	2.64	2.79
8	1.06	1.19	1.31	1.44	1.56	1.69	1.81	1.94	2.06	2.19	2.31	2.44
9	0.94	1.06	1.17	1.28	1.39	1.50	1.61	1.72	1.83	1.94	2.06	2.17
10	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95
11	0.77	0.86	0.95	1.05	1.14	1.23	1.32	1.41	1.50	1.59	1.68	1.77
12	0.71	0.79	0.88	0.96	1.04	1.13	1.21	1.29	1.38	1.46	1.54	1.63
13	0.65	0.73	0.81	0.88	0.96	1.04	1.12	1.19	1.27	1.35	1.42	1.50
14	0.61	0.68	0.75	0.82	0.89	0.96	1.04	1.11	1.18	1.25	1.32	1.39
15	0.57	0.63	0.70	0.77	0.83	0.90	0.97	1.03	1.10	1.17	1.23	1.30
16	0.53	0.59	0.66	0.72	0.78	0.84	0.91	0.97	1.03	1.09	1.16	1.22
17	0.50	0.56	0.62	0.68	0.74	0.79	0.85	0.91	0.97	1.03	1.09	1.15
18	0.47	0.53	0.58	0.64	0.69	0.75	0.81	0.86	0.92	0.97	1.03	1.08
19	0.45	0.50	0.55	0.61	0.66	0.71	0.76	0.82	0.87	0.92	0.97	1.03
20	0.43	0.48	0.53	0.58	0.63	0.68	0.73	0.78	0.83	0.88	0.93	0.98
21	0.40	0.45	0.50	0.55	0.60	0.64	0.69	0.74	0.79	0.83	0.88	0.93
22	0.39	0.43	0.48	0.52	0.57	0.61	0.66	0.70	0.75	0.80	0.84	0.89
23	0.37	0.41	0.46	0.50	0.54	0.59	0.63	0.67	0.72	0.76	0.80	0.85
24	0.35	0.40	0.44	0.48	0.52	0.56	0.60	0.65	0.69	0.73	0.77	0.81
25	0.34	0.38	0.42	0.46	0.50	0.54	0.58	0.62	0.66	0.70	0.74	0.78

Housing

Group housing of wet calves can lead to additional investment in housing. This new, and potentially increased, investment in calf housing, the cost per day per animal may increase. Remodeled or new structures, ventilation systems, and feeding systems, all impact this cost area.

To analyze facility costs, fixed and operating costs are determined for the year, and a per day per animal cost is calculated. Fixed costs (overhead) include the actual cost to build (buy) the facility (capital investment) on a per year basis (depreciation) and any other costs, such as property taxes and insurance, which are paid regardless of use of the facility. Also included in this cost is an opportunity charge for capital invested in the facility. This is the first area that needs to be considered. Table 8 highlights the impact that useful life and capital investment per heifer has on the depreciation and opportunity interest fixed costs. As with many building projects, there is an economy of scale associated with the size of the facility. The larger the facility is, generally the lower the cost per animal per day.

Operating costs are those costs that are incurred when using the facility. Building operating costs to be estimated include annual repairs, electricity usage, and other operating costs, such as heating oil or propane. Ventilation system is one of the areas that impacts operating costs.

Table 8 Impact of Capital Investment per Heifer and Useful Life on Fixed Costs per Heifer per Day¹

Useful Life	Capital Investment Per Heifer											
	\$500	\$750	\$1,000	\$1,250	\$1,500	\$1,750	\$2,000	\$2,250	\$2,500	\$2,750	\$3,000	\$3,250
10	0.18	0.26	0.35	0.44	0.53	0.62	0.70	0.79	0.88	0.97	1.06	1.14
15	0.13	0.20	0.27	0.34	0.40	0.47	0.54	0.61	0.67	0.74	0.81	0.88
20	0.11	0.17	0.23	0.29	0.34	0.40	0.46	0.51	0.57	0.63	0.69	0.74
25	0.10	0.15	0.20	0.26	0.31	0.36	0.41	0.46	0.51	0.56	0.61	0.66
30	0.09	0.14	0.19	0.23	0.28	0.33	0.38	0.42	0.47	0.52	0.56	0.61

¹ Fixed costs are calculated utilizing a 10% salvage value and a 7% opportunity charge on cost of capital. Insurance and property taxes weren't estimated for this table.

Bedding

The type of bedding, the amount used, and the cost per unit for the bedding all impact the bedding cost per animal per day. Design of the group housing system can have an impact on the bedding costs, along with the management intent. Bedding costs for calves on milk have ranged from 6 cents per heifer per day to over 80 cents per heifer per day.

Treatment

The last key area that is associated with group housing and feeding is the treatment costs associated with the care of the animals up to pre-weaning. Many different factors appear to impact this number, and will leave to others for this discussion. The treatment protocol that is followed, the cost of the protocol, and the number of animals that are treated all impact the cost per heifer per day for treatment. This cost has ranged from just over \$0 to over \$10.00 per animal weaned.

SUMMARY

The costs associated with raising wet calves in group housing and feeding systems can be quite dynamic, with many different areas impacting what the costs are. Tracking and analyzing costs is important to understand what is occurring. However, cost is only one part of the picture, with the goal being to raise the highest quality of dairy replacement, not raising the cheapest dairy replacement. As more farms adopt this approach to raising wet calves and more studies are completed, a more complete picture of the quality of replacement being raised along with the costs associated with doing so will be developed.

RESOURCES

A study of the costs of associated with raising dairy replacements was initiated in the fall of 2012. Preliminary result were not yet available at time of printing, but will be presented at the conference. These results can be found at the following website:

<http://ansci.cornell.edu/prodairy/calfsystems/index.html>

Excel templates are available to calculate labor efficiency, feed costs, and housing costs for dairy replacements. If you are interested in utilizing these tools, they can be found on the following website:

<http://www.ansci.cornell.edu/prodairy/resources/decisiontools.html>

Determining Labor Efficiency

Dairy Replacement Enterprise

Pre-Weaned Heifers per Labor Hour

Weighted Daily Labor Requirement, All Labor, Pre-Weaned Heifers

Daily Labor Requirements

Feeding	_____ Hr/Day
Bedding	_____ Hr/Day
Cleaning	_____ Hr/Day
Moving Animals	_____ Hr/Day

Weekly Labor Requirements

Bedding	_____ Hours/Week	
Cleaning	_____ Hours/Week	
Moving Animals	_____ Hours/Week	
Management	_____ Hours/Week	
Total	_____ ÷ 7	= _____ Hr/Day

Monthly Labor Requirements

Bedding	_____ Hours/Month	
Cleaning	_____ Hours/Month	
Moving Animals	_____ Hours/Month	
Management	_____ Hours/Month	
Total	_____ ÷ 30.4	= _____ Hr/Day

Total, Weighted Hours per Day

^A _____ Hr/Day

Total Number of Heifers, Pre-Weaned ^B _____

Pre-Weaned Heifers per Labor Hour = ^B _____ ÷ ^A _____ = ^C _____

Post-Weaned Heifers per Labor Hour

Weighted Daily Labor Requirement, All Labor, Post-Weaned Heifers

Daily Labor Requirements

Feeding	_____ Hr/Day
Bedding	_____ Hr/Day
Cleaning	_____ Hr/Day
Moving Animals	_____ Hr/Day

Weekly Labor Requirements

Bedding	_____ Hours/Week
Cleaning	_____ Hours/Week
Moving Animals	_____ Hours/Week
Management	_____ Hours/Week
Total	_____ ÷ 7 = _____ Hr/Day

Monthly Labor Requirements

Bedding	_____ Hours/Month
Cleaning	_____ Hours/Month
Moving Animals	_____ Hours/Month
Management	_____ Hours/Month
Total	_____ ÷ 30.4 = _____ Hr/Day

Total, Weighted Hours per Day D _____ Hr/Day

Total Number of Heifers, Post-Weaned E _____

Post-Weaned Heifers per Labor Hour = $\frac{E}{D}$ = F _____

All Heifers Per Labor Hour

Total Number of Heifers	B _____ + E _____ = G _____
Labor, Total Weighted Hr/Day	A _____ + D _____ = H _____

All Heifers per Labor Hour = $\frac{G}{H}$ = _____