



CONSTRAINTS FOR NUTRITIONAL GROUPING IN WISCONSIN DAIRY FARMS

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INTRODUCTION

Diet formulation for dairy cows based on nutrient requirements increase herd income and decrease nutrient excretion to the environment (VandeHaar, et al., 2012).

A strategy to provide to lactating dairy cows nutrients closer to their requirements is to split the herd in groups and offer group-specific rations. However, this strategy could be limited by farm's facilities, extra costs, or other farm-specific constraints.

The objective of this survey was to quantify the percentage of dairy farmers that feed a single ration and identify existing constraints to grouping and precision feeding of lactating cow groups.

MATERIAL AND METHODS

- A 2-page questionnaire was mailed to all Wisconsin dairy farms with 200 or more lactating cows (N=800).
- The survey consisted of 12 questions that covered general description of the farm and specifics about grouping and feeding.
- The specific questions about grouping and feeding were structured to perceive what farmers are currently doing regarding grouping and feeding groups, and constraints to feeding more than one ration to lactating cows.
- Responses ranked from 1 (strongly disagree) to 5 (strongly agree).
- 196 farmers returned the survey completed after one reminder, a 24.5 % response rate.
- Data were analyzed using the non-parametric Willcoxon-Rank scores, which compared the responses among five herd size categories: 200-250 (41 farms), 251-380 (38 farms), 381-525 (39 farms), 526-802, (38 farms), and > 802 (38 farms) lactating cows.
- Average lactating dairy cows per herd was 604 (range from 200-3,200)
- Rolling herd average was 11,657 kg milk/cow per yr (range from 7,031 to 14,968).
- Average daily milk yield was 35.8 kg/cow (range from 13.6 to 47.6).

Table 1. I group lactating cows based on:

Items	Herd size					LSD	P-value
	200-250	251-380	381-525	526-802	>802		
Need to keep pens full of cows	3.29 ^b	3.61 ^{ab}	3.72 ^{ab}	3.68 ^{ab}	3.97 ^a	0.436	0.025
Need to have a fresh cow group	4.22 ^b	4.62 ^a	4.59 ^a	4.77 ^a	4.89 ^a	0.359	0.001
Days in milk	3.17	3.13	3.58	3.41	3.05	0.499	0.264
Need to have a first lactation heifer group	4.00	4.31	4.24	4.24	4.42	0.464	0.182
Milk production level	3.10	3.08	3.34	3.18	3.16	0.489	0.908
Body condition score	3.07	2.78	3.00	2.95	2.61	0.443	0.224
Health issues	3.50	3.69	3.89	4.05	4.00	0.487	0.151
Reproduction	2.98	3.23	3.54	3.53	3.34	0.506	0.126
I don't believe groups have any impact	1.73	1.89	2.11	1.54	1.75	0.505	0.349

Reference:
VandeHaar, M.J., L.E. Armentano, and D.M. Spurlock. 2012. Searching for a more efficient cow: feeding and breeding to enhance efficiency. In: 27th Annual Southwest nutrition and management conference proceedings, February 23-24, 2012. University of Arizona, Tempe, Arizona.

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RESULTS

- Farmers with herds of more than 250 cows gave more importance to the “need to have a fresh cow group” (4.62) and to “having a first lactation heifer group” (4.24) (Table 1). Overall, the most important reason for grouping was for the need of having a fresh cow group (Table 1).
- To the question of criteria for feeding more than one ration to lactating cows, higher ranking were giving to “fresh vs. all other cows” (4.44) and “stage of lactation for non-fresh cows” (3.43) (Table 2).
- 49 (25%) farmers reported feeding the same ration to all lactating herd. Within this group, 63% (31 farms) were in the range of 200 to 380 lactating cows.
- The main constraints for feeding more than one ration were: “keep it simple” (3.25) and “milk drops when cows are moved to a different group” (3.42) (Table 3).

Table 2. I feed different rations based on:

	Herd size					LSD	P-value
	200-250	251-380	381-525	526-802	>802		
Fresh vs all other cows	4.31	4.32	4.39	4.47	4.71	0.434	0.163
Stage of lactation, no-fresh cows	3.52	3.19	3.52	3.62	3.31	0.603	0.512
Parity	2.72	3.38	3.19	3.17	2.86	0.573	0.114
Milk production level	3.36	3.56	3.50	3.24	2.97	0.566	0.226
Body condition score	3.16 ^a	3.35 ^a	3.22 ^a	3.17 ^{ab}	2.63 ^b	0.511	0.038
Health issues	3.00	3.23	3.38	3.14	3.03	0.539	0.513
Reproductive statuses	2.72	2.96	2.84	3.11	2.71	0.516	0.489
I don't believe that more than one ration is needed	1.83	1.81	1.83	1.82	1.86	0.528	0.987
I don't feed different rations due to constraints	2.22	2.14	1.80	2.00	1.79	0.609	0.455

Table 3. Constraints to more rations

	Herd size					LSD	P-value
	200-250	251-380	381-525	526-802	>802		
Farm facilities do not allow it	2.53	2.42	2.38	2.49	1.94	0.506	0.197
No enough labor or personnel to handle it	2.45 ^a	2.28 ^{abc}	1.95 ^{bc}	2.37 ^{ab}	1.94 ^c	0.427	0.034
Desire to keep it simple	3.38	3.53	2.89	3.46	2.97	0.515	0.056
Milk drops when cows are moved to other group	3.37	3.53	3.30	3.43	3.46	0.496	0.949
Conflicts with grouping for reproductive purposes	2.66	2.86	2.65	2.94	2.70	0.471	0.673
Nutritionist does not want to	2.13	2.31	2.14	2.40	2.28	0.469	0.589
I don't believe more than one group is needed.	2.34	2.29	2.24	2.12	2.29	0.577	0.889

CONCLUSION

A quarter of Wisconsin dairy farms with more than 200 lactating cows feed one ration and the main constraints to do more rations are: 1) desire to keep feeding simple and 2) perception that milk drops when cows are moved between feeding groups. 31 farms in the range of 200 to 380 lactating cows were feeding one ration and probably, they want to keep it simple. Therefore, the next step of this project will be to find out how bring these management tools such as grouping and nutritional feeding to the Wisconsin's dairy farms to enhance feed efficiency, mainly to those that want to keep it simple.

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