



FEEDING

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Deliver nutrients where they're needed

IMPROVING lactating cows' feed efficiency is an important mechanism to bolster profitability, reduce nutrient excretion and mitigate environmental concerns. In a recent survey, it was reported that 48 percent of Wisconsin and Michigan dairy farmers feed only one total mixed ration (TMR) to all lactating cows.

The two main reasons cited for not grouping cows based on dietary needs were to keep herd management simple and avoid a drop in milk yield. However, by feeding multiple TMRs, cows receive more precise diets that would reduce feed costs, boost productivity, enhance herd health and minimize nutrient excretion.

The decision of how many diets to implement within a farm depends on factors such as the individual cow's nutrient requirement, the number of lactating cows, cost of feed ingredients, price of milk and the farmer's decision on how many feeding groups to manage. The university's decision support tool

(dairymgt.uwex.edu/tools.php) can evaluate two, three or four user-defined nutritional group sizes. The tool compares four different methods of grouping: days in milk (DIM), which groups cows according to their stage of lactation; fat-corrected milk (FCM), which prescribes that cows with similar FCM should require similar amounts of nutrients and, therefore, a similar diet; and dairy merit, which is the FCM divided by metabolic body weight.


The final grouping is cluster, which uses net energy for lactation (NEL) and crude protein (CP) requirements as criteria to place cows in the same feeding group. It has been demonstrated that cluster is the most efficient approach for grouping cows homogeneously. These four grouping methods are compared with the current farm grouping strategy.

Let's follow a case study example using the default herd data set available in the tool (470 lactating cows). The information needed for each individual cow is: cow identification number, lactation number, DIM, test day milk yield (pounds per day), milkfat percent and body weight. If individual cow body weights are not available, the average body weight for first- and later-lactation cows can be used.

Additional information needed includes the price of corn and soybean meal to estimate the unit costs of NEL and CP.

For our evaluation example, we assume the following: the farmer currently feeds only one TMR with a concentration of 0.70 Mcal/lb. for NEL and 17 percent CP (dry matter basis). An additional cost will be incurred for feeding three TMRs (three groups: 160, 160 and 150 cows) of \$1,000 per month to cover additional labor, management and equipment costs. A drop of 2 pounds of milk per day per cow will occur over four days after cows have been moved to a different group.

This analysis shows that three TMR groups versus one TMR group results in the highest gain of \$113 per cow per year using the cluster method for grouping. However, any of the other three methods will also improve net return (\$ per cow per year) going from \$106 for dairy merit, \$93 for FCM and \$78 for DIM.

For each one of these four methods, the user has access to a list of the cows that belong to each of the three groups along with group NEL and CP diet concentration specifications. This simple case study demonstrates that there would be a significant net economic gain by feeding different diets to different groups of cows, even when there are additional costs of grouping and a possible temporary milk drop after moving cows. 

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