

## ***Grouping of Dairy Cows***

Grouping cows is a management tool that can have great impact on performance and overall profitability. This chapter includes suggested ways and ideas on grouping dairy cattle, and various ration considerations with different grouping schemes.

### **Where to Begin**

The first need is to determine the number and size of the groups that can be handled on a particular farm. The absolute minimum number of groups required is two -- the milking cows and the dry cows.

Grouping dry cows into two groups consisting of cows just dried off and prefresh cows (14-21 days before calving) allows better nutrition for those cows preparing to calve while best feeding those just dry. (Further details of nutritional and management considerations for dry cows are contained in the chapter on "Dry Cows.")

The optimal number of milk cow groups will vary from one to four, again depending on several factors. Herds larger than 300-400 cows may require more groups of lactating cows. Groups should not be larger than 80-120 cows in size to help minimize any social interaction problems. Cows should not spend more than 1 hour in the holding pen at each milking; this can affect the ideal number of cows in a group. Housing design, number of free stalls, feed bunk space, and flow of cattle to the milking parlor will also play roles in deciding the number and size of groups. Allow 18" - 24" of bunk space per cow. Do not overstock free stalls by more than 15 percent. Bunk space, stall design, frequency of milking, group of cows being fed, and ventilation can all effect acceptable overstocking.

### **Why Should these Cows Be in a Group?**

Groups of cows are defined by their common characteristics, which can include:

- Milk production
- Fat corrected milk (FCM)
- Days-in-milk (DIM)
- Body condition score
- Reproductive status
- Energy density required
- Protein density required
- Age of cattle
- Housing available
- Social interactions

Milk production level and days-in-milk are probably the most commonly used characteristics to group cows. Age, body condition, and reproduction status are increasingly used as grouping criteria.



## Methods of Grouping Cows

### One-group TMR

With this feeding system, all milking cows are in one group physically and/or are getting one balanced ration for all stages of lactation. This has become very popular in stall or stanchion barns because of the ease of feeding, and not having to move cows from group to group. These rations are typically balanced in the 70-90 lb production range or 30-35 percent over the average of the herd. In facilities that allow top dressing, a one-group TMR can have additives added above some base production level for the higher producing cows. The base balance point of the TMR should be about 15-20 percent over the herd average. Typically, all the grain is included in the base TMR ration, and a high bypass protein mix is top-dressed to the better cows. This mix may also contain feed additives and rumen inert fat since they can then be targeted where needed to the early lactation cows. The one-group TMR strategy has to be implemented properly or problems can result. Herds with high rolling herd averages can utilize a one-group system well. Production is high enough on the average that cows either need the extra nutrients at the end of lactation to replace lost body condition, or at the beginning of lactation to meet the needs of production. To insure long-term success of one group feeding, requires the producer be willing to cull cows that fall short of goals. Low producing cows are more likely to get over-conditioned by the end of lactation. Maintaining optimal reproductive performance is also necessary. Feeding costs will tend to be higher on a one-group TMR since the ration is balanced for the higher producing cows. The added cost needs to be weighed against the value of any additional milk and convenience.

### Heifer Milk Group

This is a popular choice when grouping milk cows. First-calf heifers are smaller and may not compete at the feed bunk with larger older cows. By grouping heifers together, many of the social demands and negative cow interaction is eliminated. First-calf heifers need to grow during the first lactation as well as produce. Grouping heifers together allows a higher plane of nutrition to be fed to support both milk and growth. Although in many herds identical diets are fed and the benefit is just from less competition. Heifers typically stay in this group for the entire first lactation. Undersized second-calf heifers and small more timid mature cows can also fit into this group.

### Fresh Cows

This has been a very successful grouping strategy in herds large enough to utilize it. Cows stay in this group for two to six weeks after calving. Dry Matter Intake (DMI) is low at this time, so a higher nutrient density better supports quick starting cows. A limited amount of dry hay (2-6 lbs per head daily) can be used effectively to help cows stay on feed by providing enough effective fiber in the ration to avoid displaced abomasums (DA's). Since most health problems occur in this time frame (DA's, milk fever, ketosis, retained placenta), a fresh group allows for better observation and treatment of these cows. Manager and stall space is more critical in heifer and fresh cow groups.

### Overconditioned Cows

This group contains cows that are not cull cow candidates due to good genetics or production, but have gained more than adequate body condition. This group can also be used to lower production of heavy milking cows two weeks prior to dry off. The ration should be very cost effective and contain a high proportion of forage.



Figure 1 could be a typical large herd grouping system making use of a fresh group and a heifer group. The mature cows can be further broken down into multiple production groups to help make rations more cost effective. Figure 2 is a strategy that has been proposed and variations of it used very successfully. It has all cows in one-group (early lactation) for 45 days. After this time, cows are split into high and low production groups. Cows stay in their groups the entire lactation with the exception of fat or thin cows that can be moved.

### Moving Cows

The common drop in milk production that occurs when a cow is moved from one group to another makes producers reluctant to have multiple groups and to move cows. Cows moved from one group to another require some time to adjust to the new social environment. They will be restless and spend less time eating, possibly resulting in a drop in production. A drop in production can also come from a large change in the nutrition between the two groups. These negative effects associated with moving cows from group-to-group can be minimized by consideration of the following:

- Move cows in small groups, not individually.
- Only move cows once a month.
- Move cows only after they are producing at least 10 lbs less than the balance point for the group they are moving to. First-calf heifers should be moved when they are 10-20 lbs less.
- No more than a 15 percent difference in energy density between any two groups should occur. Target no more than a 10 percent difference in protein.
- Strongly consider a first-calf heifer group where animals stay the entire lactation.
- Avoid moving cows when other stress factors could affect milk production (feed changes, stressful weather, or during a health problem like dysentery).

### Lead Factors

After having cows grouped, the next decision is at what production levels should each group's ration be balanced. Do not balance for the average production level of the group since this would short the higher producing cows of nutrients. Always balance more towards the average of the higher producing cows in a group. Balancing for a percentage above the average of the group, or building in a "lead factor", will assure the top cows get the nutrients needed to hold production. Table 1 lists common lead factors to use for different grouping strategies.

### Stall Barn Grouping

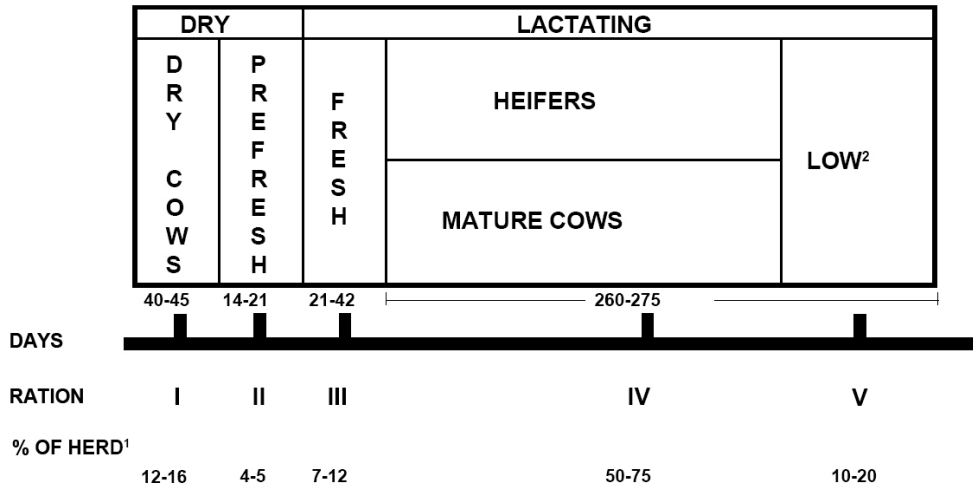
As mentioned, the one-group system with or without top-dressing the base ration TMR has become popular in tie-stall barns. However, there is another option where producers can take advantage of grouping without having to physically move the cows. Two or more groups or rations may be fed while leaving the cows in the same stalls, and switching the rations offered as needed to the cows. This works particularly well where there are partitions in the mangers between cows to prevent stealing. Colored tape or ribbons are easily used to indicate which ration each cow should receive. Yet another way of grouping has been to feed a base ration TMR to every cow, and in addition, feed a "super TMR" for the top cows. This does take advantage of feeding only a TMR, but does increase mixing labor. Again, fit the constraints of each farm to the most suitable system of grouping.

### Summary

Grouping is somewhat subjective, but yet a proven and useful management tool. Work with each producer to "customize" the grouping strategies outlined so that production, labor and profitability are optimized.



**Figure 1. Large Herd Lactational Grouping Strategy**



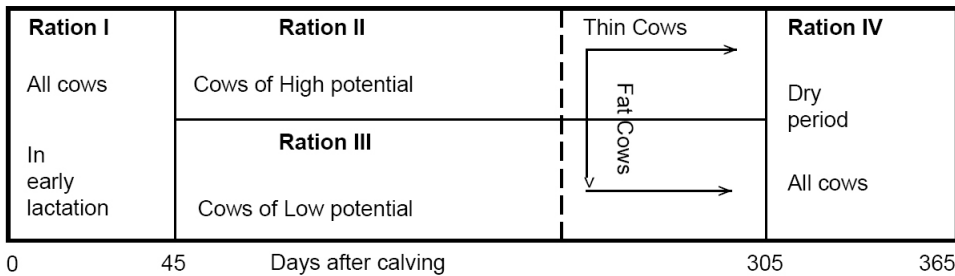
<sup>1</sup> Assume a calving distribution of 8-9 percent of the herd calving per month.

<sup>2</sup> A low group may be needed when cows become over-conditioned prior to dry off, or 10-20% of the herd lags significantly in milk production.

**Table 1. Group Lead Factors**

Type of Group	Lead Factor
One Group	1.32
Two Groups	
Top half	1.20-1.25
Bottom half	1.20-1.25
Three Groups	
Top third	1.15-1.25
Middle third	1.12-1.17
Low third	1.20-1.25

**Figure 2. Proposed Feeding Strategy in a Large Herd (Israeli data)**



**References**

“TMR’s for dairy cattle - putting it all together.” Spence Driver, 1990, Proceedings Vita Plus Advanced Training Meeting.

“TMR resource notebook”, University of Wisconsin-Madison and University of Wisconsin Extension Center for Dairy Profitability. 1991.



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