
**THE EXTRA TIME SPENT** mixing and feeding different rations should pay off as you tailor mixes to specific milking groups.

# Can you still afford a one-group TMR?

Today's cost-price situation may trump the simplicity and convenience of having one mix.

*by Michael F. Hutjens*

With current milk price and feed costs and the loss of BST in some milk markets, people raise questions about using one ration mix compared to several.


Hutjens

Let's consider whether having more than one TMR may be a smart move for this year and when milk prices come back.

**Why is a one-ration approach popular?**

When feed prices are moderate and milk prices favorable, there are several reasons.

- It is simple and easy to mix and deliver one ration, varying only the amount delivered to pens.
- The fewer the mixes, the less chance of adding the wrong amount of ingredient.
- There's a chance the wrong group can get the wrong ration.
- There's labor saving by reducing the number of different mixes.
- It is easy to top off feed bunks as needed.

TMR mixer size becomes a factor, depending on number of cows and feed delivery capacity. If more than one batch is needed each day, it becomes more feasible to have more than one mix.

**What are the advantages of several rations?**

The potential benefits increase as feed prices go up, milk prices decline, and herds feed lactation-specific feed ingredients (such as rumen-protected methionine or polyunsaturated fatty acids — PUFA, and early-lactation cow feed additives). Feeding rations based on the cow's physiological response can improve margins by improving milk yield (such as early-lactation cows) while avoiding health risks (such as fat cows in late lactation).

Cows in early lactation have the "drive" to produce milk. Having another ration lower in nutrient content for lower-producing cows can improve margins by reducing feed costs while maintaining milk yield and avoiding heavy cows (over body condition score 3.75). Feed and nitrogen efficiency can be improved by shifting to a lower nutrient dense diet.

A key advantage for multiple rations is the ability to manage body condition without sacrificing milk. Heavy cows are high-risk cows for metabolic disorders, impaired immune function, and delayed conception in the next lactation. The ability to get cows rebred (less than a 14-month calving interval), the ability to use BST, and the percent of cows over a body condition score (BCS) of 3.75 at dry-off time are related factors. The box lists the ration strategy with a high group and low group.

**Do cows drop in milk when moved?**

Factors that can lead to a drop in milk include a change in nutrient content in the new ration and the social impact of moving cows which results in lower intakes.

The potential risk in lower dry matter intake after moving cows appears to depend on where they are in the dry matter intake curve for the current lactation. Data from Illinois and Israel indicated that, if cows are moved before peak dry matter intake has been reached, the impact on milk production when moving cows is minimal. Social interactions (boss cow fighting, pecking order, and limited feed bunk space) can cause a 2- to 8-pound decline in milk yield which may or may not recover.

Changing feed ingredients, but not changing cows, is one strategy to avoid the potential drop in dry matter intake and lower milk yield. You can adjust nutrient intake using soy hulls, corn gluten feed, or citrus pulp replacing high starch grain. This approach avoids shifting nutrients to body weight gain and away from milk yield.

Another approach is to move cows in a consistent pattern (such as weekly), resulting in less potential negative social interactions as groups do not stabilize. If individual cow daily milk recording can be measured on the farm, you can more easily assess the impact of moving cows.

- A Canadian study reported a drop of 8 pounds for three days after moving cows and returning to normal production and cow behavior patterns after three days.
- Illinois data indicate a drop of 2 pounds of milk (comparing the average milk yield one week before moving to one week after moving) when cows were moved from a fresh cow pen to a high production group.

**What about costs and returns?**

Key factors will be the price of milk, dry matter intake, price of dry matter, and anticipated change in milk yield. To illustrate these factors, we compared two levels of milk production (80 pounds for the high ration and 60 pounds for the low) using typical Midwest feeds and prices for corn, corn silage, alfalfa, and soybean meal. We used Spartan II computer ration software (Michigan State) to calculate least-cost rations using the same ration ingredients. Here is my analysis:

- The 80-pound TMR costs $6.15 per cow per day with 51.9 pounds of dry matter consumed at 11.8 cents per pound of dry matter.
- The 60-pound TMR costs $4.90 per cow per day with 45.2 pounds of dry matter consumed at 10.8 cents per pound of dry matter.

The price difference between the two rations was $1.25 per cow per day. However, the low-producing group consumed 6.7 pounds less dry matter compared to the high group valued at 11.8 cents per pound or 74 cents lower feed cost. When correcting for the lower dry matter consumption, the potential difference is 51 cents per cow per day ($1.25 minus 74 cents). If milk production declined 3 pounds at 13 cents a pound (loss of 39 cents), the savings would be 12 cents per cow per day with two groups. We included no feed additives, rumen inert amino acids, protected fat, or other fat sources in either ration.

**What are your grouping alternatives?**

You can group based on several factors besides feed cost.

| Grouping strategy selected | Ration strategy |
|---|---|
| First-lactation cows and older cows | One ration |
| High-producing and low-producing cows | Multiple rations |
| BSC (cows over 3.5 and cows under 3.5) | Multiple rations |
| Open cows, breeding pen, and/or pregnant cows | One ration |
| Low SCC and high SCC group/staph group | One ration |
| Expensive feed additives | Multiple rations |
| Herds average 25 percent above state average | One ration |
| Herds experiencing metabolic disorders | Multiple rations |
| Herd averaging over 225 days in milk | Multiple rations |

No one "right" answer is correct, but having more than one ration may be correct for the next six months.

**How high- and low-group cows differ**

| | High cows | Low cows |
|---|---|---|
| **Metabolic status** | | |
| Dry matter intake limitations | Gut fill | Ration fermentability |
| Glucose needs | Higher | Low |
| Insulin sensitivity | Low | High |
| Natural BST levels | High | Low |
| **Ration adjustments** | | |
| Forage to grain ratio | Higher grain | Higher forage |
| Forage NDFD (quality) | Higher | Lower |
| Starch fermentation in the rumen | Higher | Moderate |
| Added fat/oil | Higher | Lower |
| Use of by-product feeds | Less | Higher |

Source: Michigan State University.

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