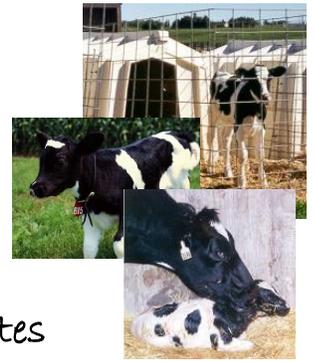


Calving Ease

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Feeding Hay with Calf Starter Grain

- Achieve better outcomes feeding a mix of grain and hay compared to grain only.
- If a “little” is good, would “more” be better? No!
- Practical alternatives for including 5 percent chopped hay.
- What if no chopped hay?

Achieve better outcomes feeding a mix of grain and hay compared to grain only.

For several decades, generally accepted wisdom has been to not feed hay to preweaned dairy calves. The reasoning was that hay would take up space in the calf’s small rumen that could be used for calf starter grain. We know that grain has an important role in promoting the development of the rumen lining – sometimes referred to papillae growth.

For pictures showing the impact of grain consumption on papillae, click [Rumen Pictures](#). Thus, the recommendation, “Don’t feed hay.” However, research this past ten years has demonstrated that limited volumes of roughage (hay) have positive effects on calf growth at least in the first 2 months of life.

If a “little” is good, would “more” be better? No!

Research experiments fed various proportions of hay to grain. Researchers found that when hay intake was around 5 percent of the total dry feed intake there was better rumen development among preweaned calves when compared to (1) no hay, (2) 10% hay with grain mixture or (3) 15% hay with grain mixture. Both haylage and corn silage had negative outcomes on growth – not to be used.

At the 5 percent inclusion rate chopped hay (roughly 1 inch long or 2.5cm) fed with calf starter grain had positive effects on rumen development while grain intake was unchanged. Thus, the concern about the hay depressing grain intake was determined to be incorrect – when **limited** hay was included.

Note! These research projects used chopped rather than long hay. They determined that short particle length promotes more desirable rates of movement through the rumen compared to long hay.

In addition, DeVries work has shown that short particle length suppresses undesirable sorting behavior among calves. Avoiding sorting as calves is significant because his work has also demonstrated that sorting behavior learned as calves persists into adulthood – bad habits learned as calves become bad habits as cows!

Practical alternatives for including 5 percent chopped hay

So, big deal! It is one thing to run a research project and something else to find time to put chopped hay into a calf feeding routine. First, how much chopped hay is needed? Second, how are we going to deliver it as 5% of the dry ration to calves?

How much chopped hay do I need? Well, how much is 5 percent chopped hay? For every 50 lb. bag calf starter fed, 5 percent comes to 2.5 pounds hay. For 1,000 lb. of starter grain, you need about 50 lbs. of chopped hay.

Top dress or dry TMR?

For the youngest calves I recommend refreshing the grain at least twice a week. That is, give them only a handful of grain, give it a shake daily and dump twice a week. One could “top-dress” buckets with a sprinkle of chopped hay each time it is refreshed. Alternatively, if this volume comes to less than one bag of starter a week one approach would be to prepare a supply of a “dry TMR” in a 30-gallon waste barrel.

One recipe could be 50 lbs. of grain (1 bag of pellets or textured starter) and roughly 1/3rd of a 10-quart bucket of palatable chopped hay – your goal is between 2.5 and 3 lbs. of hay This blend would be ideal for the young calves just beginning to regularly eat starter (10 to 21 days old).

Simply layer starter and chopped hay in the barrel. If convenient, pour this mix back and forth several times to get a reasonable blend. I had two old beat-up barrels I used for this purpose. On the other hand, you could hope that as you scoop out the grain the hay will mix in.

What if you have access to a mechanical TMR mixer that makes about 1,000 lbs. of dry TMR in one batch? The recipe is a simple 950 lbs. of pellets from the bulk bin and enough more chopped hay so the scale reads 1,000 lbs. This dry TMR can be stored and loaded daily into a 4-wheeler box for feeding.

In group pens I suggest top dressing; just blend limited hay into grain manually. Remember, limited!

What if no chopped hay?

But, what if you do not have access to chopped hay? What can you do with long hay? Remember, our goals are to feed some hay but not so much as: (1) to displace grain intake and (2) to slow down passage of feed out of the rumen.

Starting around 3 weeks of age you could try feeding a small handful of long palatable hay – put it into the top of the grain pail. In order to limit-feed the hay, only top-dress the hay once or twice a week for younger calves. This routine has the potential of avoiding undesirable loading up the rumen with forage.

References: Khan, M.A., A. Bach, D.M. Weary, M.A.G. von Keyserlingk “Invited Review: Transitioning from milk to solid feed in dairy heifers.” *Journal of Dairy Science* 99:885-902. Overvest, M.A., and Others “Effect of feed type and method of presentation on feeding behavior, intake and growth of dairy calves fed a high level of milk.” *Journal of Dairy Science* 99:317-327. Khan, M.A., and Others, “ Hay intake improves performance and rumen development of calves fed higher quantities of milk.” *Journal of Dairy Science* 94: 3547-3553. Hill, T.M. and Others, “Roughage amount, source, and processing for diets fed to weaned dairy calves.” *The Professional Animal Scientist* 26:181-187. Hill, T.M. and Others, “Effects of the amount of chopped hay or cottonseed hulls in a textured calf starter on young calf performance.” *Journal of Dairy Science* 91:2684-2693.