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The experiment

A client was in a position to try out some of the new ideas in calf protein rates and TMR

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IN THE FALL OF 2010 a speaker at a veterinary conference introduced the concept of feeding weaned calves a dry 21-22% protein TMR to facilitate growth rates. This made sense as the growth curve of dairy calves is accelerating rapidly from weaning to 6 months and growth efficiency is optimal in this period. We know that protein is the driving force to increase stature. Most calves receive 22-27% protein through whole milk or milk replacer and calf starters are often 20-24% protein. Weaned calf diets often switch to free choice hay and limited amounts of grain and protein; -usually much less protein overall than while on milk. This alone could be responsible for smaller heifers at 13-15 months and consequently an extended age at 1st calving due to delayed breeding. The latest Progress Report from CanWest DHI-2012 shows that only 7.5% of herds have a 24 month or less age at 1st calving. In that article it states that a "focused effort" is required to improve this management statistic. This modified feeding style could help facilitate that effort through larger heifers that are ready to breed earlier. In the April 25, 2013 Hoards Dairyman, there is a graph included in an article by Heinrichs and Jones, showing Pennsylvania heifers calving in 2011 had the most milk production when calving at 21-23 months. With this data and many more articles written promoting the same results, why does it require a "focused effort" to get heifers calving before 24 months? I believe that on many dairies heifer weights and heights are not print width=315.696991, height=511.086029 original width=1318, height=2129 monitored which leads to 1st breeding at the standard 15-16 month age and as a result greater than 24 months of age at 1st calving.

An interested client believed in the high protein concept, was ready for change, and had heifer and feed facilities available to accommodate the feed change. Weaned calves were housed in a two-row free stall which enabled all calves to eat at once. Group size was built for 22 head. A hay chopper was needed, as the forage length was to be 5-6 cm and a designated feed cart was available. The farm's average age to 1st calving was 30 months in 2008 and 28 months in 2011. Certainly there was room for improvement.

In order to make a good mix we decided to feed seven days worth of feed at one time. Since the mix was dry, spoilage was not an issue. Feed was to be constantly available to reduce the risk of overeating. We did not wish to feed to an empty bunk and risk an acidosis issue. We had an overconsumption problem initially as the calves ate seven days worth of feed in four days (not unlike any one of us at an all you can eat buffet!) Fortunately we did not feed full grain until week two. Subsequently our seven day intake projection proved accurate.

The mix consisted of shell corn, 40% supplement, micronized soybeans, chopped hay and mineral. The key ingredient in the program is very good quality grass hay. Alfalfa hay

can be coarse and can have significant leaf loss while chopping. One issue we worried about was sorting, -especially when feeding for seven days at a time. This was never a problem as the TMR at day six resembled the initial mix, proven by shaking out on a Penn state box.

Our goals on starting this program were improved growth rates, resulting in earlier breeding and reduced age to 1st calving and decreased heifer inventory. Feed cost compared to a commercial high protein, total heifer supplement, were about 35% less taking into account the labour to make the mix.

The first group of heifers on the program grew rapidly and caught up to their older herd mates in four months. We had been breeding the 14-17 month age group and now had heifers ready to breed in the 10-13 month group. Posts in the breeding pens were marked at 53" to identify the goal of expected hip height for breeding. We started the program early in 2011 and this led to an abundance of heifers bred in the fall of 2011 as two groups reached breeding height at the same time.

Age at 1st calving is now at 24 months having dropped three months in the past year. It appears that we will reach 23 months before year's end. For interest, the youngest heifer to calve so far was at 19 months. Her projected record is 12,000 kg milk, 551 kg fat and 422 kg protein. That said, it is not our goal to calve heifers as young as this but rather, keep the average between 22 and 23 months.

In the end we lowered the age to 1st calving significantly. The expected reduction in heifer inventory is not being realized due to a reluctance to sell young calves, but there are now springing heifers for sale. We suffered no set back in 305 milk production and gained approximately four months of milk production per calving heifer from 2011 averages.

Memo: ONTARIO DAIRY FARMER JULY 2013