

THE LATEST THINKING ON DRY COW
MANAGEMENT

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We continue to look for methods to increase productivity and hopefully, profitability. We place a lot of emphasis on feeding various products such as fat, bypass protein and niacin to increase milk production. Rarely do we put any emphasis on the profitability of the total herd. We do not consider the impact of metabolic or reproductive problems on total yield and profitability; this only becomes important when it becomes extreme. We need to look carefully at the hidden costs of subclinical metabolic and reproductive problems. We are sure that you have seen the sporadic milk fever, DA, ketosis, off feed, cow not coming into heat, metritis, cow not settling, and cow with off cycles. The use of good record analysis systems will allow you to see that, combined, these become a significant part of the costs of your client's operation. If you calculate the lost milk it will be even more. Our challenge is to develop strategies to minimize the occurrence of these problems in the herd.

A dairy herd is in equilibrium when we are maintaining the same numbers of lactating animals. With normal calving intervals, female/male calvings, growth rates and death rates there will be excess heifers to be sold as well as a normal number of calves or cows culled for low productivity. If the herd is in expansion then the herd turnover is lower and all females born and live will enter the herd. This is the typical life cycle of the herd. The producer who has a herd with a minimum of metabolic and reproductive problems will be very profitable. The producer will be able to make good management decisions on culling and will realize the maximum genetic gain per generation of animals in the herd. This is in contrast to a herd which has increased involuntary culls as a result of metabolic and reproductive problems.

Conception, growth of the fetus and birth of the calf are all important parts of the cow's life cycle. We have recently been doing studies that emphasize the importance of minimizing stress on the pregnant animal in the last 3 to 4 weeks of the dry period. We have learned that protein nutrition of the cow during this period has a significant impact on colostrum quality as well as placental size and maternal metabolic status. It is suggested that attention needs to be given to the growing fetus during the last trimester of pregnancy. We need to ask ourselves what are the needs of the pregnant cow beyond what she needs for milk, growth and tissue repletion during pregnancy. At this point we assume that if we meet the cow's requirements, fetal needs will be fulfilled. Research is really needed in this area. If the cow's requirement is being met for pregnancy, especially during the last trimester, the calf will be healthier at birth.

The late gestation period (normally the dry cow) has been the most overlooked area on the farm. We have long recognized that controlling the mineral program for the dry cow is an important factor in reducing milk fever and improving reproductive performance. Work from Canada, Florida, Kentucky and Wisconsin has pointed out the importance of prepartum electrolyte balance. More recently Ohio work has shown that it is important to pay more attention to the vitamin program in order to reduce mastitis and improve the animal's resistance to bacterial/viral challenges. Research in Washington several years ago demonstrated that if the amino acid arginine was infused into the cows continuously 1 week prior to calving that they would respond with a 10 % higher milk production during the early lactation period. More recently our research at Cornell has shown that feeding more protein to the closeup dry cow that had a higher amount of bypass resulted in improved post partum health and reproductive performance. Recent field experience by Dr Van Saun would support that we need to consider incorporating a bypass protein source for the whole dry period. We have also found out that it is important to elevate the energy concentration in the ration because the cows dry matter intake will decrease significantly in the last 3 weeks of the dry period. A recent study in Wisconsin demonstrated this concept. They had 2 groups of cows, one with rumen cannulae. They fed both groups the same TMR ration ad libitum. One group they force fed the

refused feed into the rumen through the cannula. These cows performed better in milk, had less metabolic problems and lost less condition. This study reemphasizes the importance of feeding the late gestation cow with the a greater intensity than we have in the past. Our dry cow recommendations are as follows:

1. Separate dry cows as follows:
 - a. early dry
 - b. late dry (3 weeks before calving)
 - c. group springing heifers 8 to 9 weeks before calving by themselves.

2. Forages ideally need to be grass from fields receiving a minimum of manure and these forage should be silage so that a TMR can be fed - this will minimize sorting. Corn silage is also an ideal forage that can be limit fed in the TMR

3. Nutrient requirements have to be met and monitored

NUTRIENT	SPRINGER	EARLY	LATE	AVERAGE
DMI, %BW	2.0	2.3	1.8	2.0
ENDF, %BW	0.8	1.15	0.9	1.0
NEL, M/Lb	0.7	0.6	0.72	0.68
C. PR, %	15	14	15	15
SOLP, %CP	35	40	35	37
DEGP, %CP	62	65	62	63
UDGP, %CP	38	35	38	37

MINERALS

Ca, %	.35	.33	.40	.38
P, %	.21	.20	.23	.22
Mg, %	.25	.25	.28	.25
K, %	.70	.70	.80	.80
S, %	.24	.22	.28	.25
Se, ppm, %	.3	.3	.3	.3

VITAMINS

A, KIU/Lb	2.2	1.8	2.2	2.0
D, KIU/Lb	0.6	0.54	0.6	0.58
E, IU/Lb	25	15	30	28
NIACIN	FEED WHEN BCS IS 4 OR OVER			

4. Body condition score cows weekly and record.
 - a. Move any cows that are getting thin to a higher density ration or to the late dry group
5. Monitor intake closely and early lactating cow response.

The dry cow recommendations for grouping are ideal and one that your client needs to be planning for in the future. If your client can have 2 dry cow groups but can't separate the springers then move them into the late group 5 weeks before calving and increase the nutrient density of the early group by about 5%. If the client can only have 1 dry cow group then use the average above. It is suggested that the client can shorten the dry period so that the risk of over conditioning can be reduced. DO NOT go below 45 days and give the cows that have had one lactation a 60 day dry period.

It appears at this point that the best source for a bypass protein is an animal source. The next best would be a well roasted bean or possibly an extruded SBM. It is possible that corn gluten meal could be blended with soy and animal proteins to develop a good amino acid blend that will be a low cost product. Several producers have had good luck with brewers and distillers; the only problem we see with these is that the inclusion level will have to be high in order to provide adequate bypass. There may also be an amino acid problem.

We have not mentioned all of the minerals or salt. THEY ARE REQUIRED!! PUT THEM IN AT RECOMMENDED LEVELS. The minerals and vitamins included in the above table have been found to be critical to the performance of the lactating cow. If the Ca and K levels are exceeded, and there is not a good source of low Ca, K forage available, then it is suggested that the electrolytes need to be balanced in the rations. Recent studies have made it quite clear that this concept is quite important. It has been found that with high potassium forages it is almost impossible to obtain a 0 or negative cation:anion balance. We have found (limited field experience) that we can reduce problems of high K with increasing the Mg content of the ration up to .35 to .4 in the last 3 weeks prepartum. This is not recommended as a long time solution. It is critical for the producer to reduce the K in the soils to a level that will support high forage yields, but not to the point of luxury uptake. The high K levels inhibit Mg uptake by the plant as well as in the animal, causing Downer cow syndrome which is similar to milk fever in physical appearance except the cows are alert rather than recumbent.

The first 6 to 10 days after calving are the most critical of the lactation. During this period of time the highest incidence of metabolic problems occur and trigger the subsequent infertility problems that are most likely to occur. It is essential that first the rations be balanced correctly and second that the feeding management be optimized. Conceptually this time can be considered a part of the late gestation period. Many times cows are placed on the low group rations or a special adjustment ration. If the late gestation rations have been balanced properly the cows can be moved on to a high group ration immediately at calving. If the client is still having problems then there is still a problem with the "dry" rations. It should be added that these cows need the best environment that you can provide them during this time.

We are still learning a lot about the requirements of the dry cow. Dr Allen Bell at Cornell has just finished some intensive studies with Holsteins in various stages of pregnancy. These data will be absolutely essential for us to more finely tune the dry cow ration in the future. You will find that your client's greatest challenge is facility availability and grouping management. You need to work

closely with your clients to help them resolve short and long term problems by providing direction on the management of cattle in their last 60 to 90 days of pregnancy.

Emphasize to the producer the importance of taking time with their dry cows every day; you will find that you will clear up most of the post partum problems if you work with this group. THIS WILL MAKE YOUR CLIENT MORE MONEY!!