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Contents of this Issue

- 1) Dealing with the Drought- Considerations for Extending Forage Supplies
- 2) Colostrum Replacers-Do They Work?
- 3) Making the Most of a Dairy Farm Visit
- 4) Genetic Evaluations to Include All Breeds and Crossbreds Together

Dealing with the Drought- Considerations for Extending Forage Supplies

By Donna M. Amaral-Phillips

High feed costs, lack of rain, high summer temperatures, and lower forage yields this spring sure put a negative taste in our mouths as we make decisions regarding feeding programs for this fall and winter. One saving grace --- milk prices are at an all time high. To deal with mother nature, it is more important than ever to sit down and devise a feeding program for not only the milking herd but also dry cows and heifers. Planning now will help prevent a dire emergency when you run out of feed this spring.

Start by culling less productive cows and extra heifers

Available feed resources need to be allocated to the most productive cows in the herd. Less productive cows should be considered as candidates for culling. These cows could include those which have been open a long time and are not pregnant, cows with high cell counts and/or the lowest producers and these cows. Available forage resources and dollars to purchase feed need to be allocated to those cows which make the most money per dollar invested. I realize that additional pounds of milk in the bulk tank translate into a higher milk check. However, culling less productive cows from the herd may actually increase the total amount of milk produced especially if feed bunk space or amount of feed fed was limiting productivity prior to culling.

At the same time, you need to evaluate the number of heifers you are feeding. Are there *extra* heifers that you can sell to help pay the extra purchased feed costs? It is important not to sell heifers needed as herd replacements, but extra heifers are a great source of added income.

Compare forage needs vs. inventory

Once less productive cows have been culled and extra heifers sold, the forage supply should be evaluated in relation to your herd's forage needs. By planning now, the costs associated with purchasing feed can be spread over several months and/or you can find forages/feeds at

a more economical price if purchased early in the feeding season. For a direct substitution, one pound of hay will replace 3 lbs of corn or alfalfa silage. When calculating the amount of forages needed remember to account for storage and feeding losses. For corn silage and hay fed as small square bales, feeding losses are generally 5%. With large round bales feeding and storage losses are much higher depending on how they are fed and stored. Seldom do large round bales actually weigh the amount specified by the baler manufacturer. These calculations are explained in the factsheet entitled "Planning Yearly Forage and Commodity Needs for a Dairy Herd" available on the UK Dairy Cattle web site or from your county extension office.

Test forages to determine best time to feed

Once forages are harvested, it is important to test these forages to determine their nutrient content and determine their best and most profitable use. With this information, the best plan and the best supplementation strategy to maintain a profitable milk production and healthy cows can be developed. The best quality forages should be fed to the early lactation cows or when the highest percentage of cows will be in early lactation. Maintaining profitable milk production is going to take a good working relationship between yourself and your nutritionist. It is extremely important that both parties are realistic and creative when putting a Band-Aid on the cards mother nature has dealt.

Some options to extend forage supply

Supplemental forage sources:

- Purchase hay: Hay can be purchased locally or from "out west", however, hay is a scarce commodity this year and the price is higher than normal. If you do purchase hay, remember to buy after evaluating a forage analysis. The lower the ADF and NDF or higher the relative feed value (RFV), the higher the quality of the hay. As a result, cows will consume the hay better and may give more milk. Decreasing the ADF of alfalfa hay from 38 to 30, only an 8 unit difference, can result in 7 lbs more milk when only 5 lbs of hay is fed. Therefore, testing hay for its quality can pay dividends in the bulk tank.
- Wheat or rye as spring pasture or silage (baleage, green chop, hay): Rye is harvested earlier than wheat but has a very narrow harvest window when

harvested as a stored crop (must be harvested at the late boot stage of maturity). Wheat as a stored forage is a little more forgiving than rye, is harvested later than rye and can be harvested at the late boot or early dough stage of maturity.

- Brassicas, i.e. turnips, can be planted in late March/early April and grazed 45 days later. They can be interseeded with wheat or rye. Remember that they need to be fed with hay or other long stem forage for heifers as well as milking cows.
- Limit wasting hay especially when feeding and storing large round bales.

Milking Cows:

- Feed more grain- Depending on the amount and type of forages and grain fed currently, feeding more of a reformulated grain mix may offset some of the forage shortfalls. However, adequate amounts of long forage particles must be supplied for proper rumen function and to maintain cud chewing, butterfat tests, and overall health of the cow. Often times, highly-digestible fiber byproducts, such as soyhulls, wheat midds, and/or corn gluten feed, are used since they are lower in starches than shell corn and may cause less rumen upsets. Work closely with your nutritionist to balance rations so that you can avoid any potential health problems. Rations need to contain adequate effective fiber or chew factor (usually from forages) to maintain rumen health and butterfat test. Sometimes rations with adequate NDF on paper do not provide adequate chew factor especially when large amounts of by-products are added.
- Wet distillers grains, brewers grains or corn gluten feed- Research on these wet byproducts show that they can be bagged and then fed over an extended time period. They work best incorporated into a TMR. Again, rations need to be balanced to ensure that your cattle receive the nutrients needed.
- Commercially available forage extenders - Most of the commercial feed companies sell a blend of "high-fiber byproducts" and grains they call forage extenders. Two types of forage extenders are sold in Kentucky. One type of these forage extenders is a combination of various byproducts, such as cottonseed hulls which provide a fiber source for the cow, and some addition protein sources. These forage extenders are meant to extend the available forages and should be fed with a grain or concentrate mixture. The second type of forage extenders are know as complete forage extenders and they are meant to be fed as the sole feed with an additional 6-8 lbs of long stem hay. Grain or concentrate mixes are not fed in addition.

- Use of rumensin in milking cow diets: Feeding rumensin, the only ionophore approved by the FDA for feeding to lactating cows, results in more propionate being produced in the rumen which in turn supplies more energy to the cow. Mike Hutjens has calculated that feeding 300 mg of rumensin can replace the energy found in 1.2 to 1.5 lbs of corn grain. To prevent problems with lower butterfat test, it is important to provide adequate amounts of fiber.

Food for thought... Recent nutrition research with heifers and dry cows:

- Research with diets for dry cows: Researchers at the University of Illinois have used wheat straw in combination with corn silage and other forages and fed as a TMR throughout the dry period. The wheat straw was chopped to 2 inches in length to prevent sorting and was fed at 30% of the total diet. These diets provided adequate but not excessive amounts of energy to dry cows to prevent health problems after calving. These diets need to be balanced to account for the nutrient content of the wheat straw.
- Research with diets for heifers:
 - Researchers at the University of Wisconsin have successfully *limit fed* (restricted total intake) higher energy diets to older heifers. (This does not mean using a creep feeder or limit feeding grain diets with salt!!!). It is important to monitor growth and body condition and have adequate bunk space for all heifers to eat at once. Extra bunk space is needed to ensure timid heifers get their share and heifers may vocalize more.
 - Researchers at South Dakota State University have compared chopped (less than 2 inches to prevent sorting) corn stalks ensiled with wet distillers grains (70% corn stalks:30% wet distillers) to conventional diets for older heifers. The ensiled corn stalk:wet distillers grain diet performed as well as the conventional diet. Diets need to be balanced to make sure adequate nutrients are supplied for growth.

Colostrum Replacers– Do They Work? By Donna M. Amaral-Phillips

We all realize that the timely consumption of adequate amounts of high quality colostrum is essential to the survivability and health of newborn calves. Calves are born without antibodies to fight-off diseases and thus rely on the passive immunity provided through colostrum until their own immune system develops later in life. Well-known and respected calf researchers agree that the golden standard to provide the best defense against disease still is to feed 3 to 4 quarts of natural high-quality colostrum from the calf's dam within 6 hours of life. However, commercially-available colostrum products have become popular because of convenience and as part of a biosecurity and disease-control program to help prevent the spread of Johne's Disease and Bovine Leukosis.

Several commercially available colostrum supplements and replacers are sold in the United States. When choosing a "colostrum replacement product", one first needs to understand the difference between a colostrum replacer and a colostrum supplement. Secondly, you should evaluate if the product you want to purchase has been shown to be effective in university or independent-based trials. To be effective, the product should increase serum IgG concentrations in calves above 1000 mg/dl or 10 mg/ml - watch the units.

Colostrum supplements are meant to be fed with colostrum to improve the quality (antibody level) of a farm's colostrum. They generally contain less than 75 g of IgG per dose. Feeding two bags of this type of product instead of one has not been effective as a colostrum replacer.

Colostrum replacers, on the other hand, are designed to be the sole source of nutrition for newborn calves and contain greater than 75 to 100 g of IgG per dose. Colostrum replacers often times are made from bovine serum or dried colostrum. They contain additional nutrients, such as carbohydrates, fats, digestible proteins, minerals and vitamins, needed by the newborn calf to maintain body temperature and other body functions. Some of the products on the market have research to show they are effective at providing effective IgG or antibody levels in the blood. Other products, especially

some of the colostrum-based products made with earlier technology, may not allow for the absorption of adequate amounts of antibodies. Several different companies may handle the same product marketed under different names. The bottom line is to ask for the data from university or independent based trials which show that the product is effective as a replacement for colostrum.

Making the Most of a Dairy Farm Visit By Larissa Tucker

Fall of the year is a good time to visit a farm, fall festival or agriculture day for many students and families. This is a chance to see first hand how your food is grown. This is also prime time for those involved in the agriculture industry to clear up some common misconceptions and make sure everyone understands the importance and safety of our food supply. The dairy farm can be an especially good place to visit because many basics of agriculture can be seen here.

If you are a farmer hosting a visit or a teacher planning to make one of these trips it is important to do your homework ahead of time to make sure this is a fun and educational trip for everyone. There are lots of resources available through the National Dairy Council, USDA, local milk processors or the internet that can give background information for the trip. Make sure to use a reliable source to prepare for the visit.

Here are a couple of internet resources that provide a wealth of background information. One resource to check out is the dairy check-off funded website www.dairyfarmingtoday.org, which offers a virtual tour of a modern dairy farm. This website is geared towards older youth and adults but also includes an interactive game. Another very kid friendly website to visit about the dairy industry is www.moomilk.com. This site contains lots of activities, coloring sheets, frequently asked questions, tours and lots more for younger elementary aged youth.

Another key to making the visit a success is to make sure everyone understands the importance of safety.

This may be the only time some visitors may ever see a real working farm or live farm animals. It is important for those providing the opportunities to put their best foot forward and make sure the facilities are clean and possible hazards are marked.

Students need to understand the importance of safety when being around animals as well. Dairy cows are usually very gentle because they are around people twice a day, seven days a week. Even the most gentle cow can have a bad day, so it is important to treat them with respect, not make loud noises and not make sudden movements when you are near any farm animal. Everyone needs to also make sure they wash their hands after the visit and before eating.

Finally, have fun! Learning about dairy cows and where milk comes from can be very exciting and enjoyable for everyone.

Genetic Evaluations to Include All Breeds and Crossbreeds Together

By Jack McAllister

Beginning with the genetic evaluations published by the Animal Programs Improvement Laboratory of USDA in May, 2007 all cows and bulls will be calculated from a common base of animals from all breeds and will include crossbred cows. The evaluations are then converted to a traditional within-breed genetic base and published. This change is important because it allows crossbred animals to contribute to genetic evaluations as well as to receive evaluations which include the expected contribution of hybrid vigor (or heterosis).

The conversions take place use the following formulas which involves both a breed average and the standard deviation (SD) ration for traits with variance adjustment that differed by breed:

$$\text{within-breed PTA} = (\text{all-breed PTA} - \text{Breed average}) \times (\text{breed SD} / \text{Holstein SD});$$

$$\text{all-breed PTA} = [\text{within-breed PTA} \times (\text{Holstein SD} / \text{breed SD})] + \text{breed average}.$$

The table below shows the breeds differ from Holstein in breeding value (2XP_{TA}) for different traits. While Holsteins are superior in breeding value for the yield traits other breeds are superior in breeding value for other traits and especially Daughter Pregnancy Rate.

Breed	Milk	Fat	Protein	Productive Life	Somatic Cell Score	Daughter Pregnancy Rate
<i>Ayrshire</i>	-5232	-135	-130	0.4	-0.15	2.6
<i>Brown Swiss</i>	-4234	-80	-71	0.9	-0.10	1.1
<i>Guernsey</i>	-6126	-81	-137	-8.5	0.06	1.2
<i>Jersey</i>	-6532	-74	-104	3.2	0.17	5.8
<i>Milking Shorthorn</i>	-7055	-245	-198	-1.8	-0.06	5.2

The table below shows the trait means for the base cows.

Breed	Milk	Fat	Protein	Productive Life	Somatic Cell Score	Daughter Pregnancy Rate
<i>Ayrshire</i>	18149	699	567	31.5	2.96	21.8
<i>Brown Swiss</i>	21340	859	705	30.2	2.92	20.4
<i>Guernsey</i>	16629	736	542	26.4	3.29	19.9
<i>Holstein</i>	25437	927	763	27.7	3.07	21.0
<i>Jersey</i>	17867	820	632	33.1	3.33	26.0
<i>Milking Shorthorn</i>	16959	605	523	29.8	3.09	23.8

The inclusion of crossbreds accounts for the contribution of hybrid vigor (heterosis) to performance. The table below shows how much F1 females are expected to outperform the average of their parental breeds.

Heterosis Value

Milk	Fat	Protein	Productive Life	Somatic Cell Score	Daughter Pregnancy Rate
700	35	26	0.3	0.02	1.8