Vitamin A and E Prices Increasing

By: Donna M. Amaral-Phillips

As a result of vitamin A and E manufacturing problems, supplies of these vitamins are becoming scarce and prices of these vitamins have increased. Expectations are that these production issues will continue for approximately the next 6 months. Depending on individual company supplies and whether a farmer has forward contracted grain needs, grain and complete mineral mix prices will most likely reflect these shortages with an increased price.

Both Vitamin A and E are fat-soluble vitamins and need to be supplemented to dairy cattle. Vitamin A is important for normal growth, prevention of night blindness, reproductive functions, and optimum immune response to decrease the incidence of diseases, such as mastitis. Fresh forages contain more β-carotene, the precursor for Vitamin A, than stored forages. Concentrations of β-carotene decrease quickly after forage harvest and as length of storage increases, concentrations decrease. Thus, the need to supplement the diets of dairy cows, heifers and dry cows especially those fed stored forages and grain.

Vitamin E content of forages also is highly variable. Like Vitamin A, the concentration of Vitamin E in forages decreases rapidly after cutting. Forages stored as either hay or silage are lower in Vitamin E concentration than fresh forage and as length of storage time increases, concentrations of vitamin E decrease. Adequate amounts of vitamin E are needed for proper immunity to help prevent the occurrence of mastitis and metritis and for reproduction in the prevention of retained placentas. To prevent white muscle disease in calves, both adequate amounts of Vitamin E and selenium are needed. Newborn calves rely on Vitamin E found in colostrum and then supplementation in milk based diets. Vitamin E concentration in colostrum is related to vitamin E intake of their dam, thus illustrating the importance of the nutrition of the dam on the newborn calf.

The good news in this discussion is that most nutritionists previously included at least twice the requirement for these vitamins in diets for dairy cattle. This practice allows the feed industry to adjust the amounts fed without expecting an impact on performance. For Vitamin A, the 2001 NRC (most recent published version) lists the requirement for supplemental Vitamin A at 50 IU per pound of body weight or 75,000 IU supplemental Vitamin A for a 1500 lb Holstein. Recommendations for Vitamin E are 0.7 IU per pound of body weight for dry cows and 0.35 IU per pound of body weight for lactating cows. These recommendations are approximately equal to 1000 IU of supplemental Vitamin E for dry cows and 500 IU for lactating cows. Dr. Weiss, a vitamin researcher from The Ohio State, noted that the most critical time for use of supplemental Vitamins A and E is before freshening, thus the first priority should be in maintaining the optimum amount of these vitamins in the dry and prefresh diets. Hopefully, the industry can effectively deal with these shortages until vitamin production can meet industry needs and prevent deficiencies in all livestock industries, not just dairy and beef.
Using DHI Reports to Track Individual High SCC Cows
By: Michele Jones and Donna M. Amaral-Phillips

Dairy Herd Improvement (DHI) testing was developed and continues to provide convenient standardized monthly assessments of milk production and milk components (fat, protein, and somatic cell count (SCC)) for individual dairy cows within a herd. By conducting monthly DHI testing, producers can monitor changes in milk production and components over time, and detect deviations needing to be addressed by management. Remember we cannot manage what we do not measure! DHI reports can identify which cows have just been tested with a SCC of 200,000 cells/mL or greater, as well as cows that have been chronically infected, as shown with multiple tests with a high SCC. When a herd is enrolled in DHI testing, various DHI reports are available. This article will cover one of these reports available from Dairy Records Management Systems (www.DRMS.org) to help producers manage and detect high SCC dairy cows.

Test Day Bulk Tank SCC Report - (DHI 421)
The DHI 421 Test Day Bulk Tank report is similar to a DHI-lab hot-sheet. The DHI-lab hot-sheet lists for each cow tested the milk production, milk components, SCC (score and actual), days in milk, lactation number and the bulk tank SCC if this high SCC cow was removed for the current test date. Cows are listed in order from those contributing the most to the least somatic cells to the bulk tank for the milking tested.

Unlike the Hot sheet, the DHI 421 (Figure 1) also calculates the total milk income, using the milk price reported with no additional quality premiums, for the test day excluding selected high SCC cows. The DHI 421 report identifies the cow, lists her current milk production, current SCC and previous test day SCC. It also includes the Value Adjusted by SCC which is calculated using the cow’s individual milk production and adjusts the value of the milk based on the SCC. Like the Hot-sheet, this report also provides the percent of SCC contributed to the tank by each cow for the milking tested.

The DHI 421 report and DHI-lab Hot-sheet highlight high SCC cows by ranking them by their contribution of SCC to the bulk tank. Remember when assessing a cow’s contribution of SCC to a shipment of milk, her SCC shedding can fluctuate from milking to milking. The first cow on the list will be the largest contributor of SCC in the bulk tank for the milking sampled. Information from this report helps identify specific cows with high SCC and help make decisions necessary to meet targets for SCC in milk shipped. If a producer is interested in what the bulk tank SCC and income values would be with a certain cow removed, they can use the information listed in the “Without This Cow” column.

What makes these reports useful is the “Without This and Higher Cows” column (highlighted in black). The “Without This and Higher Cows” column displays what the SCC average and milk income would be if the cow of interest and all cows with a higher percent of SCC in the tank are removed. The example in Figure 1 indicates that if Pink and Sissy were not included in the bulk tank, the bulk tank SCC would be 169,000 cells and the milk income would be $800.93, not accounting for any potential bonuses. This reduction in income needs to be replaced by protection of your milk market or SCC bonuses. This report allows producers to target high SCC cows which should be culled and then a decision made regarding if they should be treated (if clinical), dried off early, or culled.

Take Home Message:
DHI testing provides standardized, accurate milk production and milk component information for every cow for each test date. Producers using DHI testing and DHI reports can track trends in order to improve their milk quality by identifying high SCC cows. Accurately identifying high SCC cows provides a producer with reliable information in order to target cows to culture, and then make an educated decision for the future these cows. Remember we cannot manage what we do not measure!

To sign up for DHI testing or the reports discussed in this article contact www.mydhia.org or www.drms.org.
Do’s and Don’ts When Managing Freestalls for Dairy Cows

By: Thomas Sumner and Donna M. Amaral-Phillips

People say that deep bedded sand freestalls are the gold standard for cow comfort on dairies in the US, but some farms prefer mattresses in freestalls. The reality is, both options for bedding surfaces have their advantages and disadvantages, and both can be challenging to manage. When a farm struggles with lameness, trying to get more milk out of the cows, or when having a high somatic cell count, it may be simple freestall management practices that can be changed and make a huge difference. With the new Farmer Assuring Responsible Management or FARM program, (a program that is now required on most dairies), 95% of the somatic cell count, it may be simple freestall management practices that can be changed and make a huge difference. With the barn, refer to the recommendations by Dan McFarland, Penn State Ag Engineer, on the dimensions needed by different sized cows.

Do’s and Don’ts of Mattress Freestalls

- **Properly Bed All Mattresses**: Providing cows with the proper amount and type of bedding while keeping cost low is often a problem for farms that use freestalls with mattresses. A freestall should have at least 1 to 3 inches of bedding on it at all times to ensure the cow stays clean. When using mattresses, organic bedding will most likely be used. Wood shavings, sawdust, or paper are all forms of organic beddings that a farmer can place on top of the mattress.

- **Keep Freestalls Clean and Dry**: Manure and urine should be cleaned out of the stall every time milkers get the cows to be milked. If bedding is wet from rain, it should be removed and replaced with new, dry bedding.

- **Replace Old Mattresses When Needed**: The maximum lifespan on most foam/rubber mattresses is 10 years. By that time the rubber or foam has compressed and is very hard and not a comfortable surface for cows to lie down on. Waterbed mattress should also be replaced/ixed as soon as a leak is found.

- **Design the Stalls to Fit the Cows**: When designing a new freestall barn or renovating an existing barn, you need to make the stalls as big as the biggest cow in the herd. A stall too small will discourage bigger cows from lying in them. When designing a barn, refer to the recommendations by Dan McFarland, Penn State Ag Engineer, on the dimensions needed by different sized cows.

<table>
<thead>
<tr>
<th>Animal Weight (lbs)</th>
<th>Total Stall Length Closed Front (in)</th>
<th>Total Stall Length Open Front (in)</th>
<th>Length To Brisket Tube or Board (in)</th>
<th>Length to Neck Rail (in)</th>
<th>Stall Width Center to Center (in)</th>
<th>Height to Top of Partition (in)</th>
<th>Height to Neck Rail (in)</th>
<th>Brisket Board or Tube Height (in)</th>
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<tbody>
<tr>
<td>900-1100</td>
<td>90-96</td>
<td>78-82</td>
<td>64-66</td>
<td>62-64</td>
<td>41-43</td>
<td>42-44</td>
<td>42-44</td>
<td>4-6</td>
</tr>
<tr>
<td>1100-1300</td>
<td>96-102</td>
<td>80-86</td>
<td>66-68</td>
<td>64-66</td>
<td>43-45</td>
<td>44-46</td>
<td>44-46</td>
<td>4-6</td>
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<td>1300-1500</td>
<td>102-108</td>
<td>90-96</td>
<td>68-70</td>
<td>66-68</td>
<td>45-48</td>
<td>46-48</td>
<td>46-48</td>
<td>4-6</td>
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<tr>
<td>1500-1700</td>
<td>108-114</td>
<td>96-102</td>
<td>70-72</td>
<td>68-70</td>
<td>48-52</td>
<td>48-52</td>
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<td>4-6</td>
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</tbody>
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Do’s and Don’ts of Deep Bedded Sand Freestalls

- **Keep the Stall Full of Sand**: Keeping the freestall full of sand is critical for keeping the cow clean. When cows get up and down in stalls, they generally will throw a lot of sand out. This will create an impression in the back of the freestall which can hold moisture.

- **Keep the Stall Groomed**: The sand in freestalls needs to be cleaned just like the mattress freestall. The milker should scrape the manure and urine out of the back of the freestall every time cows are milked.

- **Use the Right Sand**: Some sand can be too small in particle size for recycling. The smaller sand will get stuck on manure and by pass the recycling phase. Also, too large particle size can increase the risk of cows becoming lame. Concrete and mason sands are both examples of sands that can be used and effectively recycled.

- **Keep the Slope of the Sand Downward**: The slope of the sand should be downward towards the alley with a 2 to 3% slope from the front to back.

- **When Recycling Sand, Replace with the Cleanest Sand Possible**: If the farm recycles sand, make sure the sand has enough time to dry before allowing it to be reused. Recycled sand should be around 10 to 12% moisture with less than 2% organic matter. Higher concentrations of organic matter can cause mastitis in the long run.
Recommendations for Managing Fresh Dairy Cows
By: Anna Bradtmueller and Donna M. Amaral-Phillips

Proper management and feeding of dairy cows in the first two to four weeks after calving is critical for preventing disease and ensuring cows reach maximum milk production and optimum reproductive performance. During early lactation, cows’ intake of energy and other nutrients is not enough to meet their demand for milk production and other needs. During this time, cows are in negative energy and calcium/phosphorus balance and are immunosuppressed, making them especially susceptible to several diseases. Therefore, to achieve the best possible performance and profitability, special attention must be given to fresh cow programs.

- **Provide separate housing.** Ideally, fresh cows should be housed in a separate pen for the first 10 to 14 days in milk. This allows for easier evaluation of individual cow’s health and the ability to feed a specific diet to this pen of cows. It also minimizes stress, minimizes time spent in the holding pen, prevents exposure to sick cows, and reduces competition with cows who are further in lactation. A fresh cow pen should be stocked at no more than 85% occupancy of lockup feed space, or should provide at least 30 inches of bunk space. There should be at least one free stall or 100 square feet per cow of lying space. When designing these facilities, they should be designed for the maximum number of cows at any given time. The housing environment should be well-maintained and manure should be cleared frequently to prevent disease exposure, as fresh cows are immunosuppressed.

- **Provide a specialized diet.** Fresh cows need diets that promote dry matter intake so the period of negative energy balance they experience after calving is as short as possible. Energy intake can be increased by providing a diet with high quality forages. The particle size of the feed should stimulate rumination, achieve rumen fill, and maintain optimum ruminal pH. Diets should also contain slow-digesting starches, such as dry shell corn, and not more rapidly fermentable starches, such as high moisture corn. Feeding of supplemental fats should be kept low to prevent a reduction in dry matter intake. Feed should be available and easily accessible for at least 22 hours each day.

- **Examine health of individual fresh cows daily.** For every clinical case of a disease, several subclinical cases (symptoms not seen) may exist. For example, the cost of subclinical hypocalcemia, or subclinical milk fever, in a herd costs four times that of clinical cases because, although treatment per subclinical case is less expensive than a clinical case, subclinical cases occur more frequently. Daily observation of fresh cows is needed to help prevent and detect diseases early. Some indicators of disease to look for include depression, decreased appetite, signs of dehydration, droopy ears, eye or nasal discharge, and a sudden decline in production. Checking rectal temperatures and using technologies are additional ways to monitor health of cows. Milking technicians should look for disease indicators, such as poor udder fill while the cow is in the parlor. Fresh cows are most susceptible to toxic metritis, hypocalcemia, ketosis, mastitis, rumen acidosis, displaced abomasum, pneumonia, and salmonellosis. Determining ketone concentrations (BHBA) in the blood can help detect cows with either clinical or subclinical ketosis. A cow with a BHBA of 1.2 mmol/L or higher is considered to have ketosis. A temperature of 103˚ or higher, abnormal uterine discharge, or a cow isolating herself can all be indicators of metritis. When evaluating cows and treating for diseases, good records should be kept to make sure that all cows are evaluated daily and all treatments follow protocols developed with your veterinarian’s advice.

- **Give special attention to management of dry cows.** The management and feeding of dry cows impacts their health as fresh cows. Cows should have a body condition score of 3.0 to 3.25 at dry off and again at calving and should lose no more than 0.5 units in body condition score over the first 60 days following calving. Dry cows should not be over-conditioned before calving because this could decrease their dry matter intake after calving. Over-conditioned dry cows are also more likely to develop ketosis or fatty liver syndrome because body fat can be mobilized too quickly during this time of negative energy balance and accumulate in the liver. Prevention of stress is also important for dry cows. Within three weeks of expected calving, 36 inches of feedbunk space should be provided per cow to prevent competition for feed and a minimum of 1 freestall or 100-125 ft² of lying space per cow to provide adequate lying space. Fans and sprinklers should be used to prevent heat stress, and regrouping of cows should be minimized to prevent social stress. Preventing stress in dry cows that are within three weeks of calving is especially important.

- **Avoid housing sick cows with fresh cows.** Since fresh cows are immunosuppressed, their exposure to sick cows should be minimized. Housing a sick cow with a contagious disease, such as mastitis, will expose the already vulnerable fresh cows to disease-causing pathogens.

Giving special attention to the management and nutrition of cows in the weeks following calving benefits them throughout the rest of their lactation. Providing separate housing for fresh cows with additional feedbunk and lying space helps ensure adequate feed intake and reduces stress. It also allows for a separate diet that contains high-quality forages so that the period of negative energy balance a cow experiences after calving is shortened. Daily observations and health monitoring, as well as the use of technology, can help with prevention and early detection of common fresh cow disorders. Proper management and nutrition of dry cows will also help prevent common health issues in fresh cows. These practices for fresh cows help ensure the best possible health, milk production, and reproductive performance throughout the rest of the lactation.
KDDC Young Dairy Producers Meeting

Tuesday, February 27 (All Times are Central Time)

8:30  Registration for KDDC Young Dairy Producers Conference
9:00 AM-11:30AM  Trade Show Set up
9:30  Animal Care-What You Need to Know - Dr. Townsend, Burkmann Feeds
10:10  Maximize Your Components – Darren McGee, DVM, Elanco
10:45  Break
11:00  Economics of Organic and Conventional Milk Production - Dr. Larry Tranel, Iowa State University
12:00-1:30 PM  Lunch and Trade Show Opens
1:00 - 5:00  ADA of Kentucky Board Meeting
1:45  Are You Ready for a DOW Visit – Ben Koosra, P. E. Limestone and Cooper
2:30  Break
3:00  Cooling Off When It Gets Hot - Nathan Upah, TechMix Nutrition
3:40  Recent Discoveries and Tried and True Methods You Can Use to Improve Dairy Herd Reproduction - Part 1- Dr. Jeff Stevenson, Kansas State University
4:30 - 6:00  Visit Trade Show
6:00 - 8:00  Dairy Awards Dinner

Wednesday, February 28 (All Times are Central Time)

8:00 AM  Registration & Trade Show Open
9:00  Welcome – Dr. Richard Coffey, University of Kentucky
9:10-9:40  Updates from ADA of Kentucky -Billy Rowe, ADA of Kentucky President
9:50-10:35  Recent Discoveries and Tried and True Methods You Can Use to Improve Dairy Herd Reproduction - Part 2, Dr. Jeff Stevenson, Kansas State University
10:45-11:30  Economics of Robotic Systems and Low-Cost Parlors – Dr. Larry Tranel, Iowa State University
11:30 – 1:30 PM  Lunch - KDDC Annual Business Meeting – Trade Show Exhibits (Bidding Ends on Silent Auction Items)
1:30 – 2:00  School Programs—Check-Off at Work-ADA Kentucky Speaker
2:05 – 2:35  Key Points in Calf Management-Early Life Disease and Future Implications – Dr. Joao Costa, University of Kentucky
2:40 – 3:10  The Stensland Family Story – Doug and Mona Stensland, Stensland Dairy Farm
3:15  Wrap up and Evaluations
3:30  Have a Safe Trip Home

Registration Fee:  $30 per dairy farm for both days (2 people per farm)  $30 for industry members each day

To register online go to http://www.kydairy.org/ydpkdp-conference.html

Holiday Inn Hotel room rate is $105 block ends February 15, 2018
Call  270-745-0088 under KY Dairy Partners