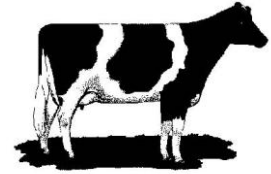


Kentucky Dairy Notes

September 2009



Highlights of the 2009 Western Dairy Management Conference Donna M. Amaral-Phillips

Every other year, the Western region of the United States hosts a two and a half day conference. This conference has many well-respected speakers on various timely topics. I have always wanted to attend this conference but have never had the opportunity. However, the articles that accompany these presentations are available on the web (<http://www.wdmc.org/proceed.htm>). The take-home messages and explanations offered in these articles apply to all size herds not just the large western dairies. My article this month highlights a few of these articles and their take home messages and application on Kentucky dairies.

“Don’t let shrink kill you with high feed prices” by Mike Brouk at Kansas State University

Feed shrink can represent 5 to 30% of the feed purchased on a farm or 15 to 20% of the total feed cost. Feed shrink or losses can be related to several factors. The goal is for less than 5% of concentrates and under 10% of forage dry matter to be lost. Areas to check to reduce shrink or feed loss include:

- Commodity sheds—be sure to try and shelter them from prevailing winds especially when ingredients (i.e. soybean meal) are delivered.
- Check the accuracy of scales on the TMR mixer frequently.
- Mix together ingredients that are added at rates of less than 5 pounds per cow and add as a blended ingredient to the TMR mixer. Not only can this save on feed losses but it can also save time and result in a better mix.
- Control feed losses at the bunker or bag by harvesting at the correct moisture, packing adequately, and maintaining the face on the silo.
- Manage feed in the feedbunk to prevent heating- Mix feed just before feeding especially during the summer, late spring and early fall. Clean out feedbunks routinely.
- Control of birds, rodent, and other wildlife (raccoons, turkeys) populations- very difficult but necessary. Starlings can eat up to 50% of their body weight daily. For 5,000 birds, this results in 250 lbs feed consumed daily.

“Transition Management Checklist” by Mike Overton at the University of Georgia Vet School and others

Management and feeding programs for cows three weeks before calving are critical for their future health and milk production. Summarized below are some key points.

- Heat stress abatement is critical in this group of cows.
- Pre-fresh cows need 30 to 36 inches of bunk space. For headlocks, assume you are using 80 to 85% of the lockups.
- Provide one stall per cow or at least 100 sq. ft with compost bedded pack barns.
- Set target for at least 5% feed refusal – Feed offered and refused should be weighed and recorded daily. This allows one to discover problems early.
- Diets should provide adequate effective fiber and protein but not excessive amounts of starch.
- Watch cows to make sure they are not sorting feeds and if hay is fed separately they are consuming adequate amounts. --Watch cows to make sure they are chewing their cuds!!!
- Goals for incidence of metabolic disorders-
 - Milk fever—less than 3 to 5% of mature cow calvings
 - Displaced abomasums-- less than 3 to 5% of all calvings
 - Retained placenta—less than 8% of all calvings
- During the first 30 days in milk, cows should not lose more than ¼ point of body condition. If cows lose more than 1 point of body condition score (120 lbs body weight), first service conception rate may drop by as much as 50%.

“Is a one TMR approach right?” by Mike Hutjens at the University of Illinois

Besides a discussion of the economic benefit of one versus multiple rations, Dr. Hutjens offered advice on moving of cows between groups—either management groups or groups with different rations. This advice included:

- Move cows before they peak in milk production so that impact on milk production is minimal.
- Move cows weekly so that the social hierarchy in groups of cows does not stabilize.
- If social interactions result in excessive “boss cow fighting”, milk production could decrease by 3 to 8 lbs milk daily which may not be recovered.
- Add approximately 6 lbs milk to the lead factor for first lactation cow groups
- Add approximately 2 lbs milk to the lead factor to increase body condition score by 0.5 point after 200 days in milk

“Stocking density and time budgets” by Rick Grant at the Miner Agricultural Research Institute in New York

Management factors that interfere with resting (cows rest 12 to 14 hrs daily) reduce feeding behavior with cows eating less and giving less milk. Besides how dairy cows allocate their time to various activities, Dr. Grant specifically talked about the benefits of separating first-calf heifers from mature cows in a herd.

These include:

- When first-calf heifers are comingled with mature cows, resting time of heifers is reduced.
- When heifers are housed separately, a study showed a 10-15% improvement in eating and milk production. Heifers housed separately rested 20% more than those comingled.
- Heifers take smaller bites and spend more time eating than mature cows.
- When housed separately, heifers ruminated and drank more.
- First-calf heifers are affected more by higher stocking rates than mature cows.
- In addition, lame cows and pre-fresh cows are the most severely affected by high stocking rates.

“Improving the welfare of dairy cattle: Implications of freestall housing on behavior and health” by Marina von Keyserlingk and Dan Weary at the University of British Columbia

Cow comfort directly impacts not only milk production but also the health (decrease incidence of lameness) and well-being of dairy cattle. Cows prefer softer lying surfaces with more bedding and spend more time lying down in well-bedded stalls. Freestalls that are more comfortable have higher occupancy rates and are more likely to contain feces!!! Cows should spend about 12 hours daily lying down but remember the remaining 12 hours they are standing. Thus, additional research is needed to design standing surfaces which are soft and dry. We know that cows prefer some stalls over others, but we need to be reminded that these preferences impact stocking densities within facilities.

The amount of feedbunk space impacts feeding behavior. Essentially, less aggressive behavior at the feedbunk (i.e. more feedbunk space) is associated with increased feeding activity and less health problems especially in submissive cows. The debate regarding headlocks versus post and rail feeding barrier continues. Cows are displaced more from the feeding area when stocking rates increase and cows spend less time eating. Cows are more likely displaced from headlocks (21% less displacements) than post and rail feeding barriers. Submissive cows (heifers and fresh cows) benefit the most from additional bunk and freestall space.

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**Timing of Insemination
George Heersche, Jr.**

We can use the following information to facilitate our AI program.

- 1) The length of standing heat is variable, averages 8-9 hours, and is considerably shorter in some situations.
- 2) Ovulation (release of the ovum/egg) does not occur until 24 to 32 hours after the start of standing heat ... the average is 28 hours.
- 3) The egg has a fertile life of less than 12 hours after it is released from the ovary.
- 4) Sperm live for an average of 24 hours after they are deposited in the cow's reproductive tract.
- 5) The first 6 hours sperm are inside the cow they undergo a biochemical change called capacitation. Capacitation is necessary for sperm to be able to fertilize the egg.
- 6) The goal is to time insemination so there are many live capacitated sperm cells in the oviducts to greet the egg at the time of ovulation.

While these average figures vary between animals and from one heat cycle to the next, they are a valuable guide to determine the best time to breed.

The time-tested rule for when to breed is the a.m./p.m. -p.m./a.m. rule:

- 1) A cow observed in standing heat in the morning should be bred the afternoon of the same day.
- 2) A cow observed in standing heat in the afternoon or evening should be bred the following morning.

The a.m./p.m.-p.m./a.m. rule is the industry standard, but it is interesting that acceptable fertility has been achieved when insemination is scheduled only one time each day as long as it is the same time every day. In one study with over 7,000 inseminations the 75 day nonreturn rate was similar for a.m./p.m. and once a day inseminations. Cows bred extremely late will have lower conception rates. The take home message is if we are inseminating our own cows, the a.m./p.m.-p.m./a.m. rule is the rule we should use. That said, if breeding twice a day results in logistical issues, then we can breed once each day and not lose a lot of sleep over that management practice. The once a day plan that works well for many dairy

farmers is to inseminate in the mid-morning and inseminate all cows which have been seen in standing heat since the mid-morning insemination the previous day.

The Importance of Keeping Accurate Records
Andy Mains
2009 UK Dairy Challenge Team Member

Running a successful business is all about identifying weaknesses and improving on them to stay ahead of the competition. Keeping this competitive advantage is the key to becoming a successful business which is able to survive and expand. The dairy industry is no exception. The top dairy producers identify their weaknesses and improved on them, increase milk yield and receive incentive bonuses for low somatic cell count without sacrificing the well-being of the animals in the herd. These leaders in the industry have been able to accomplish such success by maintaining and utilizing accurate and timely records.

Keeping accurate and timely records is important because it can allow a farmer to monitor business performance and make the necessary adjustments to correct any bottlenecks that may adversely affect production and profitability. Which records should a dairy manager keep? On the production side, the obvious choices are things like DHIA records and dairy herd management software, such as PC Dart or DairyComp 305. Records like these allow the farmers to see how their farms are doing production-wise right down to the level of a single cow. Production records, however, only tell part of the story; it is also important to maintain key financial statements. Some of these key statements are the balance sheet, income statement, cash flow statement, and the sources and uses of funds statement. If these statements are maintained properly and all data is kept current, they provide information to derive financial ratios which allow a person to see how a business is doing regardless of size.

Now that you know which records to keep, it's time to figure out what to do with them. Using the records above, one can do an Annual Business Performance Analysis, which gives a farmer a "big picture" overview of their farm, according to Bradley J. Hilty, Senior Extension Associate, Penn State University. The first step to doing this performance analysis is to take the five key financial areas, which are profitability, liquidity, solvency, financial efficiency, and capital efficiency, and calculate the ratios for each area (see Table 1). Once these numbers are derived, you can compare the numbers from your calculated ratios to the standard industry benchmarks. If your numbers are lower than the standard benchmarks, you have a problem. This is good progress, but the financial ratios only tell you that you have a problem, not how to fix it. Next, you must consider how these financial benchmarks relate to the five key production areas, which are milk production, days in milk (herd lactation and reproductive status), reproductive performance, udder health, and overall cow management (see Table 2). After calculating numbers from these areas for your farm, you must compare them to the standard industry benchmarks. If your production numbers are outside these benchmarks, you now know which area of the farm that these problems are in. This leads us to the third step of the performance analysis, which is analyzing management areas of the farm. The five key areas to look at are feed, labor, investment, debt, and total cost of production (see Table 3). Calculating the cost of these five areas and comparing them to the industry benchmarks can then tell you exactly where the problem is. The only catch to this method is that it can only tell you what the problem is, not how to completely fix it. This is where you need to work with your consultants (nutritionist, veterinarian, banker etc) to improve management in the problem areas. As you can see, keeping timely and accurate records is part of running a successful dairy farm. If all numbers are kept properly and used to their full potential, a farm can thrive, because no problem will go overlooked and you can pinpoint exactly where that problem is. Remember that by keeping good records and using them, your dairy business can survive the tough times and prosper through the good times.

Table 1: Five Key Financial Benchmarks

Financial Ratio	What it measures	Formula	Goal
Return on Assets	Profitability	(Net Farm Income from Operations + Interest Expense – Family Living Expenses)/ Total Assets	8-10%
Current Ratio	Liquidity	Current Assets/Current Liabilities	1 or higher
Percent Equity	Solvency	Assets-Liabilities/Total Assets	50-60%
Operating Expense Ratio	Financial Efficiency	(Total Expenses – Interest - Depreciation)/Total Income	Less than 70%
Asset Turnover Ratio	Capital Efficiency	Gross Income/Total Assets	0.6

Source: Analyzing Your Dairy Business: A Systematic Approach to Using Benchmarks by Brad Hilty, Peter Tozer, Jeffrey Hyde

Table 2: Five Key Production Benchmarks

Production area	What It Measures	Goal
Production	Milk per Cow per Day	80-85 lbs/cow/day
Herd Lactation and Reproductive Status	Days in Milk	170-185 days
Reproductive Performance	Pregnancy Rate	Greater than 20%
Udder Health	Somatic Cell Count	Less than 200,000
Overall Cow Management	Cull Rate	25-35%

Source: Analyzing Your Dairy Business: A Systematic Approach to Using Benchmarks by Brad Hilty, Peter Tozer, Jeffrey Hyde

Table 3: Management Benchmarks

Management Area	What To Measure	Goal
Feed	Feed Cost per Cwt. Of Milk	<\$6.00
Labor	Milk Sold per Worker (lbs.)	1,000,000
Investment	Investment per Cow	\$6,500-\$7,500
Debt	Debt per Cow	Expanding- \$4,000-\$4,500 Not Expanding- \$2,500
Total Cost of Production (Includes family labor and return to owner/operator labor)	Total Cost per Cwt. Of Milk	\$13.50 (when calculated without including interest expense)

Source: Analyzing Your Dairy Business: A Systematic Approach to Using Benchmarks by Brad Hilty, Peter Tozer, Jeffrey Hyde

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and setting up grazing systems.***