

# Kentucky Dairy Notes

## July 2013



### Judicious Use of Antibiotics-What Does This Mean for a Dairy Producer? Michelle Arnold

The Food and Drug Administration (FDA) is implementing a new strategy to encourage the judicious use in food-producing animals of antibiotics considered important in treating human infections. “Judicious use” is using a drug appropriately and only when necessary. The development of resistance to medically important drugs, and the resulting loss of their effectiveness, poses a serious public health threat. Misuse and overuse of antimicrobial drugs allows resistant bacteria (the hard-to-kill “bad bugs”) to increase in numbers faster than susceptible bacteria (the easy-to-kill bugs) and can transfer through the food chain to humans. This increases the opportunity for people to become infected by resistant (bad bug) bacteria. FDA’s goal is to protect public health, slow the development of resistant drugs, and help to reduce the number of infections in humans that are difficult to treat. A public meeting was held at Western Kentucky University on April 9, 2013 to “provide an opportunity for public dialogue and feedback on challenges faced by the animal agriculture industry and practicing veterinarians” as FDA begins this new initiative regarding antibiotics used in medicated feed or drinking water. In this meeting, FDA’s approach was outlined which includes:

- Issuing a guidance for industry (Guidance #209), entitled “[Judicious Use of Medically Important Antimicrobials in Food Producing Animals](#),” which explains how FDA plans to phase out production uses (growth promotion and feed efficiency) and phase in veterinary oversight of the remaining uses of these drugs. This guidance for industry (GFI) was finalized on April 11, 2012 and can be found at: <http://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM216936.pdf>
- Issuing a [draft guidance](#) (Guidance #213) that will help guide drug companies voluntarily change product labels to remove feed efficiency and growth promotion claims and add instead disease prevention, control, and treatment uses. This guidance document also advises companies on how to change marketing to include veterinary oversight or supervision.
- Providing [draft text for a proposed regulation](#) intended to simplify the process of obtaining a Veterinary Feed Directive (VFD) drug. These are drugs intended for use in or on animal feed which are under the professional supervision of a licensed veterinarian.

Which drugs currently used in food animals are the focus of FDA’s strategy?

The drugs of interest are those:

- Approved prior to October 2003, before Guidance 152, *Evaluating the Safety of Antimicrobial New Animal Drugs with Regard to Their Microbiological Effects on Bacteria of Human Health Concern* was published.
- Used in food-producing animals to increase feed efficiency and promote growth;
- Available over-the-counter (OTC), and therefore, can be given without a veterinarian’s involvement; and
- Given continuously through the feed or water to entire herds or flocks of animals.

A list of antimicrobial drugs FDA considers medically important are listed in Appendix A of [Guidance for Industry #152](#). Products used in the dairy industry affected by this proposal include chlortetracycline (CTC) and neomycin (often used in medicated milk replacer). Interestingly, we have several growth promotion products in the cattle industry that are **not** listed in Appendix A. Bacitracin, bambarmycins (Gainpro®), laidlomycin (Cattlyst®) used in feeder cattle, and ionophores (such as Rumensin®) used in dairy and beef cattle are not affected by this GFI. The complete GFI #152 can be found at this link:

<http://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM052519.pdf>

Why is veterinary oversight necessary? Prior to 1993, most drugs given in feed and water were approved for over-the-counter use. At that time, the methods used by FDA to assess food safety aspects of new animal drug applications were not as rigorous as those used today, in part because less scientific data was available about antimicrobial resistance. However, as time passed and data has accumulated, all antimicrobial new animal drugs approved by the FDA Center for Veterinary Medicine (CVM) since 1993 have been labeled with prescription (Rx) or VFD marketing status (with the exception of a few generic copies of existing drugs). Based on the available scientific evidence, FDA believes that the use of medically important antimicrobial drugs should involve the scientific and clinical training of a licensed veterinarian. Veterinarians are uniquely qualified to determine which specific disease-causing organisms are likely to be present and to determine appropriately timed administration of medication relative to the disease.

Timeline for Implementation? Once the final version of Guidance #213 is finalized, FDA will monitor the progress of its strategy for the voluntary adoption of these changes in order to make an orderly and relatively smooth transition. After 3 years, the agency will then consider further action as needed in accordance with existing provisions of the Food, Drug, and Cosmetic (FD&C) Act for addressing matters related to the safety of approved new animal drugs.

Developing strategies for reducing antimicrobial resistance is critically important for protecting both public and animal health. Collaboration involving the public, the public health, animal health, and animal agriculture communities is needed to assure that the public health is protected while also assuring that such strategies are economically feasible to the producer and that the health needs of animals are addressed. It is critically important to remember the benefits of using antibiotics in food animal production and the adverse effects that would result from their removal. Although the convenience of buying feed grade antimicrobials at a local farm supply will be changed by adoption of these guidelines, it is important that correct and medically sound advice accompany these purchases. Unfortunately, not all employees of stores that sell health supplies (including online pharmacies) are adequately trained to give correct advice and may be unfamiliar with the potential harm if label directions are not carefully followed. FDA recognizes that it is important to work with the veterinary and animal producer communities to ensure that their concerns are taken into consideration as these changes are implemented. FDA is very interested in receiving comments on the practical implications of these changes for animal producers, particularly those with smaller operations in remote locations. The agency is also interested in receiving input on how impacts or disruptions to animal producers could be minimized and the economic effects that may result from the adoption of the practices set out in this Guidance. Submit comments on the Veterinary Oversight of Antimicrobial Use in Livestock: Impact on Stakeholders by August 5, 2013 at: <http://www.regulations.gov/#!submitComment;D=FDA-2012-N-1046-0001>. Submit written comments to the Division of Dockets Management (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852. You should identify all comments with the docket number (Document ID FDA-2012-N1046-0001).

Additional copies of the guidance document (GFI #213) may be requested from the Communications Staff (HFV-12), Center for Veterinary Medicine, Food and Drug Administration, 7519 Standish Place, Rockville, MD 20855, and may be viewed on the Internet at either <http://www.fda.gov/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/default.htm> or <http://www.regulations.gov>.

## **Product Considerations for On-Farm Dairy Processing**

### **Jeffrey Bewley, Brianna Goodnow, and Elizabeth Chaney**

In the last two months, we discussed major considerations for starting an on-farm processing enterprise and marketing. This month, we will discuss production considerations.

#### **How do I learn how to create my own product?**

With proper facilities and education, value-added dairy products can be produced on-farm. Many individuals attend manufacturing classes to learn the necessary skills to do so. Classes cover all aspects of the production and marketing process. They do require time and money to participate. An up-to-date list of many of these courses is available at <http://www.smalldairy.com/>.

#### **Which product should I produce?**

Deciding what dairy product to manufacture is an important step to starting an on-farm dairy processing enterprise. Many different products can be considered. Criteria used to evaluate product choices include individual interests, available resources, product research, local competition, product demand, and other barriers. Selling a quality, marketable product is essential. Potential products, along with some advantages and disadvantages, are listed below.

#### **Cheeses**

Advantages:

- Product is less perishable, making supply and demand imbalances less of an issue than with products with shorter self-life.
- Easy interaction with consumers.
- Ability to catch any imperfections and control quality.
- By-product whey can be used as animal feed.

Disadvantages:

- Time required for some aged cheeses.
- Art required to produce a good cheese is difficult to master. It may take years to produce a truly quality product.

**Milk**

Advantages:

- More personal connection with consumers.
- Price maker rather than price taker.
- Receive payment from cream and skim milk.
- High-demand product.

Disadvantages:

- High start-up costs (\$500,000+).
- Heavy demands on labor, time, and variable costs.
- Quality control is essential.
- Can be difficult to differentiate from commodity milk.

**Ice Cream**

Advantages:

- Can be very profitable.
- Can offset losses on a dairy enterprise at different times of the year.
- Less start-up capital and less equipment are needed to start making ice cream, particularly when using a purchased mix.

Disadvantages:

- Somewhat seasonal product.
- High input costs.
- More challenges with distribution.
- Product differentiation.

**Who will get all the work done?**

Human resources management is another important aspect of managing an on-farm processing business. When a customer walks into a business, one of the first things they notice is the employees and the way they welcome customers.

Many farmers forget an important fact; they cannot do everything by themselves. Paid labor is inevitable in order to ensure that all work is completed. Employees are the most important assets of a business. Each employee's strengths and weaknesses should be considered. Each employee must know and understand the story of the farm and the product, and be able to effectively communicate that story to customers.

Like all jobs, employees should be compensated for their work, and this is no different for farm-related work. Most farmers are used to working for nothing and having their family doing the same. In a business, a farmer or owner should always pay themselves for their labor. This helps to keep the amount of labor actually put into the business in perspective.

On-farm processing of dairy products can be an exciting and rewarding adventure. However, entering this business should not be taken lightly. To properly and effectively produce different products, one must first decide the best-suited product for their business.

**The Potential Benefits of Accelerated Feeding Programs for Dairy Calves  
Emily Morabito, Barbara Wadsworth, and Donna Amaral-Phillips**

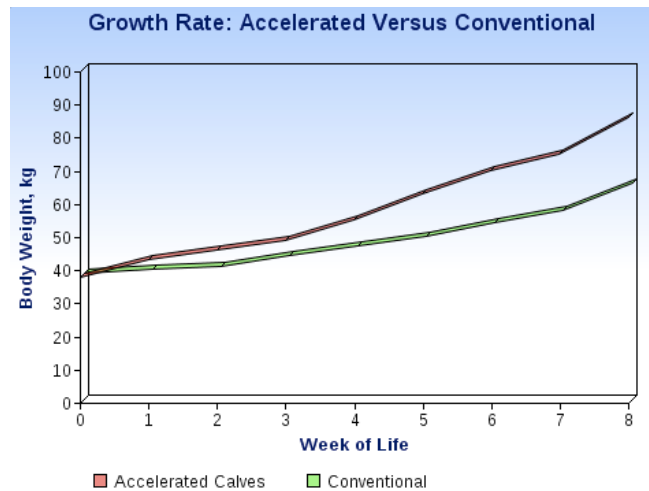
The way dairy replacement heifers are raised has a major impact on their future milk production and health. As far as nutrition is concerned, many farms choose to feed their calves waste milk from the parlor, milk from the bulk tank, or they will use a traditional 20-20-milk replacer. The first number refers to the percentage of protein, and

the second is the percent of fat. In addition, calves are offered water, along with calf starter. Accelerated feeding programs, also known as intensified programs, may be a better option. A milk replacer with higher protein content, usually 26-20, is fed to calves. When compared to traditional systems, accelerated calf feeding programs yield many more benefits under the right conditions.

Even though accelerated programs are very beneficial, they are not for everyone. In order for a farm to have a successful program, they must put in the time, money, effort, and dedication. General calf care must be properly implemented. Heifers should have protection from the elements, a constant source of clean water, and they must be in good health. If a farm has a strong replacement heifer program, accelerated feeding may be more applicable. Calves on this program must be closely monitored, replacer must be properly prepared, and body weights should be taken to monitor progress. Other than more intensive labor, the costs of switching to accelerated programs usually turns farmers away. It has been determined that feed costs increase roughly \$50.00 to \$80.00 per calf. What many farmers don't realize is that if done properly, the high costs of accelerated programs will benefit them in the future. Research studies comparing conventional versus accelerated growth programs show that accelerated calves produce 800 to 2000 lbs more milk in their first lactation.

To start off, heifers that are fed using these accelerated programs have a better growth rate. With an increase of protein in the diet, there is an increase of lean tissue development. The higher protein content is necessary in meeting the nutritional needs of the growing animal. This is what makes the calves grow at a more rapid rate. Accelerated calves also tend to have a better immune system, and they seem to be healthier than traditionally fed calves. Figure 1, below, shows the comparison of growth between conventional and accelerated feeding:

Figure 1:



J.K. Drackley, "Does Early Growth Affect Subsequent Health and Performance of Heifers?" University of Illinois, 2011

Though the immediate growth results are clear, accelerated feeding programs really excel in long-term benefits. Due to the faster growth rates, accelerated heifers reach their breeding weight 20 to 30 days before traditionally fed heifers. In other words, these heifers will be having calves earlier, producing more milk in their lifetime as well as during their first lactation. It has also been found that there can be a decrease in the number of heifers on the dairy farm. Calculations show that this can increase profit per cow by at least \$60.00. Another major benefit from this program is an increase of milk production per lactation. This has also proven to increase profit from each cow.

There are also downsides to accelerated feeding programs. Cost is obviously the biggest issue. Even if a farmer can benefit in the future, costs to raise accelerated calves increase, and it may not be easy for the farmer to make the transition. It is important to understand that calves will be consuming a considerable amount of milk, and the amount of calf starter intake will be significantly less. In other words, more money will be spent on milk replacer. Also, a calf starter with a slightly higher protein content is recommended. This will most likely be more expensive than traditional calf starter.

Another disadvantage regards the digestive health of the calf. When a calf is on an accelerated feeding program, they will sometimes appear unhealthy and will have an abnormal manure consistency. Due to a more liquid based diet, calf feces may appear to be loose. This is normal. It is incredibly important to have a knowledgeable staff

that realizes that this change is expected. It is possible that calves will become ill, but this is usually due to lack of available water, clean bedding, and overall management.

Many of the disadvantages can be avoided if proper management is implemented. As mentioned earlier, to make this program successful the milk replacer must have higher protein content. Traditional milk replacers usually only contain about 20% protein, while accelerated replacers have 26-28% protein. Feeding more of a conventional milk replacer will not provide the proper amount of protein and energy to the calf. It is also important to make sure the fat content is not too high, or the calves won't efficiently gain lean body tissue or muscle. Fat content may be increased during cold months. Generally, the fat content should not exceed 20%.

The diet should also be more concentrated. Traditional milk replacers usually have less than 14% solids, and accelerated calves should be fed about 16 to 20% solids. The mixing of this replacer is very important, and trained staff should do this job very carefully. It is also important to keep the amount of solids in this mixture consistent. Increasing the dry matter in the replacer will negatively effect rumen development. In the beginning, calves should be fed about 2 quarts of this replacer per feeding. More replacer can be introduced at a fairly slow rate, and it may be beneficial to feed calves three times per day. This introductory period should last about a week, and can eventually be increased. By two weeks of age, the calf should be consuming 3-4 quarts each feeding. Water should be available at all times, and calf starter with higher protein content should be available. Though calves may not consume as much starter as traditionally raised calves, the intake of the starter is necessary in stimulating rumen development.

Weaning is probably the most crucial part of this program. If not weaned properly, problems can occur with rumen development and post weaning growth. Again, because the heifer is consuming a high amount of protein and solids in the replacer, feed intake of calf starter is dramatically decreased. Because of this decrease, the rumen of accelerated dairy calves is not as developed as it should be when it is time to wean. This is what makes this process crucial at this stage.

One of the more common weaning protocols is reducing the number of feedings per day for at least one week. This is sometimes referred to as stepping down. By reducing the number of feedings per day, the dairy heifer will be encouraged to consume more starter. For example, if a farmer is feeding his heifer a 26:20 replacer two times a day, he should reduce this to once a day a week before weaning. After a week, the dairy calf should be consuming an adequate amount of grain for rumen development. This protocol should help prevent a decrease of growth, and other digestive issues.

Accelerated feeding programs are not for every farmer and should not be attempted if the farm does not have a strong replacement heifer program. Farmers considering this method must understand the costs pay themselves off over time with proper management. Again, with a proper accelerated program, farmers will be able to maintain a healthy group of heifers, breed heifers earlier, obtain more milk from each lactation, and potentially increase their overall profit.

### **Kentuckiana Dairy Exchange July 30 & 31, 2013**

Please RSVP with completed registration form and \$50 registration fee (per person) by July 19, 2013 (first-come, first-served). Registration fee will hold your spot for the tour. Make Checks Payable to: Kentucky PDCA  
Return to: Kentuckiana Dairy Exchange, c/o Larissa Tucker, 403 W.P. Garrigus Building, Lexington, KY 40546-0215  
Phone: 859-257-5986 Fax: 859-257-7537 Email: Larissa.Tucker@uky.edu  
Registration fee will cover bus transportation to Indiana Dairies, as well as dinner on July 30 and lunch on July 31.  
Lodging: Meeting participants are responsible for their own room reservations and room sharing. Blocks of rooms are re-served at: Best Western Plus in LaPorte (219-362-4585) under "Kentuckiana Dairy Exchange" at a rate of \$89 per night.

### **UK Dairy Research Showcase**

Thank you to those of you who were able to attend our first UK Dairy Research Showcase on Wednesday. Our students appreciated the opportunity for feedback on their work. If you are interested in downloading a copy of the proceedings, you can do so [here](https://www.dropbox.com/s/7po9djogz6je09e/2013UKDairyShowcaseProceedings.pdf)  
<https://www.dropbox.com/s/7po9djogz6je09e/2013UKDairyShowcaseProceedings.pdf>. You may also download a copy of the recorded presentations [here](#).



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**For More Information**

Like our new UK Dairy Program Facebook page for  
updates on our program:

<https://www.facebook.com/UKDairyScience>



**July 1-3**

KYFarm Start Virginia Dairy Farm Tour

**July 16**

KDDC Tri-County Family Dairy Meeting  
Trenton Farm Supply - 2470 Cemetery Rd. Trenton, Ky

**July 30-31**

Kentuckiana Dairy Exchange Trip

**August 15-18**

Kentucky State Fair Dairy Shows

**August 28 & 29**

2013 Kentucky Milk Quality Conference  
Lake Barkley State Resort Park