Western Dairy News
for the West, about the West, from the West

Dairy beef quality and animal well being

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We all know this: most dairy cows enter the human food chain as beef once their productive lives as milk-producing animals have ended. Cull cows can potentially represent a significant source of income for dairy producers and also provide good quality beef for human consumption.

Income derived from cull cows and dairy beef quality will depend greatly on herd health protocols and worker training programs implemented by the dairy management team. When low performing or ill dairy animals are identified promptly and managed appropriately, dairy producers will not only be able to raise the quality of beef from dairy origin, but also improve the dairy's bottom line, dairy animal well being, and public perception of the dairy industry.

Dairy beef quality: is there a problem?

Historically, dairy cows have had a higher percentage of carcasses with violative drug residues than beef cattle. In 2008, dairy cows were responsible for 90 percent of cattle carcasses with violative residues according to National Agriculture Statistics Service data. The Food Safety and Inspection Service (FSIS) of the USDA publishes Residue Repeat Violator lists. These lists are intended to assist Inspection Program Personnel, establishments and livestock markets in identifying producers with more than one residue violation from animals harvested in the last 12 months identified at USDA inspected processing plants. The most current lists are public information and can be accessed at http://www.fsis.usda.gov/Science/Chemistry/index.asp.

In 2010 there were a total of 744 residue violations attributed to dairy cows listed on the FSIS web site. The most prevalent drugs in tissues with violative residues in the 2010 report were penicillin, sulfonamides, flunixin, desfuroylceftiofur, tetracyclines and gentamicin. It is worth mentioning that some of the drugs listed have been prohibited for extra label use in lactating dairy cows (sulfonamides) or have been voluntarily banned by veterinary medical associations in the United States (gentamicin). This is a matter of great concern and speaks of the potential gaps in communication, training and collaboration between veterinarians, dairy management and dairy labor.

drug	number of violations in dairy cows during 2010
Penicillin	201
Sulfonamides	172
Flunixin	152
Desfuroylceftiofur	56
Tetracyclines	56
Gentamicin	46

Why are more violations being seen?

It is important to understand that testing at federally inspected slaughter plants is not random, but targeted. First of all, there is increased testing of dairy cows. When a relatively high number of carcasses from a specific class of slaughtered animals is positive for violative drug residues, that class of animals will be tested more frequently than other classes of slaughtered animals. Because of this, dairy animals are targeted for residue testing in slaughter plants.

Secondly, animals with visible carcass defects such as injection site lesions or certain pathologies such as mastitis, metritis, peritonitis and pneumonia, and animals with visible signs of surgery are more likely to be tested for violative residues.

According to the *2007 National Market Cow and Bull Beef Quality Audit*, 11 percent of carcasses of dairy origin had visible injection site lesions. The relatively common injection site lesions and signs of recent surgery or ongoing disease make dairy animals a target for residue testing at the slaughter plant. Although more sensitive screening tests for drug residues are available today, we must understand that this constitutes a very minor reason for the increased number of samples positive for violative residues.

What are some potential causes for violative residues and what can the dairy management team do to prevent them in slaughtered dairy cows?

Cause #1: Not following label instructions for dosage, route of administration, or recommended withdrawal times.

What can be done? Approved drugs for use in food producing animals are very specific in the dosage, route of administration and length of time needed to decrease drug residues in milk and meat to allowed levels. If the person in charge of drug administration deviates from label instructions, the dairy runs the risk of producing milk or meat that is positive for violative drug residues. For example, flunixin is only labeled for intravenous administration. Many instances of violative residues in dairy beef have been attributed to intramuscular injection of this drug.

There are drug classes that are simply prohibited for extra label use in lactating dairy cows. It is essential to work with the veterinarian and have a valid veterinary-client-patient relationship (VCPR) to avoid violative residues stemming from extra label use of drugs. All employees should be

instructed on how to correctly follow label instructions and understand the potential consequences of altering approved protocols for treatment of dairy cow diseases. If drugs are used in an extra label manner, withdrawal times for meat and milk should be revised and extended as needed. The herd veterinarian should work with dairy management and labor and provide sound advice in regard to extra label use of drugs and milk and their impact on meat safety.

Cause #2: Inadequate record keeping.

What can be done? Complete and accurate record keeping are essential elements of a herd health program and are critical in avoidance of violative residues. What drug was administered, the dose given, the route of administration, the number of doses given, and the dates of treatments are extremely important pieces of information when determining the earliest date on which a cow can be sold for slaughter and human consumption. Moreover, complete and accurate records, including the name of the individual administering the drug and written protocols for the treatment of common illnesses, will be required in the case of an investigation resulting from violative residues in carcasses.

Make sure all employees in charge of sick animal care are familiar and proficient with the record system used on the dairy. A user-friendly record system that is easily accessible to workers is ideal. Record keeping should be part of the daily routine. Treatments should be recorded daily and using consistent language. For example, everyone on the dairy should use the same code for a pneumonia case or a treatment of penicillin that is given in the muscle.

Cause #3: Poor communication among dairy personnel and inadequate training of those administering drugs or making decisions regarding cow treatment and culling.

What can be done? Failing to have and implement protocols for treatment of sick animals and animal culling puts a dairy operation at risk of sending animals to slaughter with violative residue levels in edible tissues. It is not only important to have protocols in place, but also to train every employee on the dairy on the importance of following them. Many times the people who design a protocol or understand the reasons for withhold times for slaughter are not the ones making the decisions to ship cows to the sale barn. Training and communication are vital if we are to ensure that only animals free of violative residues and producing wholesome beef are sold for slaughter.

All dairy personnel should be trained how to identify sick animals, how to follow label instructions, and how to properly record treatments. All employees should also understand who to consult when trying to decide on the best treatment option for a sick animal and who to ask when they have a question about withholding times or whether a cow is a good candidate for culling.

Beef quality and animal well being are related

By establishing protocols that appropriately address the early identification and management of poor performing and sick animals, we can improve animal well being as well as the quality and safety of dairy beef. Health protocols on a dairy operation should focus on early detection of animals that are at risk of leaving the herd due to poor milk production, reproductive performance, multiple disease events, or serious illness. When these animals are detected early, their chances of recovery improve and the negative effects of the disease or poor performance on animal well being and costs to the operation decrease. Early detection, combined with appropriate protocols for management of animals at risk of leaving the herd, will allow dairy personnel to make sound decisions about whether to treat or cull the animal.

Health management protocols should also include the monitoring of body condition scores of dairy cows. According to the *2007 National Market Cow and Bull Beef Quality Audit*, 22 percent of cull cows had a body condition score of less than 2. Only animals that are healthy and strong enough should be sold for slaughter. Animals that are too thin due to chronic disease are at greater risk of getting hurt or becoming downers during transportation. Early detection of these animals will minimize issues with down cows and will result in increased profits when culled animals have higher body condition scores.

Beef quality assurance (BQA) guidelines should be incorporated into health management protocols because they not only improve dairy beef quality, but also increase animal well being. As mentioned previously, abscesses and injection site lesions are a relatively frequent finding in culled dairy cows. These lesions not only affect meat quality but also create discomfort and could indicate less than ideal injection protocols and hygiene.

According to the 2007 USDA-NAHMS dairy survey, dairy producers administered an average of 13.8 injections per cow over a 12-month period. Of these, 68.7 percent were given intramuscularly, compared to 23.9 percent subcutaneously and 7.4 percent intravenously. According to the survey, 45.3 percent of injections were given in the hind leg and 12.4 percent in the upper hip. These two injection sites lead to lesions in more valuable cuts of meat. Training opportunities for dairy workers administering medications should focus on preferred sites, routes for injections and hygiene as well as needle and syringe selection.

Training resources

Universities around the country as well as private companies have a variety of resources for producers to utilize as part of their training program and to help them develop sound protocols to ensure animal well being and the production of high quality milk and beef products. Many of these resources are available free of cost on the internet and range from charts demonstrating how to assess the degree of lameness and body condition scores, to flowcharts and video programs explaining important considerations when deciding the best management options for ill or low producing animals.

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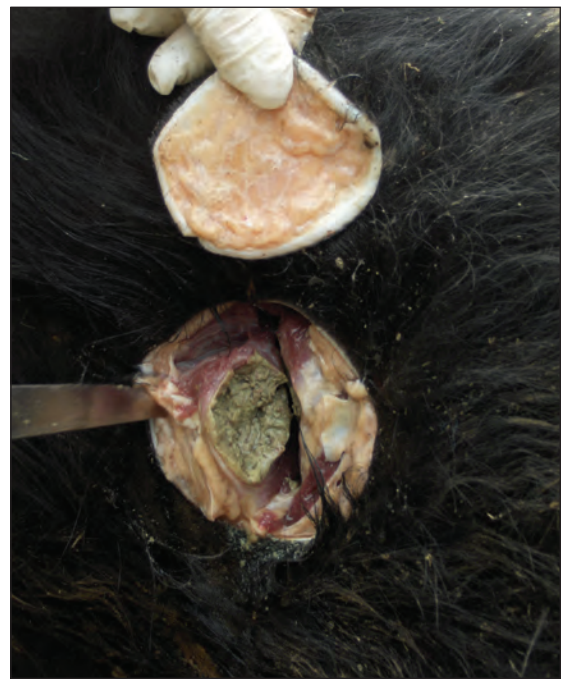

above and below: Examples of injection site lesions.

Dairy producers can also work to ensure wholesomeness of beef from dairy origin through participation in the dairy beef quality assurance (DBQA) program. Through DBQA, producers recognize that every time they cull an animal from the dairy herd they make the same commitment to food safety and quality that they make when they market their milk. Information valuable for your operation can be found at the DBQA site online at www.bqa.org/dairybqa.aspx. Producers may also access the National Animal Care and Quality Assurance Manual (www.bqa.org/CMDocs/bqa/DairyBQAManual.pdf) as a resource for worker training. Additionally, there is a link to become Dairy BQA certified (www.animalcaretraining.org) where producers register for web-based audiovisual training modules in English and Spanish that feature topics such as animal husbandry, animal welfare, environmental stewardship and food safety practices. Specific to dairy, there are comprehensive training materials regarding non-ambulatory cattle management, animal health, and the 36-module dairy animal care and quality assurance training that you will find an important learning tool for all workers.

Establishing and following protocols that ensure early detection and sound management of animals at risk of leaving the herd doesn't only improve the well being and beef quality of those animals, but also makes economic sense and improves consumer trust in dairy and beef products. Dairy operations should not only strive to produce high quality milk, but also safe and high quality beef. When better quality cows leave the farm, the market place, producers, packers and consumers all benefit. Incorporating DBQA into dairy health management protocols helps the quality-conscious dairy producer meet the expectations of the quality-conscious consumer while also increasing dairy profitability.