Dairy beef quality and animal well being

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W e all know this: most dairy cows enter the human food chain as beef once their productive lives 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](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, desfuroylecftiofur, 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.

<table>
<thead>
<tr>
<th>drug</th>
<th>number of violations in dairy cows during 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin</td>
<td>201</td>
</tr>
<tr>
<td>Sulfonamides</td>
<td>172</td>
</tr>
<tr>
<td>Flunixin</td>
<td>152</td>
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<tr>
<td>Desfuroylceftiofur</td>
<td>56</td>
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<tr>
<td>Tetracyclines</td>
<td>56</td>
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<tr>
<td>Gentamicin</td>
<td>46</td>
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</tbody>
</table>

**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 instruc-
tions 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 man-
agement 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 re-
cord keeping are essential elements of a herd
health program and are critical in avoidance of vi-
olative residues. What drug was administered,
dosing, gavage, the route of administration, the num-
ber 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, includ-
ing the name of the individual administering the
drug and written protocols for the treatment of
cow diseases. If drugs are used in an extra
label manner, withdrawal times for meat and milk,
and the number of treatments administered should
be recorded daily and using consistent language.
For example, every-

Cause #3: Poor communication among dairy
personnel and inadequate training of those ad-
mnistering the drugs to the animals.
What can be done? Failing to have and imple-
ment protocols for treatment of sick animals and
animal culling puts a dairy operation at risk of
seriously affecting the potential profitability of
the herd. All dairy personnel should be trained how to
determine when to treat 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.

Bee 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 im-
prove 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 ani-
mals that are at risk of leaving the herd due to
disease or poor performance on animal well
being and culling the herd. Early
detection, combined with appropriate protocols
for management of animals at risk of leaving the
herd, will allow dairy personnel to make sound de-
cisions about whether to treat or cull the animal.
Health management protocols should also in-
clude the monitoring of body condition scores of
dairy cows. According to the 2007 National Mar-
ket 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 re-
result in increased profits when culled animals have
higher body condition scores.

Bee 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 ide-
al 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 intramuscu-
larly, 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 pri-
ivate companies have a variety of resources for
producers to utilize as part of their training pro-
gram 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 in-
ternet and range from charts demonstrating how
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Establishing and following protocols that en-
sure 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 im-
proves 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-con-
scious dairy producer meet the expectations of the
quality-conscious consumer while also increasing
dairy profitability.

Dairy producers can also work to ensure whole-
someness of beef from dairy origin through par-
ticipation in the dairy beef quality assurance
(DBQA) program. Through DBQA, producers rec-
ognize 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/CMDoes/bqa/
DairyBQAManual.pdf) as a resource for worker
training. Additionally, there is a link to become
Dairy BQA certified (www.animalcaretraining.
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divisual training modules in English and Span-
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