K-STATE Kansas State University Research and Extension

Beef Tips

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Upcoming Events

Winter Ranch Management Seminar
Jan. 11, 2011
4:00 P.M. - 8:00 P.M.
Ashland, KS
El Dorado, KS
Phillipsburg, KS
Manhattan, KS
www.KSUBeef.org

Tri-State Cow/Calf Symposium
Jan. 12, 2011
St. Francis, KS
785-332-3171
www.KSUBeef.org

Four-State Beef Program
Jan. 11-12, 2011
Holton, KS
785-364-4125
www.KSUBeef.org

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New Importation Regulations for Trichomoniasis in Kansas

Larry C. Hollis, D.V.M, M.Ag, extension beef veterinarian

Trichomoniasis (infection caused by *Tritrichomonas foetus*), commonly known as Trich, has been added to the list of officially reportable diseases in Kansas. This means ranchers, managers or veterinarians who discover the existence of Trich, must report it immediately. Bulls coming into Kansas are required to be tested for Trich prior to importation.

Historically, Trich has been a major problem primarily in western states with Federal Bureau of Land Management (BLM) communal grazing lands. However, this disease has been diagnosed with increasing frequency in many private beef cattle operations in Kansas during recent times. Both increased testing and improved diagnostic methods have suggested that this disease has a significant presence in Kansas.

Trich infection routinely causes female reproductive/infertility problems which clinically appear as repeat breeding and poor pregnancy results. Pregnancy rates may be decreased as much as 50 percent or more when Trich enters the herd. Many older cows will clear the infection within 3 months and then go on to conceive if the breeding season is long enough. However, calving may be spread out over a longer period of time resulting in wider than expected range in calf sizes. Heifers will rarely rebreed if a short breeding season is used. Herd owners may notice that cows previously observed being bred may be seen taking the bull again later, and that bulls are still working hard late in the breeding season. Open cows or cases of pyometra (pus-filled uterus) detected at preg check time may be a result of Trich infection.

Trich is sexually-transmitted, with bulls being persistent carriers. Infected bulls show no signs of disease. They remain infected for life. Mature bulls are typically more of a problem than younger bulls due to increased preputial wrinkling which provides a better environment for growth of the organism. There is no treatment that will clear up infected bulls. Because bulls are the primary carrier of the disease, the focus of all testing programs is to detect and remove infected bulls.

Infected bulls and open cows should be sold only for slaughter. Open heifers should be sold only as feeders. Management practices that will help ensure that you do not bring this disease into your herd include buying young virgin bulls, virgin replacement heifers, “experienced” bulls that test negative, cows with calf at side that have not been re-exposed to a bull, or cows that are known to be at least 120 days pregnant.

All western states and states neighboring Kansas have in place or are in the process of developing regulations to (1) stop the importation of bulls that might be infected with this disease into the state, and (2) stop the movement of bulls carrying this disease between herds within the respective states. Their laws require all non-virgin bulls be tested and certified negative for Trich before being imported into or sold within the state.

*continued…see **Trich** on page 4*

"You can't manage what you don't measure."

Tally Time – Business planning and management

Sandy Johnson, livestock specialist

Business planning and management are important tasks in the cow/calf enterprise yet are often not very high on producers "to do" list. A survey of Oklahoma producers provides insight into producer planning, recordkeeping and general management practices. A summary of responses to the business management questions are shown in Table 1.

A long-term business plan (five years or more) was in existence for 57 percent of all producers, of which 73 percent had plans in writing. A higher proportion of larger producers had a long-term business plan (65 percent) than smaller producers (38 percent).

Several levels of record keeping were indicated in the survey. Approximately equal proportions kept receipts and invoices in a box (35 percent) as used a computer record keeping system (36 percent). Computerized systems were used by 45 percent of producers with 100 or more breeding females and more than 40 percent of household income from the beef enterprise.

Cash flow statements and enterprise budgets are useful when working with lenders, however only 35 percent and 31 percent, respectively reported using these tools. Larger producers were more likely to use these tools, particularly cash flow statements.

Enterprise budgets developed by K-State Research and Extension are available at the KSU AgManager.info website at http://www.agmanager.info/livestock/budgets/projected/default.asp . The 2009 budgets are online now, but versions updated in December 2010 should be available in early January. The spreadsheet format allows users to easily input their own costs to obtain more accurate numbers for their own operations. For help developing a cash flow statement, see http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1782/AGEC-751web2010.pdf.

The shorter daylight hours of winter months may help cow/calf producers find more opportunities to work "on the business" rather than working "in the business". Rising input costs are not likely to go away, increasing the need for beef producers to sharpen their business skills.

More detailed information on this survey of Oklahoma producers can be found in two publications at: http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-4570/AGEC-245web.pdf and http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-4572/AGEC-246web.pdf.

Table 1. Responses to business planning and management questions by Oklahoma producers.

		Producer Group[a] (% of total)	
Item	All	Larger	Smaller
Producers with a long term (5 yr or more) business plan[b]	57	65	38
Some type of computer recordkeeping system[b]	36	65	32
Prepare an annual income statement[b]	53	45	53
Prepare an annual balance sheet[b]	42	58	40
Prepare an annual cash flow statement[b]	35	47	34
Prepare an annual enterprise budget[b]	31	53	31
Maintains records on sire and dam of offspring (nearly always)[b]	50	34	50
Maintains birthdates of offspring (nearly always)	59	48	59
Maintains weights of offspring (nearly always)	29	28	24
Maintains records on vaccinations (nearly always)	51	55	48
Maintains records on medical treatments (nearly always)	45	36	44

[a]Larger = 100 or more breeding females and 40% or more of household income from the beef enterprise; Smaller = Fewer than 100 breeding females and less than 40% of household income from the beef enterprise.
[b]Statistically significant difference between larger and smaller groups

Genomic Testing Provides Opportunity for Previously Untested Animals

Dan Moser, beef cattle genetics

For today's beef seedstock producer, genomic testing is viewed as both a great opportunity, and a significant expense that may be hard to justify. As this technology advances, several circumstances will dictate whether such testing is a profitable investment.

Molecular genetics of beef cattle have been studied since the rudimentary tools of genomics research were developed in the 1980's. Originally, the expected application of that research was true "marker-assisted selection", where a number of progeny of each sire were evaluated phenotypically, and associations with DNA markers were noted. Those associations could then be used to select future progeny of that sire. While that approach was adopted in agronomy, as well as in poultry, swine and dairy breeding, it was not adopted by the beef industry. Such techniques were not easily utilized by small, independent operations.

In 2000, an Australian company announced the commercialization of GeneSTAR marbling, the first beef DNA test for a quantitative trait. Compared with traditional marker-assisted selection, this tool was easy to use and the results were easy to understand. GeneSTAR testing appeared similar to testing for qualitative traits like color and horned/polled. Additional marbling markers were added to the GeneSTAR panel, as well as tenderness markers.

A few years later, Merial entered the beef and dairy genomics business, creating a subsidiary called Igenity. While Igenity's original product, a leptin marker called Igenity-L was not successful, the company acquired the intellectual property and staff of Frontier Beef Systems, and soon developed a profile that included a number of production and carcass traits. Shortly thereafter, Pfizer acquired the Australian and American companies that developed and marketed GeneSTAR, creating Pfizer Animal Genetics. Pfizer developed MVPs® (Molecular Value Predictions) for marbling, tenderness and

*continued…See **Genomic Testing** on page* 5

2010 Fence Material and Construction Cost Survey in Kansas

Jen Schlegel and Leah J. Tsoodle, Department of Agriculture Economics

The Land Use Value Project in the Department of Agricultural Economics at Kansas State University conducted a Fence Construction and Material Cost Survey in 2010. Respondents were businesses involved in building and/or selling fence supplies. The survey was conducted through phone interviews. Forty-seven fence builders/ material suppliers throughout Kansas were contacted. Because pasture land is distributed throughout the entire state, the supplier contact list was constructed so that responses should be evenly distributed across Kansas. Data were collected for costs of barbed wire, different types of posts, and labor for constructing fences. Similar fence cost surveys were conducted in 2006, 2002, and 1998. All surveys collected data for the calendar year prior to the year in which they were conducted. The data are referred to according to the year of the survey. The data, highlighted in Table 1 below, were summarized from the survey results to increase the information available on fence construction costs. The complete report can be found online at: http://www.agmanager.info/farmmgt/land/land_buy/FenceSurvey_2010.pdf .

Table 1. Average Fence Costs

Item	2006	2010	Percent Change
Hedge/Corner Postss	$20.67	$25.92	25.4
Steel Post (5.5 ft, 1.25 lb/ft)	$3.20	$3.92	22.5
Steel Post (5.5 ft, 1.33 lb/ft)	$3.73	$4.56	22.3
Treated Wood Posts (4 in x 8 ft)	$8.26	$9.21	11.5
Barb Wire (2 point barb, 12.5 Gauge- 80 Rods/Roll)	$47.21	$64.23	36.1
Labor Fence Building/Rod	$12.70	$17.85	40.6
Labor Hedge/Corner Posts	$30.75	$57.17	85.9

"There is no treatment that will clear up Trich infected bulls."

Trich in Kansas—*continued from page 1...*

Testing for the presence of the trich organism involves sampling non-virgin bulls or bulls of unknown sexual activity status. Preputial scrapings inoculated into special transport/growth media pouches are required. Your veterinarian should be able to obtain these pouches and do the proper sample collection and submission for you.

Trichomoniasis test results from Kansas cattle must be reported to the Kansas Animal Health Department within 48 hours of obtaining results. This applies to tests conducted by an accredited lab in Kansas or reported to an accredited Kansas veterinarian.

To be certified as negative, samples from a test-eligible animal must have been:

1) Collected into and transported to the lab using the In Pouch™ TF test kit system;
2) Submitted to an AAVLD-accredited laboratory for testing;
3a) Found negative on 3 successive InPouch™ microscopic examination tests on test samples collected at least 1 week apart .

or

3b) Found negative on 1 polymerase chain reaction (PCR) test on samples collected only after the bull has been sexually rested for a minimum of 2 weeks before sample collection.

Kansas Importation Regulations

Bulls entering Kansas from another state must be:

1) Shipped or sold directly to a Kansas licensed slaughter facility.

or

2a) Individually identified with an officially-recognized device or method.

and

2b) Accompanied by a certificate of veterinary inspection completed within 30 days prior to entering the state. The certifying veterinarian must attest to any knowledge of the existence of Trichomoniasis in the herd of origin within the previous 2 years.

and

2c) Accompanied by either:

- For virgin bulls eighteen (18) months of age or younger:
  - i) a breeder's certificate (statement that bulls have not been exposed to breeding aged females),
  - ii) breeder's signature
  - iii) animal's age in months
  - iv) individual identification

  or

- For non-virgin bulls, bulls nineteen (19) months of age or older, and those of unknown status:

  A copy of the animal's certified negative test results from an AAVLD-accredited laboratory, to include:
  - i) animal's officially-recognized individual identification
  - ii) owner's name and address
  - iii) name and address of veterinarian who collected and submitted the test samples
  - iv) number and type of test conducted (3 InPouch™ microscopic exams or 1 PCR test)

Note: The owner shall ensure that no female contact occurs following the first qualifying test.

Exceptions to these requirements will be granted only to bulls being shipped directly to slaughter, a sanctioned rodeo event, or a livestock show where they will be shown and then returned to the state of origin without being sexually exposed to breeding-aged females.

Following input from and discussion by stakeholders of the Kansas beef industry, it is anticipated that regulations to control the spread of Trich within the borders of Kansas will be developed. Watch for details in a future issue of Beef Tips.

Genomic Testing—*continued from page 3...*

feed intake. Both companies profited from genetic testing for recessive defects, adding revenue and building relationships with clients.

Until 2009, the greatest limitation of genomic testing was that test results were not incorporated into national cattle evaluation programs. As such, bulls were marketed with EPDs, DNA test results, or both, with no clear direction as to optimum use of information. However, in 2009, in response to breeder requests and suggestions from academia, the American Angus Association incorporated Igenity Profile results into their carcass trait evaluations and indexes. In late 2010, they announced their plans to add production traits to the genomic evaluation and to utilize test results from Pfizer, as well as Igenity.

The rate of discovery in beef genomics has greatly increased due to new tools that have recently been developed. High density chips that test for 10,000 to 50,000 SNPs (Single Nucleotide Polymorphisms) became available in 2008. Pfizer currently offers a 50K test for marbling, tenderness and feed intake for Angus cattle. Even larger chips (800K) are in development and it is conceivable that within a decade, important sires will have complete DNA sequence information available.

For a seedstock producer who is considering genomic testing, two key questions are, what can I learn from DNA testing, and how much will it cost? Cost currently ranges from $28 to $160 depending on the sophistication of the test. The amount of information learned can be evaluated by the genetic correlation between the test result and the target trait. MacNeil and co-workers (2010) reported a genetic correlation between molecular breeding value predictions and carcass marbling of 0.38, compared to a correlation of 0.56 between ultrasound intramuscular fat and carcass marbling. Despite the lower genetic correlation, the authors expected greater genetic gain from selection on molecular breeding values than on ultrasound, because molecular breeding values are fully heritable. While both approaches (DNA testing and ultrasound) provided some benefit, a very limited amount of progeny carcass data would be more informative than either molecular breeding values or ultrasound. Recent results from the University of New England Animal Genetics Breeding Unit (AGBU, 2010) show genetic correlations between Pfizer's 50K MVPs and target traits in Australian Angus between 0.20 and 0.45.

The greatest opportunity for genomic selection lies in testing young, unproven animals, especially for traits that are difficult or expensive to measure or can only be measured late in life . For Angus producers, it seems logical to use tests that can be incorporated into the Angus genetic evaluation programs. Other breeds will add DNA test results to their EPDs in time, but breed specific models for DNA tests will likely be needed. In the future, a variety of different sized panels may be available, with the simplest and least expensive utilized in smaller breeds or for sorting feeder cattle and more sophisticated panels used to screen potential AI sires.

Seedstock producers may be able to add value to their bulls by genomic testing. For traits like calving ease and maternal traits, reducing the risk of problems may be worth a significant amount to their bull customers. Greater genetic improvement of the cow herd may be accomplished by testing prospective replacement heifers. It's important to realize that not every tested bull will see an increase in value. Half the tested bulls would be expected to have less desirable EPDs after genomic information is added. Commercial producers that retain ownership of feeder cattle, may reap the reward of higher grid premiums achieved through genomic selection.

"The greatest opportunity for genomic selection lies in testing young, unproven animals…."