



Beef Tips

September 2009

Department of Animal Sciences & Industry

www.asi.ksu.edu/beeftips

Upcoming Events

KABSU Open House

Sept 5, 2009
Manhattan, KS
See details page 4

Beef Stocker Conference

Sept. 24, 2009
Manhattan, KS
www.beefstockerusa.org
See details page 5

KSU Cattlemen's Day

March 5, 2010
www.KSUBeef.com

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Crop residues lower cost of development for replacement heifers

Sandy Johnson, livestock specialist

Total cow/calf production costs, which include heifer development, have risen over 25% since 2005. The breakeven cost to produce a heavy springer heifer in the 2008 KSU farm management guide budget was \$1534. The return on this investment does not begin until the female is 2 ½ years old or later depending on when the calf crop is marketed.

Rick Funston from the University of Nebraska, West Central Research & Extension Center in North Platte was a speaker at the recent K-State Beef Conference in Manhattan, Aug. 13, 2009. His work has shown heifers reaching 55 to 58% of mature body weight by breeding time had similar reproductive ability as heavier heifers through the fourth pregnancy diagnosis. At the meeting he discussed his research aimed at lower cost heifer development systems.

First he compared a more traditional dry lot development system from weaning through AI to heifers grazing corn residue for 145 days. Heifers received 1 lb of a 28% crude protein supplement daily while on stalks and were moved to a dry lot for 42 days prior to breeding. The net cost to develop one pregnant heifer was \$40 per head less for corn residue compared to the dry lot. Gain on stalks was less than in the dry lot system, however while on pasture as yearlings, heifers developed on stalks exceeded the gain of dry lot fed heifers by 0.44 lbs per day. Pregnancy rate to AI tended to be lower in the corn residue heifers however, after a 45 day breeding season there was no difference in pregnancy rate or the proportion that calved in the first 21 days of the calving season. At calving time, corn residue heifers were still 40 lbs lighter. Despite this weight

difference, the pregnancy rate to AI and the season long pregnancy rate was similar between the two treatments when bred as two-year olds.

Funston's work has also compared heifer development systems on crop residue to winter range in two additional studies. In either system, heifers received 1 pound per day of a 28% crude protein supplement from shortly after weaning until 40 to 60 days before breeding. Average gain during the wintering period ranged from .3 to 1 pounds per day. During the pre-breeding period, the ration was adjusted to boost gain to the range of .6 to 1.2 pounds per day. Gains from breeding to pregnancy diagnosis ranged from 1 to 1.6 pounds per day. Production systems resulted in 83 to 89% pregnant as yearlings and 77 to 100% pregnant as two-year olds with no difference between winter range or corn residue grazing treatments.

Another study compared the performance during gestation of heifers grazing crop residues and winter range from weaning to breeding to heifer calves grown in a dry lot. Individual feed intake data was collected for a 70 day period when heifers were fed a grass hay and protein supplement diet. Heifers developed on crop residue and winter range ate less, weighed less and tended to be more efficient during gestation than heifers developed in a dry lot. Even if developed to lighter weights prior to breeding as yearlings, it is still important for heifers to achieve the goal of 85% of mature weight prior to calving.

continued...see Crop residues on page 3

“You can’t manage what you don’t measure.”

Tally Time – Two-year old pregnancy rates *Sandy Johnson, livestock specialist*

The article on page one of this issue on the use of lower cost grazing systems for heifer development reports pregnancy rates for two year olds in a range of 77 to 100 percent. Because the actual number of 2-yr olds in the herd can be relatively small, one female can shift the percentage a fair amount. For example, one animal in 25 shifts the percentage by 4 percent. Never the less, the reproduction of these young females is critical to determining the fit of the management and environment to the heifers you’ve selected. While it is not valid to compare pregnancy rates from any particular study to females outside the study, it is useful to know the normal range in pregnancy rates in your herd and how they may match up with research reports.

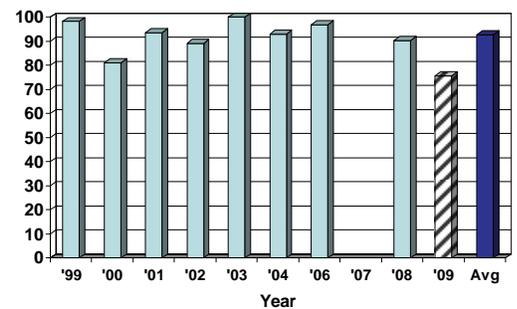
During the past ten years, pregnancy rate for 2 year olds at the Ag Research Center at Hays has averaged 93% (see Figure 1). You will note several years where the pregnancy rate was in the upper 90 percent range. The test of whether pregnancy rates over 97% were economical would be in the feed costs and the unit cost of production (cost to produce a pound of weaned calf) for those years. The better question may be if the long term average of 93% is an economic level of reproduction.

With very few exceptions, any female that lost a calf went directly to the feedlot so the pregnancy rate represents females nursing a calf. This year’s 2 -yr olds had 76% pregnant when examined with ultrasound 21 days after the bulls were removed.

This check was a week too early to confirm the status of all cows because the breeding project they were on required monitoring embryonic/fetal loss at this stage. At least half of the remaining 2-yr olds without an embryo are expected to be pregnant when they are rechecked as they come off pasture. The breeding season consisted of a single fixed-timed AI on June 15 and natural service exposure from June 25 through July 31.

Pregnancy rates that are too high or too low can be expensive. Monitoring 2-yr old pregnancy rates and unit costs of production make excellent guides.

Figure 1. Pregnancy Rate – 2-yr old cows - ARCH



Tally Time Reminder

Timely numbers to record

- Pregnancy status
- Body condition of cows at weaning or pregnancy check
- Calf weaning weight and/or ID of cows with light weight calves
- Vaccination/processing records - date, group or lot identification, product(s), dosage, manufacturer lot or serial number, route and location of administration



Crop residues continued from page 1

Grazing corn residue as heifer calves was a benefit to pregnant yearling heifers that grazed corn residue for their second fall. Pregnant heifers were placed on stalks that were either developed in a dry lot or on corn residue as heifer calves. Average daily gain was greater for heifers that grazed corn residue as calves than those developed in a dry lot.

Funston concludes that grazing low quality forage during development may produce a heifer better adapted to a lifelong grazing system and reduce costs.

For producers that utilize AI on replacement heifers and would like to utilize winter range or

crop residues during development, the target of 60% of estimated mature weight at breeding is still a good guide. To achieve this weight, supplementation could be increased slightly later in the winter grazing period and/or a higher rate of gain could be targeted just prior to breeding. In the Nebraska studies, heifers that were open as yearlings were sold off grass at a profit in most cases. Keeping more heifers than normal and developing in a lower cost grazing system with the plan that several would be marketed as yearlings is another option.

More detailed information on many of these studies can be found in past Nebraska Beef Reports at <http://beef.unl.edu/>

Pasture preconditioning calves at a higher rate of gain improves feedlot health but not post-weaning profit

Clay Mathis, livestock specialist, New Mexico State University

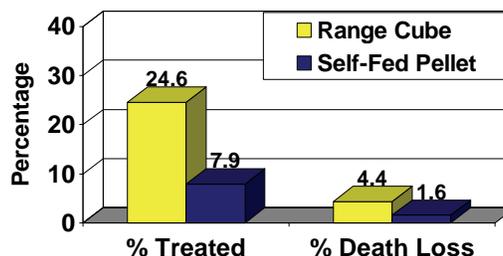
Over 2 years, 132 steers were used to compare a low (**RANGE CUBE**) and high (**SELF-FED PELLETT**) input pasture preconditioning method to evaluate performance and profit during the preconditioning and finishing phases. At weaning, steers were randomly assigned to RANGE CUBE or SELF-FED PELLETT preconditioning treatments. Steers were fenceline-weaned for 7 days; then transported to their respective treatment pastures. The SELF-FED PELLETT steers had ad libitum access to a self-fed corn/wheat midds-based pellet, and RANGE CUBE steers were supplemented with a 32% CP range cube delivered three times per week to average 1.25 lb per day.

At the end of preconditioning, SELF-FED PELLETT steers were 42 pounds heavier, and had a \$20/steer greater final value, but their preconditioning feed costs were \$42/steer higher. During preconditioning, RANGE CUBE steers had a net income advantage of \$20.54/head. Following preconditioning, steers were finished at a commercial feedlot. During finishing there were no differences in ADG, final body weight, or carcass characteristics. However, 16.7 percentage units more of the RANGE CUBE steers were treated for sickness during finishing (Figure 1), resulting in \$6.63/steer greater medicine cost than SELF-FED PELLETT steers. Preconditioning method had no impact on finishing net income, or profit from weaning to harvest.

IMPLICATIONS

The cost of nutritional inputs to a preconditioning program has a substantial influence on profitability. Grazing calves on native rangelands at a higher rate of preconditioning gain can better prepare calves to remain healthy after shipping. However, increased feed input costs often required to achieve a higher rate of gain on pasture may not be cost-effective relative to a lower-cost approach if calves are sold after preconditioning, or retained through harvest.

Figure.1. Impact of preconditioning method on morbidity and death loss



“...grazing low quality forage during development may produce a heifer better adapted to a lifelong grazing system and reduce costs.”

“The unit collects, extends, processes, freezes, and sells bull semen.”

K-State Plans Sept. 5 Celebration For New KABSU Building

Kansas Legislature Provided Initial Funding 60 Years Ago

MANHATTAN, Kan. – Born 60 years ago from an idea by a former Kansas State University administrator, the Kansas Artificial Breeding Service Unit, also known as KABSU, will celebrate with an open house Sept. 5, 2009.

The event, scheduled from 9 a.m. - 1:30 p.m. will showcase a new KABSU facility located at 3171 Tuttle Creek Boulevard in Manhattan. A complimentary lunch will be served at 12:30 p.m. with a short program starting at 1:15 p.m.

KABSU, which is based at K-State, provides bovine reproductive technologies, continuing education and research-based information to facilitate genetic improvement of cattle through artificial insemination. The unit collects, extends, processes, freezes, and sells bull semen. Other services provided include sales of AI supplies, breeding soundness exams for bulls to be sold, and consultation services.

KABSU was the brainchild of F.W. Atkeson, a professor and head of the K-State Dairy Department from 1935-1958. In 1949, the Kansas legislature appropriated \$35,000 and another \$10,000 was added by the university's College of Agriculture, to establish KABSU.

For years, the unit was located on a highly visible site at the corner of College and Claflin Avenues in Manhattan. When that property was sold in 2001, the unit was moved to its present location.

“With our new building, we are ready to expand KABSU's role to better serve the cattle industry in Kansas,” said Ken Odde, head of K-State's Department of Animal Sciences and Industry.

Future plans for KABSU call for students in K-State's College of Veterinary Medicine to participate in rotations for training in semen collection, blood testing for venereal diseases, maintenance of bull health and how to conduct breeding soundness exams. Short courses and internships for undergraduate students in animal science are also planned.

In addition, K-State's College of Veterinary Medicine and the Department of Animal Sciences and Industry are working toward establishing a faculty member position at KABSU with research expertise in applied male reproductive physiology.

More information about the Sept. 5 KABSU Open House is available by calling Dr. Jeff Stevenson, Department of Animal Sciences and Industry at 785-532-1243. Or on the Web site: <http://www.asi.ksu.edu/> and go to General, Facilities then KASBU.

New fact sheets on DNA technology available online

The bovine genome has been mapped, researchers are now getting information about 50,000 SNPs (single nucleotide polymorphisms) per animal at one time and a number of companies offer commercial genetic tests. Technology is taking animal breeding and selection to a whole new level. The terms needed to discuss and use this technology are new to many. A number of resources have been updated recently to serve as a guide for those needing to strengthen their understanding of this area. These and other materials can be found at the National Beef Cattle Evaluation Consortium web site <http://www.ansci.cornell.edu/nbcec/index.html>

Fact Sheets

[DNA-based progeny testing and development of commercial ranch EPDs](#) - Alison Van Eenennaam, University of California, Davis

[Marker-Assisted Selection](#) - Alison Van Eenennaam, UC, Davis

[The Value of Improving Accuracy of Yearling Bulls](#) - Matt Spangler, University of Nebraska-Lincoln

[Validation of Marker Tests](#) - Alison Van Eenennaam, UC, Davis

[Basics of DNA markers and genotyping](#) - Alison Van Eenennaam, UC, Davis

[Fundamentals of Expected Progeny Differences](#) - Darrh Bullock, Extension Professor, University of Kentucky

[Whole Genome Selection](#) - Mark Thallman, Pfizer Animal Health (formally with USDA ARS, Meat Animal Research Center

[Guide to DNA Markers](#) - Alison Van Eenennaam, UC, Davis

K-State's Beef Stocker Field Day set for Sept. 24 in Manhattan

Day to Feature Industry Panels, Research and Economic Information

MANHATTAN, Kan. – Kansas State University will host its Beef Stocker Field Day Thursday, Sept. 24 at the university's Beef Stocker Unit located on west Manhattan Ave. in Manhattan. The day begins with coffee and registration at 9:30 a.m. and the program starting at 10:15 a.m. The program will include a mix of speakers from K-State Research and Extension, as well as beef producers, cattle feeders, agricultural lenders and beef processors. They include:

- *Buying and Selling Right* – Kevin Dhuyvetter, agricultural economist – K-State Research and Extension;
- Panel: *Partnering with Feedlots – Who Brings What to the Table?*
Jerry Bohn, Pratt Feeders
Dan Dorn, Decatur County Feed Yard
Jim Reeves, JMR Cattle Co.
- *Thinking Outside the Shots* – Dan Thomson, K-State College of Veterinary Medicine;
- Panel: *Negotiating Custom Grazing Arrangements*
Mike Collinge, Hamilton Kan.
Tim Miser, Cottonwood Falls, Kan.
Alan Hess, Alma, Kan.

- *Cattle Financing in a Tight Credit Market* – Gary Cotterill, Community National Bank, Chanute;
- *Producing Value-Added Cattle* – Brian Bertelson, U.S. Premium Beef;
- *Weed and Woody Plant Control in Pastures* – Walt Fick, K-State Research and Extension; and
- *Utilization of Byproducts on Pasture* – Lyle Lomas, K-State Research and Extension

In addition, technological and scientific innovations and applications available from commercial vendors and the K-State Diagnostics Lab will be highlighted during the day, including cattle handling facilities; persistently infected (PI) bovine viral diarrhea virus (BVDV); and record-keeping systems.

The field day includes a catered barbecue brisket lunch and to wrap up the day, Moly Manufacturing will sponsor the “Cutting Bull’s Lament” - a Prairie Oyster Fry, Pitchfork Fondue and Dutch Oven Desserts.