

## Department of Animal Science

# **BEEF CATTLE BROWSING – JANUARY 2016**

### PERCEPTIONS OF FOOD CONSUMERS

The Center for Food Integrity has issued a report based on their three years of research. The report examined four sources consumers might use to access information related to food: printed on the package, third-party website, company website, and QR codes on packages. On the topics of impact of food on health and on food safety, more consumers wanted their information printed on packages. But on environmental impact, labor and human rights, animal well-being, and business ethics, consumers wanted to use websites, with about equal preference for third-party or company. On all six topics, QR codes were preferred by less than ten percent of consumers.

The report also examined who consumers hold most responsible on the six topics. On all topics, consumers held food companies most responsible, averaging 41%, followed by farmers (30%), grocery stores (15%), and restaurants (14%).

Consumers were asked, “Is the U. S. food system headed in the right direction or on the wrong track”? Responses were divided into categories of all, women, men, early adopters, mothers, millennials, and foodies. Over all groups, right direction ranked slightly highest, averaging 40%, 32% were unsure, and 28% thought wrong track. Women, whether mothers or not, had the least confidence the system is headed in the right direction. Men and foodies were most confident.

The report concluded that transparency is needed if consumers are to trust their food.

(The Center for Food Integrity; 2015 Consumer Trust Research Report)

### EFFECT OF POSTWEANING NUTRITION ON OVARIAN DEVELOPMENT

After weaning at  $154 \pm 1$  days of age, British-Continental crossbred heifers out of cows 4 years of age or older were fed for six weeks a free-choice ration of 70% corn

silage and 30% alfalfa hay. At that point, a sample of heifers was ovariectomized and removed from the study. From then until 13 months of age, one-half of the remaining heifers was fed throughout at an increasing level in order to achieve what is generally considered satisfactory weight at first breeding. At the same point, for the next 3 months, the other one-half of the heifers was “stair-stepped” by being fed at a rate of 70% that of controls and then upped to 120% of controls until 11 months of age. At that point, ovaries were collected from some of both groups which were then all fed at the same rate as controls until 13 months of age when ovaries were again collected.

At 13 months of age, stair-stepped heifers had significantly more primary follicles. The authors concluded that “developing heifers on a stair-step compensatory growth scheme resulted in larger ovarian reserve before the onset of breeding, which may have beneficial effects on increasing reproductive lifespan”. NOTE: Some other research over recent years has also indicated various systems of differential growth rate from weaning to breeding may result in benefits in lifetime reproduction, along with requiring less cost for optimum development.

(J. Animal Sci. 93:5232; South Dakota St. Univ., Kansas St. Univ., Univ. of Missouri)

## HERITABILITIES AND GENETIC TRENDS FOR REPRODUCTIVE TRAITS

It's not often you see a piece of research based on 60 years of data. Records were analyzed from 1951 to 2011 on a population of Romosinuano cattle in Colombia. Romosinuano are a polled breed of Criollo-type containing no *Bos indicus* of uncertain genetic background, developed in northern Colombia starting in the late 1800s. Age at first calving, first calving interval, and second calving interval were evaluated .

Heritability values were 0.04 for age at first calving, 0.06 for first calving interval, and 0.09 for second calving interval. Genetic trend for improvement in these traits over the 60 years was near zero. NOTE: While these heritability values are somewhat lower than the average across many studies, reproductive traits generally rank lowest in response to genetic selection. So, if reproductive improvement is indicated, it will depend more so on optimizing management, especially nutrition, than on genetic selection. Cows best adapted to their

production conditions, while requiring minimal nutritional supplementation, are more reproductively efficient and profitable.

(Medico Veterinaria Zootechnica 21:5250: Univ. of Cordoba, Colombia; Colombian Corporation for Agricultural Investigation; National Program for Animal Genetics and Biotechnology, Crete, Colombia)

#### DEHORNING AT THE FEEDYARD: TIP, REMOVE, OR BAND ?

Though declining in number, some cattle still arrive today at feedyards with horns. Steers and heifers averaging 693 lb on arrival were either not dehorned (CON), banded with a high-tension elastic rubber (Callicrate Bander™, BAND) , mechanically removed (keystone-type instrument, MECH), or horns were tipped (hand saw, TIP). Base diameter of horns ranged from 2-3 inches and length ranged from 4-8 inches. Cattle were scored for amount of bawling during dehorning. After processing, cattle were placed in the same pen and observed daily at 8 am for 28 days for wound healing and behavior.

Bawling was highest for MECH followed by BAND with little difference between TIP and CON. Based on scores for attitude, gait and posture, and lying, BAND indicated higher discomfort during the 28 days after processing. BAND cattle had slower healing and only 15% of BAND had detached horns after 28 days. The authors noted that mechanical removal is more painful at the time it is performed. But, because of greater discomfort over 28 days after application, they concluded, “Banding to remove horns is not recommended based on the data and observations from this study”.

(The Beef Cattle Institute, Kansas St. Univ., downloaded 11/28/15, [www.beefcattleinstitute.org](http://www.beefcattleinstitute.org))

#### EFFECT OF VACCINATION FOR FOOT-AND-MOUTH DISEASE ON REPRODUCTION

In some countries where foot-and-mouth disease is endemic, vaccination is part of control programs. A herd of 604 lactating, open Nelore (a *Bos indicus* breed) cows which had calved at least twice were synchronized for estrus and then artificially

inseminated. Cows in one group were vaccinated for FMD 31 days before AI (-31 group). The other group was vaccinated 30 days after AI (+30 group). Pregnancy status was determined by ultrasound 30 and 90 days after AI.

Percent pregnant 30 days after AI was not statistically significantly different between the two groups (61.8% for -31 and 56.2% for +30). However, at 90 days, pregnancy was significantly higher for the -31 group (59.4% vs. 46.9% for +31). So, pregnancy loss from 30 to 90 days was significantly lower for the -31 group (3.9% vs. 16.5% for +30). The authors noted that “these outcomes can be associated with inflammatory reactions elicited by the FMD vaccine which are known to impair pregnancy maintenance in cattle”. NOTE: Let us hope FMD is never a problem in the U.S.

(J. Animal Sci. 94:401: Universidade de Matto Grosso do Sul, Brazil; Universidade Estadual Paulista, Brazil; Oregon St. Univ.)

## FACTORS AFFECTING STOCKER PERFORMANCE AND CARCASS TRAITS

A set of 52 experiments was examined to assess overall effects of management before finishing on feedyard performance and carcass merit.

### **Calf-fed vs. Yearling Systems**

Results were compared of 1) calf-fed, i. e., normal-weaned calves adapted to high-grain free-choice feeding after weaning until ready for slaughter and 2) yearling, i. e., calves grown for a period before full high-grain feeding. Growing periods included systems such as wheat pasture, silage or hay, limit-fed high concentrate, and wintering on low-quality winter forage followed by summer grazing. In the feedyard, compared to calf-fed, cattle managed on yearling systems had higher feed consumption and ADG but lower feed efficiency, with little effect on carcass traits.

### **Level of Dietary Starch Supplementation During Growing**

In some studies, cattle were fed growing rations of differing grain content. Level of grain in growing rations did not affect finishing performance or carcass traits.

NOTE: Some research has shown early weaning, with no growing period, and then high levels of grain feeding to slaughter can increase marbling.

### **Effect of Growing ADG and On-feed Weight**

In the feedyard, cattle that gained more during growing consumed less feed and gained slower but feed efficiency did not differ. Cattle that gained more during growing and were heavier when placed on feed had heavier carcasses and larger ribeyes, but marbling score did not differ.

The authors concluded that “previous management can influence finishing performance, with the greatest factors being production system and growing ADG, but marbling score was not affected by production system, level of grain feeding during growing, or growing ADG”.

(Prof. Anim. Sci. 30:602; Oklahoma St. Univ.)

### **CURRENT STATUS OF SEXED SEMEN**

Sexed semen has been implemented by some to produce maternal-line females, reduce generation interval by heifers producing only heifers, or shift sex ratios for marketing advantages. A review of published research arrived at the following conclusions regarding the use of sexed semen in beef cattle artificial insemination:

- the average pregnancy rates are reduced 10-20%;
- pregnancy rate does not differ between heifers or cows that have calved;
- the desired sex occurs in 89-94% of conceptions;
- sexed semen reduces percentages of transferable embryos from embryo-transfer or in vitro fertilization.

Producers considering the use of sexed semen should balance these finding against possible benefits.

(Prof. Anim. Sci. 30:279; Univ. of Idaho)

## COOL IS NO MORE

At least for beef and pork. As a result of a bill passed by the U. S. Congress, and signed by President Obama, effective 12/18/2015 the Country of Origin Labeling requirements affecting muscle cuts and ground beef and pork will no longer be enforced by USDA-Agricultural Marketing Service. This action was taken in response to World Trade Organization final approval for Canada and Mexico to impose countervailing tariffs on U. S. products of any kind, not just beef or pork. It was estimated these tariffs on U. S. exports would have been more than \$1 billion a year. Canada and Mexico had filed complaints several years ago with the WTO contending that COOL constituted illegal restraint of international trade. Research had indicated 1) U. S. consumers generally wanted such labels but also that 2) few actually read the labels or were willing to pay much if anything extra for labeled products.

Questions about the repeal can be accessed at:

<http://www.ams.usda.gov/sites/default/files/media/FAQs%20-%20COOL%20Beef%20Pork%20Repeal.pdf>.