Master Cattleman Quarterly

Oklahoma State University

Bovine Respiratory Disease Update

Drs. S. Narayanan, A. Confer, M. Boileau, & A. Ramachandran

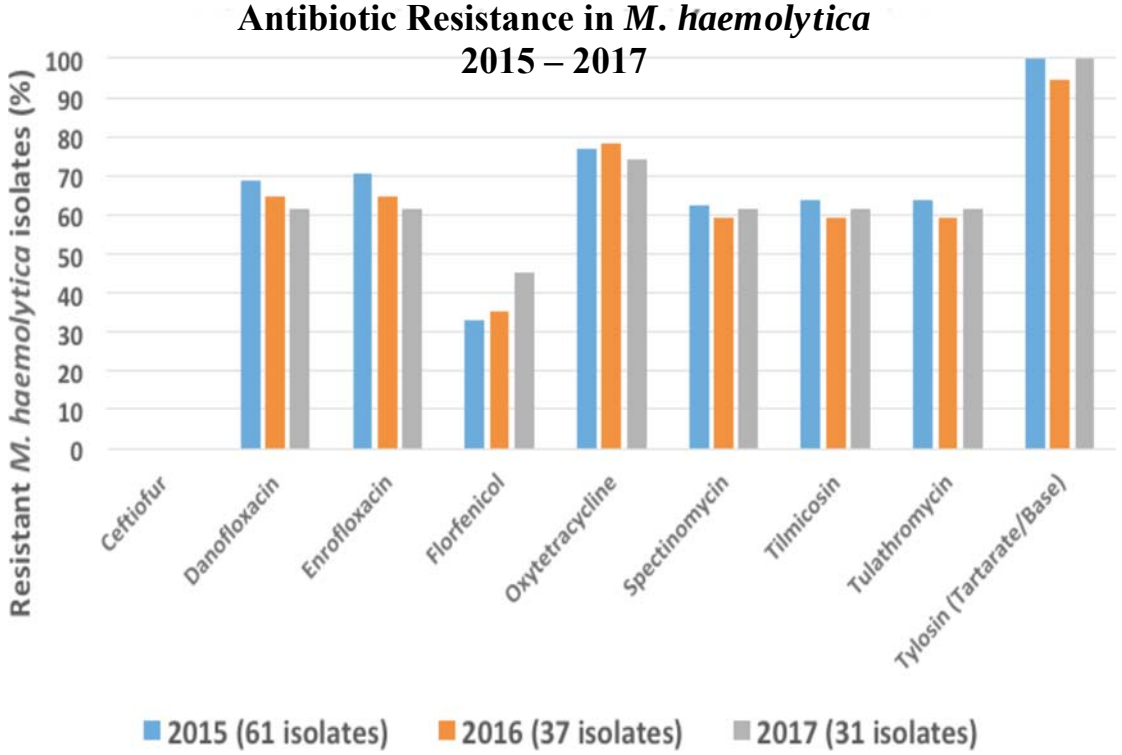
Oklahoma Animal Disease Diagnostic Laboratory (OADDL), Spring 2018, Volume 16, p. 4

Mannheimia haemolytica is the major bacterial pathogen involved in bovine respiratory disease (BRD) complex. Resistance profiles of *M. haemolytica* isolates obtained from bovine respiratory samples submitted to OADDL over the last three years are shown in the figure. Antibiotic resistance was determined by the minimum inhibitory concentration (MIC) method. When an organism is resistant to an antibiotic, it will be ineffective in treating the resulting disease.

More than 50% of the bacterial isolates were resistant to these commonly used antibiotics.

- Danofloxacinv sold as (Advocin ®)
- Enrofloxacin (Baytril ®)
- Oxytetracycline
- Spectinomycin
- Tilmicosin (Pulmotil/Micotil ®)
- Tulathromycin (Draxxin ®)
- Tylosin

All isolates were susceptible to Ceftiofur sold as Naxcel ® Excede ®.



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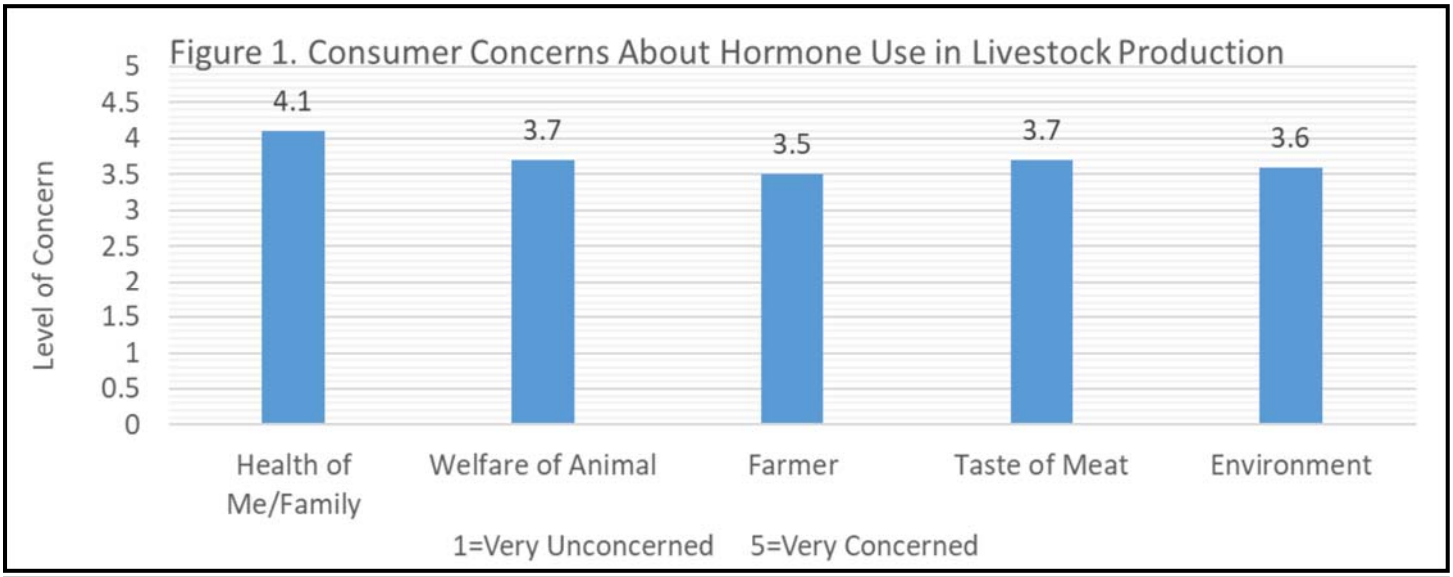
In this issue:

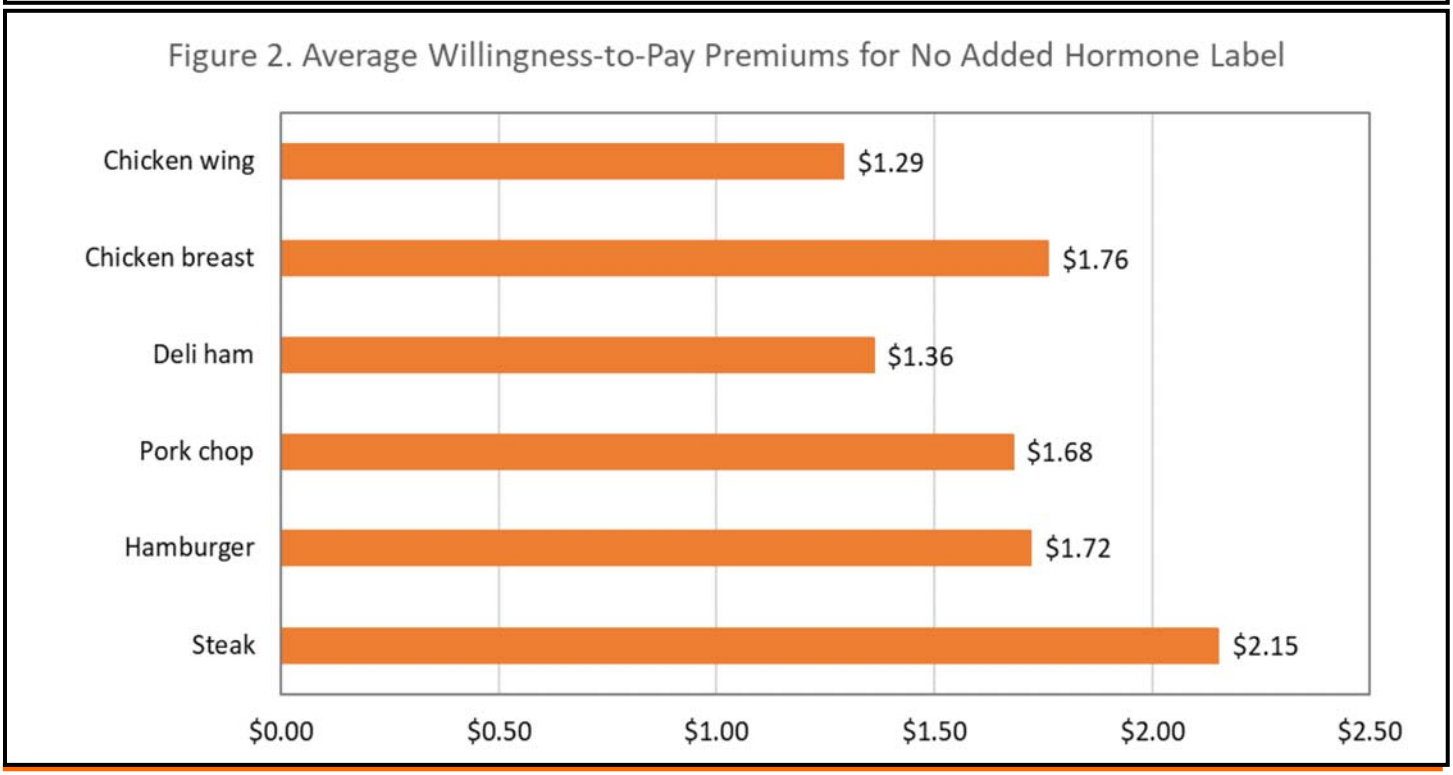
What are Consumers Willing to Pay for "No added Hormones" Meat Products?

Ruoye Yang, Ag Economics Graduate Assistant, Kellie Curry Raper, Livestock Economist, Oklahoma State University; and Jayson Lusk, Purdue University

Consumers generally are not well-informed regarding hormone use in meat animal production, though it is listed by many as a primary concern (Yang, Raper, and Lusk, 2018; Ellison et al, 2017). That concern, whether grounded in factual information or not, impacts consumer behavior and, in particular, whether consumers are willing to pay a premium for meat products labeled as produced with no added hormones (NAH). Oklahoma State University's May 2016 Food Demand Survey (http://www.agecon.okstate.edu/agecon_research.asp) asked participants to rank their concern regarding the impacts of hormone use in the livestock industry on family health, meat taste, animal welfare, the environment and farmers (Figure 1).

Consumers were most concerned about the impact of added hormones in livestock production on health and least concerned about the impact of hormone use on farmers.





What are Consumers Willing to Pay for "No added Hormones" Meat Products? cont.

Although there is no evidence that shows hormone use in cattle affects human health, it is apparent that many consumers still do not trust this technology.

On average, consumers underestimate hormone use in beef production and overestimate hormone use in pork and poultry production. While the average perceived hormone use rate by consumers in this study is 62% for cattle, 55% for hogs, and 57% for chicken, the actual hormone use rate in cattle is more than 90%.and 0% in swine and chicken production (Yang, Raper and Lusk, 2018). Does consumer perception translate into dollars? Survey participants were asked, "If you walked into your local grocery store and saw a package of meat with the label 'no added hormones,' what is the highest premium you would be willing to pay (WTP) for the following meats with this label over meats without this label?" Average WTP premiums per pound for NAH products are reported in Figure 2.

On average, willingness-to-pay premiums ranged from $1.29 to slightly over $2.15 for meats labeled as produced with "no added hormones". Higher value cuts from each species brought higher premiums, relatively speaking. Steak reaped the highest premium overall at $2.15/lb. while chicken wings received the lowest premium at $1.29/lb.

Overall, the survey results suggest opportunities for consumer education related to meat animal production regarding (1) factual hormone use by species, (2) when, how and why hormones are used, and (3) scientific findings regarding the impact of hormone use on human health, product taste, animal welfare, environment and the farmer.

References

Brenna Ellison et al, Which livestock production claims matter most to consumers?, *Agriculture and Human Values* (2017). DOI: 10.1007/s10460-017-9777-9

United States Department of Agriculture (USDA). 2013. "The Use of Growth-Promoting Implants in U.S. Feedlots." *Animal and Plant Health Inspection Service*. July 2013.

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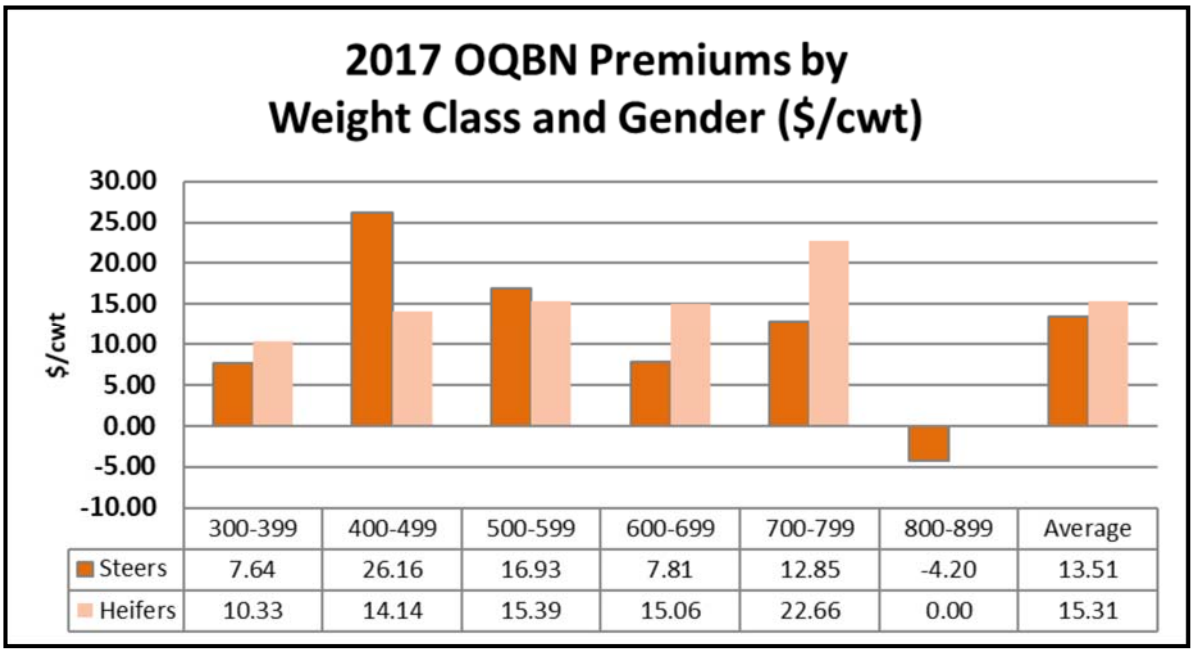
Yang, Ruoye, Kellie Curry Raper and Jayson L. Lusk. "What Do Consumers Know About Hormone Use in Livestock Production?" Master Cattleman Quarterly, OCES, Volume 37, March 2018.

Oklahoma Quality Beef Network Update: 2017 Premiums by Weight and Gender

Kellie Raper, Livestock Market Specialist



	300-399	400-499	500-599	600-699	700-799	800-899	Average
Steers	7.64	26.16	16.93	7.81	12.85	-4.20	13.51
Heifers	10.33	14.14	15.39	15.06	22.66	0.00	15.31

How Does Mature Cow Weight Influence Calf Weaning Weights and Profitability?

Eric A. DeVuyst, Courtney Bir, Megan Rolf, and David Lalman

There is increasing concern about the long-term trend toward heavier beef cows. A recent study by Maples, Lusk and Peel (2016) shows that heavier carcasses have cost the U.S. beef industry $8.6 billion due to reduced consumer demand. Studies consistently find that consumers want thick-cut steaks. However, large ribeye and loin cross-sectional areas prevent retailers from serving thick steaks while maintaining desired portion size.

We recently evaluated how heavier cows impact the profitability of cow-calf producers. Data from the American Angus Association demonstrates that EPDs for mature weight have increased steadily since the late 1970s while frame size is unchanged. In figure 1, genetic trend for Mature Height (MH) is relatively flat while Mature Weight (MW) has increased by nearly 40 pounds. Since frame size is unchanged, that means that the cow herd has added more muscle, bone, and visceral organ mass. Concurrent with the increase in weight, comes increased nutritional requirements and reduced stocking rates. The question then is: Are higher cow-weights economically justified given heavier weaning weights?

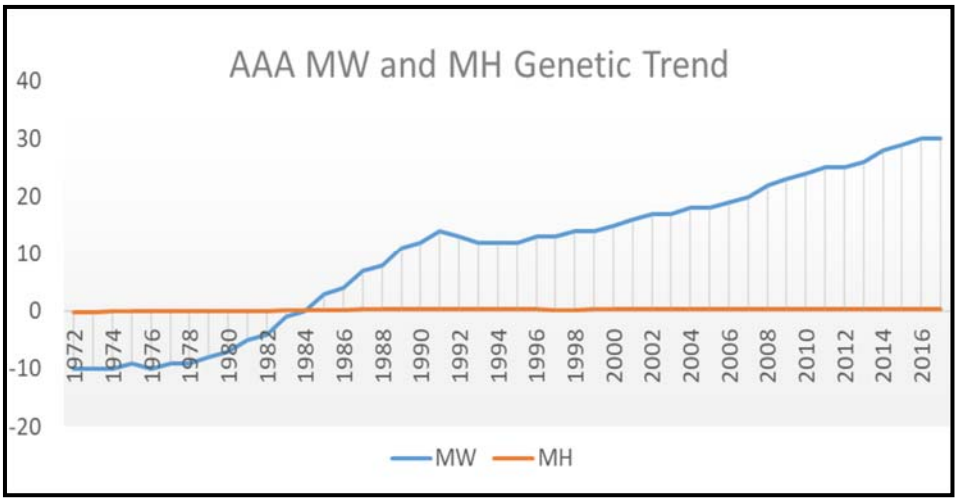


Figure 1. Mature Weight (MW) and Mature Height (MH) EPDs for Angus cows. Source: American Angus Association (AAA), 2018.

Figure 2. Influence of mature cow weight on 205-day calf weaning weight. Source: Bir et al. 2018.

Using data on 3,000+ cows from three research stations in Oklahoma and Arkansas, we recently estimated calf weaning weights as a function of mature cow weight. The resulting function shows a less than linear increase in weaning weight as cow weight increases. In figure 2, the solid curve is the estimated 205-day weaning weight for a spring calving, six-year-old Angus cow on native pasture. As can be seen, the curve is below the dashed line, which reflects mature cow size. This means that each additional pound of mature cow weight adds less to calf weaning weight. Weaning weights increase, but at a decreasing rate. So, increasing mature cow size from a 950# cow to a 1000# cow increases weaning weight by 6.8 pounds. However, increasing mature cow size from a 1750# cow to an 1800# cow increased weaning weight by only 4.7 pounds. Both increase mature weight by 50 pounds, but with different results.

Given that stocking rates decline as cow weight increases and weaning weights are concave

How Does Mature Cow Weight Influence Calf Weaning Weights and Profitability? cont.

in cow weight, heavier cows are unlikely to be the most profitable on a per acre basis—and our analysis confirmed this suspicion. Over all of the scenarios we considered (spring and fall calving, Angus cows and Brangus cows, native pasture and Bermuda pastures), lighter cows outperformed heavier cows over a ten-year time period when profits are computed per acre. Our model also considered the higher cull value of heavier cows, differences in stocking rates and supplemental feed costs, and price variations over time. In figure 3, per acre net present value of beef cows by mature weight is presented. Values fall from $39.75 per acre per head for 950# cows to $22.63 per acre per head for 1800# cows.

While results will differ for individual producers, the economics are pointing to reducing cow weights to improve economic returns. Even if our analyses are off by 20%, the economically-optimal mature cow weight is under 1200#.

So, how does a producer with heavy cows adjust cow weight? Just as it has taken the industry several years to reach the current situation, producers will need to adjust over time. Reestablish a maternal line in the herd. Breed cows with desirable phenotypic and genotypic traits to moderate MW EPD bulls and retain heifer calves that are both phenotypically and genotypically attractive but have a lower projected mature weight. It could take up to ten years to replace heavy cows, but the economics point to improved profitability.

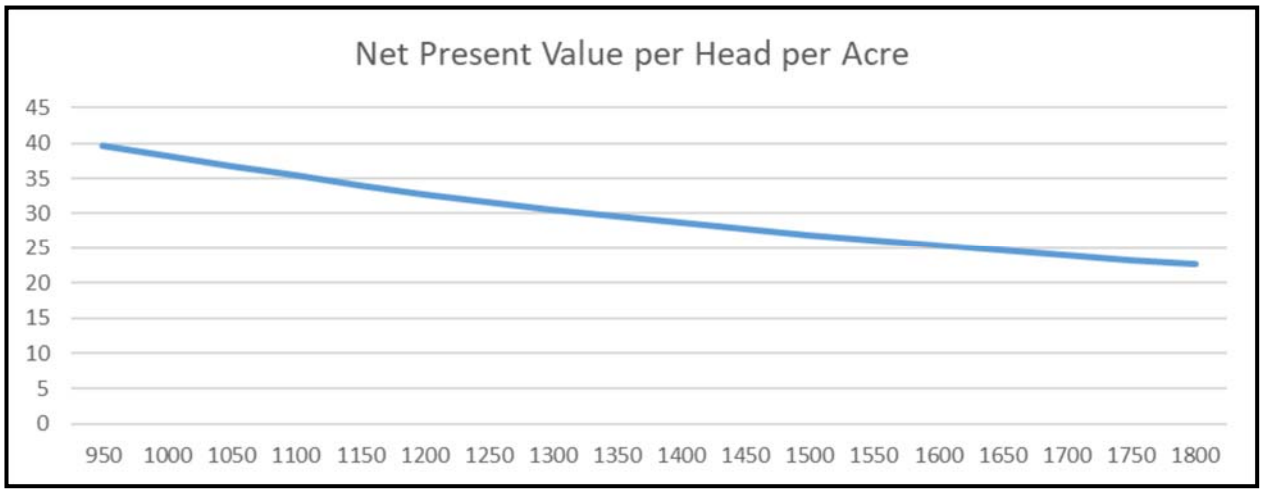


Figure 3. Net present value per head per acre by mature cow weight for spring-calving Angus cows on native pasture. Source: Bir et al. 2018.

Oklahoma Custom Rates, 2017-2018

Roger Sahs, OSU Ag Economics Extension Specialist

Many Oklahoma farmers and ranchers hire custom machine work in their operations or perform custom work for others. The OSU Agricultural Economics Department in cooperation with the USDA-NASS, Oklahoma Field Office, recently surveyed Oklahoma custom operators to determine rates charged for various farm and ranch operations. The results were published earlier this year in Current Report-205, "Oklahoma Farm and Ranch Custom Rates, 2017-2018" and available at the mobile friendly site: http://factsheets.okstate.edu/documents/cr-205-oklahoma-farm-and-ranch-custom-rates-2017-2018/

Along with statewide averages, median values are also reported for western and eastern Oklahoma where sufficient responses were returned. While the reliability of the survey results improves as the number of responses increase, the information presented in the publication should only be used as a guide. The market for custom work usually does not cover all costs as some custom operators charge only for fuel and labor and rates tend to be lower between relatives and neighbors.

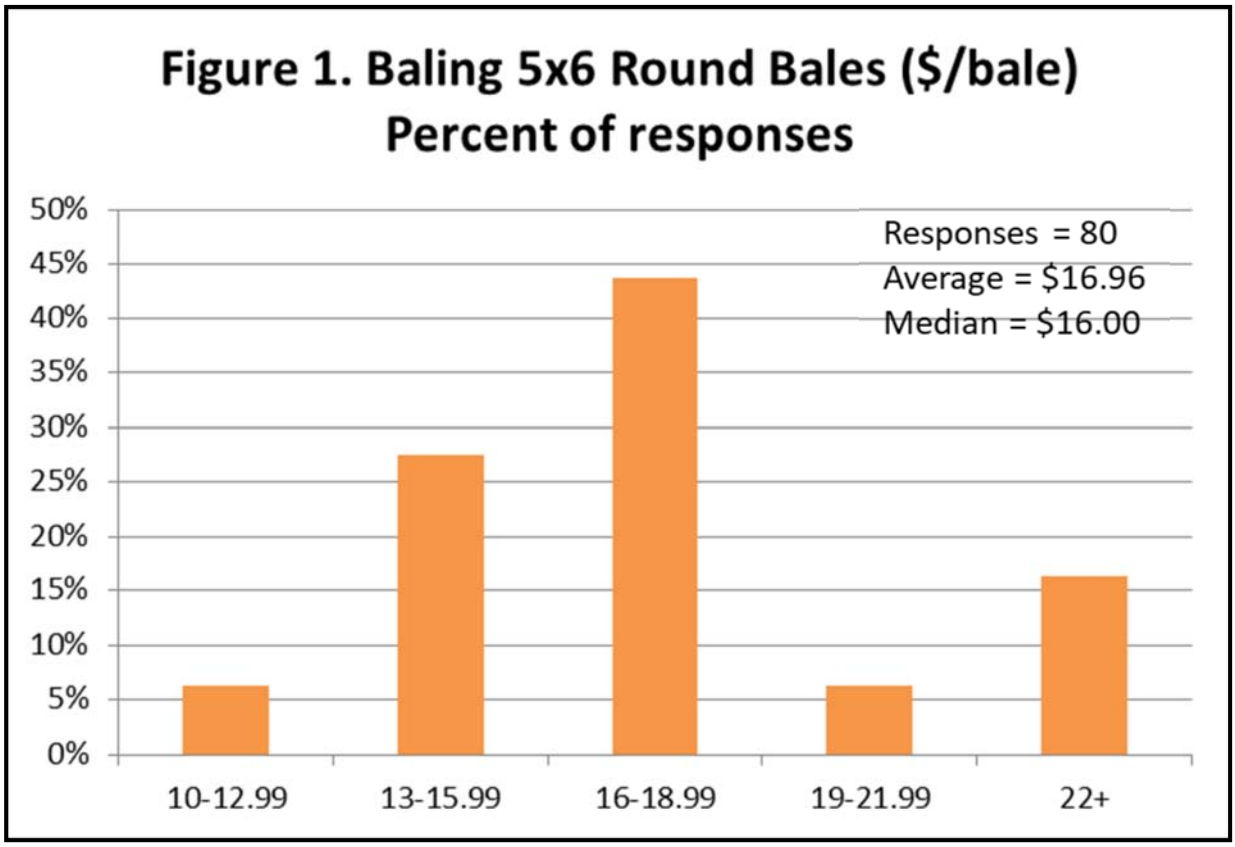
Oklahoma Custom Rates, 2017-2018 cont.

In general, rates continue to increase despite relatively the low diesel price environment we've experienced over the past several years. Higher labor costs as well as machinery repair and ownership costs contribute to higher rates. Ownership costs are a direct function of the purchase cost of a new machine. Repair and ownership costs have increased 2 to 4 percent over the past two years depending on the machine. These costs account for about 70 percent of the total cost of performing custom operations depending on the value of the primary machine and the performance rate.

Reported custom rates can be quite variable. For example, a distribution of 80 responses for baling 5x6 round bales is shown in Figure 1. The average rate was $16.96 and the median value was $16. None of the respondents reported a custom rate less than $10 per bale, 6 percent reported a rate between $10 and $13 per bale, 28 percent reported a rate between $13 and $16 per bale, 44 percent reported a rate between $16 and $19 per bale, 6 percent reported a rate between $19 and $22 per bale, and 16 percent of the respondents reported a custom rate of $22 or more per hour. Rates for a variety of other field operations, tractor and machinery rental, and miscellaneous livestock activities are reported in the publication.

Machinery costs are rather substantial and control of them is important. Factoring in the difference in fuel costs is also important as a price increase of $0.50 per gallon generally adds 5 percent to total machinery costs. Operators are encouraged to record actual expenses since they tend to under-estimate the full cost of ownership and operation of machinery. Given this information, they can use the worksheet in the publication to help decide whether to buy or lease machinery and equipment or custom hire work done.

If you have questions, ask your Area Agricultural Economics Specialist or contact Roger Sahs at roger.sahs@okstate.edu for additional information.



Digital Dermatitis

Barry Whitworth, DVM, Area Food/Animal Quality and Health Specialist for Eastern Oklahoma

All cattle producers at some time will deal with a lame bull, cow, or calf. Bovine lameness is associated with lost production, reproductive inefficiency, premature culling, and increase cost due to treatment. Some producers assume that all lame cattle have foot rot and treat these animals with an antibiotic. This assumption has merit based on the most common infectious cause of lameness is foot rot. However, in a retrospective study conducted at Auburn University Large Animal Teaching Hospital (AULATH), noninfectious causes were the most common diagnosis of lameness in cattle and in this study digital dermatitis (DD) was the most common infectious cause of lameness. With more emphasis placed on judicious use of antibiotics, producers should be certain of the condition that they are treating. Administering an antibiotic because an animal is limping without investigating the cause is not considered appropriate therapy. A disease such as digital dermatitis does not respond to injectable antibiotics. Digital dermatitis requires a topical treatment for the best results.

Digital dermatitis was first described in confined dairy cattle in Italy in 1974. The first case of the disease in the United States was in dairy cattle in New York in 1980. Since then, it has become the leading cause of lameness in dairy cattle in the world. The disease has been increasingly diagnosed in feedlot cattle and in cow/calf operations.

The cause of DD is not fully understood. The environment, immune system, and multiple bacteria all play a part in this disease. Spirochete bacteria of the genus *Treponema* are commonly found with the disease. Other bacteria such as *Porphyromonas*, *Fusobacterium*, *Dichelobacter*, and others are also associated with the disease. Wet manure contaminated environments tend to favor the development of the disease. Young cattle seem to more likely to get the disease which may be indicative of immune suppression.

Digital dermatitis must be differentiated from foot rot or infection of the deeper structures of the foot. With foot rot, the foot will have symmetrical swelling and skin split between the toes along with a foul odor. If the problem is an infected joint, it will usually have asymmetrical swelling and no foul odor. Digital dermatitis tends to be in the hind legs. Not all the animals will be lame with this disease. However, it is common to see animals with DD shift their weight to the least affected leg and rest toe of the infected leg on the ground. With DD, initially a circular red raised mass (strawberry like) will be found on the skin between the toes on the back side of the foot. This mass may form papilliform projections that make it appear like a wart. As the lesion progresses to ulcerative mass, it will erode the skin on the back side of the foot.

As stated earlier in this article, injectable or oral antibiotics do not seem to improve DD. The lesions should be cleaned and dried. A topical antibiotic should be applied. Tetracycline is the most common antibiotic used. A bandage may be applied on the initial treatment. The animal should be placed in a clean dry environment after treatment. The lesion will need to be treated more than once in most cases. Lesions treated for only a few days may improve but usually come back. Although time consuming, aggressive everyday topical treatment will probably result in a better opportunity for healing. One last note on treatment, topical application of tetracycline is an extra-label drug use, so producers need the approval of a veterinarian.

Since no vaccine for DD is available, prevention depends on maintaining a clean environment. Cattle feet should be kept as dry as possible. Cattle should not stand in mud or manure. This leads to bacteria invading the tissues. Facilities should be evaluated for any hard surfaces that may injure the foot and lead to infections. Foot baths are not the best option for treatment but may be used to prevent DD. Unfortunately, foot baths are not practical in beef cattle operations but may be of use in dairies. Lastly, do not buy this problem. When purchasing cattle, examine the feet for any signs of this disease. Also, quarantine purchased animals for at least 30 days before introducing them to the herd. This may allow for DD or other diseases to appear before infecting the whole herd.

The dairy industry has been dealing with DD for over 40 years, but now beef producers need to be on the lookout for this disease. If a producer would like more information on Digital Dermatitis, he/she should contact your local veterinarian or local County Extension Educator.

2018 Statewide Women in Agriculture & Small Business Conference, Aug. 9-10

We are excited to announce that the **2018 Statewide Women in Agriculture and Small Business Conference** is scheduled for **August 9-10, 2018** at the Embassy Suites-Downtown Medical Center located in Oklahoma City. The focus of the two-day conference is to assist women and producers in successfully managing risk for their agricultural enterprise and/or small business. The 2018 conference will feature three keynote speakers and a number of concurrent sessions offered from four tracks: agriculture, alternative enterprises, business & finance, and beginning farmer. Opportunities for networking between participants and interaction with conference experts often lead to personal and professional inspiration, ideas and solutions.

Registration will be $50 per person by Aug. 3 or $60 after Aug. 3 (includes 2 lunches, breaks, and breakfast Friday).

For more information visit http://okwomeninagandsmallbusiness.com/ or contact Sara Siems at 405-744-9826.

This year's conference will feature an optional Thursday evening social and craft project sponsored by Sheila and Janice Robinson. Sheila Robinson of Land Run Alpacas and Janice Robinson of Just Right Alpacas have served on the Alpaca Owners Association Committee have a combined experience of over 20 years in the alpaca industry. Sheila and Janice will lead a needle felting activity using dyed alpaca and sheep wool to create a farm scene. The cost is $20 and will include all the supplies needed for the project, as well as light snacks. Those of all crafting abilities invited and welcomed! Join us to learn a new skill and network with women from the conference.

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