

News from KSU Animal Sciences

- KJLS Entry Deadline Approaching The deadline for Kansas Junior Livestock Show entries is August 15. All entries must be made online, using the link on the http://www.kjls.net/ website. Families who state nominated have to use the same name and password they did during the nomination process. Agents and FFA advisors will receive instructions regarding approving entries for youth from their respective organizations after entries close. This will all be done online, similar to last year. All families also need to look at the updated show schedule. Everyone is encouraged to double check the rules for each show prior to entry and arrival to make the check-in process go as smoothly as possible. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.
- Make plans to attend the <u>KLA/Kansas State University Ranch Management Field Days</u>. Newland Farms will host the first event August 16 in southeast Kansas near Thayer. Ebert Ranch near Tescott will host the second event on August 23. The final field day will be held August 25 at Burgess Land & Cattle of Westmoreland. Each event will begin at 3:00 p.m. and include presentations on the history of the host operation and management practices used today, as well as educational sessions and a complimentary beef dinner. For more information, visit klak-state-field-days.
- Livestock Sweepstakes Livestock Sweepstakes is approaching on August 20-21. The entry deadline has passed, but those who entered youth will be receiving additional details and reminders as the event approaches. The livestock judging contest, livestock skillathon, and quiz bowl qualifying exam will be on Saturday, with the meat judging contest, head-to-head quiz bowl rounds, and awards ceremony being on Sunday. Through these events, the youth who will represent Kansas at the national contests will be selected.

We look forward to having Kansas 4-H'ers on campus to kick off the school year! For more information, please contact Lexie Hayes at adhayes@ksu.edu.

Livestock Projects Sold Through County Fair Premium Auctions - Now that county fair season is wrapping up, this is a reminder that livestock animals sold through a county fair premium sale OR ribbon auction are not eligible to be shown at the Kansas State Fair or the Kansas Junior Livestock Show. This is per the Kansas 4-H Policy, section 10.6 (https://www.kansas4-h.org/about/policy-guide.html). So, please refer to the policy guide on the state 4-H website for further details about the policy. As counties complete their fairs, extension offices need to submit a list of the STATE NOMINATED animals that participated in the premium auction. We only need the state nominated animals, not the entire sale bill/ribbon auction list. Please just email the official KSU nomination family name, specie, and tag #s. A list of animals nominated from each county may be found on the state livestock nomination reports posted on the KSU Youth Livestock Program website: https://www.asi.k-state.edu/research-and-extension/youth-programs/nominated-livestock/check-nominated-livestock.html. This list includes official KSU nomination family names and tag numbers. All lists need to be submitted by September 1. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.

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www.asi.ksu.edu - Facebook.com/KSUASI

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UPCOMING EVENTS...

- Developing and Implementing Your Company's HACCP Plan for meat, poultry, and juice processors will be September 28-30, 2022, in Olathe, KS. Information and registration for the 2.5-day International HACCP Alliance accredited workshop is online at http://bit.ly/HACCPCourse. For more information, contact Dr. Liz Boyle at lboyle@ksu.edu or 785-532-1247.
- KSU Beef Stocker Field Day to be hosted September 29, 2022 Come and help us celebrate the 23rd KSU Beef Stocker Field Day which will be hosted Thursday, September 29, at the KSU Beef Stocker Unit in Manhattan. The day will start at 9:30 a.m. with registration/coffee and conclude with a good old-fashioned Prairie Oyster Fry and Call Hall ice cream at 5:30 p.m. The schedule is as follows:

9:30 am	Registration/Coffee
10:15 am	Introductions
10:30 am	Beef Cattle Economic Outlook
	Glynn Tonsor, K-State
11:15 am	Ongoing Issues Surrounding the Transportation and Cattle Industry
	 Jeff George, Finney County Feedyard Inc., manager
	Alleah Hilker Heise, Hilker Trucking, president
	• Jara Settles, Livestock Marketing Association, general manager & VP of risk mitigation
	 Margaret Ann Smith, Southlex Cattle Company, owner
	Moderated by Wes Ishmael, Hereford World, executive editor
12:30 pm	Barbecue Brisket Lunch – View posters
1:15 pm	Evidence-Based Approach to Improving Stocker Health and Performance
	John Davidson, Boehringer Ingelheim Inc., cattle professional services senior associate director
2:15 pm	Triumphs and Tribulations of Respiratory Disease in Stocker Calves
	Robert Smith, Stillwater, OK
3:00 pm	Break
3:30 pm	Harnessing Nature: How to Use Dung Beetles to Improve Herd and Pasture Health
	Cassandra Olds, K-State
4:00 pm	Improving Efficiency Through Feeding Strategies and Cattle Comfort
	AJ Tarpoff, K-State
4:30 pm	Native Pasture Burning Strategies: Impacts on Cattle Performance and Pasture Vigor
	KC Olson, K-State
5:00 pm	Cutting Bull's Lament 2022
The day w	ill conclude with a good old-fashioned Prairie Oyster Fry and Call Hall ice cream. Pre-registration is

The day will conclude with a good old-fashioned Prairie Oyster Fry and Call Hall ice cream. Pre-registration is \$25 and due by September 15. For complete details and registration, visit www.KSUbeef.org. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427) or Lois Schreiner (lschrein@ksu.edu; 785-532-1267).

Watch for more details coming soon on the 2022 ASI Family and Friends Reunion. New for this year, the event will change from a Friday event to Saturday, October 8. This year we will be honoring Dr. Dave Nichols with the Don L. Good Impact Award. Make plans now to attend. To register, go to www.asi.ksu.edu/familyandfriends.

CALENDAR OF UPCOMING EVENTS			
Date	Event	Location	
August 15, 2022	KJLS Entry Deadline		
August 16, 2022	KLA/KSU Ranch Management Field Day	Thayer, KS	
August 20-21, 2022	Kansas 4-H Livestock Sweepstakes	Manhattan	
August 23, 2022	KLA/KSU Ranch Management Field Day	Tescott, KS	
August 25, 2022	KLA/KSU Ranch Management Field Day	Westmoreland, KS	
September 28-30, 2022	Developing and Implementing Your Company's HACCP Plan	Olathe, KS	
September 29, 2022	KSU Beef Stocker Field Day	Manhattan	
October 8, 2022	ASI Family and Friends Reunion	Manhattan	

WHAT'S NEW...

Management Minute - Justin Waggoner, Ph.D., Beef Systems Specialist

"Are You a Manager or a Leader?"

I recently came across an article that contrasted management and leadership ("Learning for future personal and business success" by Bob Milligan). Many of you, like myself, who always arrive at the most logical conclusion quickly are likely saying "a manager is a leader" and yes, that is true. However, there is a difference between the roles and responsibilities of managers and leaders. Leaders give an organization direction. Leaders focus on the future by motivating individuals or groups of individuals. Managers tend to be less focused on the future and more on the here and now. Managers organize, plan, budget, and ultimately implement the vision of the leader. Are you a leader or a manager? Is it possible to be both? As organizations and businesses grow larger structure becomes more important because of the established fact that it is "hard to see tomorrow, when you are buried in today."

For more information, contact Justin Waggoner at jwaggon@ksu.edu.

<u>Feedlot Facts</u> – Justin Waggoner, Ph.D., Beef Systems Specialist

"Silage Harvest: Think and Practice Safety First"

One of the busiest, most fast paced operations that occur this time of year is silage harvest. Cutters and choppers in the fields, trucks racing from the field to the pile or bunker, multiple tractors pushing and packing silage. The speed at which we can harvest silage today is amazing, but we should never allow the speed at which we can accomplish a task to compromise safety. In the infamous words of Dr. Keith Bolsen "Every silage accident could have been prevented." Listed below are a few things to consider during this year's silage harvest.

- <u>Don't become complacent</u>. Stay aware of your surroundings. Let's face it, there are a lot of highly repetitive operations in putting up silage. One of the number one factors that leads up to an accident is almost always complacency or lack of situational awareness.
- Truck drivers should always slow down when approaching houses and intersections on all roads, every time. Those houses along the road belong to our neighbors and friends, some of which have children. The increased traffic on gravel roads creates dust, and the crops are tall, both of which reduce visibility at intersections. Our neighbors should not fear going to their mailbox due to our silage trucks.
- <u>People (especially children) should never be allowed near a drive over pile or bunker silo during filling.</u> If people have to approach the area, get on the radio to inform the drivers/operators. Those on the ground in the area should always wear a bright colored orange safety vest.
- Never fill higher than the top of the bunker wall. This happens more than it should and creates a
 dangerous situation from the day the silage is packed until it is removed. The pack tractor cannot see
 the edge of the bunker well, if at all. The silage does not get packed well (which leads to poor silage) and
 the edge of the silage is unstable and more likely to collapse. <u>Don't do it.</u>
- <u>Be aware of steep slopes.</u> To reduce the risk of tractor roll-over, a minimum slope of one in three on the sides and end of piles should be maintained.
- <u>Never inspect or make repairs to equipment near the bunker or pile</u>. Equipment should be removed from the area as soon as possible. Repairs almost always involve people on foot and potentially people who may not be familiar with silage activities and the associated risks.

For more information, contact Justin Waggoner at jwaggon@ksu.edu.

Kansas Beef Council Survey - The Kansas Beef Council is working with Kansas State University to collect information on beef producers' preferences when it comes to communication and KBC programming. The survey asks general questions about your operation and communication preferences, as well as your perceptions of the Kansas Beef Council and the checkoff program. To complete the survey, please go to https://kstate.qualtrics.com/jfe/form/SV 7U1bEJ6MqQiVSoC.

WHAT'S NEW...

- Research Assistant Swine Unit (Job #513291) This is a full-time, Unclassified Professional Staff, term contract position. This position is designed to support the KSU Swine Teaching and Research Center day-to-day operations that are conducted in the farrowing house and nursery building. Oversight of farrowing and lactating sows and nursery pigs is the primary objective to ensure optimum animal health and well-being. Additionally, supporting other swine farm work and activities is required when needed and when the primary responsibilities are satisfied. Review of applications begins: Immediately and continues until position is filled. For more information, contact Dr. Jason Woodworth, Search Committee Chair, at 785-532-1157 or iwoodworth@ksu.edu. To apply, go to https://careers.pageuppeople.com/742/cw/en-us/job/513291/research-assistant.
- Farm Manager Dairy Unit (Job #512167) This is a full-time, Unclassified Professional Staff, term contract position. The KSU Dairy Teaching and Research Center (DTRC) exists to support the dairy teaching, research, and extension missions of the Department of Animal Sciences and Industry. The Farm Manager is responsible for the day-to-day management of the personnel, animals, and unit facilities and equipment in a manner that properly supports the teaching, research, and extension missions. Review of applications begins: Immediately and continues until a suitable candidate is identified. For more information, contact Dr. Mike Brouk, Search Committee Chair, at 785-532-1207 or mbrouk@ksu.edu. To apply, go to https://careers.pageuppeople.com/742/cw/en-us/job/512167/farm-manager.
- Impact of Disclosing Labeling Information on Consumer Sensory Evaluation of Ground Beef from a Similar Source The objective of this study was to determine the effect of providing labeling information prior to evaluation on consumers' palatability ratings of ground beef from a similar source. Ground beef (80% lean/20% fat) from a similar source was obtained and fabricated into 0.25 lb patties. Patties were fed to consumers who evaluated each sample for different palatability traits. Consumers were informed about the labeling information of each sample prior to evaluation. Labels utilized: all natural, animal raised without added antibiotics (WA), animal raised without added hormones (WH), fresh never frozen (FNF), grass-fed, locally sourced, premium quality, U.S. Department of Agriculture organic (ORG), and a blank sample (NONE). There were no differences in consumer ratings for tenderness, juiciness, texture, and overall liking for all labeling terms evaluated. When ground beef was labeled as locally sourced, there were large increases in consumer ratings for tenderness, juiciness, flavor, texture, overall liking, and purchasing intent. Moreover, labeling ground beef as grass-fed resulted in large increases in consumer ratings for tenderness, juiciness, flavor, texture, and purchasing intent. Except for grass-fed, overall liking ratings increased when the additional labeling information was provided to consumers. Additionally, all the purchasing intent ratings increased when information was provided except for when the ground beef was labeled as premium quality. No differences were found in the percentage of samples rated as acceptable for tenderness, flavor, and texture for all the labeling terms evaluated. Labeling ground beef as all natural, grass-fed, locally sourced, and premium quality increased the percentage of samples rated as acceptable for tenderness. For overall acceptability, labeling ground beef as WA resulted in a decrease in the percentage of samples rated as acceptable.

The Bottom Line: Results from this study indicate that consumers' eating experiences are swayed by the labeling terms found on packages. Those marketing beef products to consumers need to carefully select the marketing materials utilized. More information is available on this experiment and others in the KSU Cattlemen's Day report at www.KSUbeef.org. For more information, contact Travis O'Quinn (785-532-3469; travisoquinn@ksu.edu) or Liz Boyle (785-532-1247; lboyle@ksu.edu).

Syngenta Enogen Corn Fed as Corn Grain and Corn Silage in Diets Containing Corn Coproducts Did Not Enhance Growth Performance of Growing Heifers – The objective was to evaluate the effect of feeding corn grain and corn silage from Syngenta Enogen corn hybrids or conventional corn hybrids in diets containing either wet distillers grain or Sweet Bran on growth performance in growing cattle. Three hundred eighty-four crossbred heifers were used in a completely randomized design, 81-day receiving and growing study, with a 2 × 2 factorial arrangement of four dietary treatments. Experimental diets were formulated to contain 30% WDG or 30% WCGF on a dry matter (DM) basis and provide 51 megacalories of net energy for gain per 100 lb of DM daily. Diets were fed *ad libitum* once daily.

The Bottom Line: Our results revealed no effect of replacing conventional corn grain and silage with Enogen corn grain and silage on the growth performance of growing cattle, but diets containing WDG resulted in a better gain to feed ratio and average daily gain in growing heifers compared to diets containing WCGF. More information is available on this experiment and others in the KSU Cattlemen's Day report at www.KSUbeef.org. For more information, contact Dale Blasi (785-532-5427; dblasi@ksu.edu).

WHAT'S NEW...

- Evaluation of Increasing Dietary Threonine to Lysine Ratio in Corn Soybean Meal Diets with and without DDGS on Growth Performance and Carcass Characteristics of Growing-Finishing Pigs - A total of 2,160 pigs were used in a 112-d growth trial to evaluate the effects of normal or high SID Thr:Lys ratio in diets with and without DDGS on growth performance. Pigs were randomly assigned to pens in a randomized complete block design by BW with 20 replications per treatment. Pens of pigs were allotted to one of four dietary treatments arranged in a 2 × 2 factorial with main effects of dietary Thr level (Normal vs. High) and DDGS (with or without DDGS). Treatment diets were formulated in four phases from 75 to 125, 125 to 175, 175 to 230, and 230 to 300 lb BW. Diets with high DDGS were formulated to include 40% DDGS in phase 1 and 2, 30% in phase 3, and 15% in phase 4. Normal Thr diets were formulated to contain 61, 62, 63, and 65% SID Thr:Lys ratios for the four dietary phases, respectively. High Thr diets had SID Thr:Lys ratios of 67, 68, 69, and 72%, respectively. There were no interactions observed in any phase or overall, between Thr level and inclusion of DDGS for ADG, ADFI, F/G, and BW. For the overall period, pigs fed diets without DDGS had increased ADG and BW and reduced ADFI leading to improved F/G. There was no evidence for difference between diets with or without the inclusion of DDGS when diets were formulated to normal or high SID Thr:Lys ratio. In summary, the addition of high levels of DDGS reduced ADG and increased ADFI, which resulted in poorer F/G and lower final BW, regardless of the dietary SID Thr:Lys level. Additional research should be conducted to evaluate the effect of high Thr:Lys levels when soluble fiber sources are included in finishing pig diets instead of an insoluble fiber source such as corn DDGS. More information is available in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Andres Tolosa, Mike Tokach, Robert Goodband, Jason Woodworth, Joel DeRouchey, and Jordan Gebhardt.)
- Effects of Increasing Soybean Meal in Diets Based on Corn and Dried Distillers Grains with Solubles on Growth Performance and Carcass Characteristics of Late Finishing Pigs A total of 1,827 pigs were used to evaluate the effects of increasing soybean meal in corn-DDGS-based diets on growth performance of late finishing pigs. Pens were blocked by BW and randomly assigned to 1 of 5 dietary treatments with 14 replications per treatment. Experimental diets were corn-based with 25% DDGS. Soybean meal levels increased from 0 to 16% in 4% increments replacing added feed grade AA. Pens of pigs were weighed to evaluate ADG, ADFI, and F/G. Data were analyzed with the GLIMMIX procedure of SAS and pen was considered as the experimental unit. The statistical model considered fixed effects of dietary treatment, linear and quadratic contrasts, and random effects of group and block. Overall, final BW of pigs marginally increased as SBM increased, with the greatest improvement observed when diets contained 8% SBM. However, there were no differences among treatments in overall ADG, ADFI, or F/G. Furthermore, there was no influence of increasing SBM on carcass characteristics. These results suggest that increasing SBM concentrations in diets that contain 25% DDGS did not influence growth performance of late finishing pigs. More information is available on this report and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Julia Holen, Robert Goodband, Mike Tokach, Jason Woodworth, and Joel DeRouchey.)
- Effects of Increasing Soybean Meal in Corn-Wheat Midds-Based Diets on Growth Performance and Carcass

 Characteristics of Late Finishing Pigs A total of 786 pigs were used to evaluate the effects of increasing soybean meal in corn-wheat midds-based diets on growth performance of late finishing pigs. Pens of pigs were blocked by BW and randomly assigned to 1 of 5 treatments with 9 replications per treatment. Experimental diets were corn-based with 30% wheat midds. Soybean meal levels increased from 0 to 16% replacing added feed grade AA. Pens of pigs were weighed to evaluate ADG, ADFI, and F/G. Data were analyzed with the GLIMMIX procedure of SAS and pen was considered as the experimental unit. The statistical model considered fixed effects of dietary treatment, linear, quadratic, and cubic contrasts, and random effects of block. Overall, final BW of pigs increased as dietary SBM increased. Additionally, overall ADG and F/G improved as SBM increased with no differences in overall ADFI. Although diets were formulated to exceed minimum NRC nutrient requirement estimates, we suspect that the increased Trp:Lys ratio in the 16% SBM diet may explain the cubic responses observed. These results suggest that corn-soybean meal-based diets with 30% wheat midds for late finishing pigs should contain at least 4% SBM. More information is available in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Julia Holen, Robert Goodband, Mike Tokach, Jason Woodworth, Joel DeRouchey, Chad Hastad, and Zach Post.)

ASI FACULTY SPOTLIGHT...



Morgan Zumbaugh (mdzumbaugh@k-state.edu; 785-532-1253) Assistant Professor, Muscle Biology/Meat Science

Dr. Morgan Zumbaugh is an assistant professor in the Animal Sciences and Industry Department. Zumbaugh is a muscle biologist and meat scientist with research interest in skeletal muscle metabolism and the associated regulatory signaling pathways. The overall goal of Zumbaugh's research is to optimize muscle growth and fresh meat quality.

Zumbaugh earned her bachelor's degree in the Animal and Poultry Sciences department at Virginia Tech in 2016. Then, she continued her education at Virginia Tech and earned her PhD in muscle biology and meat science in the Animal and Poultry Sciences department in 2020.

At K-State, Zumbaugh's appointment is 70% research and 30% teaching. She teaches the growth and development course and other subjects in muscle biology and/or meat science that further prepare our students for future careers or advanced education.

During her studies at Virginia Tech, she worked as an undergraduate and graduate research assistant in the Animal and Poultry Sciences department. Through this role, she had the chance to gain teaching experience in meat science, animal growth and development, and animal breeding- and genetics-based courses.

Morgan and her husband, Chuck, enjoy exploring Manhattan's parks with their American Mastiff, Ripley.



Kelly Getty (kgetty@k-state.edu; 785-532-2203) Associate Professor, Food Processing and Safety

Dr. Kelly J.K. Getty, originally from Emporia, KS, received her B.S. (1988) and Ph.D. (1999) in Food Science from Kansas State University and M.S. (1994) from Pennsylvania State University in Food Science.

Dr. Getty started at Kansas State University with the Food Science Institute in 2001. In 2012, Dr. Getty was fully appointed to ASI with an 80% Teaching/20% Research appointment and has transitioned to a 60% teaching and 40% extension appointment.

Currently, Dr. Getty serves as the Co-Director of the Kansas Value Added Foods where she provides food safety support to food processors in Kansas. She is an

approved Process Authority for acidified foods by the Association of Food and Drug Officials.

In addition, Dr. Getty teaches Fundamentals of Food Processing (on-campus and online) and Research and Development of Food Products (on-campus and online). Her research efforts involve ingredient functionality in food products and development of new food products.

Prior to Kansas State University, Getty was an assistant professor at Clemson University where she taught meat science courses and conducted meat and food safety research. Getty also worked at Pizza Hut, Inc. and the American Meat Institute.

Dr. Getty and her husband, Chris, reside in Manhattan with their two children.

WHAT PRODUCERS SHOULD BE THINKING ABOUT

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN OCTOBER...

BEEF -- Tips by Dale Blasi, Extension Beef Specialist

Cow Herd Management

- Given unforeseen weather and market price volatility, price byproducts, grains and other feedstuffs on a per nutrient basis.
- Do you have sufficient harvested forage to encounter a potentially severe winter feeding season? Conduct an inventory of harvested forages and determine if you have an adequate supply on hand.
- ✓ Pregnancy check.
- ✓ Cull cows because of:
 - ♦ Open.
 - ♦ Late vs. Early calving.
 - ♦ Soundness udder, feet/legs, eyes, teeth, disposition.
 - Productivity Most Probable Producing Ability (from herd performance records).
 - ♦ Disposition.
- ☑ Body Condition Score
 - Provide thin cows (body condition score 3s and 4s) extra feed now. Take advantage of weather, stage of pregnancy, lower nutrient requirements, and quality feedstuffs.
- If body condition scores warrant it, you may want to start feeding supplements in late October to mature cows using these guidelines:

Dry grass 1½ - 2 lb. supplement/day of a 40% CP supplement

Dry grass 3 - 4 lb. supplement/day of a 20% supplement

Dry grass 10 lb good nonlegume hay, no supplement needed

(heifers may need more supplement than older cows)

- Supplement nutrients that are most deficient.
- ♦ Compare supplements on a cost per pound of nutrient basis.
- Previous KSU research has reported early winter supplementation is not necessary if grazing forage supplies are adequate and cows have at least a 5 BCS. However, given the lower nutrient content of existing forage supplies due to ample rainfall, this year might be advisable to consider supplementing with levels of supplement mentioned above. If cow BCS is marginal, it would be prudent at this time to collect and submit standing forage samples to a laboratory to determine if supplementation during the fall period is necessary.
- ☑ Utilize crop residues. Grazing crop aftermath can reduce daily cow costs by 50¢ or more.
 - Strip graze or rotate fields to improve grazing efficiency.
 - ♦ Average body condition cows can be grazed at 1 to 2 acres/cow for 30 days assuming normal weather.
- Consider feeding cull cows to increase value, body weight and utilize cheap feedstuffs. Seasonal price trends have allowed producers to take advantage of maximum profit opportunities with cull cow feeding programs. Healthy cows can gain extremely well on well balanced diets.
- ☑ Check individual identification of cows. Replace lost tags or redo brands.

WHAT PRODUCERS SHOULD BE THINKING ABOUT

Calf Management

- ☑ Wean calves:
 - Reduce stress. Provide a clean, dust-free, comfortable environment.
 - Provide balanced nutritional program to promote weight gain and health.
 - Observe feed and water intake. Healthy, problem free calves have large appetites.
 - Observe calves frequently. Early detection of sickness reduces medical costs and lost performance.
 - ♦ Vaccinate calves and control internal/external parasites through veterinary consultation (ideally done prior to weaning).
 - ♦ Vaccinate all replacement heifer candidates for brucellosis if within four to 10 months of age.
 - Use implants and feed additives to improve efficient animal performance.
- ☑ Weigh all calves individually. Allows for correct sorting, herd culling, growing programs, replacement heifer selection, and marketing plans.
- ☑ Participate in Whole Herd Rewards, Performance Plus, and(or) other ranch record/performance systems.
- Finalize plans to merchandise calves or to background through yearling or finishing programs.
 - ♦ Consider feedstuff availability.
 - ♦ Limit feeding high concentrate diets may be a profitable feeding program.
- ☑ Select replacement heifers which are:
 - Born early in the calving season. This should increase the number of yearling heifers bred during the early days of the subsequent breeding season.
 - Daughters of above average producing cows. Performance traits are moderately heritable traits.
 - Of the proper frame size to compliment desired mature size and weight.
 - Structurally correct. Avoid breeding udder, feet, and leg problems into the herd.
- ✓ Vaccinate replacement heifers with first round of viral vaccines.
- ☑ Plan replacement heifer nutrition program so that heifers will be at their "target weight" (65% of their mature weight) by the start of the breeding season.

Forage/Pasture Management

- ☑ Observe pasture weed problems to aid in planning control methods needed next spring.
- ✓ Monitor grazing conditions and rotate pastures if possible and(or) practical.
- ☑ Plan winter nutritional program through pasture and forage management.
- For stocker cattle and replacement heifers, supplement maturing grasses with an acceptable degradable intake protein/ionophore (feed additive) type supplement.

General Management

- Avoid unnecessary stress. Handle cows and calves to reduce shrink, sustain good health, and minimize sickness.
- ☑ Analyze forage for nitrate and nutrient content. Use these to develop winter feeding programs.
- ☑ Repair, replace, and improve facilities.
- ☑ Plan your marketing program, including private treaty, consignment sales, test stations, production sales, etc.