BEEF TIPS

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K-STATE Kansas State University

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Upcoming Events

February 6
Tri-State Beef Conference
St. Francis, KS

February 10–14
National Cattlemen's Beef Association Annual Convention
Charlotte, North Carolina

March 5
KSU Cattlemen's Day
Manhattan, KS

HUCK NAMED SOUTHWEST AREA LIVESTOCK PRODUCTION SPECIALIST

Born and raised on the family farm in nearby Scott City, Lance Huck was hired May 3 as livestock production specialist for Kansas State University's southwest area Extension office in Garden City.

Among the key issues Huck hopes to address within the 24-county southwest area are helping beef producers raise profits, working closer with feedyards and responding to forage utilization concerns.

Persons with livestock production questions may contact Huck at the southwest area Extension office in Garden City, (316) 275-9164.

We will introduce you to the northwest and south-central area specialists in upcoming issues.

NUTRITIONAL EVALUATION OF KANSAS CROP RESIDUES FOR EXTENDING THE GRAZING SEASON

Kansas ranks 1st nationally for grain sorghum and wheat production and is ranked 9th for corn produced. These rankings are represented by 11.7 million acres of wheat, 5.1 million acres of corn and sorghum and 2.5 million acres of soybeans planted in 1997. Tillage and fertilization practices and varietal selection technologies have changed dramatically since the 1970s when the vast majority of crop residue work was conducted by Midwest universities. Moreover, harvesting equipment manufactured today is much more efficient; consequently dropped grain is less in many cases. All of these factors, coupled with the fact that the beef cow population in general has changed in terms of mature size and level of milk production over the past 20 years suggests that crop residues should be reevaluated as a grazing resource for extending the grazing season. To accomplish this task, the K-State Research and Extension Forage Task Force conducted a statewide demonstration project during the 1997/98 feeding period.

Crop residue samples from 22 grazed and non-grazed corn and sorghum residue fields across Kansas were collected by county agents every two weeks. At the onset of the grazing season, approximately one-half acre was secluded from active grazing to evaluate the effects of weathering on residue nutrient content. In most cases, the duration for each county grazing period was dependent on the length of time the livestock grazed the residue field. For each 2-week sampling period, the residue in the grazed and non-grazed areas were collected from four different areas of the residue field in either 8- or 12-foot row lengths and separated into attached leaves (manually removed from stem), unattached leaves and stems (harvested above the brace root). All sub-

samples from each plant part and sampling period were individually weighed to estimate pounds of dry matter (DM) per acre and ground through a lawn chipper. The replicated samples were composited and sent to a commercial forage testing laboratory for nutrient analysis of DM and crude protein content. In addition, neutral detergent fiber (NDF) and acid detergent fiber (ADF) levels was determined from all samples in order to derive a crude estimate of feeding value (TDN). To arrive at district averages, data from individual counties were composited by crop residue type. Only counties with multiple sampling periods were included in this compilation.

Previous research has demonstrated residue yield and nutrient content are directly linked to grain yield, fertility, harvest date, conditions at harvest in addition to duration and initiation of grazing date. Corn residue yield in the west averaged almost 3 tons of total DM per acre. This value was almost consistent with the estimate determined from the central area and considerably higher (3.0 vs 1.9 tons) than the amount collected from northeast Kansas. Corn leaves (attached and unattached) constituted about 60% of residue DM. In this study, unattached leaves represented almost 85% of the total leaf DM weight and 50% of the total plant DM collected. These observations are consistent with earlier reports citing the vulnerability of corn residue to snow cover and wastage from trampling. Total residue DM crude protein content ranged from 3.7% in the west to 5.0% in the northeast. From November through December there was no apparent decline in corn residue crude protein content from area to area. As one would suspect, crude protein content was higher in the leaf fraction relative to the stem. The TDN content of the leaf fractions (unattached and attached) ranged from 48 to 51% throughout the state and was higher than the stem at all locations as well.

The sorghum residue DM yield estimate for central Kansas averaged about 2.4 tons per acre and is consistent with previous research reporting lower residue DM yields per acre for sorghum vs corn. There was less DM remaining in the grazed vs non-grazed paddocks. The stem component represented 55 to 60% of the total DM collected from the grazed and ungrazed sorghum residue sampling locations. In contrast to corn, almost 55% of the sorghum leaves were attached. Previous research has consistently shown residue nutrient content is highest at harvest and decreases over a 6- to 8-week period. Overall, the crude protein and TDN content of the sorghum residues sampled in this study was higher than the corn residue. Total sorghum residue DM crude protein content in the central area averaged 5.6% and 6.8% for the grazed and ungrazed paddocks, respectively. It appeared crude protein was higher for all plant fractions in the non-grazed vs the grazed paddocks. As opposed to the distinct TDN differences which existed between corn stem and leaf fractions, there appeared to be only minor differences noted between sorghum stem and leaf fractions. Crude protein and TDN values obtained from the collected samples are comparable to values from previously published reports.

The carrying capacity of crop residues can encompass a wide range of values (AUM/acre) because of fertility level, influence of the amount and type of grain and residue left in the field, method of pasturing and, most importantly, weather conditions. Highly variable growing and environmental conditions encountered across the state was undoubtedly responsible for the large range in pounds of DM yield calculated per acre. As indicated earlier in the report, total residue tonnage for sorghum and corn residue averaged two and three tons per acre or about 2 and 3 AUM's, respectively, when accounting for a 40% peak utilization rate. Using more cattle for shorter periods of time will achieve a greater grazing capacity because of less selective grazing. Consequently, cattle will consume more lower quality material and, thus, trample less, especially during inclement weather.

Previously conducted research indicates non- lactating beef cows can be maintained primarily on crop residues (corn and sorghum) from weaning until mid-pregnancy with a minimum of protein supplementation. For example, an 1,150-lb cow in the middle third of gestation consuming corn residue will require only .2 lb supplemental crude protein daily to satisfy requirements. However, the energy and protein demands of third trimester pregnancy will result in a loss of approximately $^1/_2$ pound live weight per day if no crude protein is made available (supplemental crude protein needs = .4 lb daily). Alternatively, sorghum residue under the same two scenarios discussed above could result in a potential live weight gain of .56 lb/day during the middle third of pregnancy and no weight loss during the last trimester (calculated supplemental crude protein needs = .1 lb/day). If cattle are forced to graze crop residues during lactation, the crude protein and energy requirements of the lactating beef cow will exceed the feeding value of either crop residue type. Indirectly, this suggests calving dates earlier than February 1 are not compatible with maximum crop residue utilization when considering uncertain environmental winter conditions and the likely decline in residue quality as grazing season progresses.

For a variety of reasons, many beef producers do not capitalize on the availability of crop residues in Kansas for reducing production costs. Crop residues trap desperately needed winter moisture and reduce erosion but present a problem when attempting to minimize tillage. Lack of shelter, appropriate fencing, availability of stock water and concern of soil compaction are additional reasons why livestock producers may elect not to utilize crop residues.

The beef cow's penchant for converting forage to a nutritious food for human use should be the cornerstone or basis from which all management decisions are formed. Meeting cow/calf performance goals for growth, reproduction, replacement rates and market weight are important, yet beef producers must also recognize that cost control is a vital component of the survival quotient as well. Feed costs represent the cow/calf producer's single largest annual expense, amounting to 50 to 70% of the total cost of maintaining a beef cow. When coupled with environmental variability, feed cost control represents a moving target that can only be bulls eyed with appropriate planning and evaluation of existing options.

By Dale A. Blasi, Extension Beef Specialist, Stocker and Forages

IT'S TIME TO THINK ABOUT . . . FOR SPRING CALVING COW/CALF PRODUCERS

Cowherd Management

- Finish culling cows in order of priority. "Three O Rule" Open. Old. Onry.
- Get rid of problems/structure, feet and legs, eyes, teeth.
- Poor producers.
- Continue feeding/grazing programs started in October and November.
- Supplement to achieve ideal body condition scores at calving.
- Use this formula to compare the basis of cost per pound of crude protein: (Cost of supplement, $/cwt) ÷ (100 ¥ Percent crude protein) = cost per pound of crude protein
- Use this formula to compare energy sources on basis of cost per lb of total digestible nutrients: (cost, $/ton ÷ (2,000 ¥ dry matter percent ¥ %TDN in dry matter) = cost per lb of TDN.
- Control lice.
- Purebred breeders should send performance data to the national breed association office.
- Be sure the herd has an adequate water supply. Depending on body size and stage of production, cattle need 5 to 11 gallons per head per day, even in the coldest weather.
- Provide some protection, such as a windbreak, during severe winter weather to reduce energy requirements.
- Body condition score cows and sort into management groups. Put thin and young cows together and feed accordingly.
- Forage test to divide forage supplies into quality lots to determine supplementation needs.
- Feed lowest quality forage to mature dry cows during late fall/early winter (mid gestation).
- Feed medium quality forage to dry cows during late pregnancy.
- Higher quality feedstuffs should be utilized for replacement females and younger cows and thin cows which may lack condition and be more nutritionally stressed.
- Consult with your veterinarian in regard to pre- and postpartum vaccination schedules.
- Check mineral feeders and mineral programs.
- Check Cow rations with KSU "Balancer" software.
- Plan to attend educational and industry meetings.

Weaned calf management

- Use KSU "Grower" software to formulate rations.
- Develop replacement heifers properly. Weigh them now to calculate necessary average daily gain to achieve target breeding weights. Smaller framed heifers usually need to gain 1 to 1.5 lb/day, 1.5 to 1.75 lb/day on larger-framed heifers.
- Steer calves to go to grass the following summer should be gaining .5 to 1.75 lb/day.
- Steer calves to be finished by following spring or early summer should be grown to maximize rate of gain (>2.5 lb/day, depending on breed).
- Bull calves to be fed out and sold in the spring as yearlings should average about 3.5 lb/day. Bulls will not get as fat as steers at the same level of performance.

Environmental concerns

- Increase the amount of energy 1% for each degree of cold stress (no effect on protein, mineral and vitamin needs).
- Cold stress involves both wind chill and lower critical temperatures.

Beef Cattle Lower Critical Temperatures (LCT)

Coat Description	Lower Critical Temperature
Summer coat	59 degrees F
Wet coat	59 degrees F
Fall coat	45 degrees F
Winter coat	32 degrees F
Heavy winter coat	18 degrees F

Wind Chill Chart

Wind Speed	Temperature						
MPH	0	5	10	15	20	25	30
0	0	5	10	15	20	25	30
5	-5	1	5	10	15	20	25
10	-8	-6	-4	4	9	14	19
15	-16	-11	-6	-1	4	9	14
20	-20	-15	-10	-5	-1	3	8
25	-27	-22	-17	-13	-9	-2	3
30	-36	-31	-26	-21	-16	-11	-6
35	-50	-45	-40	-35	-30	-25	-20
40	-66	-62	-59	-53	-48	-43	-34

By Twig Marston,
Extension Specialist,
Cow/Calf Management

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U.S. DEPARTMENT OF AGRICULTURE
KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS 66506

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Kansas Feedlot Performance and Feed Cost Summary*

Gerry Kuhl, Extension Feedlot Specialist, Kansas State University

October 1998 Closeout Information**

Sex/No.	Final Weight	Avg. Days on Feed	Avg. Daily Gain	Feed/Gain (Dry Basis)	% Death Loss	Avg. Cost of Gain/Cwt.	Projected Cost of Nov.-Placed Cattle
Steers: 12,517	1,244	129 (113–154)	3.45 (2.79–3.81)	6.07 (5.67–7.29)	.77	$50.18 (47.03–57.43)	$47.25 (45.00–50.00)
Heifers: 17,154	1,134	134 (120–157)	3.15 (2.88–3.41)	6.22 (5.73–6.84)	.73	$51.79 (49.57–54.83)	$49.42 (47.00–52.50)

Current Feed Inventory Costs: November 15 Avg. Prices		Range	No. Yards
Corn	$ 2.17/bu	$ 2.00–2.25	7
Ground Alfalfa Hay	$76.34/ton	$68.00–85.00	7

*Appreciation is expressed to these Kansas Feedyards: Brookover Feed Yard, Brookover Ranch Feed Yards, Decatur County Feed Yard, Fairleigh Feed Yards, Kearny County Feeders, Pawnee Valley Feeders, and Supreme Cattle Feeders.

**Closeout figures are the means of individual feedyard monthly averages and include feed, yardage, processing, medication, death loss and usually sold FOB the feedlot with a 4% pencil shrink. Interest charges are not normally included.

K-State, County Extension Councils, Extension Districts, and U.S. Department of Agriculture Cooperating.

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