Beeftips
K-STATE Kansas State University
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Feeding low-test-weight and sprouted wheat

Twig Marston and Joel DeRouchey

Wheat is generally grown for the production of human foods. Unfortunately, undesirable growing and harvest weather may cause wheat to become unacceptable for milling, leaving it to be used as livestock feed. Many studies have been conducted on feeding wheat to livestock, and most report excellent animal performance when the wheat-containing diet is managed correctly.

Livestock feeders, particularly cattle feeders, should consider taking advantage of these price discounts when such wheat is available.

A small amount of energy is lost during germination, which produces heat, carbon dioxide and moisture. In most cases it appears that these minute losses do not depress or reduce the nutritive value of the grain. In fact, it appears that low to moderate levels of sprouting may actually improve the feeding value of wheat under certain circumstances. Excessive sprouting, however, can diminish the feed value somewhat.

Regardless of condition, wheat fed to livestock should be processed by grinding, dry rolling, or steam flaking to disturb its hard seed coat. According to Australian research, whole wheat has a digestibility of about 60 percent compared to 86 percent for dry-rolled wheat. Attention to processing is critical. In ruminants, wheat should be coarsely rolled (breaking the kernel into a few pieces), not finely ground. Excessive fines will increase the rate of acid production in the rumen and increase digestive upsets. Digestive problems might include bloat, founder and acidosis. Excessive fines also can decrease dietary intake and in turn reduce animal performance.

Wheat is low in fiber content. This, combined with its high starch content, makes wheat more difficult to feed than other grains in ruminant rations. Inexperienced feeders should consider mixing wheat with other grains, such as corn or grain sorghum, to stabilize the rumen fermentation of the diet. Generally, wheat should be restricted to 30 to 50 percent of the complete diet for finishing cattle. This is to ease bunk management. Adapting fed cattle to diets with high wheat content may take 20 to 30 days. Ionophores should be included in wheat-based finishing diets to improve feed efficiency and reduce the risk of acidosis. Buffers like limestone and sodium bicarbonate may be helpful in reducing digestive upsets.

Stocker cattle consuming silage or hay diets can also utilize damaged, low-test weight wheat. Wheat should be limited to 1 percent or less of the animal's body weight for growing cattle. It is imperative that the protein content of the diet be formulated to meet the animal and rumen microbial requirements.

Wheat usually contains less than 14 percent protein, which limits its use in cow diets that are based on moderate or low-quality forages. Protein supplements used in these feeding situations usually contain 20 to 40 percent protein. Regardless of the weight or classification of cattle, producers should feed by weight not volume.

The price of low-test-weight, sprouted wheat can be calculated from the current value of corn and soybean meal. One hun-

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Upcoming Events

KSU/KLA Ranch Management Field Day
Sept. 8
Vaughn & Vaughn, Inc.
Rexford, Kan.
Sandy Johnson
785-462-6281

Beef Stocker Field Day
Sept. 17
KSU Beef Stocker Unit
Manhattan
West Marlatt Ave.
Contact Lois Schreiner
785-532-1267

Kansas Oklahoma Cattle Conference
Oct. 25
El Dorado, Kan.
Twig Marston
785-532-5428

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Feed by weight, not volume.

dred pounds of wheat has about the same value (protein and energy) as 92 pounds of corn and 8 pounds of 48 percent soybean meal. This relationship can be used to calculate a breakeven wheat price. For example, if corn is $3.00/bushel and soybean meal is $250/ton, the price of wheat should be about $3.56/bushel. If starch content of wheat is reduced due to adverse weather, the protein concentration is usually elevated 1 to 3 percent. When the test weight is above 50 pounds per bushel, few animal performance differences have been noted. If the test weight is between 45 and 50 pounds per bushel for wheat, it appears that the feeding value drops to about 95 percent the feeding value of corn. Wheat is low in calcium, so an increase in the inclusion of limestone would be appropriate.

Damaged wheat should be stored carefully. Moisture content should be low enough to ensure that mold does not grow within the storage structure. If the wheat must be harvested at high moisture content, then it should be dried to a safe level, aerated, preserved with a storage additive, or ensiled in an anaerobic state (like silage). Molds may produce toxins that can affect feeding value through reduced feed acceptance, intake and performance, as well as a greater incidence of morbidity, possibility of abortion in pregnant cattle, and in some cases even death. If mold is present on kernels, a sample should be sent to a diagnostic laboratory for testing. Young animals, reproductive females and animals under nutritional stress are most vulnerable to toxins.

Publication MF-2659, *Feeding Low-Test Weight and Sprouted Wheat*, can be obtained from your county K-State Research and Extension office as well as other information on feeding out-of-condition grains.

Anthrax found in South Dakota herd

Larry C. Hollis, D.V.M., M.Ag.
Extension beef veterinarian

The South Dakota case of anthrax involved 180 unvaccinated cow-calf pairs. Seven cows and one calf were lost.

According to a ProMED-mail report, anthrax appeared the last week of July on a South Dakota ranch. The ranch is located *in an area where outbreaks have occurred sporadically* since a major outbreak in the 1930s that included parts of the Dakotas, Nebraska and Minnesota. This case involved a pasture containing approximately 180 unvaccinated cow-calf pairs. Seven cows and one calf were lost. The herd was scheduled for immediate treatment and subsequent vaccination by the state veterinarian, and carcasses were properly disposed of under the supervision of the Animal Industry Board. Area livestock producers have been alerted so they can consult their veterinarians and vaccinate their livestock if appropriate. Veterinarians have been warned to look for additional cases of anthrax. Rendering companies also have been informed so that carcasses are burned and buried on the farm and not rendered.

Anthrax also occurred the first week of August in cattle and deer on three ranches in southern Texas. This area also experiences periodic episodes of anthrax. Local ranchers and veterinarians recognized the disease quickly and responded to keep the disease from spreading.

This serves as a reminder not to become complacent about disease. If unexplained illnesses or deaths occur, contact your veterinarian or the state veterinarian's office. Early response and diagnosis lead to early intervention, which can avoid additional death losses and spread of the disease.

Test forages to prevent nitrate, prussic acid problems

Sandy Johnson, livestock specialist

Growing conditions that are conducive to nitrate or prussic acid poisoning occur often in Kansas. Both poisonings are associated with forage and grain sorghums, sudan grass and sorghum-sudan hybrids. Both conditions are more likely in stressed plants and result in asphyxiation of the animal. Distinct differences do exist, however, and need to be understood to prevent or manage problems.

Nitrate poisoning

Accumulation of nitrates is caused by drought stress or any condition that decreases growth such as hail, light frost, herbicide drift or plant disease where plant leaf area is reduced. When plant growth is slowed, nitrogen metabolism is disrupted and causes nitrate accumulation, especially in the lower third of the stem. Excessive nitrogen fertilization or acid and potassium deficient soils may increase nitrate content.

Crops such as forage and grain sorghums, sudan grass, sudan-sorghum hybrids and pearl millet are notorious nitrate accumulators. Weed species such as kochia, lambsquarters, sunflower, pigweed and Johnsongrass also are often high in nitrate. Low temperatures – less than 55°F in the spring or fall – retard photosynthesis of warm-season plants and favor nitrate accumulation.

Testing forages for nitrate concentration is a cheap way to prevent problems. When testing forages for grazing, test the plant parts the animals will eat. Nitrate concentrations can vary widely within and among fields, so multiple samples (at least 20 cores per field) should be taken and compiled for testing. It is not uncommon for nitrate-accumulating weeds within baled forage to be responsible for delivering the lethal dose.

Prussic acid poisoning

Prussic acid or hydrogen cyanide is found in sorghums and related plant species. Prussic acid is harmless until it is degraded and cyanide is released. Degradation occurs when the plant is damaged from frost, chewing or crimping. Rumination and rumen bacteria both contribute to releasing cyanide. Content is highest in young, rapidly growing plants. New sorghum growth, especially suckers and tillers following drought or frost, is dangerously high in cyanide. After a killing frost, wait at least four days before grazing.

Testing forage for cyanide is possible but difficult because the cyanide volatilizes from the plant after it is cut.

For details on prevention and management of forages with potential for nitrate or prussic acid poisoning, contact your county K-State Research and Extension office.

Nitrate and prussic acid poisoning are associated with forage and grain sorghums, sudan grass and sorghum-sudan hybrids.

Table 1. Characteristics of nitrate and prussic acid poisoning.

Category	Nitrate poisoning	Prussic acid poisoning
Stage of growth	Usually in young plants but can be high in mature plants	Young rapidly growing
Problem plant parts	Entire plant, but highest concentration in lower one-third of stalk	Growing point and young leaves
Impact on hemoglobin	Hemoglobin is converted to methemoglobin, which can not transport oxygen	Prevents hemoglobin from releasing oxygen to the cells
Blood color	Chocolate brown	Bright red
Emergency treatment	Methylene blue	Sodium thiosulfate and sodium nitrate
Symptoms	Symptoms vary from abortion, reduced performance to death.	Death occurs in less than 30 minutes
Adaptability	Rumen can adapt to higher concentrations over time	Animal cannot adapt or become immune
Hay	Not changed with drying	Reduced by drying, but may not be eliminated
Ensiling	Reduced 20 to 50 percent, but could still be lethal	Reduced but may not be eliminated

Fall feedlot preparation checklist

Larry C. Hollis, D.V.M., M.Ag.,
Extension beef veterinarian

A good feedyard manager makes cattle comfort and cattle feed management a primary focus. Employee satisfaction and retention play key roles in ensuring good animal husbandry at the lot. With this in mind, now is a good time to evaluate the working conditions of the the facilities and people that may be put to test during a busy fall calf run and/or the upcoming winter months.

Summer

- Repair feed-mill and feed-delivery equipment
- Repair receiving, processing and treatment facilities
- Repair alleyways, fences, feed bunks, waterlines, waterers, etc.

Late summer/early fall

- Hire enough help and train them before the fall run
- Get snow removal equipment in good working condition
- Contract with heavy equipment operators to help with excessive snow removal
- Contact part-time workers that can help during bad weather
- Winterize waterers
- Purchase hay
- Purchase bedding material
- Discuss health management program plan with veterinarian
- Discuss anticipated product needs with animal health supplier
- Discuss storm feeding program plan with nutritionist
- Discuss winter storm plan assignments with employees

Fall

- Have adequate help available to receive, process, pull and treat cattle
- Don't overload the system – if you get behind on processing and treating cattle, ask suppliers to delay gathering and shipping cattle until you are caught up

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Beef Stocker Field Day

Cattle producers interested in seeing the latest animal identification technology and taking home some practical management tips will want to attend KSU's Beef Stocker Field Day. The event will take place Sept. 17 at the new KSU Beef Stocker Unit in Manhattan.

The cost is $30 at the door. The fee includes admission to all sessions, lunch and a Rocky Mountain oyster fry that evening.

The conference agenda includes: *Update on the National Animal Identification Plan*, Mark Spire, DVM, KSU College of Veterinary Medicine; *Development and Implementation of Animal Health Protocols*, Rodney Christmas, Elanco Animal Health; and breakout sessions on marketing, animal health, brush management and predator control.

For more information or to register, contact Lois Schreiner at 785-532-1267.

Oklahoma Kansas Cattle Conference

The Oklahoma Kansas Cattle Conference will be October 25, 2004, at El Dorado, Kansas, and October 26 at Cowboy Junction, Oklahoma.

Oklahoma and Kansas Cooperative Extension Services are combining resources to produce a quality educational event for cow- calf producers. Topics and speakers include *Ranch-hand Management,* Sarah Fogleman, KSU SE Area Extension Economist; *Selecting Genetics to Match Today's Markets,* Jim Gosey, University of Nebraska; and *Back to the Future*, beef cattle management and information sources for sound decision-making, Tom Fields, Colorado State University. Duane Toews will serve as emcee for the meeting.

Focus on Feedlots

The latest report from Focus on Feedlots can be found at: *www.oznet.ksu.edu/dp_ansi/nletter/fof.htm*
To receive e-mail notification of the monthly report contact Linda Siebold, *lsiebold@oznet.ksu.edu* or 785-532-1281.