



Grazing Failed Cotton

EXTENSION

November 2023

David Lalman

Professor, Department of Animal and Food Sciences

Marty New

Area Extension Specialist, Livestock

Paul Beck

Professor, Department of Animal and Food Sciences,
Department of Plant and Soil Sciences

Todd Baughman

Research Professor and Weed Scientist,
Institute For Agri Biosciences

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
extension.okstate.edu

A failed cotton crop can be used to extend the grazing season, replace some or all hay feeding for a period and provide additional revenue for the cotton farm. The seed, lint, boll and leaf plant components have good nutritional value for beef cattle. Mature cotton stalks have little nutritional value and are fibrous and course. For this reason, cows will not consume much of the stalk unless the field is overgrazed. Depending on the degree of plant maturity when cows are turned in to graze, the amount of leaf material available for grazing will vary. Leaf material will decline rapidly once the bottom leaves begin to yellow. Of course, most cotton fields will provide additional grazeable forage in the form of grass or forbs around field edges, fences and along waterways. Assuming cows are not grazing the stalks, the leaf, boll, lint and seed should average around 15 to 20% protein and around 55 to 60% total digestible nutrients or about the same amount of energy common in average-quality grass hay.

Grazing Management

How should failed cotton be grazed and stocked? In a Georgia study, grazeable cotton plant material (seed, lint, boll and leaf) per acre averaged about 882 pounds over a three-year period. In this experiment, grazeable material ranged from a low of 599 pounds per acre to a high of 1,089 pounds per acre. The study showed that dry pregnant cows can be maintained on cotton stalk residue instead of bermudagrass hay with only a slight reduction in body condition. In this research, an acre of cotton stalk residue lasted 44 days when stocked at one cow per acre. Residue disappearance (consumed and wasted) averaged about 37 pounds per day. In another study from Georgia, cows grazed cotton stalk residue along with free-choice hay. Cows were stocked at one cow per acre for 30 days. Total hay fed was decreased

by 67% for cows grazing cotton stalks without altering weight gain or body condition scores.

Cattle will graze the more palatable and high-nutritional

Component, lb per acre	Year 1	Year 2	Year 3
Seed	222	116	283
Lint	226	115	293
Boll/leaf	510	369	513
Stalks	2,133	626	1123
Edible residue ^b	957	599	1089

^aSource: Davis et al., 2022. Applied Animal Science 38 : 433-440
^bEdible residue excludes stalks

Table 1. Cotton crop residue, dry matter basis^a.

value plant components first. For this reason, the grazing period can be extended by strip grazing or rotational grazing. If portable electric fence is used to restrict access to the ungrazed areas of the field, the area provided for strip grazing can be variable. To make the most efficient use of the crop residue, no more than about one week's worth of grazing area should be provided for each grazing period. One simple method to determine when it is time to move cows to a fresh (ungrazed) part of the field is to provide access to a round bale of hay. When the cows begin to aggressively consume the hay, it is time to move the cattle (or move the electric fence) to an ungrazed part of the field.

You can also measure the amount of residue to estimate

the number of days of grazing the crop should provide. To estimate the residue yield:

1. Find two to three representative areas in the field.
2. Cut each stalk in a row for a distance of 9 feet and weigh the residue collected.
3. Calculate the area harvested.
 - For example, with 36-inch rows: area = 9 ft harvested x 3 ft rows = 27 square feet
4. Calculate the residue harvested per square foot.
 - If 3 pounds of residue was harvested: 3 pounds of residue/27 square feet = 0.11 pounds of residue per square foot.
5. Residue per acre is calculated by multiplying the residue per square foot x the square feet in an acre.
 - 0.11 pounds of residue per square foot x 43,560 square feet in an acre = 4,792 pounds of residue per acre.
 - Assuming there are 30 to 50% edible residues, the amount of edible residue would be between 1,440 and 2,400 pounds per acre.
 - This would carry a cow 40 to 50 days.

Grazing Restrictions

The following herbicides DO NOT allow for grazing of any livestock after application: Caparol®, Cotoran®, Direx®, Enlist One® and Warrant®. Prowl H₂O® requires a 60-day interval between application and grazing while Xtendimax® requires a seven-day interval between application and grazing. Dual Magnum®, Engenia®, Liberty®, Outlook®, Roundup® PowerMax®, Reflex®, Sinister® and Staple® do not list a restriction regarding feeding or grazing of cotton forage on the label. Specific generic herbicide product labels should be consulted to make sure that no restriction regarding grazing or feeding of cotton forage is listed. Additionally, producers should consult with their crop insurance provider to make sure that grazing of failed cotton will not affect their crop insurance coverage.

Gossypol Toxicity

Gossypol is a natural toxin present in the cotton plant protecting the plant from insects. Ruminants with fully functional rumens can detoxify gossypol because the ruminal microorganisms bind the toxin so it cannot be absorbed. Therefore, non-ruminants and pre-ruminant calves (less than 4 months of age) are unable to tolerate much gossypol. It is not recommended to graze cotton residue with breeding bulls within 60 to 90 days of the breeding season.

Assistance

Contact your local Extension educator if you need assistance estimating the amount of grazeable forage and sampling the crop to determine forage quality in failed cotton fields. Your Extension educator can also assist you in designing a balanced fall and winter supplementation program to economically meet the nutritional requirements of your cow herd.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

Oklahoma State University, as an equal opportunity employer, complies with all applicable federal and state laws regarding non-discrimination and affirmative action. Oklahoma State University is committed to a policy of equal opportunity for all individuals and does not discriminate based on race, religion, age, sex, color, national origin, marital status, sexual orientation, gender identity/expression, disability, or veteran status with regard to employment, educational programs and activities, and/or admissions. For more information, visit <https://eeo.okstate.edu>.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President for Agricultural Programs and has been prepared and distributed at a cost of 20 cents per copy. November 2023 AM.