

FORAGE

Cow-calf research evaluates fall, winter forage systems

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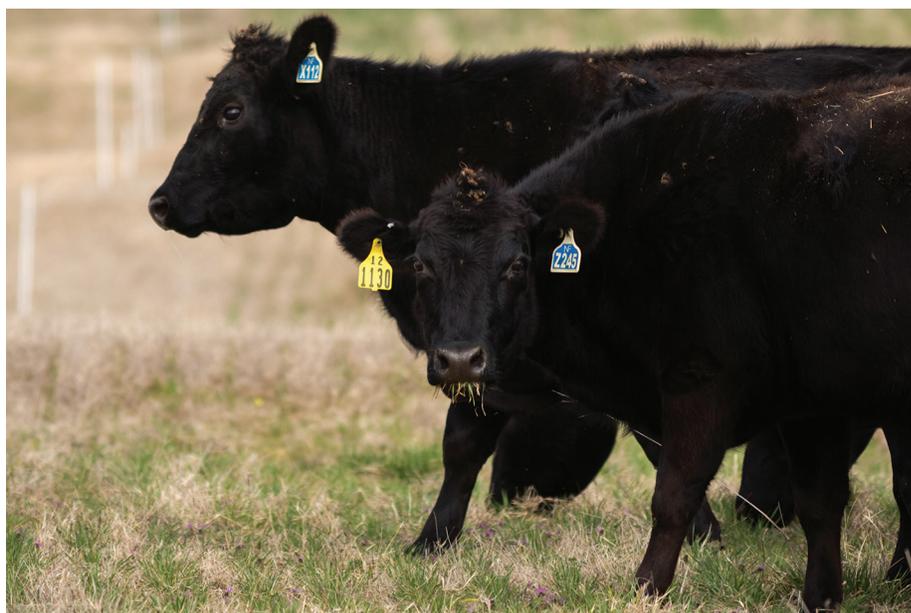
A little over a year ago, the Noble Foundation undertook a Foundation-wide research initiative called Forage 365 with the main objective to

develop forages and grazing systems that provide grazeable forage year-round. Within this initiative, there are several projects taking place across the Foundation. They range from basic research in plant nutrient uptake to applied research involving cow-calf and stocker systems.

As part of this initiative, an applied cow-calf research project began in October 2015 to evaluate fall and winter forage systems with the main objective of extending the grazing season and reducing feed costs associated with fall and winter supplementation. This project involves a cow herd of 90 mature Angus-cross cows assigned to one of three treatments. Each treatment is replicated three times, making a total of 10 cows in each treatment group. Each replication consist of approximately 40 acres broken out accordingly by treatment:

1) Control – 40 acres per replication

- 4 acres of bermudagrass per cow fertilized with 100 pounds per acre of nitrogen (N) in the spring.



2) Stockpile plus wheat/cereal rye interseed – 40 acres per replication

- 4 acres of bermudagrass per cow fertilized with 100 pounds per acre of N in the spring.
- 1 acre per cow allocated for bermudagrass stockpile fertilized with 50 pounds per acre of N in late summer.
- 1 acre per cow of wheat and cereal rye that is no-till interseeded into bermudagrass and fertilized with 50 pounds per acre of N in early fall.

3) Stockpile plus wheat/cereal rye winter pasture plus summer cover crop – 40 acres per replication

- 3.3 acres of bermudagrass per cow

fertilized with 100 pounds per acre of N in the spring.

- 1 acre per cow allocated for bermudagrass stockpile fertilized with 50 pounds per acre of N in late summer.
- 0.75 acre per cow allocated to no-till wheat plus cereal rye winter pasture, then double cropped with a summer cover crop of millet, corn, cowpeas, soybean, sunn hemp and buckwheat.

All treatments are rotationally grazed. This study began on Oct. 14, 2015, when calves were weaned and cows were assigned to treatment groups. The average body condition ▶

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score of the cows by treatment group was: 1 – 5.40, 2 – 5.53 and 3 – 5.50. From Oct. 14 to Dec. 28, all treatments grazed residual bermudagrass pasture. On Dec. 28, Treatment 1 began receiving hay and 3.33 pounds per head per day of a 30 percent range cube. Treatment 2 and Treatment 3 were turned onto stockpile. At the time of turnout, stockpile forage mass averaged 1,700 pounds per acre.

On Jan. 9, cows received a body condition score and the treatment averages were: 1 – 5.20, 2 – 5.23 and 3 – 5.06. On Jan. 15, Treatment 2 and Treatment 3 were pulled off of the stockpile and began receiving 3.33 pounds per head per day of a 30 percent range cube.

On Jan. 18, the interseeded areas of Treatment 2 had developed to the point that the cows in this treatment were allowed to time graze these areas every other day from four to six hours and range cube supplementation ended. At the end of time grazing, cows were pulled from the interseeded areas and placed in a

bermudagrass pasture and fed hay as needed. Table 1 below is a summary of the average amount of feed consumed by the three treatments so far in Year 1 of the study.

Watching how this study has come together has brought about some interesting observations. Cows on Treatment 2 learned to come on and off the interseeded areas quickly; they would meet you at the gate to go onto the treatment area and were ready to be moved off at the end of their allotted grazing time. The winter pasture area assigned to Treatment 3 was hit by armyworms in the fall of 2015, which slowed its development. Cows assigned to Treatment 3 have not had access to winter pasture as of March 1, which has increased their feed supplementation compared to Treatment 2 and possibly impacted their body condition score. It has also been interesting to observe the nutritive value of the treatment pastures compared to hay.

Table 2 is an average of the forage quality over the winter period com-

pared to the bermudagrass hay being fed. Note the stockpile nutritive value dropped from December to January, most likely due to the cattle grazing and selecting for higher quality. Note also the nutritive value of the interseeded areas compared to the hay.

Some other observations from the first year: Bermudagrass stockpile accumulation was slightly below what we would have hoped for. Normally, we like to assume we accumulate 2,000 pounds per acre with fall fertility. Due to the late summer heat and dry weather, we did not fertilize the area for stockpile until Sept. 7, which reduced the amount of growing days we had until frost. Cows on stockpile consumed on average 28 pounds per head per day of stockpile as received.

Final notes: This is the first year of a multiple-year study. What worked this year may not work as well in the following years. However, I think what we have observed this year is interesting, and I encourage you to call if you have questions and to keep looking for more data as time goes on. ■

Table 1. Average feed consumption by treatment from Dec. 28 to Feb. 22.

Treatment	Stockpile removed	Cubes fed	Hay fed
Control	0	924 pounds	8,666 pounds
Stockpile + interseed	5,560 pounds per acre	100 pounds	6,228 pounds
Stockpile + interseed + cover crop	4,690 pounds per acre	924 pounds	5,901 pounds

Table 2. Average forage quality of hay and pastures.

Source	Percent Crude Protein	Percent Total Digestible Nutrients
Bermudagrass hay	7.4	58.4
Pasture (12-4-15)	10.4	55.6
Stockpile (12-22-15)	18.3	69.0
Stockpile (1-15-16)	12.6	55.7
Interseed (2-4-16)	15.0	66.0