

Southeast Dairy Producer's Check-Off Program

Research Summary

Limpograss cultivars 'Kenhy' and 'Gibtuck' baleage as an alternative feed for dairy farms in Central and North Florida

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Implications

Limpograss showed great productivity during the summer and fall months and the fermentation profile after storing as baleage was acceptable. This could lead to a decreased cost of winter feeding, by producing a large amount of digestible forage per acre. The ability to use a portion of the farm that in general may produce lower quality forages or no forage at all (e.g., poorly drained soils) could contribute to increasing the overall farm profitability. Limpograss adoption as an alternative forage in dairies could be used for grazing during the first months of the summer and later baleage as an option for feed storage.



Methods

Farms with areas that have optimal soil conditions for limpograss were selected to enroll in the study. Two farms were selected in Central Florida and two in North Florida with access to individual wrappers and storage requirements for the bales. Limpograss strips were established in August 2021 and May 2022. The planting material was disked into the soil and rolled with a roller, and three weeks after planting, fertilizer was applied as recommended by IFAS (Vendramini et al., 2017). Four 0.5-acre strips were planted per farm, two for each variety (Kenhy and Gibtuck). The strips were arranged in a randomized complete block design, with two replicates in each location, resulting in eight experimental units per cultivar. After the establishment of the strips, the first cut was in the summer of 2021. Before wrapping the harvested forage for baleage, samples were taken to evaluate CP, IVDOM, NDF, and ADF. Samples were dried at 55°C for 72 h and ground to pass through a 2-mm stainless steel screen (after drying), and ball milled using a Mixer Mill MM400 (Retsch, Newton, PA, USA) at 25 Hz for 9 min. Samples were analyzed for total N using a CHNS analyzer through the Dumas dry combustion method (Vario Micro Cube; Elementar, Hanau, Germany), and CP was calculated by multiplying N concentration by 6.25. The IVDOM was determined

using the two-stage technique described by Moore and Mott (1974) and a particle size of 2 mm. An individual bale wrapper was used to generate the baleage samples from each strip. Core samples were taken from each bale at 60 and 90 d, and samples were frozen and sent to Dairy One Laboratories to be analyzed for fermentation profile (pH, organic acids, and ammonia).

Results

There were not differences between the two cultivars in herbage mass ($P > 0.05$), and the months of June and July showed the greatest herbage mass (5800 and 8350 kg ha⁻¹ for Gibtuck; 6309 and 8528 kg ha⁻¹ For Kenhy). The nutritive value showed a cultivar by evaluation interaction ($P < 0.01$), showing that the CP and digestibility change with the maturity of the limpoglass. In April both cultivars showed the greatest concentration of CP (17% Gibtuck and 16% Kenhy) and this may be because at this time typically we see the first regrowth after the strips were mowed and fertilized between February and March. Regardless of cultivar, the digestibility was greatest in October the first year after planting and declined through the winter, to climb again by April (66%). The NDF and ADF also showed a cultivar by evaluation interaction ($P < 0.01$) where Gibtuck had more NDF and ADF from October through January. The fermentation profile from the bales does not show differences between cultivars ($P > 0.05$) and the pH is lower than 5 indicating that the fermentation process has been successful. In addition, the proportion of lactic acid and butyric acid is adequate, and the bales can be used for consumption. The average score for the volatile fatty acids (VFA) is 8.4 indicating good storage and quality of the two cultivars.

Fermentation Profile

	DM, %	CP, %	pH	Lactic acid %	Butyric acid %	VFA*
Gibtuck 60 d	57.3	22.5	4.7	5.8	0.03	8
Kenhy 60 d	57.0	12.5	4.6	6.7	0.2	8.5
Gibtuck 90 d	61.6	24.5	4.9	6.5	0.4	8.8
Kenhy 90 d	57.4	12.9	5.1	6.4	0.2	8.6
<i>P</i> -value ¹	0.32	0.32	0.21	0.43	0.36	0.49
SE	2.449	0.771	0.1319	0.485	0.177	0.4342

¹ Interaction cultivar x Fermentation day

*VFA score from 8 to 10 means good

References of Published Work

Poster and paper submission to XXV International Grassland Congress (IGC), May 14-19, 2023 Kentucky. Title: Use of limpoglass as an alternative feed during the fall forage gap in beef and dairy systems in central and North Florida