Science Societies

Estimating Herbage Mass of Mixed-Species Stands Is Challenging

April 1, 2023

Left: First author Justin Burt collects non-destructive plant data of alfalfa–bermudagrass mixtu

Left: First author Justin Burt collects non-destructive plant data of alfalfa–bermudagrass mixtures in Tifton, GA. Photo by Kendall Whatley. Right: Research steers graze an alfalfa–bermudagrass mixture in Tifton, GA. Photo by Justin Burt.

Incorporating alfalfa into bermudagrass can improve the forage's nutritive value and yield distribution across the season compared with traditional bermudagrass monocultures. Unfortunately, variations in species composition and growth habits make accurately estimating herbage mass (HM) a challenge. Estimating HM from hand-clipped forage samples is laborious and time consuming, which can delay stocking decisions for producers.

Researchers from the University of Georgia evaluated three non-destructive techniques—pasture ruler, rising plate meter (RPM), and digital imaging analysis—to

estimate HM of forage harvested at a 1- or 4-inch stubble height. In Crop, Forage & Turfgrass Management, the team reported that no procedure was statistically valid or accurate for alfalfa bermudagrass mixtures harvested to a 1-inch stubble height. The pasture ruler and RPM were moderately successful at predicting HM when calibrated to samples harvested to 4 inches. However, the models were unable to predict HM above 4,000 lb/ac.

Future research is needed in this area and should focus on isolating how HM changes within the canopy.

Adapted from Burt, J., Baxter, L., & Tucker, J. J. (2022). Evaluating nondestructive forage sampling techniques in alfalfa–bermudagrass mixtures in the southeastern United States. Crop, Forage & Turfgrass Management, 8, e20194. https://doi.org/10.1002/cft2.20194
