



Diversify grazing, boost biodiversity with native warm-season grasses.

Native warm-season grasses may be an alternative to Bermuda grass for livestock producers interested in diversifying their grazing operation while enhancing biodiversity. However, making the conversion may be costly.

Mississippi State University (MSU) graduate student Adrian Monroe and associate professor Sam Riffell received a \$10,467 Southern Sustainable Agriculture Research & Education (SSARE) Graduate Student Grant to create enterprise budgets for establishing and grazing native warm-season grasses, as well as to calculate the opportunity cost of converting Bermuda grass to native warm-season grass pastures.

The goal, said Riffell, is to determine whether the establishment of native warm-season grasses or converting Bermuda grass to native warm-season grasses is economical over the long term for livestock producers interested in conservation practices.

"Native warm-season grasses have certain advantages compared to Bermuda grass in terms of lower nitrogen fertilizer requirements and drought tolerance. There is also an interest in native warm-season grasses because of their function in increasing wildlife and biodiversity," said Riffell. "If we can establish a grazing practice that increases wildlife value without affecting the economics, then it's a win-win for the producer and the environment."

Wildlife considerations

Monroe said native warm-season grasses, such as little bluestem, big bluestem and Indian grass, provide favorable habitat for breeding birds, such as the Dickcissel (*Spiza americana*) — a sparrow-like grassland bird.

"Bermuda grass tends to impede the movement and foraging of breeding birds. Native warm-season grass pastures may mimic native prairies, with bunch grasses providing nesting structure and interspaces for movement," said Monroe.

In the SSARE-funded study, the researchers will characterize the response of Dickcissels to native warm-season grass conversion by measuring daily nest survival rates and number of fledglings

produced per nest in both systems. Researchers are focusing on Dickcissels because they are common in Mississippi, yet their populations are declining.

The researchers are also studying the effects of native warm-season grasses on the imported fire ant.

"Research literature seems to suggest that the fire ant occurs less frequently in native prairie," said Monroe. "Disturbance from heavy grazing make non-native grass pastures more conducive to mound construction and foraging behavior. Conversely, native grasses might provide a less hospitable environment."

Added Riffell, "The fire ant can prey on nesting birds, so one of our goals is to also identify a source of cost control in native warm-season grass conversions."

Researchers plan to create enterprise budgets for a number of economic scenarios, as well as provide a range of potential costs for producers interested in converting their Bermuda grass pastures to native warm-season pastures.

"We anticipate these enterprise budgets to be more geared to long-term investments. It takes one to two years to establish native warm-season grasses, so that's an increase in opportunity costs," said Riffell, "but the long-term savings may lie in the fewer inputs."

The researchers have already conducted two years of native warm-season grass fieldwork, with promising results.

The SSARE-funded project, "Evaluating Conversion of Bermuda grass Pastures to Native Warm Season Grass: Profitability analysis and response of wildlife and imported fire ants (GS12-116)," can be found in the national SARE projects database.

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