

Grazing evaluation of cool-season annual forage mixtures as cover crops for stocker cattle in South Alabama

This information sheet highlights the results of a 2-yr stocker cattle grazing evaluation in South Alabama (2015-2016).

Why evaluate the use of cool-season annual forages as grazed cover crops for stocker cattle?

During the winter and spring using cool-season annual forages as a grazed cover crop may be a feasible option for producers in South Alabama when row crop fields lay dormant. Cool-season annual forages differ in peak forage production period throughout the growing season. In grazed cover cropping systems, selecting forage crops that do not significantly overlap with the planting window of the succeeding row crop is an important decision. Maturity differences exist among cool-season forage species and varieties. Early-maturing varieties may better fit grazed cover cropping systems than mid- or late-maturity types, optimizing the window of opportunity for row crops to be planted following cover crop grazing. Research is needed to identify combinations of these forages to be used as grazed cover crops and support a winter and spring grazing system for stocker producers prior to fields being utilized for row crops.

What are the forage mixtures that were evaluated?

Treatments

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| • 'Florida 401' rye and 'Earlyploid' annual ryegrass | R-E | (90 lb/ac and 15 lb/ac, respectively) |
| • 'Florida 401' rye and 'Marshall' annual ryegrass | R-M | (90 lb/ac and 15 lb/ac, respectively) |
| • 'Florida 401' rye and 'RAM' Oats | R-O | (50 lb/ac and 50 lb/ac, respectively) |

How were they established and managed?

During the fall following row crop harvest, forage mixtures were drilled into a prepared seedbed (November). Pastures were continuously stocked using Angus yearling crossbred steers at a stocking rate of 1.5 steers/acre. Grazing was initiated in early February once available forage dry matter was 1,500 lb DM/acre, and steers were removed from pastures in late March/early April to prepare the area for planting of row crops. Grazing was terminated based on timing of row crop planting and not on forage availability. Prior to the experiment and every two weeks thereafter, direct forage samples were clipped from three locations, representative of the range of available forage DM within each paddock, in order to determine forage mass and nutritive value. Steer weights were measured at study initiation and conclusion and average daily gain were calculated.

What are the key conclusions?

Overall, there were no differences in forage mass among the cool-season forage mixtures utilized in this study (Table 1). In 2015 steers grazed all forage mixtures for 57 days; in 2016 the grazing season was between 37 and 44 days. Forage availability was the primary factor that influenced the number of grazing days among years. These data illustrate the relatively short grazing window for the varieties evaluated when used in a grazed cover crop system. At grazing conclusion, adequate forage mass was present and grazing could have continued past the early April window had this project not been in the context of a cover cropping system. In

2015 early forage mass was greater than 2016, which led to a greater number of grazing days during the first year of the study. Lower forage production in 2016 was likely attributed to heavy rainfall in November and December during the early growth stage, which negatively impacted stand establishment. In 2015, there were no differences among forage mixtures in nutritive value (mean CP concentrations ranged from 19.6 to 19.8%, and TDN concentrations ranged from 72.2 to 73.2%). However, in 2016, the R-O and R-E mixtures tended to have higher quality than the R-M treatments. Forage quality was greatest at the beginning of the season and declined as the grazing season progressed. There were no differences among forage mixtures with respect to average daily gain (ADG) or gain per acre in 2015 or 2016. However, there was a noticeable difference in ADG between years, which was likely attributed to the number of grazing days achieved and compensatory gain experienced.

Table 1. Average forage mass and animal parameters for 2015 and 2016 grazing periods.

	Florida 401 Rye + RAM Oats	Florida 401 Rye + Marshall Ryegrass	Florida 401 Rye + Earlyploid Ryegrass
2015			
Forage mass, lb/acre	2,410	2,790	2,545
Initial BW, lb	630	641	634
Final BW, lb	722	742	755
ADG, lb/d	1.1	1.2	1.5
Gain/acre, lb	381	412	502
2016			
Forage mass, lb/acre	1,798	1,958	1,850
Initial BW, lb	625	621	630
Final BW, lb	770	757	751
ADG, lb/d	3.4	3.1	3.3
Gain/acre, lb	438	561	502

Producer Implications:

Results indicate that cool-season annual forages, such as small grains and ryegrass, may be planted in mixtures and utilized as grazed cover crops. Mixtures of ryegrass and small grains used in this system had a relatively short grazing season, yet provided adequate growth in the late winter/early spring months and proved to have high nutritive value throughout the grazing season needed to achieve stocker gain. Cool-season annual forages are a viable option to be utilized by stocker producers in grazed cover crop systems in South Alabama.