



Integrating Stocker Cattle Grazing Warm-Season Annual Forages into Cash Crop Rotations

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The current economic environment of low commodity prices offers few opportunities for agricultural producers. Row-crop farmers across the Southeast have begun searching for new ways to further diversify their cash crop rotations and generate new income streams for their business. One alternative that producers have shown interest in is the evaluation of integrating livestock into cash crop rotations.

During 2018, a project began to evaluate the economics of grazing stocker cattle on warm-season annual forages in the

Southeast. To gain a better understanding of the economics of integrating cattle on cropland during the warm-season, a simulated economic grazing experiment was developed to evaluate grazing warm-season annual forages as a cash crop alternative over the past fifteen years. Research data was collected from the University of Florida, Auburn University, and the University of Georgia to evaluate the potential forage yield, animal production, revenue, cost of production, and net returns of stocker cattle grazing warm-season annual forages. In addition, USDA AMS (Agricultural Marketing Service) data was collected from the past fifteen years to calculate the value of animal gain during the warm-season grazing period. The value of gain combined with animal production data from university grazing experiments estimates the annual revenue that could have been generated in previous years. An excel spreadsheet was developed to use the data collected to simulate the annual production and economic outcomes for the past fifteen years. The production variables being evaluated can be seen in Table 1. Please note, that the production information included in Table 1 is based on the research data included in this analysis and production expectations from our project advisors.

Table 1. Estimated Production Summary for Grazing Warm-Season Annual Forages with Stocker Steers in the Southeastern USA.	
Forage and Animal Information	Warm-Season Annual Forage Mix*
Seeding Rate, lbs./acre	25
Projected Planting Date	20-Apr
Level of Nitrogen (N) Applied, Split Applications	120
Number of Acres Planted	132
Number of Stocker Steers (At Beginning of Grazing Period)**	210
Number of Stocker Steers (At End of Grazing Period)	208
Death Loss, %	1.0%
Stocking Rate, head/acre	1.6
Begin Grazing Date	5-Jun
End Grazing Date	15-Oct
Number of Grazing Days	132
Forage Production, DM lbs./acre	8,000
Level of Forage Utilization, %	40%
Forage Consumption, DM lbs./acre	3,200
Forage Quality, Total Digestible Nutrients (TDN)	65%
Forage Quality, Crude Protein (CP)	15%
Animal Gain, total pounds gained	42,300
Animal Gain, pounds/acre	320
Animal Gain, pounds/animal	203
Animal Gain, ADG (average daily gain), lbs./head/day	1.54

*Warm-Season Annual Forage Mix consists of BMR Sorghum-Sudangrass, Pearl Millet, Sorghum-Sudangrass DM, BMR Dwarf Sorghum-Sudangrass, BMR Forage Sorghum, Grain Sorghum, BMR Grazing Corn, Browntop Millet, Sunflower, Safflower, Buckwheat, Okra, Sunn Hemp, Mung Beans, Guar, Cowpeas, and Forage Soybeans.

**Stocker Steers had an average weight of 600 lbs./head at turn-in.

This cash crop alternative is planted on cropland following a cool-season annual forage cover crop. It will receive 120 pounds of nitrogen (N) fertilizer in two applications (60 – 60) over 132 grazing days. The stocker steers will begin grazing warm-season annual forages at 600 pounds on June 5th and finish grazing on October 15th. Total production costs include the amortization of fencing and water systems, seed, hired labor, fertilizer, lime, custom applications, machinery and equipment, interest, general overhead, and land rent.

An economic summary (Table 2) for grazing stocker cattle on warm-season annual forages is available below. The results are broken down into three sections: value of gain (revenue), forage cost of gain (cost of production), and net value of gain above forage costs (net returns above specified costs). Please note, that the economic summary information included in Table 2 is based on research data included in this analysis and production expectations from our project advisors.

Table 2. Estimated Economic Summary for Grazing Warm-Season Annual Forages with Stocker Steers in the Southeastern USA.

Value of Gain, Forage Cost of Gain, and Net Value of Gain Above Forage Costs	Warm-Season Annual Forage Mix
<i>Value of Gain, \$</i>	\$46,530.00
<i>Value of Gain, \$/grazing day</i>	\$352.50
<i>Value of Gain, \$/head</i>	\$223.70
<i>Value of Gain, \$/acre</i>	\$352.50
<i>Value of Gain, \$/lb.</i>	\$1.10
<i>Forage Cost of Gain, \$</i>	\$20,100.00
<i>Forage Cost of Gain, \$/grazing day</i>	\$152.27
<i>Forage Cost of Gain, \$/head</i>	\$96.63
<i>Forage Cost of Gain, \$/acre</i>	\$152.27
<i>Forage Cost of Gain, \$/lb.</i>	\$0.48
<i>Net Value of Gain Above Forage Costs, \$</i>	\$26,430.00
<i>Net Value of Gain Above Forage Costs, \$/grazing day</i>	\$200.23
<i>Net Value of Gain Above Forage Costs, \$/head</i>	\$127.07
<i>Net Value of Gain Above Forage Costs, \$/acre</i>	\$200.23
<i>Net Value of Gain Above Forage Costs, \$/lb.</i>	\$0.62

**For this analysis, Value of Gain (VOG) was estimated to be \$1.10/lb.*

As this project moves forward, hopefully we can shed more light on two important questions. Will grazing warm-season annual forages be an economically viable cash crop option? If not, will the benefits to yield or the reduction in production costs for future cash crops make it an economically viable option for cash crop rotations?

The full results from the first year of this project will be available at the 2019 Range Cattle Research and Education Center Field Day on October 24, 2019 at the Beef Cattle and Forage Economics Booth. For additional information please contact Chris Prevatt at prevacg@ufl.edu.

UF/IFAS Range Cattle REC - 3401 Experiment Station Rd., Ona - <http://rcrec-ona.ifas.ufl.edu/>