Table 1. Yields of TifQuik bahia grass, Coastcross II bermudagrass, and Tifton-85 bermudagrass when harvested every 10, 20 or 30 d at Wrens, GA (average 2 yrs.)

Forage	Harvest Frequency			LSD (0.05)
	10 day	20 day	30 day	
	---------- Mg ha^{-1} ----------			
TifQuik	10.60	15.59	17.27	1.47
CC II	7.37	15.83	18.47	1.64
Tifton 85	8.21	19.53	24.01	2.19
LSD (0.05)[†]	1.20	2.00	2.26	--

[†] Least significant difference at the 0.05 level of probability.

Table 2. Proportional distribution of growth of TifQuik bahiagrass, Coastcross II bermudagrass, and Tifton-85 bermudagrass in Wrens when harvested at different frequencies.

	---------- TifQuik --------			Coastcross II bermuda			-- Tifton 85 bermuda --		
	10 day	20 day	30 day	10 day	20 day	30 day	10 day	20 day	30 day
June	0.20	0.22	0.23	0.17	0.24	0.28	0.15	0.22	0.23
July	0.31	0.29	0.25	0.33	0.26	0.30	0.37	0.30	0.30
August	0.29	0.29	0.30	0.30	0.29	0.32	0.31	0.31	0.30
Sept.	0.20	0.20	0.22	0.20	0.21	0.20	0.17	0.17	0.17
LSD (0.05)[†]	0.03	0.03	0.03	0.04	0.04	0.03	0.03	0.04	0.05

[†]Least significant difference at the 0.05 level of probability

Table 3. Metabolizable energy content of TifQuik bahiagrass, Coastcross II bermudagrass, and Tifton-85 bermudagrass in Wrens when harvested at different frequencies.

Forage	Harvest frequency			LSD (0.05)
	10 day	20 day	30 day	
	---------- MJ ME/kg ----------			
TifQuik	7.76	7.73	7.73	ns[‡]
CC II	9.73	8.36	8.29	0.04
Tifton 85	9.53	8.39	8.29	0.04
LSD (0.05)[†]	0.17	0.12	0.11	

[†]Least significant difference at the 0.05 level of probability.

[‡]Not different at the 0.05 level of probability.

Table 4. Cool season annual yields of forages overseeded into Tifton 85 bermudagrass in Wrens and Girard (mean of 3 years).

Species	Yield
	Mg ha^{-1}
Annual ryegrass	10.25
Cereal rye	8.90
Oats	7.04
Wheat	7.24
Triticale	5.18
LSD (0.05)[†]	1.22

[†]Least significant difference at the 0.05 level of probability.

Table 5. Proportional distribution of growth of winter annual forages when overseeded into Tifton 85 bermudagrass in Wrens and Girard (mean of 3 years).

Month	Annual ryegrass	Cereal rye	Oats	Wheat	Triticale	LSD (0.05)
Nov	0.10	0.19	0.24	0.05	0.34	0.03
Dec	0.16	0.28	0.14	0.06	0.26	0.04
Feb	0.08	0.20	0.13	0.03	0.20	0.04
March	0.34	0.23	0.29	0.80	0.15	0.06
April	0.18	0.06	0.13	0.06	0.05	0.02
May	0.13	0.04	0.07	--	--	0.04
LSD (0.05)[†]	0.04	0.03	0.05	0.02	0.05	

[†]Least significant difference at the 0.05 level of probability.

Table 6. Metabolizable energy in winter annual forages when overseeded into Tifton 85 bermudagrass in Wrens and Girard (mean of 3 years).

Month	Annual ryegrass	Cereal rye	Oats	Wheat	Triticale	LSD (0.05)
	---------- MJ kg^{-1} ----------					
Nov	10.62	10.85	10.23	11.30	10.45	0.62
Dec	10.02	10.14	10.83	10.55	10.52	ns
Feb	10.57	11.14	11.43	10.87	10.60	0.65
March	10.27	8.49	10.46	9.48	10.50	0.71
April	9.24	9.66	9.49	8.85	9.12	ns[‡]
May	8.39	8.62	8.58	--	--	ns
LSD (0.05)[†]	0.64	0.75	0.72	0.64	0.60	

[†]Least significant difference at the 0.05 level of probability

[‡]Not different at te 0.05 level of probability

Table 7. Monthly energy yield distribution for winter annual forages overseeded into Tifton-85 bermudagrass pastures.

	Month of the Year							
	Nov	Dec	Jan	Feb	March	Apr	May	Total
	GJ ha^{-1}							
Annual ryegrass	10.25	10.89	16.43	8.67	35.80	17.05	11.18	100.02
Cereal Rye	8.90	18.34	25.25	19.82	17.37	5.16	3.07	89.00
Oats	7.04	17.28	10.67	10.46	21.35	8.68	4.23	72.68
Wheat	7.24	4.09	4.58	2.36	54.91	3.84	0.00	69.79
Triticale	5.18	18.40	14.16	10.98	8.15	2.36	0.00	54.05
LSD (0.05)[†]	1.63	2.05	2.86	2.42	6.32	3.48	1.82	9.69

[†]Least significant differenace at the 0.05 level of probability.

Table 8. Rising plate meter calibration equations for three years of yield data from on-farm small plots of cool season annual and warm season perennial forage species.

Forage	Growth Stage	Regression equation	$R^{2¶}$	RMSE§
Annual ryegrass	Vegetative	Kg ha^{-1} = 147x - 959	0.82	468
Small grains†	Vegetative	Kg ha^{-1} = 111x - 716	0.73	501
Winter annual mixtures‡	Vegetative	Kg ha^{-1} = 178x - 1590	0.85	594
Winter annual mixtures	Reproductive	Kg ha^{-1} = 90x - 324	0.58	587
TifQuik bahiagrass	All stages	Kg ha^{-1} = 74x - 1014	0.83	280
CC II bermudagrass	Vegetative	Kg ha^{-1} = 80x - 893	0.87	227
Tifton-85 bermudagrass	Vegetative	Kg ha^{-1} = 68x - 761	0.92	181

† Cereal rye, oats, wheat, or triticale.

‡ Mixtures included cereal rye/wheat, cereal rye/oats, cereal rye/annual ryegrass, cereal rye/annual ryegrass/crimson clover, and cereal rye/annual ryegrass/crimson clover/arrowleaf clover.

¶Coefficient of determination

§Residual Mean Square Error

Table 9. Stocker steer performance on annual ryegrass pastures, pastures where half of the area was planted with annual ryegrass and the other half planted with cereal rye, and pastures planted where annual ryegrass and cereal rye was planted in alternating rows.

Treatment	Year	Forage avail.	Steer weight		ADG	Gain ha^{-1}	Grazing days
			Initial	Final			
		kg ha^{-1}	---------- kg ----------				
Ryegrass	2011	1845	276	432	1.45	791	546
½ Ryegrass – ½ Rye	2011	1739	278	427	1.39	809	580
Alternating rows	2011	1852	273	418	1.35	799	593
LSD (0.05)[†]		ns	ns	ns	ns	ns	42
Ryegrass	2012	1835	262	434	1.30	901	694
½ Ryegrass – ½ Rye	2012	1492	262	380	0.96	589	615
Alternating rows	2012	1870	264	378	0.94	511	546
LSD (0.05)[†]		152	ns[‡]	30	0.30	160	5
Ryegrass	2013	1631	243	389	1.15	678	588
½ Ryegrass – ½ Rye	2013	1558	243	388	1.14	723	632
Alternating rows	2013	1543	243	394	1.18	808	682
LSD (0.05)		ns	ns	ns	ns	106	40
Ryegrass	Mean	1770	--	--	1.30	792	610
½ Ryegrass – ½ Rye	Mean	1596	--	--	1.17	712	610
Alternating rows	Mean	1755	--	--	1.16	703	608
					0.13	ns	ns

[†]Least significant difference at the 0.05 level of probability

[‡]Not significant at the 0.05 level of probability

Table 10. Three-year means, standard deviations (Std. Dev.) , and coefficients of variation (CV) for animal production variables of three winter-annual treatments.

Treatment	Year	ADG[†]	Gain ha^{-1}	Grazing days	Mean CV All parameters	Std. Dev.
		-------- kg -----				
Ryegrass	Mean	1.30	792	610		
	Std. Dev.[‡]	0.15	112	76.3		
	CV[¶]	11.5	14.1	12.5	12.7	1.30
½ Ryegrass – ½ Rye	Mean	1.17	712	610		
	Std. Dev.	0.22	111	26.5		
	CV	18.6	15.7	4.4	12.9	7.51
Alternating rows	Mean	1.16	703	608		
	Std. Dev.	0.21	168	69.1		
	CV	17.8	23.9	11.4	17.7	6.28

[†]Average daily gain

[‡]Standard deviation of the mean

[¶]Coefficient of variation

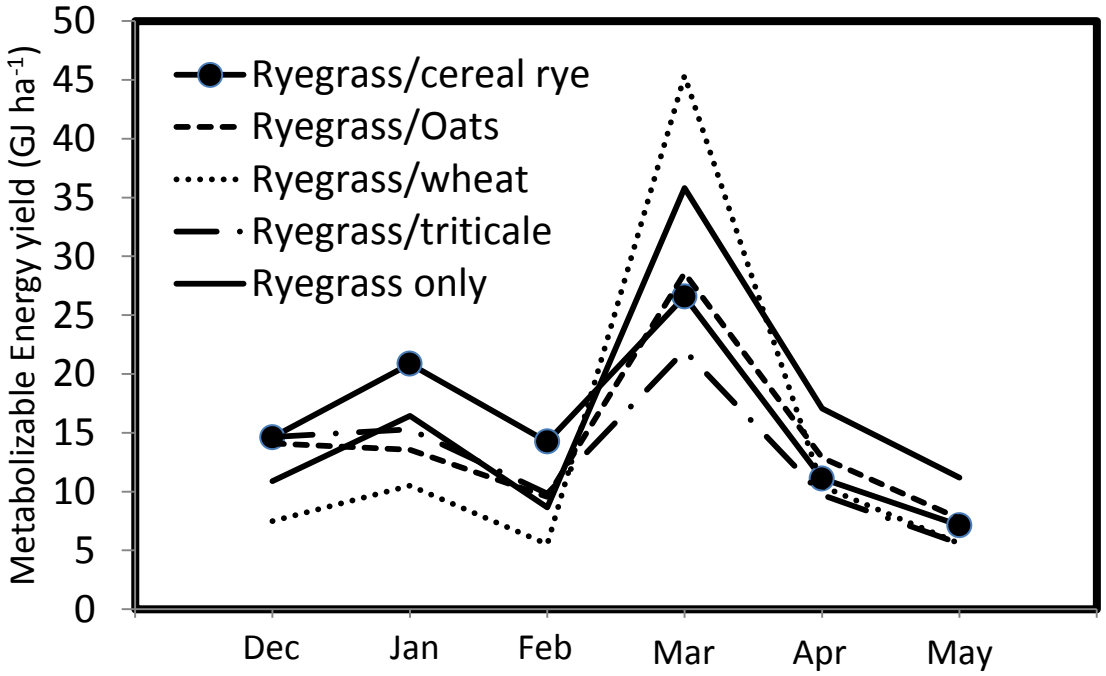

Figure 1. Calculated metabolizable energy yields of various cool season annual grass mixtures compared to a monoculture of annual ryegrass.

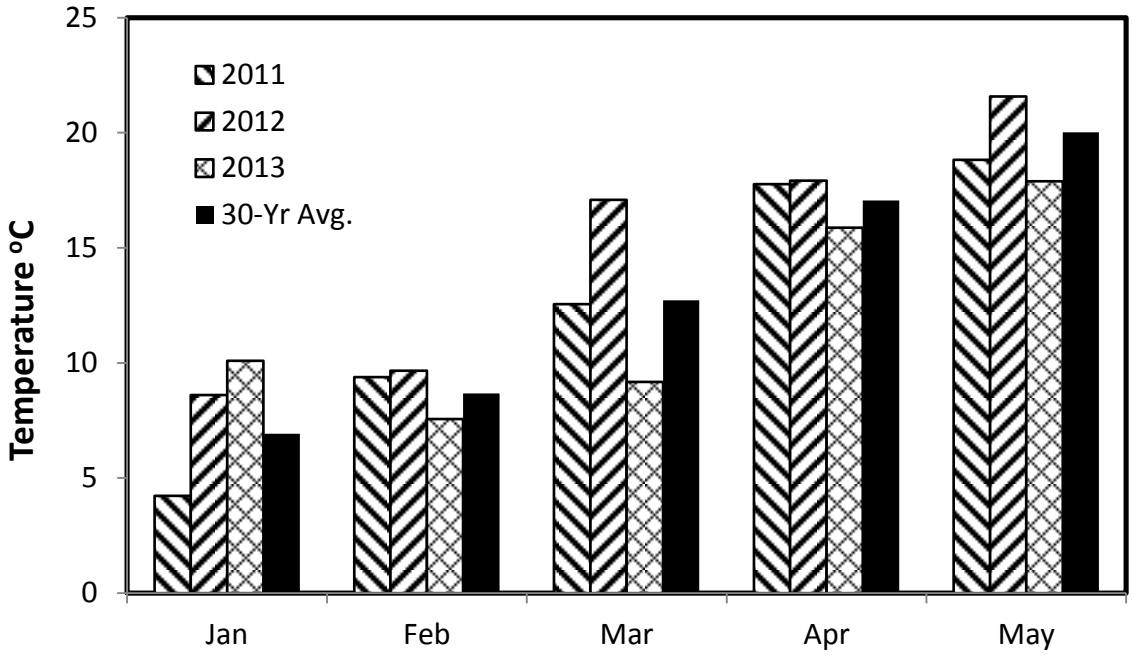

Figure 2. Mean monthly temperatures to which pastures were exposed over the three grazing seasons tested.

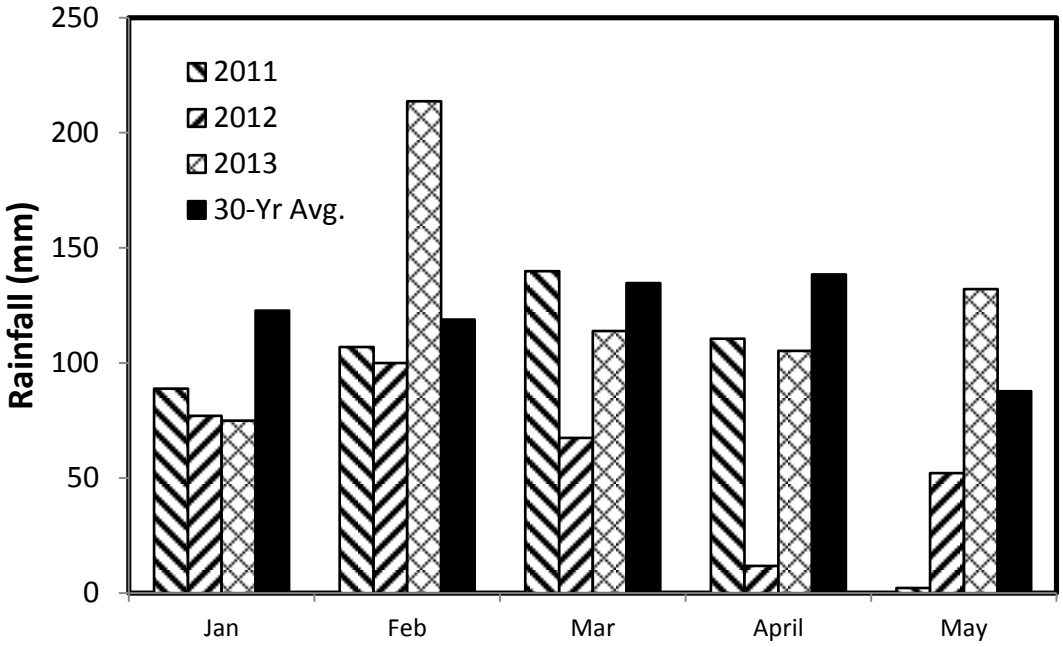

Figure 3. Average monthly rainfall to which pastures were exposed over the three grazing seasons tested.