

2021 COOL-SEASON ANNUAL GRASS VARIETY TRIAL

The forage cultivar evaluation program is a partnership between The University of Tennessee Extension and UT AgResearch to aid producers in the selection of the best cultivars for their farm. The crop was grown using management practices considered to be the best for the crop, including fertilization according to soil test results. This study was conducted using a randomized complete block design with three replications. Least significant difference (LSD) values at the 5 percent level are shown at the bottom of each table with the coefficient of variation (CV). Within any table, yield of any two varieties being compared must differ by at least this amount to be considered different.

Table 1: Yield of cool-season annual ryegrass varieties at the Plateau AgResearch and Education Center in Crossville, TN.

Variety	Species	Supplier	Commercially Available	Yield (ton DM/acre)				
				2020	2021		Total	
				Nov 23	Mar 9	May 11		
Baqueano	Annual Ryegrass	Smith Seed Service	Yes	1.39	1.67	2.20	5.26	
Centurion	Annual Ryegrass	Mountain View Seeds	Yes	1.48	1.55	2.04	5.06	
Fria	Annual Ryegrass	Tennessee Farmers Co-Op	Yes	1.70	1.87	2.13	5.69	
FrostProof	Annual Ryegrass	Smith Seed Service	Yes	1.41	1.63	2.19	5.22	
Green Farm 2	Annual Ryegrass	Smith Seed Service	Yes	1.96*	1.46	2.57*	5.99	
Gulf	Annual Ryegrass	Smith Seed Service	Yes	1.66	1.65	1.67	4.98	
Jackson	Annual Ryegrass	The Wax Company	Yes	1.34	1.53	2.37	5.24	
Jumbo	Annual Ryegrass	Barenbrug USA	Yes	1.56	1.58	1.87	5.01	
Koga	Annual Ryegrass	Smith Seed Service	Yes	1.95*	2.20*	2.23	6.38*	
Nelson	Annual Ryegrass	The Wax Company	Yes	1.58	1.67	2.42*	5.67	
Passerel Plus ER7	Annual Ryegrass	Pennington Seed Inc	Yes	1.50	2.22*	1.57	5.29	
Rapido	Annual Ryegrass	Smith Seed Service	Yes	1.70	1.69	1.65	5.04	
Trinova	Annual Ryegrass	Smith Seed Service	Yes	1.56	2.17*	1.83	5.57	
WAX Marshall	Annual Ryegrass	The Wax Company	Yes	1.57	2.36*	2.33	6.26*	
<i>Experimental Varieties</i>								
BAR LM 17534	Annual Ryegrass	Barenbrug USA	No	1.46	1.54	1.77	4.77	
GALM1516	Annual Ryegrass	The University of Georgia	No	1.27	1.48	1.72	4.48	
GALM1517	Annual Ryegrass	The University of Georgia	No	1.43	1.57	1.92	4.91	
GALM1618	Annual Ryegrass	The University of Georgia	No	2.02*	1.83	2.11	5.95	
M2CVS	Annual Ryegrass	The Wax Company	No	1.87*	2.30*	2.66*	6.82*	
ME4	Annual Ryegrass	The Wax Company	No	1.45	1.74	2.41*	5.60	
ME-94	Annual Ryegrass	The Wax Company	No	1.57	2.20*	2.15	5.92	
SELWT110	Annual Ryegrass	Smith Seed Service	No	1.48	1.37	1.59	4.45	
SELWTB219	Annual Ryegrass	Smith Seed Service	No	2.13*	2.09*	1.77	5.98	
WMWL	Annual Ryegrass	The Wax Company	No	1.63	1.82	2.28	5.72	
WMWL-2	Annual Ryegrass	The Wax Company	No	1.76	1.31	2.27	5.34	
				CV	8	7	14	6
				LSD (P<0.05)	0.26	0.29	0.27	0.56
* yielded statistically the same as the top-yielding variety								
Nitrogen application: 45 lb/acre at planting, 60 lb/acre at green-up, 30 lb/acre after first harvest								
Planted September 22, 2020								

Table 2: Yield of cool-season annual rye varieties at the Plateau AgResearch and Education Center in Crossville, TN.

Variety	Species	Supplier	Commercially Available	Yield (ton DM/acre)				
				2020	2021		Total	
				Nov 23	Apr 10	May 11		
Bates RS4	Rye	Noble Research Institute	Yes	1.23	2.81*	0.38	4.42	
Elbon	Rye	Noble Research Institute	Yes	1.61	2.34	0.37	4.31	
<i>Experimental Varieties</i>								
NF95319B	Rye	Noble Research Institute	No	1.52	2.76	0.29	4.55	
NF97325	Rye	Noble Research Institute	No	1.84	2.97*	0.20	5.01	
NF99362	Rye	Noble Research Institute	No	1.45	2.87*	0.43	4.74	
				CV	15	12	27	6
				LSD (P<0.05)	nd ¹	0.28	nd	nd
* yielded statistically the same as the top-yielding variety								
¹ no-significant differences among the varieties								
Nitrogen application: 45 lb/acre at planting, 60 lb/acre at green-up, 30 lb/acre after first harvest								
Planted September 22, 2020								

Table 3: Mean forage nutritive values by harvest.

Species	Constituents ¹ (%)	Harvest Date		
		2020	2021	
		Nov 23	Mar 9	May 11
Annual Ryegrass	CP	13.9	15.3	12.9
	ADF	26.7	34.6	36.5
	NDF	31.4	57.7	58.2
	TDN	70.7	62.4	60.4
		Nov 23	Apr 10	May 11
Rye	CP	17.4	14.5	7.1
	ADF	23.4	29.6	37.1
	NDF	28.0	38.7	67.7
	TDN	74.2	67.7	59.7

¹ Nutritive values represented at 100% DM Basis for CP, crude protein; ADF, acid detergent fiber; NDF, neutral detergent fiber; TDN, total digestible nutrients; (Analysis performed using Near Infrared Spectrometer [NIRS] Technology). Target stage of growth for harvest was mid to late boot. Grass Hay Calibration (NIRS Consortium, 2021).

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