



2015 Summer Annual Variety Trial



Dr. Heather Darby, UVM Extension Agronomist
Sara Ziegler, Lily Calderwood, Erica Cummings, Abha Gupta, and Julian Post
UVM Extension Crops and Soils Technicians
802-524-6501

Visit us on the web: <http://www.uvm.edu/extension/cropsoil>

2015 SUMMER ANNUAL VARIETY TRIAL
Dr. Heather Darby, University of Vermont Extension
heather.darby[at]uvm.edu

Warm season grasses, such as sorghum x sudangrass crosses, sudangrass, millet, and teff, can provide quality forage in the hot summer months, when cool season grasses that make up most pastures and hay meadows in the Northeast are not as productive. The addition of summer annuals into a rotation can provide a harvest of high-quality forage for stored feed or grazing. Generally, summer annuals germinate quickly, grow rapidly, are drought resistant, and have high productivity and flexibility in utilization. The UVM Extension Northwest Crops and Soils Program conducted this variety trial to evaluate the yield and quality of warm season annual grasses.

MATERIALS AND METHODS

A trial was initiated at

samples were dried, ground and analyzed for crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF), and various other nutrients.

Table 2. Summer annual varieties, characteristics, and seed source.

Variety	Species	Characteristics	Seeding rate (lbs ac ⁻¹)	Company
Bruiser	Annual Ryegrass	non-BMR	30	Seedway
Fria	Annual Ryegrass	endophyte-free	30	Seedway
FSG 300	Millet	non-BMR		
Japanese	Millet	non-BMR		
Wonderleaf	Millet	non-BMR		
AF 7101	Sorghum	non-BMR		
AF 7201	Sorghum	non-BMR		
AS 6402	Sorghum x Sudangrass	BMR		
AS 9301	Sorghum x Sudangrass	BMR		King's Agriseed
886	Sudangrass	BMR		Seedway
AS 9302	Sudangrass	non-BMR		Alta Seeds
Hayking	Sudangrass	BMR		King's Agriseed
Pro Max	Sudangrass	BMR		Seedway
Moxie	Teff	non-BMR		Barenbrug

Mixtures of true proteins, composed of amino acids, and non-protein nitrogen make up the crude protein (CP) content of forages. The bulky characteristics of forage come from fiber. Forage feeding values are negatively associated with fiber since the less digestible portions of the plant are contained in the fiber fraction. The detergent fiber analysis system separates forages into two parts: cell contents, which include sugars, starches, proteins, non-protein nitrogen, fats and other highly digestible compounds; and the less digestible components found in the fiber fraction. The total fiber content of forage is contained in the neutral detergent fiber (NDF). Chemically, this fraction includes cellulose, hemicellulose and lignin. The WSC or water soluble carbohydrates include mono-, di-, and oligosaccharides as well as fructans and is

In the example on right, A is significantly different from C but not from B. The difference between A and B is equal to 1.5, which is less than the LSD value of 2.0.

9302 is a non-BMR variety but had over 5% less lignin than ProMax which is a BMR variety. However, all the other varieties that were statistically similar to AS 9302 ie2AS

Table 6. Yield and quality of 13 summer annual varieties, third cut, 2015.

Variety	DM Yield	Crude protein	ADF	NDF	NDFD	Sugars	WSC
	ton ac ⁻¹						

Table 7. Heights by variety, 2015.

Variety	Species	Height (cm)	
		2 nd cut	3

species. Overall, the sudangrasses produced over 5.75 tons of dry matter per acre over the three harvests while the teff only produced 3.06 tons. Annual ryegrasses and the sorghum x sudangrass hybrids produced about 4 tons per acre. Species and variety selection will be critical decision making factors to make sure the yield and quality are maximized from these annual forages.

Table 9. Yield by species, 2015.

Species	DM Yield tons ac ⁻¹
Annual Ryegrass	4.14
Millet	3.84
Sorghum	4.86
Sorghum x Sudangrass	4.33
Sudangrass	5.75
Teff	3.06
Trial Mean	4.70

There is a benefit of utilizing summer annual species to extend grazing periods and increase the production of quality forage throughout the entire season. It is important to consider all of the variables that can influence both yield and quality and how different species and varieties within those species may respond to these variables. Annual ryegrass appeared to produce

ACKNOWLEDGEMENTS

The UVM Extension Northwest Crops and Soils Team would like to thank Roger Rainville and the staff at Borderview Research Farm for their generous help with this research trial. We would also like to acknowledge Julija Cubins, Hillary Emick, and Lindsey Ruhl for their assistance with data collection and entry. This project was made possible through a USDA CARE grant. This information is presented with the understanding that no product discrimination is intended and neither endorsement of any product mentioned, nor criticism of unnamed products, is implied.