

COVER CROP MIXES TRIAL RESULTS - 2020

Background: The objective of the annual poly-species cover crop trial is to measure the biomass produced by different mixes and quantify the changes in soil organic matter levels. Eight different combinations of annual cover crop species were sown in a complete randomized block design with four replicates. Two mixes, Ultimate Annual Blend and Pinpoint Blend, were crafted by Union Forage; six mixes were conceived in-house at NPARA. Above ground biomass was harvested and submitted for nutritive analysis. The same feed quality factors were analyzed as those seen in the forage trials: dry matter weight, crude protein content, total digestible nutrients (TDN), acid detergent fibre (ADF), calcium content (Ca), and phosphorus content (P). Application of pesticides was excluded.

A well-rounded cover crop mix provides above ground biomass (soil armour) and below ground biomass (root systems of different depths and traits). To achieve this, a blend of cool season grasses, cool season broadleaves, cool season legumes, warm season broadleaves, and warm season grasses is created. The blends used in this experiment can be found on the following page.

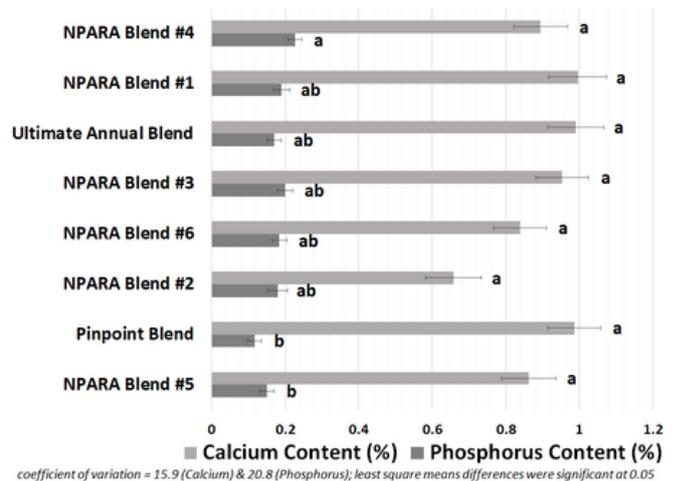
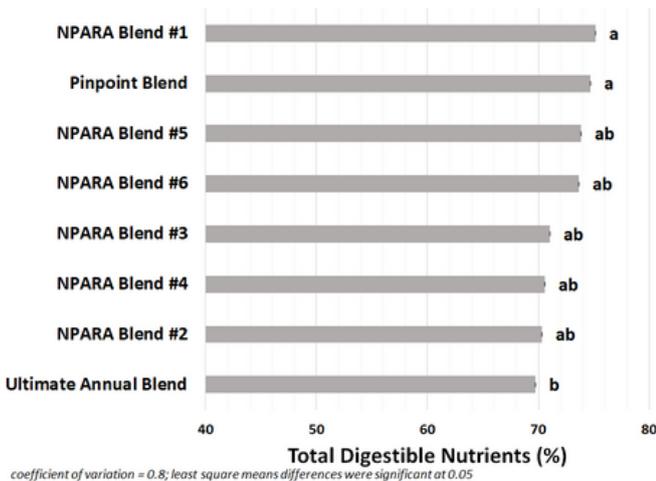
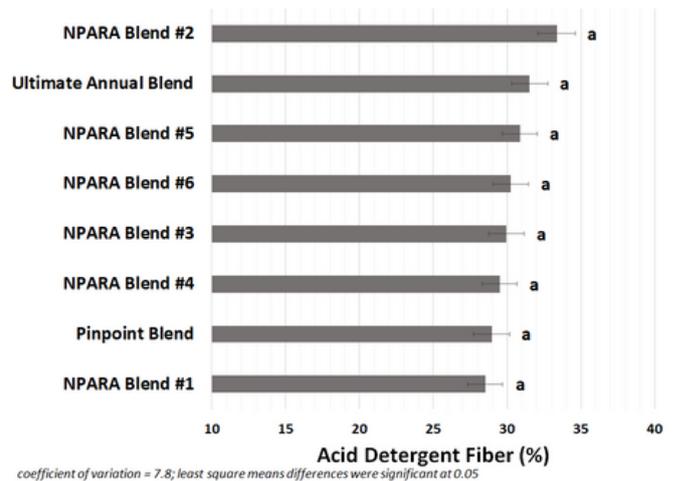
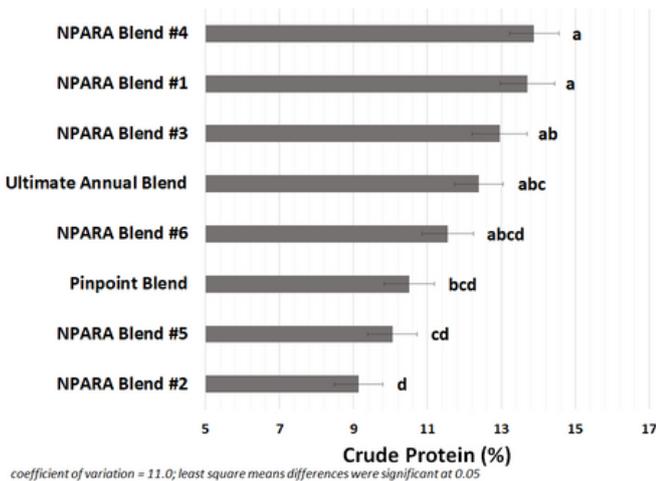
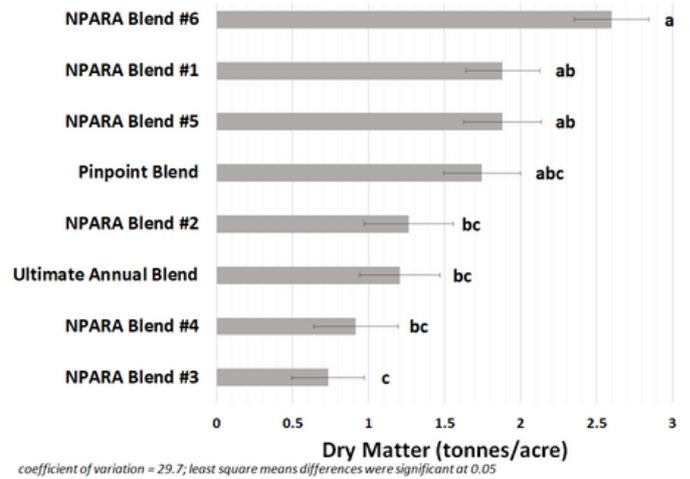


Mix	Components	Crop/Variety	Seeding Rate (lb/ac)
Ultimate Annual Blend	Cool Season Grasses	Crusader Italian Ryegrass	3.6
	Cool Season Broadleaves	Hunter Leaf Turnip	0.6
		Graza Forage Radish	0.6
		Forage Rape (Winfred)	0.6
	Cool Season Legume	Hairy Vetch	3
		Crimson Clover	1.2
Warm Season Broadleaves	Sunflower	0.6	
Warm Season Grasses	Crown Prozo Millet	1.8	
Pinpoint Blend	Cool Season Grasses	Green Spirit Italian Ryegrass	5.4
	Cool Season Broadleaves	T Raptor Hybrid Brassica	0.84
		Barsica Forage Rape	0.96
	Cool Season Legume	Super 10 Berseem Clover	1.2
		Laser Persian Clover	0.6
	Warm Season Broadleaves		
Warm Season Grasses	Sorghum Sudan Grass	2.4	
	Teff Grass	0.6	
NPARA Blend #1	Cool Season Grasses	Crusader Italian Ryegrass	3.6
	Cool Season Broadleaves	Forage Rape (Winfred)	2.4
	Cool Season Legume	Forage Peas	10
		Faba Beans	10
	Warm Season Broadleaves	Soybeans	3.6
Warm Season Grasses	Sorghum Sudan	2.4	
NPARA Blend #2	Cool Season Grasses	Oats	40
	Cool Season Broadleaves	Hunter Leaf Turnip	1.2
	Cool Season Legume	Hairy Vetch	4.2
		Crimson Clover	1.2
	Warm Season Broadleaves	Buckwheat	3
Warm Season Grasses	Golden German Millet	2.4	
NPARA Blend #3	Cool Season Grasses	Cereal Rye	40
	Cool Season Broadleaves	Daikon Radish	3.6
		Purple Top Turnip	1.2
	Cool Season Legume	Bombus White Clover	4.8
	Warm Season Broadleaves	Safflower	1.2
Warm Season Grasses	Teff Grass	1.2	
NPARA Blend #4	Cool Season Grasses	Cereal Rye	40
	Cool Season Broadleaves	Graza Forage Radish	2.4
	Cool Season Legume	Balansa Clover	3
	Warm Season Broadleaves	Soybeans	4.8
	Warm Season Grasses	Golden German Millet	1.8

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Overview: Eight cover crop blends were subject to a nutritive analysis, similar to the forage trials.

Conclusion: There were pronounced differences in many of the nutritive indicators measured including dry matter (P=0.002), crude protein (P=0.001), TDN (P=0.02), and phosphorus content (P=0.03). ADF (P=0.18) and calcium (P=0.06) were statistically similar between treatments. NPARA Blend #6 produced 2.6 tonnes/acre of dry matter, the highest of any treatment. NPARA blends #4 and #1 had the highest level of crude protein at 33.4% and 31.5%, respectively. NPARA Blend #1, 75.1%, and Pinpoint Blend, 74.7%, exhibited the highest TDN. C.V. values were high for all except ADF and TDN.



Seeding Date: May 28; **Seeding Depth:** 1 in.; **Seeding Rate:** variable/sq. ft.; **Harvest Date:** Oct. 13
Applications: May 13 and May 20: Glyphosate - 0.66 L/ac, Heat - 0.059 L/ac, and Merge - 0.2 L/ac; May 28: 13-22-0-15S - 100 lb/ac; July 14: G22 - 3 L/ac, F18 - 0.5 L/ac, Microbolt (B) - 0.25 L/ac, and Microbolt (Mo) - 14 g/ac