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Southern Cover Crop Variety Trial 2023

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Southern Cover Crop Variety Trial

2023

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Experimental Procedures

Evaluations of 20 cover crop varieties (Table 1) were conducted at 12 sites across 10 states in the Southern US (Table 3). All locations were planted with a drill to a length of 20 ft. Plot widths was a single pass of a small plot drill, which varied slightly by location based on equipment but generally was around 4 to 5 ft wide. Plots were planted in a randomized complete block design and replicated three times at each location. Seed was planted at a depth of 0.5 in. The trial included varieties within the broader groups of brassicas, cereals, and legumes; however, all varieties were evaluated in a single trial to provide a better head-to-head comparison of the many cover crop varieties available. Contact information and websites for seed suppliers are summarized in Table 2.

Evaluation Timing

Four time points were evaluated:

- **Fall**: late Nov./early Dec.
- **Winter**: early Feb.
- **Pre-Corn**: approximately two weeks prior to typical corn planting dates for each state, respectively
- **Pre-Soybean**: approximately two weeks prior to typical soybean planting dates for each state, respectively

Canopy Cover and Height

Cover crop canopy cover and weed canopy cover were assessed visually using a percentage scale. Height was measured using a height stick and is reported in inches.

Biomass

Cover crop biomass was measured for two, randomly selected 5.4 ft^2 areas within each plot. Biomass within each square was cut to a height of 1 in. above the soil surface using handheld clippers. Biomass was dried to a constant weight and dry matter biomass was calculated on a lb per acre basis.

Forage Quality

One sample from each plot was dried and ground using a Wiley Mill (Thomas Scientific, Swedesboro, NJ) to pass a 2-mm screen; then, finished by passing through a Cylcotec (Foss North America, Eden Prairie, MN) with a 1-mm screen. Samples were dried to a consistent moisture level and scanned on a Foss DS2500F Near infrared Spectrometer (Foss North American, Eden Prairie, Minnesota). Calibrations used were from the NIRS Consortium (Berea, Kentucky). All forage quality data are reported at 100 percent dry matter. Values are reported for in-vitro total dry matter digestibility at 48 hrs (IVTDMD48), crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF), and lignin. Ash and fat were also estimated but are not reported.

Assessment of Nitrogen Content and Nitrogen Release

Data from NIRS were used to calculate the following variables according to Woodruff et al. (2008): percent nitrogen (CP / 6.25), carbohydrates (NFC + CP + fat), cellulose (ADF – (Lignin + Ash)), and hemicellulose (NDF - ADF). Mean values for lignin, carbohydrates, and cellulose + hemicellulose were normalized to 100 percent and inputted into the Precision Sustainable Agriculture (PSA) Cover Crop Nitrogen Calculator (covercrop-ncalc.org) along with mean percent nitrogen, biomass, latitude and longitude of each trial site, and estimated cash crop start date (two weeks after cover crop biomass collection). These values were used to estimate nitrogen release over the 90-day period following cover crop biomass collection.

Statistical Analysis

All variables were analyzed using the MIXED procedure in SAS v. 9.4 (Cary, North Carolina) with mean separation performed using the Fisher's Protected LSD (Least Significant Difference) test. All analyses used a mixed model with variety and location as fixed effects and block as a random effect with an alpha level of 0.05 to determine significance. Mean separation letters have been listed next to mean values for each trait. Across all entries, varieties that have any letter in common within a column are not significantly different at the 5 percent level of probability. Varieties with performance statistically equivalent to the highest value for each respective trait will have an "A" included in the list of mean separation letters next to that entry. Mean separation letters of "A-group" varieties are highlighted in dark orange. Additionally, mean values in the upper 25th percentile are highlighted in dark orange.

Results

The tables on the following pages have been prepared with entries sorted by group (cereal, legume, brassica), common name, and variety. A total of 3 cereal, 12 legume, and 5 brassica varieties were evaluated. Variety performance is given across and by location for each measured variable. These are presented by variable for pre-soybean evaluations (Tables 4 to 14), pre-corn evaluations (Tables 15 to 25), fall evaluations (Tables 26 to 28), and winter evaluations (Tables 29 to 31). Varieties differed significantly among all evaluated traits. All traits across all evaluation timings exhibited a significant interaction between variety and location, indicating variety differences differed by location. However, top performers tended to be consistent across locations. While species tended to group together in terms of performance, significant differences were observed among varieties within a single species.

In December of 2022, a sustained period of below average temperatures impacted much of the Southern US. Several species were negatively impacted by this and exhibited high rates of winter kill. These included varieties of radish, turnip, Persian clover, red clover, berseem clover, and balansa clover. These are shown as zero value where appropriate (biomass, cover) and missing values where a measurement could not be taken due to an absence of plant material (height, all quality traits).

Varieties that had high biomass pre-corn (Table 15), generally also had high biomass pre-soybean (Table 4). Across all entries, top-performers ("A-group" varieties – not significantly different from the highest value or in the upper 25th percentile) for biomass were dominated by cereal rye and hairy vetch. These included FL405 cereal rye, FL406 cereal rye, AU Merit hairy

vetch, and Patagonia Inta hairy vetch, which averaged 2,575 lb ac^{-1} pre-corn and 3,846 lb ac^{-1} pre-soybean. FL08128 triticale and AU Early Cover hairy vetch were also top performers for biomass across location in the pre-soybean and pre-corn evaluations, respectively. Crimson clover varieties exhibited greater variation in performance across the Southern states and by variety. All three crimson clover varieties were top-performers in Georgia and Middle Tennessee in both the pre-corn and pre-soy evaluation period. At the remaining locations, crimson clover variety performance varied, with differences as large as 2,621 lbs ac^{-1} between varieties. These results emphasize the importance of selecting not only a cover crop species, but also a variety that is regionally adapted.

Top-performers for canopy cover varied by evaluation month (Tables 6, 15, 26, 29). Fall and winter evaluations were only done at four sites. In both fall and winter, the cereal rye species were top-performers for canopy cover, averaging 69 percent cover in the fall and 74 percent cover in the winter. In the fall evaluations, Aerifi radish, PPG-FP-101 turnip, and Jackpot turnip also provided top-performance for cover across locations; however, as mentioned previously, most brassica species suffered high rates of winter kill due to unusually cold temperatures in December. By the winter evaluation period, percent cover by these species was drastically reduced. In the winter cover evaluation, AU Early Cover hairy vetch, AU Merit hairy vetch, and FL08128 triticale were in the upper 25^{th} percentile across locations for canopy cover, averaging 48% cover, but were still statistically lower than the two cereal varieties, FL405 and FL406, which continued to dominate, averaging 74 percent cover.

While the cereals may have dominated in the fall and winter cover, the hairy vetch varieties took back the crown in the pre-corn and pre-soybean evaluations. All three hairy vetch varieties were in the A-group during both evaluation periods, averaging 95 percent cover pre-soybean and 86 percent cover pre-corn. The two cereal rye varieties were in the upper 25^{th} percentile but exhibited statistically less cover than the hairy vetch varieties, with 78 percent cover pre-soybean and 72 percent cover pre-corn. As with biomass, crimson clover varieties exhibited strong variation in performance across varieties and locations. In Texas, one of the few states where the brassica species survived, all the turnip varieties were also in the A-group for canopy cover in both pre-corn and pre-soybean evaluations.

Height may be important for producers interested in grazing cover crops. Both cereal rye varieties were the tallest in all four evaluation months (Tables 8, 19, 28, 31). The triticale variety, FL08128, was in the upper 25^{th} percentile but statistically shorter than the cereal rye varieties across most locations in all evaluation periods. Height showed greater variation across locations among the remaining species and varieties. Also of interest to those grazing cover crops are the forage values for pre-soybean (Tables 10 to 14) and pre-corn (Tables 21 to 25). In both evaluation periods, Kentucky Pride crimson clover and Cahaba common vetch had the highest values for IVTDMD48 while AU Merit and Patagonia Inta had the highest values for CP. Relative performance for CP was fairly consistent across location, while IVTDMD48 exhibited greater variation. Several of the clover species that experienced winter kill, and were not included in the overall average, showed high values for IVTDMD48 and CP in areas where enough biomass was collected to evaluate forage quality.

Variation in estimated nitrogen release was observed both among and within functional groups (Tables 9 and 20). Across locations, the three hairy vetch varieties provided the greatest estimated nitrogen release, averaging 43 lb ac^{-1} pre-soybean and 39 lb ac^{-1} pre-corn. Variation was observed among locations, with the top-performing variety differing by location. Crimson clover also provided high nitrogen release, but at select locations, which dropped its mean in the average across locations. This was due to variation in biomass as stated previously, which varied considerably by location and variety for crimson clover. At locations where crimson clover biomass was high, nitrogen release numbers for some crimson clover varieties were statistically equivalent or even higher than some varieties of hairy vetch. While the other clover varieties had nitrogen content similar or even higher than crimson clover, depending on location, they generally provided lower nitrogen release due to limited biomass production.

Overall, results from this trial illustrate the variation both among species and among varieties within species as well as highlight top-performing varieties for the Southern region. While these results draw from a wide range of environmental conditions representative of the Southern US, the cold-snap in December 2022 was unusual for this region. Results from brassica varieties and some more cold-sensitive clover varieties may not be representative of a more typical winter. Cereal rye, hairy vetch, and crimson clover varieties were among the top-performers for the 2022-2023 season. Although top-performing varieties of cereal rye and hairy vetch were generally the same across locations and termination timings, crimson clover varieties exhibited greater variation by location. Selecting a mix of top-performing varieties that offer complementary benefits, such as early season cover, biomass at termination, and nitrogen release after termination, can help maximum the benefits of cover crops to a succeeding cash crop system.

References

Woodruff, L.K., R. Hitchcock, L. Sonon, U. Saha, D.E. Kissel, J. Gaskin, N. Romano, M.L. Cabrera, M.Y. Habteselassie, M. Vigil, J. Rema. 2018. A web-based model of N mineralization from cover crop residue decomposition. Soil Sci. Soc. Am. J. 82:983-993. doi: 10.2136/ssaj2017.05.0144.

Table 1. Characteristics of cover crop varieties evaluated during 2022-2023.

Group	Common Name	Variety/Hybrid	Company	Seeding Rate (lb/ac)
Brassica	radish	Aerifi	Mountain View Seeds	10
Brassica	turnip	GO-TRT	GO Seed	10
Brassica	turnip	PPG-FP-101	Mountain View Seeds	10
Brassica	turnip	Vivant	Mountain View Seeds	10
Brassica	turnip	Jackpot	Mountain View Seeds	10
Cereal	cereal rye	FL405 rye	UF	90
Cereal	cereal rye	FL406 rye	UF	90
Cereal	triticale	FL08128 triticale	UF	90
Legume	clover, balansa	Viper	Smith Seed Services	5
Legume	clover, berseem	Frosty	GO Seed	12
Legume	clover, berseem	Lightning	Smith Seed Services	12
Legume	clover, crimson	AU Robin	Auburn University	25
Legume	clover, crimson	AU Sunrise	Auburn University	25
Legume	clover, crimson	Kentucky Pride	GO Seed	25
Legume	clover, persian	eNhance	GO Seed	5
Legume	clover, red	Q	GO Seed	10
Legume	vetch, common	Cahaba	Mixon Seed Service	30
Legume	vetch, hairy	AU Early Cover	Auburn University	30
Legume	vetch, hairy	AU Merit	Smith Seed Services	30
Legume	vetch, hairy	Patagonia Inta	Smith Seed Services	30

Table 2. Contact information for cover crop seed companies submitting varieties evaluated during 2022-2023.

Company	Contact	Phone	Email	Web site
GO Seed	Shannon Cappellazzi	503-566-9900	scappellazzi@goseed.com	www.goseed.com
Auburn University	Jim Bostick	334-701-7383	acia7383@gmail.com	
Smith Seed Services	Jonathan Rupert	888-550-2930	jrupert@smithseed.com	www.smithseed.com
Mixon Seed Service	Blake Shepard	803-531-1777	blake@mixonseed.com	
Mountain View Seeds	Kreston Koziuk	503-588-7333	kkoziuk@mtviewseeds.com	mtviewseeds.com
University of Florida	Jeff Jones			

Table 3. Location information for cover crop variety trials evaluated during 2022 - 2023.

State	City	Site Name	Planting Date	Fall Eval.	Winter Eval.	Spring Eval. 1	Spring Eval. 2	Soil Type	Site Manager	
AL	Headland	Wiregrass Research and Extension Center, Auburn University	28-Oct-2022			14-Mar-2023	11-Apr-2023		Audrey Gamble	avg0001@auburn.edu
AR	Alma	University of Arkansas Vegetable Research Station	13-Oct-2022				11-Apr-2023	Roxana Silt Loam	Amanda McWhirt	amcwhirt@uada.edu
FL	Gainesville	Plant Science Research and Education Unit, Citra, University of Florida	20-Oct-2022			16-Mar-2023	28-Apr-2023		Carlene Chase, Gabriel Maltais-Landry, Lakesh Sharma	cachase@ufl.edu; maltaislandryg@ufl.edu; lakesh.sharma@ufl.edu
GA		J. Phil Campbell Research and Education Center, University of Georgia	26-Oct-2022			11-Apr-2023	25-Apr-2023		Nick Basinger	nicholas.basinger@uga.edu
KY	Lexington	North Farm, University of Kentucky	12-Oct-2022			13-Apr-2023	28-Apr-2023		Erin Haramoto	erin.haramoto@uky.edu
NC	Kinston	Caswell Research Farm, University of North Carolina	10/11/22, 10/12	2-Dec-2022	9-Feb-2023	6-Apr-2023	1-May-2023	Pocalla Loamy Sand	Alyssa Woodard	ajwooda2@ncsu.edu
SC	Pendleton	Piedmont Research and Education Center, Clemson University	9-Nov-2022		20-Feb-2023	9-May-2023			Sruthi Narayanan	skutty@clemson.edu
TN_East	Knoxville	East TN AgResearch and Education Center, University of Tennessee	11-Oct-2022	1-Dec-2022	3-Feb-2023	4-Apr-2023	1-May-2023	Waynesboro Loam	Virginia Sykes	vsykes@utk.edu
TN_Middle	Spring Hill	Middle TN AgResearch and Education Center, University of Tennessee	14-Oct-2022	29-Nov-2022	3-Feb-2023	5-Apr-2023	2-May-2023	Maury Silt Loam	Virginia Sykes	vsykes@utk.edu
TN_West	Memphis	AgriCenter International	13-Oct-2022			5-Apr-2023	2-May-2023	Falaya Silt Loam	Virginia Sykes	vsykes@utk.edu
TX	Somerville	Texas A&M University Research Farm, Texas A&M	21-Oct-2022			20-Feb-2023	13-Mar-2023	Weswood Clay Loam	Nithya Rajan	nrajan@tamu.edu
VA	Painter	Eastern Shore Agricultural Research and Education Center, Virginia Tech							Mark Reiter	mreiter@vt.edu

Table 4. Across and by location mean cover crop biomass of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soybean (varied by state). Small plot replicated trials were conducted at 11 sites across 10 states in the South.

Variety	Common Name	Group	Cover Crop Biomass (DM lbs/ac)[§] Avg	AL	AR	FL	GA	KY	NC	SC	TN_East	TN_Middle	TX	VA
				11-Apr-23	*1-Apr-23*	*28-Apr-23*	*25-Apr-23*	*28-Apr-23*	*1-May-23*	*9-May-23*	*1-May-23*	*2-May-23*	*13-Mar-23*	*24-May-23*
FL405 rye	cereal rye	Cereal	3806 B	5191 AB	6820 BC	1001 C	1890 BCDE	976 A	6943 BC	5434 AB	4556 AB	2385 FGH	2093 BCDEF	4576 A
FL406 rye	cereal rye	Cereal	4685 A	5897 A	8300 AB	3624 B	2337 ABCD	1166 A	7022 BC	6871 A	6082 A	3071 EFG	2176 BCDE	4991 A
FL08128 triticale	triticale	Cereal	3493 BC	2516 DEFG	9922 A	0 C	1306 CDEF	1243 A	6378 CD	5159 B	2588 CDE	1819 FGHI	3816 A	3680 AB
Viper	clover, balansa	Legume	667 G	1464 GHI	244 FG	0 C	0 F	0 A	0 H	157 DEF	143 H	3399 DEF	0 G	1931 CD
Frosty	clover, berseem	Legume	1617 EF	3494 CDE	74 G	1406 C	704 EF	637 A	4310 E	824 CDEF	1425 DEFGH	4740 CD	48 G	121 EF
Lightning	clover, berseem	Legume	1288 F	2439 EFG	0 G	3178 B	865 DEF	94 A	1962 FG	869 CDEF	1389 EFGH	3071 EFG	298 G	0 F
AU Robin	clover, crimson	Legume	3169 CD	4401 ABC	3525 E	3597 B	3291 AB	1705 A	6260 CD	314 DEF	3596 BC	7275 A	519 FG	378 DEF
AU Sunrise	clover, crimson	Legume	2897 D	3837 BCDE	904 FG	3273 B	3649 A	539 A	8653 A	491 CDEF	3709 BC	6619 AB	107 G	90 EF
Kentucky Pride	clover, crimson	Legume	2894 D	3596 BCDE	1438 FG	4341 B	3822 A	687 A	6948 ABC	609 CDEF	3822 BC	6470 AB	54 G	45 EF
eNhance	clover, persian	Legume	428 G	1413 GHI	0 G	0 C	83 F	0 A	1602 FGH	0 F	467 FGH	1133 HIJ	6 G	0 F
Q	clover, red	Legume	459 G	1828 FGH	0 G	0 C	316 EF	0 A	928 GH	139 EF	316 GH	1521 GHIJ	6 G	0 F
Cahaba	vetch, common	Legume	2072 E	3116 CDEF	1856 F	3934 B	453 EF	1190 A	4957 DE	39 DEF	537 GH	3190 DEF	1288 BCDEFG	2231 BC
AU Early Cover	vetch, hairy	Legume	3320 BCD	3449 CDEF	5340 CD	3827 B	3071 AB	1926 A	8265 AB	865 CDEF	3023 BCD	2564 FGH	2558 ABC	1628 CDE
AU Merit	vetch, hairy	Legume	3495 BC	4064 BCD	4958 DE	4084 B	2719 ABC	883 A	7340 ABC	1736 CDE	2260 CDEF	5217 BC	2785 AB	2403 BC
Patagonia Inta	vetch, hairy	Legume	3397 BC	4427 ABC	4238 DE	3651 B	2701 ABC	1229 A	8730 A	2097 C	1813 DEFG	4204 CDE	2767 AB	1514 CDEF
Aerifi	radish	Brassica	1228 F	4467 ABC	0 G	7438 A	0 F	0 A	317 H	0 F	0 H	83 J	781 DEFG	423 DEF
GO-TRT	turnip	Brassica	561 G	45 I	690 FG	0 C	0 F	187 A	2611 F	453 DEF	0 H	209 IJ	1073 CDEFG	946 CDEF
PPG-FP-101	turnip	Brassica	642 G	140 I	617 FG	460 C	0 F	149 A	1329 FGH	505 CDEF	0 H	328 IJ	2302 ABCD	1234 CDEF
Vivant	turnip	Brassica	652 G	212 HI	0 G	730 C	0 F	198 A	1556 FGH	1764 CD	0 H	280 IJ	1067 CDEFG	1360 CDEF
Jackpot	turnip	Brassica	582 G	173 I	0 G	487 C	0 F	429 A	2210 FG	858 CDEF	0 H	626 IJ	650 EFG	973 CDEF
Summary Statistics														
Average			2068	2808	2446	2252	1360	662	4416	1459	1786	2910	1220	1426
Standard Error			187	593	586	600	586	291	600	621	593	586	586	586
Min			428	45	0	0	0	0	0	0	0	83	0	0
Max			4685	5897	9922	7438	3822	1926	8730	6871	6082	7275	3816	4991
Range			4258	5853	9922	7438	3822	1926	8730	6871	6082	7191	3816	4991
ANOVA p-values														
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.388**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**											
- Variety x Location			**<0.001**											

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 5. Across and by location mean weed biomass of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 11 sites across 10 states in the South.

Variety	Common Name	Group	Weed Biomass (DM lbs/ac)[§]									
			Avg	AR	FL	KY	NC	SC	TN_East	TN_Middle	TX	VA
				1-Apr-23	*28-Apr-23*	*28-Apr-23*	*1-May-23*	*9-May-23*	*1-May-23*	*2-May-23*	*13-Mar-23*	*24-May-23*
FL405 rye	cereal rye	Cereal		64 DE	4395 AB		0 C	0 G	942 A	537 AB	0 E	811 EFG
FL406 rye	cereal rye	Cereal		52 DE	4030 AB		0 C	0 G	841 A	179 BCDE	18 DE	559 FG
FL08128 triticale	triticale	Cereal	580 FG	156 CDE	3259 ABCD	529 A	0 C	0 G	757 A	60 BCDE	173 ABCDE	286 G
Viper	clover, balansa	Legume		665 ABCD	4571 A			2427 AB	632 A	6 DE	608 A	3513 ABC
Frosty	clover, berseem	Legume	1432 ABC	2209 AB	4044 AB	725 A	72 BC	1290 BCDEF	996 A	30 CDE	411 ABC	3113 ABC
Lightning	clover, berseem	Legume			1907 CDE	782 A	1 C	1745 BCDEF	1389 A	388 ABCD	286 ABCD	2732 ABC
AU Robin	clover, crimson	Legume	845 DE	961 AB	811 FG	175	0 C	1754 ABCD	644 A	149 BCDE	596 A	2519 ABC
AU Sunrise	clover, crimson	Legume	1395 ABC	2041 A	2813 ABCDE	750 A	0 C	1867 ABCD	745 A	119 BCDE	519 AB	3698 AB
Kentucky Pride	clover, crimson	Legume	1043 ABCD	1332 AB	1406 EF	802 A	3 C	1349 ABCDE	751 A	0 E	262 ABCDE	3483 AB
eNhance	clover, persian	Legume			3705 AB		325 BC	2964 A	1383 A	328 ABCDE	727 A	4107 A
Q	clover, red	Legume			4322 AB		3 C	2735 A	1204 A	745 A	447 AB	4003 A
Cahaba	vetch, common	Legume	1014 DE	1736 AB	1 H	393 A	0 C	2605 A	1365 A	268 ABCDE	185 ABCDE	2569 ABC
AU Early Cover	vetch, hairy	Legume	579 FG	0 E	1609 DE	180	1 C	1077 CDEF	531 A	358 ABCDE	6 DE	1448 CDEF
AU Merit	vetch, hairy	Legume	309 HI	0 E	0 H	439 A	0 C	602 F	847 A	0 E	6 DE	882 DEFG
Patagonia Inta	vetch, hairy	Legume	480 FGH	30 DE	365 GH	293 A	0 C	652 EF	859 A	0 E	30 CDE	2094 BCDE
Aerifi	radish	Brassica			798 FG		2298 A	2176 ABC	1199 A	358 ABC	6 DE	2474 ABC
GO-TRT	turnip	Brassica		669 BC	3462 ABC		608 B	1257 DEF	1043 A	268 ABCDE	0 E	2789 ABC
PPG-FP-101	turnip	Brassica		680 ABCD	2651 BCDE		549 B	1787 ABCD	1091 A	268 ABCDE	48 CDE	2015 BCD
Vivant	turnip	Brassica			3232 ABCD		405 BC	1826 ABCD	1193 A	596 AB	0 E	1698 CDEF
Jackpot	turnip	Brassica			3016 ABCD		501 B	1379 ABCDE	1103 A	507 AB	119 BCDE	1609 CDE
Summary Statistics												
Average			853	757	2520	507	251	1475	976	258	222	2320
Standard Error			133	211	344	78	124	200	58	49	55	258
Min			309	0	0	175	0	0	531	0	0	286
Max			1432	2209	4571	802	2298	2964	1389	745	727	4107
Range			1124	2209	4571	627	2298	2964	859	745	727	3821
ANOVA p-values												
- Variety			**<0.001**	**<0.001**	**<0.001**	**0.597**	**<0.001**	**<0.001**	**0.980**	**0.011**	**<0.001**	**<0.001**
- Location			**<0.001**									
- Variety x Location			**<0.001**									

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.
§ Analysis performed on values transformed using a square root due to non-normal distribution. Raw means and summary statistics are reported.

Table 6. Across and by location mean cover crop cover of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 11 sites across 10 states in the South.

Variety	Common Name	Group	Cover Crop Cover (%)									
			Avg	AR	FL	GA	NC	SC	TN_East	TN_Middle	TX	VA
				1-Apr-23	*28-Apr-23*	*25-Apr-23*	*1-May-23*	*9-May-23*	*1-May-23*	*2-May-23*	*13-Mar-23*	*24-May-23*
FL405 rye	cereal rye	Cereal	76 BC	100 A	8 EFG	70 BC	94 A	100 A	63 BC	60 D	94 A	97 A
FL406 rye	cereal rye	Cereal	80 B	100 A	24 DEF	75 AB	95 A	100 A	78 AB	57 D	97 A	97 A
FL08128 triticale	triticale	Cereal	60 EF	98 A	0 G	48 CD	82 A	100 A	30 DE	33 E	62 BC	91 AB
Viper	clover, balansa	Legume	16 K	12 EF	0 G	0 F	0 E	23 C	23 E	87 AB	0 G	2 E
Frosty	clover, berseem	Legume	34 GH	8 F	28 DE	28 DE	83 A	0 D	53 C	97 A	8 G	1 E
Lightning	clover, berseem	Legume	38 G	2 F	76 C	20 EF	78 AB	0 D	50 CD	85 ABC	32 EF	0 E
AU Robin	clover, crimson	Legume	73 CD	86 AB	99 AB	85 AB	92 A	23 C	90 A	93 A	58 CD	28 D
AU Sunrise	clover, crimson	Legume	56 F	33 DE	42 D	89 AB	95 A	20 CD	93 A	93 A	38 DE	3 E
Kentucky Pride	clover, crimson	Legume	59 F	45 CD	86 ABC	82 AB	92 A	25 C	90 A	97 A	12 FG	1 E
eNhance	clover, persian	Legume	16 K	0 F	0 G	12 EF	52 BC	0 D	13 EF	67 BCD	1 G	0 E
Q	clover, red	Legume	16 K	0 F	0 FG	2 F	51 BC	0 D	23 E	63 CD	0 G	0 E
Cahaba	vetch, common	Legume	67 DE	67 BC	100 ABC	29 DE	99 A	13 CD	25 E	90 A	88 A	94 A
AU Early Cover	vetch, hairy	Legume	93 A	100 A	79 ABC	85 AB	96 A	92 A	92 A	98 A	98 A	97 A
AU Merit	vetch, hairy	Legume	96 A	100 A	100 A	93 A	99 A	93 A	90 A	95 A	100 A	92 A
Patagonia Inta	vetch, hairy	Legume	97 A	100 A	100 A	93 A	98 A	97 A	92 A	100 A	100 A	97 A
Aerifi	radish	Brassica	22 JK	0 F	77 BC	0 F	23 DE	0 D	0 F	7 G	38 DE	53 C
GO-TRT	turnip	Brassica	26 IJ	13 EF	1 G	0 F	50 C	15 CD	0 F	7 G	80 ABC	69 BC
PPG-FP-101	turnip	Brassica	30 HI	15 EF	13 EFG	0 F	48 C	5 CD	0 F	10 FG	93 A	89 AB
Vivant	turnip	Brassica	22 JK	0 F	9 EFG	0 F	45 CD	3 CD	0 F	13 EFG	83 AB	47 CD
Jackpot	turnip	Brassica	35 GH	0 F	8 EFG	0 F	57 BC	53 B	0 F	32 EF	80 ABC	85 AB
Summary Statistics												
Average			51	44	43	41	71	38	45	64	58	52
Standard Error			3	8	8	8	8	8	8	8	8	8
Min			16	0	0	0	0	0	0	7	0	0
Max			97	100	100	93	99	100	93	100	100	97
Range			82	100	100	93	99	100	93	93	100	97
ANOVA p-values												
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**									
- Variety x Location			**<0.001**									

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 7. Across and by location mean weed cover of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 11 sites across 10 states in the South.

Variety	Common Name	Group	Weed Cover (%)									
			Avg	AR	FL	GA	NC	SC	TN_East	TN_Middle	TX	VA
				1-Apr-23	*28-Apr-23*	*25-Apr-23*	*1-May-23*	*9-May-23*	*1-May-23*	*2-May-23*	*13-Mar-23*	*24-May-23*
FL405 rye	cereal rye	Cereal	19 HIJ	0 E	91 AB	30 DE	2 EF	5 A	17 DE	22 DEF	3 G	3 E
FL406 rye	cereal rye	Cereal	14 JK	0 E	71 BC	25 E	0 F	5 A	12 E	12 EF	2 G	3 E
FL08128 triticale	triticale	Cereal	30 EFG	2 E	97 A	52 CD	0 F	5 A	37 CD	38 BCD	28 EF	9 DE
Viper	clover, balansa	Legume		66 AB	95 A	100 A		12 A	77 B	12 EF	67 ABC	98 A
Frosty	clover, berseem	Legume	51 ABC	73 AB	69 BC	72 BC	3 EF	18 A	47 C	3 F	75 AB	99 A
Lightning	clover, berseem	Legume	49 CD	93 A	24 D	80 AB	12 CDEF	17 A	50 C	13 EF	50 CDE	100 A
AU Robin	clover, crimson	Legume	20 HIJ	15 DE	1 E	15 E	5 DEF	20 A	10 E	7 F	38 DE	72 B
AU Sunrise	clover, crimson	Legume	36 EF	67 AB	58 C	11 E	2 EF	25 A	7 E	7 F	50 CDE	97 A
Kentucky Pride	clover, crimson	Legume	30 EFG	55 BC	9 DE	18 E	3 DEF	17 A	8 E	3 F	57 BCD	99 A
eNhance	clover, persian	Legume			100 A	88 AB	36 BC	15 A	87 AB	30 CDE	77 AB	100 A
Q	clover, red	Legume			100 A	98 A	26 BCDE	17 A	77 B	37 BCD	82 A	100 A
Cahaba	vetch, common	Legume	25 GHI	33 CD	0 DE	71 BC	0 F	20 A	75 B	10 EF	7 FG	6 E
AU Early Cover	vetch, hairy	Legume	6 LM	0 E	21 DE	15 E	0 EF	7 A	8 E	2 F	2 G	3 E
AU Merit	vetch, hairy	Legume	5 LM	0 E	0 E	7 E	0 F	17 A	10 E	5 F	0 G	8 E
Patagonia Inta	vetch, hairy	Legume	4 LM	0 E	0 E	7 E	0 F	13 A	8 E	0 F	0 G	3 E
Aerifi	radish	Brassica			15 DE	100 A	77 A	15 A	100 A	78 A	13 FG	47 C
GO-TRT	turnip	Brassica	58 AB	77 AB	96 A	100 A	34 BC	22 A	100 A	55 B	5 G	31 CD
PPG-FP-101	turnip	Brassica	45 CD	23 CDE	71 BC	100 A	36 BC	10 A	100 A	55 B	2 G	11 DE
Vivant	turnip	Brassica			68 BC	100 A	40 B	15 A	100 A	45 BC	7 FG	53 BC
Jackpot	turnip	Brassica			68 BC	100 A	27 BCD	12 A	100 A	55 B	8 FG	15 DE
Summary Statistics												
Average			28	34	53	59	16	14	51	24	29	48
Standard Error			3	10	8	8	9	8	8	8	8	8
Min			4	0	0	7	0	5	7	0	0	3
Max			58	93	100	100	77	25	100	78	82	100
Range			54	93	100	93	77	20	93	78	82	97
ANOVA p-values												
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.966**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**									
- Variety x Location			**<0.001**									

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 8. Across and by location mean cover crop height of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 11 sites across 10 states in the South.

Variety	Common Name	Group	Cover Crop Height (in)								
			Avg	AR	GA	NC	SC	TN_East	TN_Middle	TX	VA
				1-Apr-23	*25-Apr-23*	*1-May-23*	*9-May-23*	*1-May-23*	*2-May-23*	*13-Mar-23*	*24-May-23*
FL405 rye	cereal rye	Cereal	56 ABC	63 A	52 A	54 A	66 A	54 A	44 A	51 A	66 A
FL406 rye	cereal rye	Cereal	55 ABC	62 A	51 A	55 A	62 A	56 A	45 A	49 A	62 A
FL08128 triticale	triticale	Cereal	40 DEF	47 B	31 B	44 B	47 B	38 B	33 B	43 B	41 BC
Viper	clover, balansa	Legume		11 H	8 E		20 EFG	12 FG	13 H		15 G
Frosty	clover, berseem	Legume	18 JKL	15 EFGH	22 CD	20 DE	28 CDE	17 DEF	27 C	5 HI	11 G
Lightning	clover, berseem	Legume		14 EFGH	20 CD	20 DEF	27 CDEF	16 FG	22 DEF	6 GHI	
AU Robin	clover, crimson	Legume	19 JKL	20 DEF	22 C	20 DE	16 G	24 C	26 CD	6 HI	16 G
AU Sunrise	clover, crimson	Legume	18 JKL	17 EFGH	22 C	23 D	20 FG	21 CDE	25 CDE	4 I	14 G
Kentucky Pride	clover, crimson	Legume	18 JKL	15 FGH	20 CD	19 DEF	23 DEF	22 CDE	25 CDE	3 I	16 G
eNhance	clover, persian	Legume			16 D	19 DEF		13 FG	17 FGH	4 GHI	
Q	clover, red	Legume			18 CD	15 EF		11 G	16 GH	4 GHI	
Cahaba	vetch, common	Legume	19 JKL	15 GH	22 C	19 DEF	28 CDEF	17 EF	18 FGH	11 EFG	27 F
AU Early Cover	vetch, hairy	Legume	23 GHI	21 DE	30 B	14 F	24 DEF	23 C	22 CDEF	15 DE	32 DE
AU Merit	vetch, hairy	Legume	22 GHI	19 DEFG	28 B	16 EF	27 CD	21 CDE	22 CDEF	16 DE	30 EF
Patagonia Inta	vetch, hairy	Legume	24 GHI	23 D	30 B	19 DEF	22 EFG	22 CD	26 CD	19 D	32 DE
Aerifi	radish	Brassica				18 DEF			13 H	25 C	28 EF
GO-TRT	turnip	Brassica		35 C		35 C	32 C		18 FGH	10 FGH	37 CD
PPG-FP-101	turnip	Brassica		41 BC		34 C			22 DEF	14 DEF	45 B
Vivant	turnip	Brassica				34 C			20 EFG	9 FGH	38 C
Jackpot	turnip	Brassica				38 C			26 CD	8 GHI	45 B
Summary Statistics											
Average			28	28	26	27	32	24	24	16	33
Standard Error			1	2	2	2	2	2	2	2	2
Min			18	11	8	14	16	11	13	3	11
Max			56	63	52	55	66	56	45	51	66
Range			38	53	44	41	49	44	32	49	55
ANOVA p-values											
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**								
- Variety x Location			**<0.001**								

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 9. Across and by location mean estimated nitrogen release over 90 days of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Estimated Nitrogen Release (lbs ac^{-1})†† Avg	FL	GA	KY	NC	TN_East	TN_Middle
				28-Apr-23	*25-Apr-23*	*28-Apr-23*	*1-May-23*	*1-May-23*	*2-May-23*
FL405 rye	cereal rye	Cereal		-1 F	3 D		13 HIJ	8 DE	3 G
FL406 rye	cereal rye	Cereal		4 F	2 D		12 HIJ	7 DE	4 G
FL08128 triticale	triticale	Cereal			1 D	4 A	27 FGHI	8 DE	4 G
Viper	clover, balansa	Legume						5 CDE	25 EF
Frosty	clover, berseem	Legume	25 GH	37 BCDE	10 CD	7 A	32 EFGH	16 BCDE	47 ABCD
Lightning	clover, berseem	Legume		31 CDE	15 BCD		22 FGHIJ	14 CDE	32 CDEF
AU Robin	clover, crimson	Legume	33 EFG	30 CDE	34 AB	15 A	44 DEF	31 ABC	42 BCDE
AU Sunrise	clover, crimson	Legume	32 EFG	25 CDEF	32 ABC	6 A	56 CD	25 ABCD	49 ABC
Kentucky Pride	clover, crimson	Legume	36 DEF	43 C	42 A	7 A	39 DEFG	39 A	46 ABCDE
eNhance	clover, persian	Legume			0 D		11 HIJ	9 BCDE	12 FG
Q	clover, red	Legume			12 BCD		14 GHIJ	4 E	17 FG
Cahaba	vetch, common	Legume	32 EFG	74 A	7 D	13 A	51 DE	6 DE	38 BCDE
AU Early Cover	vetch, hairy	Legume	42 ABCD	32 CDE	44 A	23 A	86 AB	35 AB	29 DEF
AU Merit	vetch, hairy	Legume	44 ABCD	43 C	40 A	10 A	72 BC	31 ABC	67 A
Patagonia Inta	vetch, hairy	Legume	44 ABC	40 CD	43 A	14 A	93 A	26 ABCD	52 AB
Aerifi	radish	Brassica		63 AB			4 HIJ		0 G
GO-TRT	turnip	Brassica					7 IJ		1 G
PPG-FP-101	turnip	Brassica		19 CDEF			6 J		1 G
Vivant	turnip	Brassica		13 EF			7 J		2 G
Jackpot	turnip	Brassica		13 DEF			13 HIJ		2 G
Summary Statistics									
Average			36	31	20	11	32	17	24
Standard Error			3	9	8	8	8	8	7
Min			25	-1	0	4	4	4	0
Max			44	74	44	23	93	39	67
Range			20	75	44	20	89	35	67
ANOVA p-values									
- Variety			**<0.001**	**<0.001**	**<0.001**	**0.716**	**<0.001**	**0.002**	**<0.001**
- Location			**<0.001**						
- Variety x Location			**<0.001**						

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

†† Estimated using quality constituents from near infrared spectroscopy (NIRS) with the appropriate calibrations for each species, inputted into the PSA cover crop nitrogen calculator.

Table 10. Across and by location mean in-vitro total dry matter digestibility at 48 hours (IVTDMD48) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop In-Vitro Total Dry Matter Digestibility at 48 hrs (IVTDMD48)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				28-Apr-23	*25-Apr-23*	*28-Apr-23*	*1-May-23*	*1-May-23*	*2-May-23*	*2-May-23*
FL405 rye	cereal rye	Cereal	64 KL	50 EF	63 F	80 CDE	54 GH	66 E	64 GH	68 FGH
FL406 rye	cereal rye	Cereal	64 KL	48 F	64 F	77 EF	59 EFG	67 E	63 H	69 FGH
FL08128 triticale	triticale	Cereal			69 EF	82 BCDE	59 EFG	73 DE	71 DEFG	73 EFG
Viper	clover, balansa	Legume						91 AB	87 B	87 AB
Frosty	clover, berseem	Legume	77 EFG	61 CDE	85 BC	70 F	75 AB	84 B	81 BC	81 BCD
Lightning	clover, berseem	Legume		72 B	87 B		76 AB	84 B	83 B	81 BCD
AU Robin	clover, crimson	Legume	74 HIJ	59 DE	78 CD	82 BCDE	69 BC	76 CD	70 EFGH	82 BCD
AU Sunrise	clover, crimson	Legume	74 GHIJ	60 DE	76 DE	87 ABCD	69 BC	72 DE	74 CDE	79 BCDE
Kentucky Pride	clover, crimson	Legume	79 EF	66 BCD	82 BCD	89 AB	69 BCD	83 BC	79 BCD	86 ABC
eNhance	clover, persian	Legume			98 A		83 A	97 A	97 A	91 A
Q	clover, red	Legume			86 BCD		83 A	87 B	84 B	86 ABC
Cahaba	vetch, common	Legume	84 ABCD	73 B	85 BC	91 A	78 A	87 B	86 B	85 ABC
AU Early Cover	vetch, hairy	Legume	72 IJ	42 F	80 BCD	80 DE	64 CDEF	81 BC	80 BC	75 DEF
AU Merit	vetch, hairy	Legume	76 EFGH	60 DE	83 BCD	91 A	58 FGH	86 B	82 BC	75 DEF
Patagonia Inta	vetch, hairy	Legume	77 EFG	60 DE	83 BCD	87 ABC	61 DEFG	85 B	81 BC	78 CDE
Aerifi	radish	Brassica		68 BC			60 CDEFGH		84 B	73 DEFGH
GO-TRT	turnip	Brassica		91 A		78 DEF	51 H		66 FGH	64 H
PPG-FP-101	turnip	Brassica		65 BCD			62 CDEFG		70 EFGH	67 GH
Vivant	turnip	Brassica		84 A		79 BCDEF	66 CDE		76 CDE	73 EFG
Jackpot	turnip	Brassica		85 A		85 ABCD	68 BCD		72 DEF	70 FGH
Summary Statistics										
Average			74	65	80	83	66	81	77	77
Standard Error			1	3	3	3	3	3	3	3
Min			64	42	63	70	51	66	63	64
Max			84	91	98	91	83	97	97	91
Range			20	49	35	21	32	31	34	28
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 11. Across and by location mean crude protein (CP) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Crude Protein (CP)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				28-Apr-23	*25-Apr-23*	*28-Apr-23*	*1-May-23*	*1-May-23*	*2-May-23*	*2-May-23*
FL405 rye	cereal rye	Cereal	9 KL	4 I	8 G	17 BC	9 FG	8 H	7 H	11 FGH
FL406 rye	cereal rye	Cereal	8 KL	7 I	7 G	14 CD	8 G	7 H	7 H	10 GH
FL08128 triticale	triticale	Cereal			8 G	12 DE	11 DEFG	9 GH	9 GH	9 H
Viper	clover, balansa	Legume						17 BCDEF	14 EF	15 BCDEF
Frosty	clover, berseem	Legume	16 GHI	16 DEFGH	19 CDEF	8 E	14 BCD	19 BCD	17 BCDE	16 BCD
Lightning	clover, berseem	Legume		17 EFGH	22 BCD		13 BCD	18 CDE	17 BCDE	19 ABC
AU Sunrise	clover, crimson	Legume	14 IJ	14 H	16 F	18 ABC	13 CDE	13 FG	14 EF	14 DEFG
Kentucky Pride	clover, crimson	Legume	17 GH	17 EFGH	19 DEF	19 AB	12 DEFG	16 DEF	15 CDEF	20 AB
AU Robin	clover, crimson	Legume	15 IJ	15 GH	18 EF	14 CD	13 CD	14 EF	12 FG	15 CDE
eNhance	clover, persian	Legume			20 CDEF		11 DEFG	23 A	18 ABCD	19 ABC
Q	clover, red	Legume			23 ABCD		19 A	22 AB	19 ABC	19 ABC
Cahaba	vetch, common	Legume	20 DEF	20 BCDE	21 CDE	21 AB	17 AB	20 ABC	19 ABC	19 ABC
AU Merit	vetch, hairy	Legume	21 ABCD	19 CDEFG	26 AB	20 AB	19 A	22 AB	21 A	19 ABC
Patagonia Inta	vetch, hairy	Legume	21 ABC	19 CDEF	28 A	21 A	19 A	22 AB	20 AB	21 A
AU Early Cover	vetch, hairy	Legume	19 EF	16 FGH	23 BC	18 AB	17 ABC	20 ABC	19 ABC	18 ABC
Aerifi	radish	Brassica		15 GH			11 DEFG		14 DEF	11 EFGH
Vivant	turnip	Brassica		22 BCD		16 ABCD	12 DEF		12 FG	9 H
GO-TRT	turnip	Brassica		24 ABC		14 CD	9 EFG		9 GH	8 H
PPG-FP-101	turnip	Brassica		25 AB			11 DEFG		9 GH	8 H
Jackpot	turnip	Brassica		27 A		18 AB	12 DEF		10 GH	9 H
Summary Statistics										
Average			16	17	18	16	13	17	14	14
Standard Error			1	2	2	2	1	1	1	1
Min			8	4	7	8	8	7	7	8
Max			21	27	28	21	19	23	21	21
Range			13	23	21	12	12	16	15	13
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 12. Across and by location mean neutral detergent fiber (NDF) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Neutral Detergent Fiber (NDF)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				28-Apr-23	*25-Apr-23*	*28-Apr-23*	*1-May-23*	*1-May-23*	*2-May-23*	*2-May-23*
FL405 rye	cereal rye	Cereal	67 ABC	82 A	68 A	44 BCD	71 A	65 A	69 A	66 A
FL406 rye	cereal rye	Cereal	67 ABC	85 A	68 A	53 B	68 AB	64 A	70 A	66 A
FL08128 triticale	triticale	Cereal			65 A	49 BC	73 A	63 A	65 A	59 AB
Viper	clover, balansa	Legume						32 CDEF	33 F	38 FGHI
Frosty	clover, berseem	Legume	44 DEF	53 BCDEF	33 BC	65 A	45 HIJ	34 CDE	37 EF	41 EFGH
Lightning	clover, berseem	Legume		45 EF	31 C		44 HIJ	35 CDE	35 EF	39 FGHI
AU Robin	clover, crimson	Legume	45 DEF	52 CDE	39 BC	44 BCD	46 GHIJ	42 BC	48 BC	40 FGH
AU Sunrise	clover, crimson	Legume	44 DEF	55 CD	42 B	35 DE	46 GHIJ	45 B	42 CDE	40 EFGH
Kentucky Pride	clover, crimson	Legume	39 GHI	50 DEF	37 BC	33 E	47 FGHIJ	36 CDE	38 DEF	36 GHI
eNhance	clover, persian	Legume			21 D		38 J	20 F	23 G	31 I
Q	clover, red	Legume			29 CD		38 IJ	29 EF	33 F	33 HI
Cahaba	vetch, common	Legume	38 IJ	48 DEF	37 BC	32 E	41 IJ	36 CDE	36 EF	37 GHI
AU Early Cover	vetch, hairy	Legume	45 DE	64 B	38 BC	44 BCD	48 EFGHI	39 BCD	38 DEF	46 DEF
AU Merit	vetch, hairy	Legume	43 DEF	60 BC	37 BC	30 E	55 DEF	34 DE	38 DEF	49 CDE
Patagonia Inta	vetch, hairy	Legume	42 FGH	54 CD	36 BC	32 E	51 DEFGH	34 CDE	39 DEF	46 DEF
Aerifi	radish	Brassica		56 BCD			58 BCDEFG		41 CDEF	48 BCDEFG
GO-TRT	turnip	Brassica		39 FG		52 B	67 ABC		52 B	57 BC
PPG-FP-101	turnip	Brassica		38 FG			58 CD		53 B	56 BC
Vivant	turnip	Brassica		31 G		38 CDE	56 DE		47 BCD	52 BCD
Jackpot	turnip	Brassica		35 G		36 E	54 DEFG		51 B	54 BCD
Summary Statistics										
Average			47	53	41	42	53	40	44	47
Standard Error			1	4	3	3	3	3	3	3
Min			38	31	21	30	38	20	23	31
Max			67	85	68	65	73	65	70	66
Range			29	54	47	35	35	44	47	36
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 13. Across and by location mean acid detergent fiber (ADF) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Acid Detergent Fiber (ADF)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				28-Apr-23	*25-Apr-23*	*28-Apr-23*	*1-May-23*	*1-May-23*	*2-May-23*	*2-May-23*
FL405 rye	cereal rye	Cereal	38 ABCDE	47 ABCD	37 A	32 BC	38 EFGHI	35 ABCD	42 A	38 BCDEF
FL406 rye	cereal rye	Cereal	39 ABCD	51 AB	37 A	34 AB	36 GHIJ	35 ABCD	39 ABCD	38 BCDE
FL08128 triticale	triticale	Cereal			33 ABCD	30 BCDE	35 GHIJ	32 BCD	35 CDEFG	38 BCDEF
Viper	clover, balansa	Legume						29 CDE	28 H	33 EFGH
Frosty	clover, berseem	Legume	36 EFG	49 ABCD	29 BCD	39 A	39 EFGH	30 CDE	31 FGH	35 CDEFG
Lightning	clover, berseem	Legume		41 DE	28 D		37 FGHIJ	30 DE	29 GH	35 CDEFG
AU Robin	clover, crimson	Legume	39 ABCD	50 ABC	35 AB	31 BCD	41 DEFG	37 AB	41 AB	35 DEFG
AU Sunrise	clover, crimson	Legume	38 ABCDE	49 ABC	37 A	27 CDE	40 DEFG	40 A	37 ABCDE	35 DEFG
Kentucky Pride	clover, crimson	Legume	35 FG	45 CD	33 ABCD	26 DE	41 CDEFG	32 BCD	33 DEFGH	33 EFGH
eNhance	clover, persian	Legume			20 E		31 J	20 F	20 I	28 H
Q	clover, red	Legume			26 CDE		32 IJ	26 EF	28 H	30 GH
Cahaba	vetch, common	Legume	32 HI	41 DE	32 ABCD	25 E	34 HIJ	31 CDE	32 EFGH	32 FGH
AU Early Cover	vetch, hairy	Legume	39 ABC	55 A	34 ABC	32 BC	43 BCDEF	36 ABC	34 CDEFG	41 ABC
AU Merit	vetch, hairy	Legume	38 ABCDE	50 ABC	34 ABC	25 E	49 AB	32 BCD	36 BCDEF	42 AB
Patagonia Inta	vetch, hairy	Legume	37 DEFG	48 BC	32 ABCD	26 DE	46 ABC	32 BCD	35 CDEFG	39 ABCDE
Aerifi	radish	Brassica		45 BCD			46 ABCDE		31 EFGH	39 ABCDEF
GO-TRT	turnip	Brassica		33 F		34 ABC	51 A		41 AB	44 A
PPG-FP-101	turnip	Brassica		36 EF			46 ABC		41 AB	43 AB
Vivant	turnip	Brassica		28 F		30 BCDE	45 BCD		37 ABCDE	40 ABCD
Jackpot	turnip	Brassica		29 F		29 BCDE	43 CDEF		40 ABC	42 AB
Summary Statistics										
Average			37	44	32	30	41	32	34	37
Standard Error			1	2	2	2	2	2	2	2
Min			32	28	20	25	31	20	20	28
Max			39	55	37	39	51	40	42	44
Range			7	27	18	14	20	20	21	17
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 14. Across and by location mean lignin of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-soy (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Lignin¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				28-Apr-23	*25-Apr-23*	*28-Apr-23*	*1-May-23*	*1-May-23*	*2-May-23*	*2-May-23*
FL405 rye	cereal rye	Cereal	6.9 GHI	8.1 EFG	6.3 ABC	7.4 ABC	7.9 EFG	6.3 ABC	6.7 BCDE	5.6 GHI
FL406 rye	cereal rye	Cereal	6.7 GHI	9.6 EF	6.3 ABC	6.3 CDE	6.9 FGH	6.3 ABC	6.2 CDE	5.5 GHI
FL08128 triticale	triticale	Cereal			4.5 CD	5.3 DEF	6.5 GH	4.2 DE	4.5 FG	4.9 I
Viper	clover, balansa	Legume						5.7 ABCDE	5.3 EF	5.8 GHI
Frosty	clover, berseem	Legume	7.4 EFG	12.1 ABCD	5.4 BC	6.6 BCDE	8.0 EFG	5.9 BCD	6.9 BCDE	6.9 EFGH
Lightning	clover, berseem	Legume		9.6 EF	5.8 BC		7.4 EFGH	5.6 BCDE	5.7 DEF	7.2 EFG
AU Robin	clover, crimson	Legume	8.1 DEF	12.2 B	7.0 AB	7.3 ABC	8.9 DE	6.9 AB	7.7 BC	6.8 EFGH
AU Sunrise	clover, crimson	Legume	8.0 DEF	11.4 BCD	7.5 A	6.3 CDEF	8.4 EF	7.8 A	7.3 BCD	7.0 EFG
Kentucky Pride	clover, crimson	Legume	6.8 GHI	10.2 CDE	6.4 ABC	5.0 EF	8.8 DEF	5.6 BCDE	6.1 CDEF	5.6 GHI
eNhance	clover, persian	Legume			2.5 D		5.9 H	3.7 E	3.6 G	5.2 HI
Q	clover, red	Legume			5.0 BCD		5.8 H	4.9 CDE	5.2 EFG	5.6 GHI
Cahaba	vetch, common	Legume	6.4 HI	9.6 DEF	6.3 ABC	4.3 F	7.1 FGH	5.6 BCDE	5.9 DEF	6.1 FGHI
AU Early Cover	vetch, hairy	Legume	8.8 ABC	14.5 A	7.7 A	6.5 CDE	11.4 BC	6.6 ABC	6.7 BCDE	8.0 CDE
AU Merit	vetch, hairy	Legume	8.3 ABCD	11.9 BC	6.9 AB	5.7 CDEF	12.7 AB	5.9 BCD	6.9 BCDE	7.8 DEF
Patagonia Inta	vetch, hairy	Legume	8.2 ABCD	11.9 BC	6.6 AB	7.2 ABC	12.3 AB	6.1 ABC	6.5 BCDE	7.0 EFG
Aerifi	radish	Brassica		12.6 B			12.3 ABC		8.1 BC	10.4 ABC
GO-TRT	turnip	Brassica		7.7 FG		7.0 ABCD	13.6 A		12.3 A	11.2 A
PPG-FP-101	turnip	Brassica		12.8 AB			11.9 BC		10.9 A	10.9 AB
Vivant	turnip	Brassica		8.1 FG		9.3 A	10.4 CD		8.2 B	9.5 BCD
Jackpot	turnip	Brassica		6.5 G		8.3 AB	11.0 BC		10.8 A	10.3 AB
Summary Statistics										
Average			7.6	10.6	6.0	6.6	9.3	5.8	7.1	7.4
Standard Error			0.2	0.8	0.7	0.7	0.7	0.7	0.6	0.7
Min			6.4	6.5	2.5	4.3	5.8	3.7	3.6	4.9
Max			8.8	14.5	7.7	9.3	13.6	7.8	12.3	11.2
Range			2.4	8.0	5.2	5.0	7.9	4.1	8.8	6.3
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.005**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 15. Across and by location mean cover crop biomass of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 10 sites across 8 states in the South.

Variety	Common Name	Group	Cover Crop Biomass (DM lbs/ac)§ Avg	AL	FL	GA	KY	NC	TN_East	TN_Middle	TN_West	TX	VA
				14-Mar-23	*16-Mar-23*	*11-Apr-23*	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*	*20-Feb-23*	
FL405 rye	cereal rye	Cereal	2625 A	3608 AB	1988 EF	2200 ABC	977 AB	7163 AB	2397 AB	924 CDE	823 ABCDE	1181 ABC	4990 A
FL406 rye	cereal rye	Cereal	2697 A	3414 AB	3462 ABCD	2326 ABC	784 ABC	5916 BCD	3369 A	1127 ABCD	1234 A	1789 AB	3548 AB
FL08128 triticale	triticale	Cereal	1873 B	1267 C	2475 BCDE	1276 C	489 ABCDE	6464 ABC	1485 BC	793 CDEF	799 ABCD	1222 ABC	2458 BC
Viper	clover, balansa	Legume	309 F	1216 C	352 GH	6 DE	0 F	18 K	0 H	1210 BCD	298 BCDEF	0 F	16 H
Frosty	clover, berseem	Legume	429 E	1178 C	365 GH	280 DE	104 EF	1491 FG	0 FGH	376 EFGHI	340 BCDEF	24 EF	18 H
Lightning	clover, berseem	Legume	543 DE	1204 C	2204 CDE	203 DE	60 EF	877 GHI	16 H	471 DEFGH	334 BCDEF	60 EF	0 H
AU Robin	clover, crimson	Legume	1840 B	3160 AB	4806 A	2051 ABC	1193 A	3661 E	504 CDEFG	2170 AB	197 DEF	334 DE	321 FG
AU Sunrise	clover, crimson	Legume	1443 C	2549 B	2015 DE	2814 AB	265 CDE	4037 DE	274 FGH	1998 AB	286 CDEF	137 EF	58 GH
Kentucky Pride	clover, crimson	Legume	1285 C	1261 C	2190 BCDE	2940 A	76 EF	4180 CDE	75 GH	1795 ABC	191 EF	54 EF	90 GH
eNhance	clover, persian	Legume	149 F	647 C	0 H	42 DE	0 F	408 JK	57 H	209 FGHI	125 EF	6 F	0 H
Q	clover, red	Legume	122 F	596 CD	0 H	0 E	0 F	367 IJK	84 FGH	89 GHI	83 F	0 F	0 H
Cahaba	vetch, common	Legume	1441 C	2615 B	4299 A	447 D	362 BCDE	3654 E	11 EFGH	519 DEFG	155 EF	841 BCD	1505 CDE
AU Early Cover	vetch, hairy	Legume	2597 A	3244 AB	4152 A	1926 ABC	1026 AB	7727 AB	1008 CD	2308 A	1097 A	2170 A	1309 CDE
AU Merit	vetch, hairy	Legume	2467 A	4293 A	3746 AB	1717 BC	653 ABC	7883 AB	799 CDE	1365 ABC	906 AB	1884 A	1422 CDE
Patagonia Inta	vetch, hairy	Legume	2512 A	3837 AB	3516 ABC	2176 ABC	630 ABCD	8328 A	531 DEF	1705 ABC	793 ABC	2039 A	1569 CD
Aerifi	radish	Brassica	860 DE	1538 C	5098 A	0 E	0 F	609 HIJ	0 H	25 I	43 F	608 CD	674 DEF
GO-TRT	turnip	Brassica	651 E	77 E	473 GH	0 E	101 EF	4114 DE	0 H	60 HI	83 F	680 CD	925 DEF
PPG-FP-101	turnip	Brassica	788 D	72 E	2340 BCDE	0 E	149 CDEF	2588 EF	0 H	159 FGHI	256 CDEF	835 BCD	1485 CDE
Vivant	turnip	Brassica	462 E	15 E	893 FG	0 E	148 DEF	1777 FG	0 H	227 GHI	95 F	835 BCD	630 EF
Jackpot	turnip	Brassica	515 DE	116 DE	1379 EF	0 E	331 BCDE	1142 GH	0 H	173 GHI	280 BCDEF	638 CD	1094 DE
Summary Statistics													
Average			1280	1795	2288	1020	367	3620	531	885	421	767	1106
Standard Error			206	316	366	249	86	627	205	173	83	164	294
Min			122	15	0	0	0	18	0	25	43	0	0
Max			2697	4293	5098	2940	1193	8328	3369	2308	1234	2170	4990
Range			2575	4278	5098	2940	1193	8310	3369	2282	1191	2170	4990
ANOVA p-values													
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**										
- Variety x Location			**<0.001**										

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, $P<0.05$). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

§ Analysis performed on values transformed using a square root due to non-normal distribution. Raw means and summary statistics are reported.

Table 16. Across and by location mean weed biomass of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 10 sites across 8 states in the South.

Variety	Common Name	Group	Weed Biomass (DM lbs/ac)§								
			Avg	FL	KY	NC	TN_East	TN_Middle	TN_West	TX	VA
				16-Mar-23	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*	*20-Feb-23*	
FL405 rye	cereal rye	Cereal	332 HIJ	1190 DE	261 A	12 FG	501 ABCD	6 A	131 A	113 ABCDE	442 IJ
FL406 rye	cereal rye	Cereal	182 KL	866 EF	358 A	0 G	66 EF	18 A	42 A	12 E	96 J
FL08128 triticale	triticale	Cereal	423 GHIJ	1528 DE	511 A	83 EFG	489 ABCDE	18 A	89 A	191 ABCDE	476 HIJ
Viper	clover, balansa	Legume		4571 A		802 ABCD	561 ABCD	12 A	227 A	298 ABCD	2890 A
Frosty	clover, berseem	Legume	1143 AB	3300 AB	648 A	716 ABCD	1103 A	24 A	244 A	352 AB	2758 AB
Lightning	clover, berseem	Legume	965 ABC	2123 BCD	810 A	690 BCDE	861 ABCD	60 A	298 A	465 A	2414 ABC
AU Robin	clover, crimson	Legume	465 GHIJ	379 GH	224 A	739 ABCD	395 ABCDEF	18 A	316 A	316 ABCD	1334 CDEFG
AU Sunrise	clover, crimson	Legume	971 ABCD	3989 A	682 A	489 BCD	193 DEF	30 A	274 A	304 ABC	1806 ABCDE
Kentucky Pride	clover, crimson	Legume	577 EFGH	1582 DE	736 A	271 DEFG	0 F	30 A	334 A	155 ABCDE	1550 BCDEF
eNhance	clover, persian	Legume		3773 A		1201 AB	359 BCDEF	72 A	322 A	435 AB	1710 ABCDE
Q	clover, red	Legume		3198 ABC		521 CDEF	1026 AB	42 A	333 A	310 ABC	2268 ABCD
Cahaba	vetch, common	Legume	474 EFGH	378 FGH	578 A	930 ABCD	489 ABCDE	60 A	209 A	286 ABC	865 EFGHI
AU Early Cover	vetch, hairy	Legume	237 KL	0 H	243 A	0 FG	334 CDEF	0 A	167 A	0 E	1163 EFGHI
AU Merit	vetch, hairy	Legume	379 IJK	0 H	383 A	835 DE	429 BCDEF	6 A	328 A	6 E	1049 EFGHI
Patagonia Inta	vetch, hairy	Legume	432 GHIJ	446 GH	457 A	0 G	650 ABCD	0 A	274 A	137 ABCDE	1491 BCDEFG
Aerifi	radish	Brassica		1014 FG		1692 A	745 ABCD	54 A	316 A	54 BCDE	1285 DEFGH
GO-TRT	turnip	Brassica	676 DEFG	1204 EF	383 A	1240 ABC	882 ABC	12 A	250 A	0 E	1436 CDEFG
PPG-FP-101	turnip	Brassica	538 EFGH	1893 CDE	563 A	346 CDE	441 ABCDE	30 A	268 A	12 DE	750 FGHI
Vivant	turnip	Brassica	732 CDEF	1393 DE	729 A	906 ABCD	972 AB	48 A	250 A	12 DE	1549 BCDEF
Jackpot	turnip	Brassica	354 GHIJ	622 FG	528 A	346 DE	429 ABCDE	6 A	262 A	30 CDE	612 GHI
Summary Statistics											
Average			555	1672	506	591	546	27	247	174	1397
Standard Error			69	310	46	106	69	5	19	35	171
Min			182	0	224	0	0	0	42	0	96
Max			1143	4571	810	1692	1103	72	334	465	2890
Range			961	4571	586	1692	1103	72	292	465	2794
ANOVA p-values											
- Variety			**<0.001**	**<0.001**	**0.722**	**<0.001**	**0.011**	**1.000**	**0.974**	**0.002**	**<0.001**
- Location			**<0.001**								
- Variety x Location			**<0.001**								

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

§ Analysis performed on values transformed using a square root due to non-normal distribution. Raw means and summary statistics are reported.

Table 17. Across and by location mean cover crop cover of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 10 sites across 8 states in the South.

Variety	Common Name	Group	Cover Crop Cover (%)								
			Avg	FL	GA	NC	TN_East	TN_Middle	TN_West	TX	VA
				16-Mar-23	*11-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*	*20-Feb-23*	
FL405 rye	cereal rye	Cereal	69 CD	48 EFG	63 AB	98 A	55 ABC	50 DEF	47 BC	92 A	97 A
FL406 rye	cereal rye	Cereal	76 BC	79 ABC	68 AB	98 A	52 ABC	58 CD	55 B	98 A	97 A
FL08128 triticale	triticale	Cereal	59 EFG	53 DEF	53 BC	86 ABC	35 CD	45 DEF	45 BCD	62 BC	91 AB
Viper	clover, balansa	Legume	16 K	2 I	0 E	12 I	0 E	77 ABC	35 BCDE	0 F	2 E
Frosty	clover, berseem	Legume	33 J	18 HI	23 DE	65 CDE	12 DE	87 AB	53 B	3 EF	1 E
Lightning	clover, berseem	Legume	31 J	53 DEF	14 DE	37 FGHI	10 DE	70 ABCD	47 BC	15 DEF	0 E
AU Sunrise	clover, crimson	Legume	52 FGH	28 FGH	78 AB	87 ABC	73 A	95 A	18 EF	32 D	3 E
Kentucky Pride	clover, crimson	Legume	50 GH	70 BCDE	82 A	55 EFG	75 A	95 A	15 EF	5 EF	1 E
AU Robin	clover, crimson	Legume	67 CDE	98 A	82 A	75 ABCDE	72 A	93 A	27 CDEF	60 C	28 D
eNhance	clover, persian	Legume	14 K	0 I	15 DE	25 HI	3 E	48 DEF	22 CDEF	0 F	0 E
Q	clover, red	Legume	13 K	0 HI	0 E	29 GHI	3 E	52 CDE	20 DEF	0 F	0 E
Cahaba	vetch, common	Legume	60 DEF	98 AB	29 CD	96 AB	5 E	62 BCD	17 EF	77 ABC	94 AB
AU Merit	vetch, hairy	Legume	86 A	83 ABC	81 A	99 A	50 ABC	95 A	92 A	100 A	92 AB
Patagonia Inta	vetch, hairy	Legume	83 AB	78 ABCD	67 AB	100 A	42 BC	95 A	87 A	98 A	97 A
AU Early Cover	vetch, hairy	Legume	87 A	83 ABC	77 AB	95 AB	65 AB	93 A	92 A	95 A	97 A
Aerifi	radish	Brassica	29 J	88 AB	0 E	53 DEFGH	0 E	5 G	7 F	28 DE	53 CD
Vivant	turnip	Brassica	29 J	24 GHI	0 E	58 DEF	0 E	10 G	7 F	83 ABC	47 CD
GO-TRT	turnip	Brassica	37 IJ	17 HI	0 E	80 ABCDE	0 E	28 EFG	18 EF	85 ABC	69 BC
PPG-FP-101	turnip	Brassica	46 HI	60 CDE	0 E	71 BCDE	0 E	25 FG	32 BCDEF	87 AB	89 AB
Jackpot	turnip	Brassica	43 HI	49 EFG	0 E	81 ABCD	0 E	27 EFG	18 EF	83 ABC	85 AB
Summary Statistics											
Average			49	52	37	70	28	60	38	55	52
Standard Error			3	9	9	10	9	9	9	9	9
Min			13	0	0	12	0	5	7	0	0
Max			87	98	82	100	75	95	92	100	97
Range			74	98	82	88	75	90	85	100	97
ANOVA p-values											
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**								
- Variety x Location			**<0.001**								

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 18. Across and by location mean weed cover of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 10 sites across 8 states in the South.

Variety	Common Name	Group	Weed Cover (%)								
			Avg	FL	GA	NC	TN_East	TN_Middle	TN_West	TX	VA
				16-Mar-23	*11-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*	*20-Feb-23*	
FL405 rye	cereal rye	Cereal	24 HI	52 DEF	37 DE	0 G	20 CD	27 BCDEF	50 EFG	1 G	3 F
FL406 rye	cereal rye	Cereal	15 IJ	21 GHI	32 DE	0 G	12 D	18 DEF	37 GH	1 G	3 F
FL08128 triticale	triticale	Cereal	33 FGH	47 DEFG	47 CD	2 FG	55 B	30 BCDEF	53 CDEFG	23 DEFG	9 EF
Viper	clover, balansa	Legume	74 A	98 AB	100 A	84 A	88 A	17 DEF	63 BCDEFG	45 ABCD	98 AB
Frosty	clover, berseem	Legume	58 BC	82 ABC	77 AB	20 DEFG	85 A	8 EF	43 FG	52 ABC	99 AB
Lightning	clover, berseem	Legume	64 B	47 DEFG	86 AB	52 BC	85 A	22 CDEF	52 DEFG	65 AB	100 A
AU Robin	clover, crimson	Legume	28 GH	2 I	18 EF	9 EFG	25 CD	5 F	72 ABCDE	23 DEFG	72 BC
AU Sunrise	clover, crimson	Legume	43 DE	72 BCD	22 DEF	8 EFG	20 CD	5 F	82 AB	38 BCDE	97 AB
Kentucky Pride	clover, crimson	Legume	40 EF	28 FGHI	18 EF	34 BCDE	18 D	5 F	80 ABC	35 CDEF	99 AB
eNhance	clover, persian	Legume	79 A	100 A	85 AB	61 AB	93 A	42 ABCD	78 ABCD	70 A	100 A
Q	clover, red	Legume	76 A	100 AB	67 BC	59 AB	95 A	42 ABCD	78 ABCD	67 A	100 A
Cahaba	vetch, common	Legume	38 EFG	2 HI	71 BC	3 FG	92 A	33 BCDE	78 ABCD	17 EFG	6 EF
AU Early Cover	vetch, hairy	Legume	12 J	17 HI	23 DEF	0 FG	35 BCD	7 EF	8 I	3 G	3 F
AU Merit	vetch, hairy	Legume	13 J	17 HI	19 EF	0 G	47 BC	5 F	8 I	0 G	8 EF
Patagonia Inta	vetch, hairy	Legume	12 J	22 GHI	0 F	0 FG	57 B	5 F	12 HI	2 G	3 F
Aerifi	radish	Brassica	57 BC	13 HI	100 A	42 BCD	97 A	63 A	92 A	5 G	47 CD
GO-TRT	turnip	Brassica	50 CD	32 EFGH	100 A	8 EFG	100 A	52 AB	80 ABC	0 G	31 DE
PPG-FP-101	turnip	Brassica	46 DE	17 HI	100 A	17 DEFG	100 A	53 AB	67 ABCDEF	1 G	11 EF
Vivant	turnip	Brassica	62 B	56 CDE	100 A	28 CDEF	98 A	62 A	93 A	2 G	53 CD
Jackpot	turnip	Brassica	46 DE	13 HI	100 A	9 EFG	100 A	48 ABC	77 ABCDE	8 FG	15 EF
Summary Statistics											
Average			44	42	60	22	66	27	60	23	48
Standard Error			4	10	10	10	10	10	10	10	10
Min			12	2	0	0	12	5	8	0	3
Max			79	100	100	84	100	63	93	70	100
Range			67	98	100	84	88	58	85	70	97
ANOVA p-values											
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**								
- Variety x Location			**<0.001**								

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 19. Across and by location mean cover crop height of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 10 sites across 8 states in the South.

Variety	Common Name	Group	Cover Crop Height (in)							
			Avg	GA	NC	TN_East	TN_Middle	TN_West	TX	VA
				11-Apr-23	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*	*20-Feb-23*	
FL405 rye	cereal rye	Cereal	41 ABC	42 A	56 A	39 A	31 A	24 A	30 AB	66 A
FL406 rye	cereal rye	Cereal	41 ABC	43 A	56 A	42 A	28 A	25 A	30 A	62 B
FL08128 triticale	triticale	Cereal	27 DEF	21 BC	44 B	21 B	17 B	18 B	26 B	41 DE
Viper	clover, balansa	Legume		9 GH	6 J	7 EF	10 FGH	8 GH		15 I
Frosty	clover, berseem	Legume	9 PQR	12 FGH	13 GHI	9 DEF	10 DEFG	8 GH	2 G	11 I
Lightning	clover, berseem	Legume		10 H	10 HIJ	9 DEF	6 H	10 FG	3 FG	
AU Robin	clover, crimson	Legume	12 MNO	18 CDE	16 FG	10 DEF	10 EFGH	9 GH	3 G	16 I
AU Sunrise	clover, crimson	Legume	12 MNO	18 CDE	18 EF	8 EF	13 CDEF	9 GH	2 G	14 I
Kentucky Pride	clover, crimson	Legume	10 MNOP	17 DE	14 GH	8 EF	10 EFGH	8 GH	2 G	15 I
eNhance	clover, persian	Legume		15 EFG	9 IJ	10 DEF	7 GH	7 GH		
Q	clover, red	Legume			8 J	6 F	7 GH	6 H		
Cahaba	vetch, common	Legume	12 MNO	15 EF	15 FG	6 F	8 GH	6 GH	5 FG	27 H
AU Early Cover	vetch, hairy	Legume	19 GHI	22 B	21 E	16 C	16 BC	15 BCDE	12 CDE	32 G
AU Merit	vetch, hairy	Legume	17 JKL	18 CDE	18 EF	12 D	15 BC	14 CDE	12 CDE	30 GH
Patagonia Inta	vetch, hairy	Legume	18 JKL	20 BCD	20 E	10 DE	14 BC	13 EF	15 C	32 G
Aerifi	radish	Brassica			21 E		9 GH	13 DEF	12 CD	28 H
GO-TRT	turnip	Brassica			41 B		13 BCDEF	18 BC	12 CD	37 F
PPG-FP-101	turnip	Brassica			33 C		14 BCDE	17 BCD	12 CD	45 C
Vivant	turnip	Brassica			28 D		10 FGH	14 DEF	9 DE	38 EF
Jackpot	turnip	Brassica			32 C		14 BCD	18 B	8 EF	45 CD
Summary Statistics										
Average			20	20	24	14	13	13	11	33
Standard Error			1	2	2	2	1	2	2	2
Min			9	9	6	6	6	6	2	11
Max			41	43	56	42	31	25	30	66
Range			32	34	50	36	25	19	28	55
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 20. Across and by location mean estimated nitrogen release over 90 days of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Estimated Nitrogen Release (lbs ac^{-1})††							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				16-Mar-23	*11-Apr-23*	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*
FL405 rye	cereal rye	Cereal	4 E	1 D	4 C	4 A	8 HI	4 A	2 D	5 ABCD
FL406 rye	cereal rye	Cereal	6 DE	4 D	3 C	3 A	14 GHI	11 A	3 CD	5 ABCD
FL08128 triticale	triticale	Cereal	11 D	24 C	3 C	3 A	27 EFG	9 A	6 CD	5 ABCD
Viper	clover, balansa	Legume		12 CD					17 BC	6 ABCD
Frosty	clover, berseem	Legume	7 DE	13 CD	4 C	2 A	14 GHI	1 A	6 CD	5 ABCD
Lightning	clover, berseem	Legume		27 C	3 C		9 GHI	0 A	7 CD	6 ABCD
AU Robin	clover, crimson	Legume	25 B	64 A	22 AB	13 A	34 DEF	6 A	30 AB	4 CD
AU Sunrise	clover, crimson	Legume	18 C	23 C	30 A	3 A	34 DEF	4 A	28 AB	4 BCD
Kentucky Pride	clover, crimson	Legume	19 BC	24 C	35 A	1 A	42 DE	2 A	25 AB	4 ABCD
eNhance	clover, persian	Legume			0 C		11 GHI	1 A	3 CD	2 CD
Q	clover, red	Legume					6 I	1 A	1 D	3 BCD
Cahaba	vetch, common	Legume	19 C	58 AB	8 BC	6 A	48 D	0 A	8 CD	3 CD
AU Early Cover	vetch, hairy	Legume	37 A	46 B	24 A	16 A	101 C	13 A	38 A	19 A
AU Merit	vetch, hairy	Legume	38 A	53 AB	23 A	10 A	124 B	12 A	28 AB	18 AB
Patagonia Inta	vetch, hairy	Legume	41 A	47 B	29 A	9 A	153 A	5 A	30 AB	15 ABC
Aerifi	radish	Brassica		56 AB			6 I		0 CD	0 CD
GO-TRT	turnip	Brassica					22 FGH		0 D	1 D
PPG-FP-101	turnip	Brassica		30 C			17 GHI		1 D	2 CD
Vivant	turnip	Brassica		17 CD			13 HI		4 CD	1 CD
Jackpot	turnip	Brassica		18 CD		5 A	5 I		1 D	2 CD
Summary Statistics										
Average			20	30	15	6	36	5	12	6
Standard Error			2	6	5	6	6	6	5	5
Min			4	1	0	1	5	0	0	0
Max			41	64	35	16	153	13	38	19
Range			37	63	35	16	148	14	38	18
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**0.628**	**<0.001**	**0.814**	**0.001**	**0.327**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

†† Estimated using quality constituents from near infrared spectroscopy (NIRS) with the appropriate calibrations for each species, inputted into the PSA cover crop nitrogen calculator.

Table 21. Across and by location mean in-vitro total dry matter digestibility at 48 hours (IVTDMD48) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop In-Vitro Total Dry Matter Digestibility at 48 hrs (IVTDMD48)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				16-Mar-23	*11-Apr-23*	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*
FL405 rye	cereal rye	Cereal	66 LM	62 G	61 H	75 C	59 H	67 C	67 I	72 GH
FL406 rye	cereal rye	Cereal	66 LM	61 G	64 H	72 C	60 H	65 C	67 I	72 H
FL08128 triticale	triticale	Cereal	77 JK	75 F	73 G	88 B	68 EFG	82 B	78 GH	78 G
Viper	clover, balansa	Legume		84 ABCDE				96 A	92 ABCD	101 A
Frosty	clover, berseem	Legume	89 CD	85 ABCDE	94 ABC	87 B	85 B	89 A	88 BCDE	93 CD
Lightning	clover, berseem	Legume		84 BCD	94 AB		84 B	91 A	88 BCDE	95 ABCD
AU Robin	clover, crimson	Legume	88 CDE	85 ABC	87 CDE	90 B	81 BC	89 AB	90 BCD	95 ABCD
AU Sunrise	clover, crimson	Legume	87 CDEF	77 EF	85 DEF	92 AB	80 BC	90 A	91 ABCD	91 DE
Kentucky Pride	clover, crimson	Legume	89 ABC	78 DEF	89 BCD	92 AB	86 B	93 A	92 ABC	96 ABCD
eNhance	clover, persian	Legume			99 A		95 A	93 A	96 A	97 ABC
Q	clover, red	Legume					84 B	90 A	88 BCDEF	96 ABCD
Cahaba	vetch, common	Legume	92 AB	81 CDEF	92 ABC	100 A	86 B	94 A	93 AB	99 AB
AU Early Cover	vetch, hairy	Legume	82 HI	74 F	81 F	91 B	71 DEF	88 AB	82 EFG	91 DE
AU Merit	vetch, hairy	Legume	85 FG	77 EF	83 DEF	94 AB	73 DE	89 A	90 ABCD	93 CD
Patagonia Inta	vetch, hairy	Legume	86 EFG	74 F	82 EF	92 B	83 B	91 A	87 CDEF	92 CD
Aerifi	radish	Brassica		81 CDE			64 FGH		85 DEFG	84 F
GO-TRT	turnip	Brassica					63 GH		76 H	76 GH
PPG-FP-101	turnip	Brassica		90 A			73 DE		83 EFG	86 EF
Vivant	turnip	Brassica		85 ABCD			85 B	90 AB	88 BCDEF	93 BCD
Jackpot	turnip	Brassica		89 AB		89 B	76 CD		82 FGH	85 EF
Summary Statistics										
Average			83	79	83	88	77	87	85	89
Standard Error			1	3	2	3	3	3	2	2
Min			66	61	61	72	59	65	67	72
Max			92	90	99	100	95	96	96	101
Range			26	29	38	28	36	31	29	29
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 22. Across and by location mean crude protein (CP) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Crude Protein (CP)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				16-Mar-23	*11-Apr-23*	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*
FL405 rye	cereal rye	Cereal	9 G	5 F	8 B	11 D	9 J	9 E	9 J	13 C
FL406 rye	cereal rye	Cereal	10 G	7 F	8 B	10 D	9 J	10 DE	9 J	13 C
FL08128 triticale	triticale	Cereal	13 F	16 E	10 B	16 C	10 J	14 D	14 I	14 C
Viper	clover, balansa	Legume		21 ABCDE				27 ABC	23 DEFG	30 A
Frosty	clover, berseem	Legume	24 CD	25 AB	22 A	26 AB	19 CDEFG	26 ABC	21 FG	28 AB
Lightning	clover, berseem	Legume		22 ABCD	22 A		19 CDEF	28 ABC	24 CDEF	29 A
AU Robin	clover, crimson	Legume	22 E	22 ABCD	19 A	20 BC	16 EFGH	24 BC	22 EFG	30 A
AU Sunrise	clover, crimson	Legume	21 E	20 BCDE	19 A	19 BC	15 FGHI	23 C	23 DEFG	25 B
Kentucky Pride	clover, crimson	Legume	22 DE	20 BCDE	21 A	16 CD	16 DEFGH	28 ABC	24 DEFG	29 AB
eNhance	clover, persian	Legume			21 A		18 CDEFGH	25 ABC	26 BCDE	32 A
Q	clover, red	Legume					21 BCD	28 ABC	24 CDEFG	30 A
Cahaba	vetch, common	Legume	26 BC	22 ABCD	23 A	27 A	23 BC	28 AB	27 BCD	31 A
AU Early Cover	vetch, hairy	Legume	24 C	18 CDE	22 A	24 AB	20 BCDE	28 ABC	28 BC	29 AB
AU Merit	vetch, hairy	Legume	28 A	24 AB	23 A	26 A	25 AB	30 A	34 A	32 A
Patagonia Inta	vetch, hairy	Legume	27 AB	23 ABC	23 A	27 A	29 A	28 ABC	29 AB	32 A
Aerifi	radish	Brassica		18 DE			14 GHIJ		16 HI	18 C
GO-TRT	turnip	Brassica					11 IJ		12 IJ	14 C
PPG-FP-101	turnip	Brassica		23 AB			13 HIJ		13 IJ	17 C
Vivant	turnip	Brassica		26 A			18 DEFG	23 BC	19 GH	17 C
Jackpot	turnip	Brassica		25 AB		17 C	11 IJ		12 IJ	15 C
Summary Statistics										
Average			20	20	19	20	17	24	20	24
Standard Error			1	2	2	2	2	2	2	2
Min			9	5	8	10	9	9	9	13
Max			28	26	23	27	29	30	34	32
Range			19	21	15	17	20	21	25	20
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 23. Across and by location mean neutral detergent fiber (NDF) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Neutral Detergent Fiber (NDF)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				16-Mar-23	*11-Apr-23*	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*
FL405 rye	cereal rye	Cereal	67 AB	77 A	69 A	55 A	70 A	66 A	66 A	64 A
FL406 rye	cereal rye	Cereal	68 AB	78 A	69 A	61 A	70 A	69 A	67 A	65 A
FL08128 triticale	triticale	Cereal	55 CD	59 B	61 B	38 B	65 AB	51 B	50 B	58 A
Viper	clover, balansa	Legume		40 CDEF				21 D	29 GHIJ	19 E
Frosty	clover, berseem	Legume	30 HI	31 F	26 DEF	26 CD	35 FG	30 CD	32 FGHI	26 DE
Lightning	clover, berseem	Legume		35 F	25 EF		36 FG	28 CD	30 FGHIJ	22 DE
AU Robin	clover, crimson	Legume	31 GHI	34 F	31 CDE	29 CD	38 EF	32 CD	31 FGHI	22 DE
AU Sunrise	clover, crimson	Legume	31 GHI	39 DEF	33 CD	26 CD	39 EF	25 CD	27 IJ	28 D
Kentucky Pride	clover, crimson	Legume	30 HI	37 F	31 CDE	35 BC	35 FG	27 CD	26 IJ	19 E
eNhance	clover, persian	Legume			20 F		27 G	27 CD	22 J	20 E
Q	clover, red	Legume					35 FG	25 CD	29 HIJ	19 E
Cahaba	vetch, common	Legume	31 HI	46 CDE	30 CDE	21 D	38 F	30 CD	30 FGHIJ	21 E
AU Early Cover	vetch, hairy	Legume	37 EF	46 C	36 C	32 BC	46 DE	32 C	37 DEF	27 DE
AU Merit	vetch, hairy	Legume	34 EF	50 C	35 C	25 CD	41 EF	32 C	31 FGHI	26 DE
Patagonia Inta	vetch, hairy	Legume	34 EFG	47 C	36 C	28 CD	34 FG	32 CD	35 EFGH	26 DE
Aerifi	radish	Brassica		46 CD			57 BC		37 CDEFG	41 BC
GO-TRT	turnip	Brassica					55 C		45 BC	46 B
PPG-FP-101	turnip	Brassica		38 EF			49 CD		40 CDE	37 C
Vivant	turnip	Brassica		34 F			37 F	30 CD	33 EFGHI	27 DE
Jackpot	turnip	Brassica		37 EF		32 BC	51 CD		43 BCD	38 BC
Summary Statistics										
Average			41	45	39	34	45	35	37	33
Standard Error			1	3	3	3	3	3	3	3
Min			30	31	20	21	27	21	22	19
Max			68	78	69	61	70	69	67	65
Range			39	47	49	39	43	49	44	46
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 24. Across and by location mean acid detergent fiber (ADF) of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Acid Detergent Fiber (ADF)¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				16-Mar-23	*11-Apr-23*	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*
FL405 rye	cereal rye	Cereal	37 AB	42 A	39 A	33 AB	38 BC	36 A	36 A	40 A
FL406 rye	cereal rye	Cereal	38 AB	42 A	38 A	36 A	38 BC	37 A	36 A	36 ABC
FL08128 triticale	triticale	Cereal	29 EFG	35 BCDE	31 BC	26 C	32 DE	25 BC	28 BCDEF	29 DEF
Viper	clover, balansa	Legume		33 BCDEF				22 C	26 DEF	21 HIJK
Frosty	clover, berseem	Legume	26 HI	29 DEF	23 DE	21 CD	31 DE	27 BC	29 BCDE	25 FGHI
Lightning	clover, berseem	Legume		30 EF	22 E		33 CD	26 BC	28 BCDEF	23 GHIJ
AU Robin	clover, crimson	Legume	28 FGH	30 EF	29 BC	25 C	34 CD	29 BC	29 BCDE	23 GHIJ
AU Sunrise	clover, crimson	Legume	28 FGH	35 BCDE	31 BC	21 CD	34 CD	24 BC	26 DEF	27 EFG
Kentucky Pride	clover, crimson	Legume	27 HI	33 CDEF	28 BCD	26 BCD	31 DE	26 BC	25 EF	21 HIJK
eNhance	clover, persian	Legume			20 E		25 E	25 BC	23 F	17 K
Q	clover, red	Legume					31 DE	24 C	26 DEF	19 JK
Cahaba	vetch, common	Legume	27 HI	38 ABC	26 CDE	19 D	32 D	26 BC	27 CDEF	20 IJK
AU Early Cover	vetch, hairy	Legume	32 CD	37 ABC	33 B	24 CD	42 AB	28 BC	32 ABC	27 EFG
AU Merit	vetch, hairy	Legume	30 CDE	39 AB	32 B	22 CD	38 BC	29 B	27 DEF	26 FGH
Patagonia Inta	vetch, hairy	Legume	30 CDEF	39 AB	33 B	24 CD	32 D	27 BC	29 BCDE	25 FGH
Aerifi	radish	Brassica		36 BCD			45 A		31 ABCD	35 ABC
GO-TRT	turnip	Brassica					44 A		36 A	37 AB
PPG-FP-101	turnip	Brassica		32 DEF			40 AB		32 AB	31 CDE
Vivant	turnip	Brassica		27 F			31 DE	28 BC	29 BCDE	23 GHIJ
Jackpot	turnip	Brassica		31 DEF		26 C	42 AB		36 A	32 BCD
Summary Statistics										
Average			30	35	29	25	35	27	29	27
Standard Error			1	2	2	2	2	2	2	2
Min			26	27	20	19	25	22	23	17
Max			38	42	39	36	45	37	36	40
Range			11	15	19	17	20	15	13	23
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 25. Across and by location mean lignin of 20 cover crop varieties planted in mid-Oct. 2022 and terminated pre-corn (varied by state, see table 3). Small plot replicated trials were conducted at 7 sites across 5 states in the South.

Variety	Common Name	Group	Cover Crop Lignin¶							
			Avg	FL	GA	KY	NC	TN_East	TN_Middle	TN_West
				16-Mar-23	*11-Apr-23*	*13-Apr-23*	*6-Apr-23*	*4-Apr-23*	*5-Apr-23*	*5-Apr-23*
FL405 rye	cereal rye	Cereal	6.1 BCD	6.0 DE	6.7 ABC	6.1 BC	7.3 CD	5.3 A	5.5 BC	5.6 DE
FL406 rye	cereal rye	Cereal	5.9 CDE	6.2 DE	6.3 BCD	6.6 ABC	7.2 CD	5.5 A	5.5 BC	4.5 EF
FL08128 triticale	triticale	Cereal	4.3 H	6.5 CDE	3.9 FG	5.8 BCD	5.0 G	2.4 B	3.8 D	2.6 G
Viper	clover, balansa	Legume		5.3 E				4.3 AB	5.1 BCD	3.9 FG
Frosty	clover, berseem	Legume	5.7 DEF	6.8 BCDE	3.8 FG	7.8 AB	5.9 DEFG	4.9 A	6.2 B	4.7 EF
Lightning	clover, berseem	Legume		6.5 CDE	4.3 EFG		6.2 DEFG	4.7 A	5.4 BC	4.0 F
AU Robin	clover, crimson	Legume	5.4 EFG	6.0 E	5.0 DEF	5.4 CDE	6.6 DEF	5.9 A	5.0 BCD	4.1 F
AU Sunrise	clover, crimson	Legume	5.0 G	6.2 DE	5.6 CDE	3.1 F	6.3 DEFG	4.8 A	4.5 CD	4.7 EF
Kentucky Pride	clover, crimson	Legume	5.0 G	5.7 E	4.9 DEF	5.8 BCDE	5.6 EFG	4.9 A	4.4 CD	3.5 FG
eNhance	clover, persian	Legume			2.9 G		4.7 FG	5.0 A	5.1 BCD	4.1 EF
Q	clover, red	Legume					5.5 FG	4.8 A	4.3 CD	3.7 FG
Cahaba	vetch, common	Legume	5.3 FG	8.2 AB	4.8 DEF	3.6 F	6.5 DEF	4.8 A	5.0 BCD	4.0 F
AU Early Cover	vetch, hairy	Legume	6.7 A	8.5 AB	7.7 A	4.2 EF	10.1 AB	5.3 A	6.4 B	5.0 EF
AU Merit	vetch, hairy	Legume	6.3 ABC	7.8 ABC	7.4 AB	4.6 DEF	10.0 B	5.7 A	4.5 CD	4.4 EF
Patagonia Inta	vetch, hairy	Legume	6.6 AB	9.1 A	7.7 A	6.6 ABC	7.1 CDE	5.6 A	5.5 BC	4.5 EF
Aerifi	radish	Brassica		8.2 AB			10.9 AB		8.3 A	8.5 B
GO-TRT	turnip	Brassica					11.6 A		9.8 A	10.1 A
PPG-FP-101	turnip	Brassica		7.5 BCD			9.8 B		8.9 A	8.3 BC
Vivant	turnip	Brassica		7.3 BCDE			8.0 C	5.7 A	6.4 B	6.8 CD
Jackpot	turnip	Brassica		7.1 BCDE		8.2 A	9.6 B		8.9 A	8.6 B
Summary Statistics										
Average			5.7	7.0	5.5	5.6	7.6	5.0	5.9	5.3
Standard Error			0.2	0.6	0.5	0.6	0.6	0.6	0.5	0.5
Min			4.3	5.3	2.9	3.1	4.7	2.4	3.8	2.6
Max			6.7	9.1	7.7	8.2	11.6	5.9	9.8	10.1
Range			2.5	3.7	4.9	5.1	6.9	3.5	6.0	7.5
ANOVA p-values										
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.004**	**<0.001**
- Location			**<0.001**							
- Variety x Location			**<0.001**							

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

¶ Analyzed using near infrared spectroscopy (NIRS) with the appropraite calibration for each species. Reported on a 100% DM basis.

Table 26. Across and by location mean cover crop cover of 20 cover crop varieties planted in mid-Oct. 2022 and evaluated in late fall (~Dec. 1). Small plot replicated trials were conducted at 4 sites across 3 states in the South.

Variety	Common Name	Group	Cover Crop Cover (%)									
			Avg		FL		NC		TN_East		TN_Middle	
					19-Dec-22		*2-Dec-22*		*1-Dec-22*		*29-Nov-22*	
FL405 rye	cereal rye	Cereal	62	BCD	42	D	92	AB	75	A	40	AB
FL406 rye	cereal rye	Cereal	77	A	83	ABC	98	A	72	AB	53	A
FL08128 triticale	triticale	Cereal	36	FGH	42	D	70	B	12	FG	20	BCD
Viper	clover, balansa	Legume	11	I	25	DE	2	D	5	G	13	CD
Frosty	clover, berseem	Legume	8	I	0	F	10	CD	18	FG	5	CD
Lightning	clover, berseem	Legume	5	I	8	EF	0	D	7	G	3	D
AU Robin	clover, crimson	Legume	39	FGH	75	BC	19	CD	35	DEF	25	BCD
AU Sunrise	clover, crimson	Legume	33	GH	42	D	28	C	43	CDE	20	BCD
Kentucky Pride	clover, crimson	Legume	28	H	42	D	20	CD	25	EFG	23	BCD
eNhance	clover, persian	Legume	4	I	0	F	4	D	5	G	7	CD
Q	clover, red	Legume	5	I	1	EF	4	CD	8	G	7	CD
Cahaba	vetch, common	Legume	44	EFG	89	ABC	75	AB	7	G	5	CD
AU Early Cover	vetch, hairy	Legume	51	DE	100	A	81	AB	12	FG	12	CD
AU Merit	vetch, hairy	Legume	52	DE	92	AB	93	AB	8	G	13	CD
Patagonia Inta	vetch, hairy	Legume	53	CDE	92	AB	92	AB	12	FG	15	CD
Aerifi	radish	Brassica	56	CDE	100	A	98	A	7	G	18	BCD
GO-TRT	turnip	Brassica	46	EF	12	EF	91	AB	68	AB	13	CD
PPG-FP-101	turnip	Brassica	73	AB	100	A	97	A	67	ABC	27	BCD
Vivant	turnip	Brassica	55	CDE	67	C	92	AB	35	DEF	28	BC
Jackpot	turnip	Brassica	64	BC	83	ABC	96	A	50	BCD	25	BCD
Summary Statistics												
Average			40		55		58		29		19	
Standard Error			5		9		9		9		9	
Min			4		0		0		5		3	
Max			77		100		98		75		53	
Range			73		100		98		70		50	
ANOVA p-values												
- Variety			**<0.001**		**<0.001**		**<0.001**		**<0.001**		**0.005**	
- Location			**<0.001**									
- Variety x Location			**<0.001**									

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 27. Across and by location mean weed cover of 20 cover crop varieties planted in mid-Oct. 2022 and evaluated in late fall (~Dec. 1). Small plot replicated trials were conducted at 4 sites across 3 states in the South.

Variety	Common Name	Group	Weed Cover (%)									
			Avg		FL		NC		TN_East		TN_Middle	
					19-Dec-22		*2-Dec-22*		*1-Dec-22*		*29-Nov-22*	
FL405 rye	cereal rye	Cereal	27	FGHI	58	BCD	10	DE	15	E	25	A
FL406 rye	cereal rye	Cereal	13	I	17	E	2	E	13	E	20	A
FL08128 triticale	triticale	Cereal	45	BCDEF	58	BCD	14	DE	55	ABCD	52	A
Viper	clover, balansa	Legume	62	AB	75	ABC	64	A	62	ABC	45	A
Frosty	clover, berseem	Legume	66	A	100	A	56	AB	55	ABCD	53	A
Lightning	clover, berseem	Legume	61	ABC	92	AB	70	A	33	BCDE	47	A
AU Robin	clover, crimson	Legume	43	CDEFG	25	DE	62	A	57	ABCD	30	A
AU Sunrise	clover, crimson	Legume	46	BCDE	58	BCD	53	ABC	28	CDE	45	A
Kentucky Pride	clover, crimson	Legume	48	BCD	58	BCD	47	ABCD	47	ABCDE	40	A
eNhance	clover, persian	Legume	67	A	100	A	57	A	63	AB	47	A
Q	clover, red	Legume	68	A	100	A	71	A	37	BCDE	67	A
Cahaba	vetch, common	Legume	38	DEFGH	12	E	22	BCDE	45	ABCDE	73	A
AU Early Cover	vetch, hairy	Legume	39	DEFGH	0	E	17	CDE	77	A	62	A
AU Merit	vetch, hairy	Legume	40	DEFG	8	E	7	E	77	A	70	A
Patagonia Inta	vetch, hairy	Legume	33	DEFGH	8	E	8	E	57	ABCD	58	A
Aerifi	radish	Brassica	26	GHI	0	E	2	E	78	A	25	A
GO-TRT	turnip	Brassica	22	HI	37	CDE	5	E	17	E	30	A
PPG-FP-101	turnip	Brassica	13	I	(0)	E	1	E	20	E	30	A
Vivant	turnip	Brassica	30	EFGHI	33	DE	3	E	40	BCDE	43	A
Jackpot	turnip	Brassica	22	HI	17	E	3	E	25	DE	42	A
Summary Statistics												
Average			40		43		29		45		45	
Standard Error			6		13		13		12		12	
Min			13		(0)		1		13		20	
Max			68		100		71		78		73	
Range			56		100		69		65		53	
ANOVA p-values												
- Variety			**<0.001**		**<0.001**		**<0.001**		**<0.001**		**0.064**	
- Location			**<0.001**									
- Variety x Location			**<0.001**									

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P*<0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 28. Across and by location mean cover crop height of 20 cover crop varieties planted in mid-Oct. 2022 and evaluated in late fall (~Dec. 1). Small plot replicated trials were conducted at 2 sites in Tennessee.

Variety	Common Name	Group	Cover Crop Height (in)		
			Avg	TN_East	TN_Middle
				1-Dec-22	*29-Nov-22*
FL405 rye	cereal rye	Cereal	19 A	22 A	15 B
FL406 rye	cereal rye	Cereal	21 A	21 A	20 A
FL08128 triticale	triticale	Cereal	14 B	13 B	16 B
Viper	clover, balansa	Legume	2 E	3 F	2 GH
Frosty	clover, berseem	Legume	3 E	4 EF	2 GH
Lightning	clover, berseem	Legume	2 E	3 F	1 GH
AU Robin	clover, crimson	Legume	4 E	4 EF	3 FGH
AU Sunrise	clover, crimson	Legume	3 E	3 F	3 FGH
Kentucky Pride	clover, crimson	Legume	3 E	3 F	2 GH
eNhance	clover, persian	Legume	1 E	1 F	2 H
Q	clover, red	Legume	2 E	2 F	2 H
Cahaba	vetch, common	Legume	7 D	7 DE	7 CD
AU Early Cover	vetch, hairy	Legume	9 CD	8 D	9 C
AU Merit	vetch, hairy	Legume	9 C	9 CD	9 C
Patagonia Inta	vetch, hairy	Legume	8 CD	9 D	8 CD
Aerifi	radish	Brassica	7 CD	8 D	6 CDE
GO-TRT	turnip	Brassica	9 CD	12 BC	5 DEFG
PPG-FP-101	turnip	Brassica	6 D	9 D	4 EFGH
Vivant	turnip	Brassica	7 CD	8 D	6 DEF
Jackpot	turnip	Brassica	7 CD	9 CD	6 DEF
Summary Statistics					
Average			7	8	6
Standard Error			1	1	1
Min			1	1	1
Max			21	22	20
Range			19	21	19
ANOVA p-values					
- Variety			**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**		
- Variety x Location			**0.002**		

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 29. Across and by location mean cover crop cover of 20 cover crop varieties planted in mid-Oct. 2022 and evaluated in winter (~Feb. 1). Small plot replicated trials were conducted at 5 sites across 4 states in the South.

Variety	Common Name	Group	Cover Crop Cover (%)				
			Avg	NC	SC	TN_East	TN_Middle
				9-Feb-23	*20-Feb-23*	*3-Feb-23*	*3-Feb-23*
FL405 rye	cereal rye	Cereal	73 A	100 A	77 A	75 A	42 AB
FL406 rye	cereal rye	Cereal	75 A	100 A	80 A	75 A	47 A
FL08128 triticale	triticale	Cereal	55 B	95 AB	70 A	30 BC	25 CDEF
Viper	clover, balansa	Legume	5 F	8 H	0 D	2 E	8 GHI
Frosty	clover, berseem	Legume	8 F	23 FG	0 D	7 E	3 HI
Lightning	clover, berseem	Legume	4 F	12 GH	0 D	3 E	2 I
AU Robin	clover, crimson	Legume	28 DE	38 E	19 C	23 CD	32 BC
AU Sunrise	clover, crimson	Legume	30 CD	60 D	1 D	42 B	18 DEFG
Kentucky Pride	clover, crimson	Legume	23 E	15 GH	11 CD	38 B	27 CDE
eNhance	clover, persian	Legume	4 F	8 H	0 D	2 E	5 HI
Q	clover, red	Legume	5 F	8 H	0 D	5 E	5 HI
Cahaba	vetch, common	Legume	25 DE	88 ABC	1 D	5 E	7 GHI
AU Early Cover	vetch, hairy	Legume	54 B	100 A	55 B	12 DE	48 A
AU Merit	vetch, hairy	Legume	36 C	100 A	10 CD	7 E	28 CD
Patagonia Inta	vetch, hairy	Legume	36 C	98 A	21 C	8 E	15 EFGH
Aerifi	radish	Brassica	10 F	32 EF	0 D	2 E	5 HI
GO-TRT	turnip	Brassica	24 E	89 ABC	1 D	0 E	5 HI
PPG-FP-101	turnip	Brassica	24 DE	83 BC	1 D	0 E	13 FGHI
Vivant	turnip	Brassica	22 E	80 C	0 D	0 E	8 GHI
Jackpot	turnip	Brassica	23 E	85 BC	1 D	2 E	7 GHI
Summary Statistics							
Average			28	61	17	17	18
Standard Error			2	5	5	5	5
Min			4	8	0	0	2
Max			75	100	80	75	48
Range			72	92	80	75	47
ANOVA p-values							
- Variety			**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**				
- Variety x Location			**<0.001**				

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 30. Across and by location mean weed cover of 20 cover crop varieties planted in mid-Oct. 2022 and evaluated in winter (~Feb. 1). Small plot replicated trials were conducted at 5 sites across 4 states in the South.

Variety	Common Name	Group	Weed Cover (%)				
			Avg	NC	SC	TN_East	TN_Middle
				9-Feb-23	*20-Feb-23*	*3-Feb-23*	*3-Feb-23*
FL405 rye	cereal rye	Cereal	8 G	0 F	10 A	18 EFG	5 A
FL406 rye	cereal rye	Cereal	9 G	0 F	12 A	17 FG	7 A
FL08128 triticale	triticale	Cereal	25 F	2 F	18 A	50 ABCD	28 A
Viper	clover, balansa	Legume	42 ABC	85 A	25 A	45 ABCDE	15 A
Frosty	clover, berseem	Legume	44 AB	69 ABC	23 A	43 BCDEF	42 A
Lightning	clover, berseem	Legume	39 ABCDE	80 AB	14 A	37 CDEFG	27 A
AU Robin	clover, crimson	Legume	41 ABCD	52 CD	27 A	65 AB	20 A
AU Sunrise	clover, crimson	Legume	21 FG	33 DE	20 A	15 G	13 A
Kentucky Pride	clover, crimson	Legume	30 CDEF	54 BCD	18 A	32 DEFG	15 A
eNhance	clover, persian	Legume	52 A	85 A	28 A	62 ABC	35 A
Q	clover, red	Legume	48 A	92 A	33 A	47 ABCD	18 A
Cahaba	vetch, common	Legume	28 DEF	12 EF	30 A	37 CDEFG	33 A
AU Early Cover	vetch, hairy	Legume	24 F	0 F	12 A	62 ABC	23 A
AU Merit	vetch, hairy	Legume	32 BCDEF	0 F	28 A	57 ABCD	43 A
Patagonia Inta	vetch, hairy	Legume	25 F	2 F	30 A	42 BCDEFG	28 A
Aerifi	radish	Brassica	31 BCDEF	19 EF	15 A	72 A	18 A
GO-TRT	turnip	Brassica	27 EF	3 F	37 A	40 BCDEFG	27 A
PPG-FP-101	turnip	Brassica	20 FG	3 F	30 A	37 CDEFG	12 A
Vivant	turnip	Brassica	30 CDEF	7 EF	18 A	60 ABC	35 A
Jackpot	turnip	Brassica	25 F	3 F	27 A	50 ABCD	20 A
Summary Statistics							
Average			30	30	23	44	23
Standard Error			5	10	10	10	10
Min			8	0	10	15	5
Max			52	92	37	72	43
Range			44	92	27	57	38
ANOVA p-values							
- Variety			**<0.001**	**<0.001**	**0.877**	**<0.001**	**0.256**
- Location			**<0.001**				
- Variety x Location			**<0.001**				

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

Table 31. Across and by location mean cover crop height of 20 cover crop varieties planted in mid-Oct. 2022 and evaluated in winter (~Feb. 1). Small plot replicated trials were conducted at 2 sites in Tennessee.

Variety	Common Name	Group	Cover Crop Height (cm)		
			Avg	TN_East	TN_Middle
				3-Feb-23	*3-Feb-23*
FL405 rye	cereal rye	Cereal	8 AB	7 B	9 A
FL406 rye	cereal rye	Cereal	8 AB	9 A	8 B
FL08128 triticale	triticale	Cereal	6 CD	5 C	8 B
Viper	clover, balansa	Legume			1 I
Frosty	clover, berseem	Legume	1 GHI	1 D	2 GHI
Lightning	clover, berseem	Legume	1 GHI	1 D	1 GHI
AU Robin	clover, crimson	Legume	2 EFGH	1 D	3 DEFG
AU Sunrise	clover, crimson	Legume	2 GHI	1 D	2 EFGH
Kentucky Pride	clover, crimson	Legume	2 GHI	1 D	2 FGHI
eNhance	clover, persian	Legume	1 GHI	1 D	1 HI
Q	clover, red	Legume	1 HI	1 D	1 I
Cahaba	vetch, common	Legume	2 EFGH	1 D	2 EFGH
AU Early Cover	vetch, hairy	Legume	3 EF	1 D	4 C
AU Merit	vetch, hairy	Legume	3 EF	1 D	4 C
Patagonia Inta	vetch, hairy	Legume	2 EFG	1 D	3 DEF
Aerifi	radish	Brassica			4 CD
GO-TRT	turnip	Brassica			3 DEFG
PPG-FP-101	turnip	Brassica			3 CDE
Vivant	turnip	Brassica			3 CDE
Jackpot	turnip	Brassica			3 CDE
Summary Statistics					
Average			3	2	3
Standard Error			0.4	0.4	0.4
Min			1	1	1
Max			8	9	9
Range			7	8	8
ANOVA p-values					
- Variety			**<0.001**	**<0.001**	**<0.001**
- Location			**<0.001**		
- Variety x Location			**<0.001**		

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD, *P* <0.05). Mean separation letters are highlighted in dark orange for values that are not statistically different from the highest value across all entries within a given trait. Mean values above the 75th percentile are highlighted in dark orange.

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