

# Cover Crop Variety Tests in Tennessee 2020



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**2020**

**Virginia R. Sykes**, Assistant Professor, Variety Testing Coordinator and Agroecology Specialist

**Aleksandra Wilson**, Research Associate I, Variety Testing and Agroecology

**Gary Bates**, Professor, Interim Department Head Plant Sciences, UT Beef and Forage Center Director

**David McIntosh**, Coordinator III, UT Beef and Forage Center Director

**Angela Thompson McClure**, Professor, Corn & Soybean Specialist

**Tyson Raper**, Associate Professor, Pettigrew Cotton Specialist

**Ryan Blair**, Extension Area Specialist, Grain Crops & Cotton

**Forbes Walker**, Professor, Environmental Soils Specialist

**Agronomic Crop Variety Testing and Demonstrations**  
**Department of Plant Sciences**  
**Institute of Agriculture**  
**University of Tennessee**  
**Knoxville**  
**phone: (865) 974-7285**  
**email: [vsykes@utk.edu](mailto:vsykes@utk.edu)**

**This report is available as a pdf at:**

**[search.utcrops.com](http://search.utcrops.com)**

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### **AgResearch and Education Centers:**

*East Tennessee AgResearch and Education Center (Knoxville, TN)*

**Robert Simpson**, Center Director

**BJ DeLozier**, Farm Manager

**Cody Fust**, Farm Crew Leader

**Charles Summey**, Senior Field Worker

**Nicholas Tissot**, Vehicle Operator II

*Middle Tennessee AgResearch and Education Center (Spring Hill, TN)*

**Kevin Thompson**, Director

**Joe David Plunk**, Research Associate

*AgResearch and Education Center at Milan (Milan, TN)*

**Blake Brown**, Center Director

**Chris Bridges**, Research Associate

**Weston Bracey**, Research Associate

**Jason Williams**, Research Associate

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# COVER CROP VARIETY TESTS IN TENNESSEE

2020

## Experimental Procedures

Cover crop variety tests were conducted at the East Tennessee (Knoxville; ETREC), Middle Tennessee (Spring Hill; MTREC), and Milan (Milan; RECM) AgResearch & Education Centers (REC). All locations were planted with a drill to a length of 30 ft. Plot widths varied slightly by location based on equipment. Plots were planted at ETREC in 8 rows on 7.5 in. spacing, at MTREC in 7 rows on 7 in. spacing, and at RECM in 10 rows on 7.5 in. spacing. Plots were planted in a randomized complete block design and replicated three times at each location. Varieties were planted at the appropriate seeding depth for each species (Table 1). The trial included varieties within the broader groups of brassicas, cereals, and legumes; however, all varieties were evaluated in a single trial in order 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.

A September and October planting date were planned for this study; however, due to extreme drought in the fall of 2019, only the earlier planting date was cut. All plots were planted in early to mid-October (Table 3).

## Assessment of Ground Cover

Two 15 in. x 15 in. PVC square were randomly placed in each plot and photographed. These photographs were then analyzed for percent green cover using Canopeo software (Oklahoma State University Department of Plant and Soil Sciences, Stillwater, OK). Plots were photographed one month after planting (mid-Nov), in mid-Feb, early April, and early May; however, the height of many of the cereal and brassica species made this method ineffective and these data are not presented.

## Assessment of Height

Height of cover crop varieties was measured in November, February, April, and May for species taller than 4 in. Species shorter than 4 in. were not measured but recorded as 1 in. for statistical purposes.

## Assessment of Biomass

Cover biomass was measured in a single, randomly selected, 15 in. x 15 in. square area within each plot. Biomass within that square was cut to a height of 1 in. above the soil surface. Biomass was dried to a constant weight and dry matter biomass was calculated on a tons per acre basis.

## Assessment of Nitrogen Content and Nitrogen Release

Dried biomass was ground to pass a 1 mm mesh and run through near infrared spectroscopy to determine quality constituents. NIRS estimated CP, ADF, NDF, lignin, and ash were used to derive the following values, 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 were calculated for each species by location and termination month. Mean values for lignin, carbohydrates, and cellulose + hemicellulose were normalized to 100% and inputted into the UGA cover crop nitrogen calculator (<http://aesl.ces.uga.edu/mineralization/>, Gaskin, 2016), along with mean percent nitrogen and biomass, to estimate nitrogen release. The Walker County, Georgia location (bordering Hamilton County, Tennessee) was used since no Tennessee location was available for temperature and precipitation values. For background options, “no” for high organic matter soil, and cover crop residue will be “left on surface” were selected.

### **Interpretation of Data**

The tables on the following pages have been prepared with the entries sorted by group (brassica, cereal, legume), common name, and variety. Biomass, cover, height data, total nitrogen, and NIRS quality constituents were analyzed using the MIXED procedure in SAS v. 9.4 (Cary, NC) with mean separation performed using the Fisher’s Protected LSD (Least Significant Difference) test. All analyses used a mixed model with treatment as a fixed effect and replicate and location as random effects with an alpha level of 0.05 to determine significance. The model for cover also included sample as a random effect. 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% level of probability. Varieties with performance statistically equivalent to the top performing variety 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, within functional group (brassicac, cereals, legumes) mean values between the 50<sup>th</sup> and 75<sup>th</sup> percentile are highlighted in light orange and above the 75<sup>th</sup> percentile are highlighted in dark orange.

### **Results**

Sixty varieties were evaluated in the 2019 – 2020 cover crop variety trial (Table 2). Treatments fell into three groups, brassicas (11 varieties), cereals (20 varieties), and legumes (29 varieties). Species with the greatest representation included radish (6 varieties), barley (5 varieties), cereal rye (9 varieties), crimson clover (6 varieties), hairy vetch (5 varieties), and winter pea (7 varieties).

Variety performance is given across locations (Tables 4 and 8) and for each individual location, Milan (RECM; Tables 5 and 9), Spring Hill (MTREC; Table 6 and 10), and Knoxville (ETREC; Table 7 and 11). Results are also presented in a side by side comparison of locations for each evaluated trait (Tables 12 to 17).

Variety performance differed significantly among locations ( $P < 0.001$ ). While most species performed similarly across locations, the varieties of radish generally exhibited lower February canopy cover and spring biomass at MTREC compared with RECM and ETREC (Tables 12 and 13). Crimson clover varieties also exhibited location differences, with all varieties exhibiting above average February canopy cover and spring biomass at MTREC, while at the RECM and ETREC, fewer varieties were above average (Tables 12 and 13). These differences may have

been due to environmental differences among the locations. Both temperature and precipitation immediately prior to planting and during early establishment can have a significant impact on successful cover crop establishment. Among the three locations, MTREC had the largest rain event immediately prior to planting which may account for the better performance of the clovers at this location. However, it is unclear why the brassica species did not perform well at MTREC. Brassica species tend to be more prone to winterkill; however, the MTREC location had similar average and minimum monthly temperatures to ETREC.

Varieties that had high biomass in April, generally also had high biomass in May (Table 4). Across all entries, top-performers (“A-group” varieties – not significantly different from the highest value) for biomass were dominated by cereal rye and hairy vetch. These included Bates RS4, NF95319B, and NF7325 cereal rye and AU Merit and Patagonia Inta hairy vetch. Within top-performing species, cereal rye exhibited the greatest difference in biomass between top and bottom performing varieties, with a difference of 0.9 DM tons/ac in April and 1 DM ton/ac in May. This was also true for hairy vetch varieties, with a difference in top and bottom performing varieties of 0.5 DM tons/ac in April and 0.7 DM tons/ac in May.

Top-performers for canopy cover varied by evaluation month (Table 4). One month after planting, all top-performers for canopy cover were cereal species, with the cereals averaging 22% cover, compared with only 9% for brassicas and 4% for legumes. However, by February, legumes were dominating the top, in particular varieties of hairy vetch. In February, top-varieties of legumes, including AU Merit and Patagonia Inta hairy vetch, provided 71 to 75 % canopy cover, while cereals maxed out at 27% and brassicas at 29%.

Height may be important for producers interested in grazing cover crops. Cereal rye varieties were the tallest in all four evaluation months (Table 4). Wintergrazer 70 was a top-performer for height during all four evaluation months, while Bates RS4 and NF97325 also stood out, appearing in the “A-group” in three out of the four evaluation months. These three top-performers averaged 6 inches in November, 9 inches in February, 34 inches in April, and 58 inches in May.

Variation in total nitrogen content (as a percentage of dry biomass) and estimated nitrogen release was observed both among and within functional groups (Table 8). Cereals had the lowest nitrogen content, averaging 1.5% in April and decreasing to 0.9% in May as biomass increased. In April, most varieties provided a slight nitrogen credit over a 12-week period (1.9 lbs/ac); however, by May, this became a nitrogen deficit (-1.6 lbs/ac). Varieties of cereal rye exhibited the greatest nitrogen deficits (-2.3 to -6 lbs/ac).

Brassicas had slightly higher nitrogen content, averaging around 2% in April and dropping slightly to 1.7% in May. Estimated nitrogen release over 12 weeks, in both April and May, was positive, but slight, averaging 4.9 lbs/ac in April and 8 lbs/ac in May. Very little variation was observed within species for nitrogen content or estimated nitrogen release within both the brassicas and cereals.

As expected, legumes exhibited the highest nitrogen content and nitrogen release. Within the legumes, varieties of common vetch, hairy vetch, woolpod vetch, and winter pea stood out as

top-performers (>75<sup>th</sup> percentile) for estimated nitrogen release. This was primarily due to a combination of both high biomass and high total nitrogen content. AU Merit, Patagonia Inta, Villana, and WinterKing hairy vetch were top-performers in both April and May, averaging 40 lbs/ac in April and 77 lbs/ac in May released over a 12-week period.

Overall, results from this trial illustrate the variation both among species and among varieties within species as well as highlight top-performing varieties for East, Middle, and West Tennessee. While top-performing varieties were generally the same across locations and termination timings, some variation did exist. It is important to consider the specifics of a production system and select varieties that will excel under those conditions. 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**

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**Table 1. Characteristics of cover crop varieties evaluated during 2019-2020.**

Group	Common Name	Variety/Hybrid	Company	Seeding Depth (in)
Brassica	Hyb. Brassica	Extender	Green Cover Seed	0.25 - 0.5
Brassica	Collards	Impact	Green Cover Seed	0.25 - 0.5
Brassica	Hyb. Brassica	Viva	Mountain View Seeds	0.25 - 0.5
Brassica	Hyb. Brassica	Vivant	Mountain View Seeds	0.25 - 0.5
Brassica	Radish	Aerifi	Mountain View Seeds	0.25 - 0.5
Brassica	Radish	Digger	OreGro	0.25 - 0.5
Brassica	Radish	SERALPHA	Smith Seed	0.25 - 0.5
Brassica	Radish	SERWF19	Smith Seed	0.25 - 0.5
Brassica	Radish	Smart	Green Cover Seed	0.25 - 0.5
Brassica	Radish	Driller	GrasslandOregon	0.25 - 0.5
Brassica	Turnip	Jackpot	Mountain View Seeds	0.25 - 0.5
Cereal	Annual Ryegrass	Centurion	Mountain View Seeds	1 - 2
Cereal	Annual Ryegrass	Lowboy	Smith Seed	1 - 2
Cereal	Barley	140760	OreGro	1 - 2
Cereal	Barley	140789	OreGro	1 - 2
Cereal	Barley	140797	OreGro	1 - 2
Cereal	Barley	SB255	Seedway	1 - 2
Cereal	Barley	Secretariat	Virginia Tech	1 - 2
Cereal	Cereal Rye	Bates RS4	Noble Research Institute	1 - 2
Cereal	Cereal Rye	Elbon (1)	Noble Research Institute	1 - 2
Cereal	Cereal Rye	Elbon (2)	Green Cover Seed	1 - 2
Cereal	Cereal Rye	Goku	OreGro	1 - 2
Cereal	Cereal Rye	NF95319B	Noble Research Institute	1 - 2
Cereal	Cereal Rye	NF97325	Noble Research Institute	1 - 2
Cereal	Cereal Rye	NF99362	Noble Research Institute	1 - 2
Cereal	Cereal Rye	Wintergrazer 70	Pennington Seed	1 - 2
Cereal	Cereal Rye	Yankee	Green Cover Seed	1 - 2
Cereal	Oat	Cosaque	Green Cover Seed	1 - 2
Cereal	Oat	Bob	Green Cover Seed	1 - 2
Cereal	Wheat	Hilliard	Virginia Tech	1 - 2
Cereal	Wheat	Liberty 5658	Virginia Tech	1 - 2
Legume	Clover, Balansa	FIXatioN	GrasslandOregon	0.25 - 0.5
Legume	Clover, Balansa	Paradana	Smith Seed	0.25 - 0.5
Legume	Clover, Balansa	Viper	Smith Seed	0.25 - 0.5
Legume	Clover, Berseem	Balady	Smith Seed	0.25 - 0.5
Legume	Clover, Berseem	Frosty	GrasslandOregon	0.25 - 0.5
Legume	Clover, Crimson	AU Sunrise	Pennington Seed	0.25 - 0.5
Legume	Clover, Crimson	Bolsena	OreGro	0.25 - 0.5

cont.

**Table 1. Characteristics of cover crop varieties evaluated during 2019-2020.**

Group	Common Name	Variety/Hybrid	Company	Seeding Depth (in)
Legume	Clover, Crimson	Dixie	Smith Seed	0.25 - 0.5
Legume	Clover, Crimson	Kentucky Pride	GrasslandOregon	0.25 - 0.5
Legume	Clover, Crimson	SECCM18	Smith Seed	0.25 - 0.5
Legume	Clover, Crimson	White Cloud	OreGro	0.25 - 0.5
Legume	Clover, Red	Big Red	Green Cover Seed	0.25 - 0.5
Legume	Clover, Red	Blaze	Mountain View Seeds	0.25 - 0.5
Legume	Clover, Red	GA9909	Smith Seed	0.25 - 0.5
Legume	Clover, Red	VNS	Green Cover Seed	0.25 - 0.5
Legume	Vetch, Common	VNS	Green Cover Seed	1 - 2
Legume	Vetch, Hairy	AU Merit	Smith Seed	1 - 2
Legume	Vetch, Hairy	Patagonia Inta	Smith Seed	1 - 2
Legume	Vetch, Hairy	Purple Bounty	Green Cover Seed	1 - 2
Legume	Vetch, Hairy	Villana	OreGro	1 - 2
Legume	Vetch, Hairy	WinterKing	Smith Seed	1 - 2
Legume	Vetch, Woolypod	Namoi	Green Cover Seed	1 - 2
Legume	Winter Pea	Double OO	OreGro	1 - 2
Legume	Winter Pea	Survivor	GrasslandOregon	1 - 2
Legume	Winter Pea	VNS (1)	Green Cover Seed	1 - 2
Legume	Winter Pea	VNS (2)	Smith Seed	1 - 2
Legume	Winter Pea	Windham	Smith Seed	1 - 2
Legume	Winter Pea	WyoWinter (1)	Green Cover Seed	1 - 2
Legume	Winter Pea	WyoWinter (2)	Smith Seed	1 - 2

**Table 2. Contact information for cover crop seed companies submitting varieties evaluated in tests in Tennessee during 2019 - 2020.**

Company	Contact	Phone	Email	Web site
GrasslandOregon	Jerry Hall	503-566-9900	<a href="mailto:info@goseed.com">info@goseed.com</a>	<a href="http://grasslandoregon.com">grasslandoregon.com</a>
Green Cover Seed	Keith Berns	402--469-6784	<a href="mailto:keith@greencoverseed.com">keith@greencoverseed.com</a>	<a href="http://greencoverseed.com">greencoverseed.com</a>
Mountain View Seeds	Mark Thomas	903-949-7099	<a href="mailto:markt@mtviewseeds.com">markt@mtviewseeds.com</a>	<a href="http://www.mtviewseeds.com">www.mtviewseeds.com</a>
Noble Research Institute	Jeff Moen	580-224-6205	<a href="mailto:jsmoen@noble.org">jsmoen@noble.org</a>	<a href="http://noble.org">noble.org</a>
OreGro	Dustin Herb	541-990-2141	<a href="mailto:dustin.herb@nutrien.com">dustin.herb@nutrien.com</a>	<a href="http://oregroseeds.com">oregroseeds.com</a>
Pennington Seed	Drew Denman	706-612-8534	<a href="mailto:ddenman@central.com">ddenman@central.com</a>	<a href="http://pennington.com">pennington.com</a>
Seedway, LLC	Jerry Davis	610-967-4131	<a href="mailto:jdavis@seedway.com">jdavis@seedway.com</a>	<a href="http://seedway.com">seedway.com</a>
Smith Seed Services	Jonathan Rupert	888-550-2930	<a href="mailto:jrupert@smithseed.com">jrupert@smithseed.com</a>	<a href="http://smithseed.com">smithseed.com</a>
Virginia Tech	Phillip Browning	804-472-3500	<a href="mailto:vcia.manager@gmail.com">vcia.manager@gmail.com</a>	<a href="http://virginiacrop.org">virginiacrop.org</a>

**Table 3. Location information from University of Tennessee AgResearch and Education Centers where crop variety trials were conducted during 2019-2020.**

Location	AgResearch and Education Center	Planting	Fall Eval.	Winter Eval.	Spring Eval. 1	Spring Eval. 2	Soil Type
Knoxville	East Tennessee	8-Oct-2019	13-Nov-2019	11-Feb-2020	1-Apr-2020	1-May-2020	Shady Loam
Spring Hill	Middle Tennessee	11-Oct-2019	14-Nov-2019	19-Feb-2020	2-Apr-2020	30-Apr-2020	Dickson Silt Loam
Milan	Milan	10-Oct-2019	13-Nov-2019	11-Feb-2020	1-Apr-2020	1-May-2020	Loring Silt Loam

**Table 4-a. Across location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicicas</b>										
Impact	Collards	Brassica	0.3 Q-V	0.7 X-BB	4 O-R	13 M-Q	2 Q-S	2 S-U	4 T-X	21 K-Q
Extender	Hyb. Brassica	Brassica	0.4 M-S	0.6 Y-BB	4 L-P	15 L-P	2 Q-S	4 H-M	20 D	24 H-L
Viva	Hyb. Brassica	Brassica	0.4 L-S	0.9 U-AA	14 E-H	29 E-G	2 N-Q	3 M-R	25 C	31 E
Vivant	Hyb. Brassica	Brassica	0.2 S-V	0.4 AA-BB	10 H-K	17 H-O	2 N-Q	3 Q-S	13 H-M	22 H-O
Aerifi	Radish	Brassica	0.5 J-P	1.2 P-W	11 G-J	24 E-K	2 N-P	5 E-J	18 D-F	19 M-R
Digger	Radish	Brassica	0.4 L-S	1.2 Q-X	10 F-I	24 E-K	3 M-O	5 G-K	19 DE	18 N-R
Driller	Radish	Brassica	0.3 P-U	1.0 T-Z	7 H-L	23 E-L	2 P-R	3 M-R	18 D-F	17 P-R
SERALPHA	Radish	Brassica	0.5 K-Q	1.3 L-U	7 I-N	27 E-G	3 M-O	5 E-H	19 D-F	17 P-R
SERWF19	Radish	Brassica	0.6 G-M	1.3 M-U	8 H-K	24 E-L	2 N-P	5 F-K	21 D	20 L-Q
Smart	Radish	Brassica	0.5 J-P	1.2 Q-X	14 D-G	25 E-I	3 MN	4 H-N	25 C	23 H-N
Jackpot	Turnip	Brassica	0.3 P-U	0.8 V-BB	8 H-L	16 K-O	2 O-Q	4 L-R	21 D	24 H-L
Average			0.4	1.0	9	21	2	4	18	21
Min			0.2	0.4	4	13	2	2	4	17
Max			0.6	1.3	14	29	3	5	25	31
Range			0.4	0.9	10	16	1	4	21	14

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 4-b. Across location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	0.3 Q-V	1.0 S-Z	4 K-P	26 E-G	4 J-L	4 H-N	8 N-R	21 J-P
Lowboy	Annual Ryegrass	Cereal	0.1 V	0.4 AA-BB	3 N-Q	16 J-O	3 M	1 U	3 V-X	11 TU
140760	Barley	Cereal	0.4 L-S	1.4 I-U	23 A-D	23 E-L	5 D-G	5 E-H	11 K-O	23 H-O
140789	Barley	Cereal	0.5 K-Q	1.4 K-U	24 A-D	27 E-G	5 GH	5 G-L	7 P-T	20 L-Q
140797	Barley	Cereal	0.4 M-S	1.2 O-W	28 A-C	27 E-G	5 B-G	5 G-K	9 N-Q	23 H-M
SB255	Barley	Cereal	0.4 M-S	1.3 N-V	22 A-D	22 G-M	5 D-G	4 K-Q	13 H-M	23 H-M
Secretariat	Barley	Cereal	0.4 L-R	1.4 H-T	15 C-E	22 F-L	4 I-K	4 H-N	11 J-N	20 L-Q
Bates RS4	Cereal Rye	Cereal	1.2 AB	2.3 AB	33 A	26 E-G	6 AB	10 A	33 AB	53 BC
Elbon (1)	Cereal Rye	Cereal	0.8 D-H	1.9 A-H	28 A-C	26 E-G	5 C-G	4 I-O	25 C	57 AB
Elbon (2)	Cereal Rye	Cereal	0.6 G-M	1.6 E-Q	29 AB	26 E-G	5 C-G	3 M-R	21 D	54 BC
Goku	Cereal Rye	Cereal	0.7 F-K	1.8 B-M	25 A-C	22 E-L	6 A-D	6 DE	26 C	54 BC
NF95319B	Cereal Rye	Cereal	1.1 AB	2.1 A-E	26 A-C	25 E-J	6 A	8 BC	32 B	56 A-C
NF97325	Cereal Rye	Cereal	1.1 A-C	1.9 A-H	20 B-E	26 E-G	6 A-C	9 AB	32 B	59 A
NF99362	Cereal Rye	Cereal	1.0 B-E	1.9 A-I	24 A-C	25 E-G	5 B-F	7 CD	27 C	52 C
Wintergrazer 70	Cereal Rye	Cereal	0.9 B-F	1.9 B-K	21 A-D	24 E-K	6 A-C	9 AB	36 A	60 A
Yankee	Cereal Rye	Cereal	0.3 P-U	1.3 N-V	30 AB	22 E-L	5 B-E	3 O-S	10 L-P	40 D
Bob	Oat	Cereal	0.6 G-O	1.7 D-P	22 A-D	26 E-G	5 F-H	6 DE	13 I-M	30 EF
Cosaque	Oat	Cereal	0.6 H-P	1.5 F-R	23 A-D	25 E-H	5 F-H	5 E-I	10 K-O	19 L-R
Hilliard	Wheat	Cereal	0.7 G-L	1.8 B-L	16 B-E	26 E-G	5 D-G	6 DE	16 E-H	26 F-I
Liberty 5658	Wheat	Cereal	0.5 I-P	1.4 J-U	15 C-F	23 E-L	5 B-G	6 D-G	16 F-I	26 F-H
Average			0.6	1.6	22	24	5	5	18	36
Min			0.1	0.4	3	16	3	1	3	11
Max			1.2	2.3	33	27	6	10	36	60
Range			1.1	1.9	29	11	3	9	33	49

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 4-c. Across location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Legumes</b>										
FIXatioN	Clover, Balansa	Legume	0.3 O-T	1.2 Q-W	3 ST	12 N-Q	0 Y	1 U	5 R-X	20 L-Q
Paradana	Clover, Balansa	Legume	0.2 R-V	0.7 W-BB	2 TU	9 O-Q	1 W-Y	1 U	4 S-X	10 UV
Viper	Clover, Balansa	Legume	0.4 M-S	1.8 D-O	2 ST	16 I-O	0 XY	1 U	6 Q-V	15 R-T
Balady	Clover, Berseem	Legume	0.0 V	0.3 AA-BB	1 U	5 Q	1 U-W	1 U	2 X	6 V
Frosty	Clover, Berseem	Legume	0.2 R-V	1.1 R-Y	2 T	13 N-Q	1 U-X	1 TU	7 P-T	18 O-R
AU Sunrise	Clover, Crimson	Legume	0.5 K-Q	1.7 D-O	6 I-M	27 E-G	1 TU	1 U	7 O-T	21 J-P
Bolsena	Clover, Crimson	Legume	0.5 J-Q	1.6 E-R	5 I-N	26 E-G	1 T-V	1 U	6 Q-W	21 J-P
Dixie	Clover, Crimson	Legume	0.5 K-Q	1.6 E-Q	6 H-L	23 E-L	1 TU	1 U	7 P-U	21 I-P
Kentucky Pride	Clover, Crimson	Legume	0.3 O-T	1.5 F-S	5 J-O	24 E-K	1 T-V	1 U	4 S-X	17 P-R
SECCM18	Clover, Crimson	Legume	0.5 I-P	2.0 A-F	7 I-N	28 E-G	2 R-T	2 S-U	7 P-T	21 K-P
White Cloud	Clover, Crimson	Legume	0.3 N-T	1.2 P-W	6 I-L	21 G-N	1 ST	1 U	6 Q-W	16 Q-S
Big Red	Clover, Red	Legume	0.1 UV	0.6 Z-BB	3 Q-S	7 PQ	1 U-W	1 U	2 WX	8 UV
Blaze	Clover, Red	Legume	0.1 V	0.4 AA-BB	3 O-R	9 O-Q	1 V-Y	1 U	4 T-X	9 UV
GA9909	Clover, Red	Legume	0.1 T-V	0.7 W-BB	3 RS	11 O-Q	1 U-W	1 U	3 V-X	11 S-U
VNS	Clover, Red	Legume	0.1 T-V	0.5 Z-BB	3 RS	9 O-Q	1 U-Y	1 U	3 U-X	9 UV
VNS	Vetch, Common	Legume	0.6 G-M	2.2 A-D	4 M-Q	27 E-G	4 I-K	5 E-H	13 I-M	17 P-R
AU Merit	Vetch, Hairy	Legume	1.2 A	2.3 A-C	7 I-N	75 A	4 IJ	6 D-F	14 G-J	23 H-M
Patagonia Inta	Vetch, Hairy	Legume	1.0 A-D	1.9 A-I	5 I-N	71 A	4 HI	5 F-K	14 G-J	23 H-M
Purple Bounty	Vetch, Hairy	Legume	0.8 E-I	1.9 A-H	3 P-R	50 BC	4 I-K	3 N-R	16 E-G	26 F-J
Villana	Vetch, Hairy	Legume	0.7 G-L	1.6 E-R	2 P-S	40 D	4 I-K	4 K-Q	14 G-J	25 G-K
WinterKing	Vetch, Hairy	Legume	1.2 AB	1.8 C-N	3 M-Q	53 B	4 IJ	4 H-N	16 E-H	24 H-L
Namoi	Vetch, Woollypod	Legume	0.8 C-G	1.5 G-T	3 RS	52 B	5 E-H	7 D	14 G-K	21 I-P
Double OO	Winter Pea	Legume	0.7 G-L	1.8 B-K	7 G-K	31 E	4 KL	3 O-R	10 M-P	30 EF
Survivor	Winter Pea	Legume	0.8 D-I	2.4 A	7 G-K	46 B-D	4 I-K	3 O-R	13 G-K	26 F-H
VNS (1)	Winter Pea	Legume	0.7 E-K	1.9 A-J	6 H-L	41 D	4 J-L	4 L-R	13 H-M	27 E-H
VNS (2)	Winter Pea	Legume	0.7 E-K	2.0 A-G	7 G-K	43 CD	4 L	3 Q-S	13 G-L	29 E-G
Windham	Winter Pea	Legume	0.6 G-N	1.8 C-N	7 G-J	31 EF	4 IJ	2 R-T	7 O-S	18 N-R
WyoWinter (1)	Winter Pea	Legume	0.6 G-M	1.9 A-H	5 H-L	40 D	4 J-L	3 P-S	11 J-N	26 F-J
WyoWinter (2)	Winter Pea	Legume	0.8 E-J	1.9 A-H	7 G-J	43 CD	4 I-K	4 J-P	14 G-K	26 F-H
Average			0.5	1.5	4	31	2	2	9	20
Min			0.0	0.3	1	5	0	1	2	6
Max			1.2	2.4	7	75	5	7	16	30
Range			1.2	2.0	6	71	5	6	14	24

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

Table 4-d. Summary statistics and ANOVA p-values for across location biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.

Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
	Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicacae</b>								
Average	0.4	1.0	9	21	2	4	18	21
Min	0.2	0.4	4	13	2	2	4	17
Max	0.6	1.3	14	29	3	5	25	31
Range	0.4	0.9	10	16	1	4	21	14
<b>Cereals</b>								
Average	0.6	1.6	22	24	5	5	18	36
Min	0.1	0.4	3	16	3	1	3	11
Max	1.2	2.3	33	27	6	10	36	60
Range	1.1	1.9	29	11	3	9	33	49
<b>Legumes</b>								
Average	0.5	1.5	4	31	2	2	9	20
Min	0.0	0.3	1	5	0	1	2	6
Max	1.2	2.4	7	75	5	7	16	30
Range	1.2	2.0	6	71	5	6	14	24
<b>Across Groups</b>								
Average	0.5	1.4	11	27	3	4	14	26
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	0.0	0.3	1	5	0	1	2	6
Max	1.2	2.4	33	75	6	10	36	60
Range	1.2	2.0	32	71	6	9	34	54
<b>ANOVA p-values</b>								
- Variety	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Variety x Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001



**Table 5-a. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicac</b>										
Impact	Collards	Brassica	0.2 S-Y	0.6 QR	2 S-X	18 M-V	2 I-L	1 J	3 ST	28 D-H
Extender	Hyb. Brassica	Brassica	0.5 I-R	1.0 I-R	3 L-U	21 J-R	2 H-K	2 IJ	24 C-E	25 E-L
Viva	Hyb. Brassica	Brassica	0.5 K-U	0.8 L-R	6 F-Q	36 GH	2 H-L	3 F-I	24 C-E	34 D
Vivant	Hyb. Brassica	Brassica	0.3 P-Y	0.5 R	6 C-N	21 K-S	2 HI	3 G-I	13 I-M	27 D-J
Aerifi	Radish	Brassica	0.7 E-L	1.7 B-M	5 I-R	18 M-U	2 H-J	5 C-F	21 E-G	26 D-K
Digger	Radish	Brassica	0.5 H-R	1.3 E-R	6 D-N	23 I-P	2 HI	5 D-G	19 F-H	26 D-K
Driller	Radish	Brassica	0.5 H-R	0.9 K-R	5 E-Q	36 GH	2 HI	3 F-I	21 E-G	26 D-K
SERALPHA	Radish	Brassica	0.6 G-P	1.2 E-R	4 J-S	22 J-Q	2 H	5 C-E	23 D-F	24 F-M
SERWF19	Radish	Brassica	0.7 D-K	1.7 B-L	4 G-Q	21 J-Q	2 HI	6 C-E	22 D-F	26 D-K
Smart	Radish	Brassica	0.4 K-U	1.2 E-R	10 A-J	27 G-M	2 HI	3 F-I	26 CD	28 D-H
Jackpot	Turnip	Brassica	0.2 P-Y	0.8 L-R	9 B-L	15 N-W	2 HI	3 F-I	22 D-F	27 D-I
Average			0.5	1.1	5	23	2	4	20	27
Min			0.2	0.5	2	15	2	1	3	24
Max			0.7	1.7	10	36	2	6	26	34
Range			0.6	1.2	8	21	1	5	23	10

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 5-b. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	0.4 K-V	1.6 B-N	3 L-U	34 G-I	4 G	6 B-D	8 N-R	30 D-F
Lowboy	Annual Ryegrass	Cereal	0.1 W-Y	0.6 P-R	2 S-X	21 J-Q	4 G	1 J	3 R-T	16 M-R
140760	Barley	Cereal	0.4 K-U	1.2 E-R	18 AB	23 J-P	5 A-C	5 C-E	9 L-P	25 D-L
140789	Barley	Cereal	0.3 O-Y	1.2 F-R	15 A-E	21 K-R	5 A-E	3 G-I	5 O-T	20 H-Q
140797	Barley	Cereal	0.3 N-Y	1.0 H-R	19 A-C	26 G-M	5 A	5 C-F	7 N-S	24 F-M
SB255	Barley	Cereal	0.4 K-V	1.5 C-P	14 A-F	22 J-Q	5 AB	3 G-I	13 I-M	26 D-K
Secretariat	Barley	Cereal	0.4 M-X	1.3 E-R	13 A-G	24 I-O	4 E-G	5 C-F	12 I-N	18 K-R
Bates RS4	Cereal Rye	Cereal	0.8 B-J	1.8 B-K	17 A-C	22 J-Q	5 A-E	7 A-C	29 BC	55 B
Elbon (1)	Cereal Rye	Cereal	0.7 F-N	1.7 B-M	14 A-H	24 I-N	5 A-E	4 E-H	22 D-F	61 AB
Elbon (2)	Cereal Rye	Cereal	0.4 K-U	1.4 C-P	16 A-D	26 H-M	5 A-E	1 J	14 H-K	56 AB
Goku	Cereal Rye	Cereal	0.5 J-T	1.6 B-N	16 A-D	20 K-T	5 A-D	5 C-E	21 D-F	53 BC
NF95319B	Cereal Rye	Cereal	0.9 B-G	1.9 B-G	12 A-I	29 G-L	5 A-E	8 AB	31 AB	60 AB
NF97325	Cereal Rye	Cereal	0.8 C-J	2.0 B-F	11 B-M	19 L-T	5 A	8 A	28 BC	60 AB
NF99362	Cereal Rye	Cereal	0.9 B-I	1.8 B-J	14 A-F	24 I-O	5 A-E	6 B-D	23 D-F	45 C
Wintergrazer 70	Cereal Rye	Cereal	1.1 A-D	2.1 B-E	11 A-J	24 I-N	5 AB	8 A	36 A	64 A
Yankee	Cereal Rye	Cereal	0.2 R-Y	1.1 G-R	22 A	19 K-T	4 B-G	2 IJ	9 M-Q	46 C
Bob	Oat	Cereal	0.4 K-U	1.7 B-K	18 AB	23 I-P	4 B-G	6 B-D	11 J-N	33 DE
Cosaque	Oat	Cereal	0.5 I-S	1.6 B-N	16 A-D	21 J-Q	5 A-E	5 C-E	10 K-O	22 F-O
Hilliard	Wheat	Cereal	0.4 K-U	1.9 B-H	11 A-I	22 J-Q	5 A-E	6 C-E	14 H-L	24 F-M
Liberty 5658	Wheat	Cereal	0.6 G-N	1.4 D-P	10 A-K	23 I-P	4 A-F	6 B-D	16 HI	29 D-G
Average			0.5	1.5	14	23	4	5	16	38
Min			0.1	0.6	2	19	4	1	3	16
Max			1.1	2.1	22	34	5	8	36	64
Range			1.0	1.4	21	15	1	7	33	48

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 5-c. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Legumes</b>										
FIXatioN	Clover, Balansa	Legume	0.6 H-Q	1.5 C-O	1 V-Z	10 T-X	0 QR	1 J	4 Q-T	24 F-M
Paradana	Clover, Balansa	Legume	0.2 Q-Y	1.1 F-R	0 Z-AA	10 S-X	0 R	1 J	5 O-T	11 RS
Viper	Clover, Balansa	Legume	0.5 J-T	1.9 B-F	0 Z-AA	10 S-X	0 R	1 J	5 P-T	14 O-R
Balady	Clover, Berseem	Legume	0.0 Y	0.8 M-R	1 X-A	3 X	1 O-Q	1 J	1 T	4 S
Frosty	Clover, Berseem	Legume	0.2 P-Y	1.9 B-H	1 V-Z	12 Q-X	0 P-R	1 J	9 M-Q	25 D-L
AU Sunrise	Clover, Crimson	Legume	0.3 O-Y	1.5 C-P	3 N-V	15 N-W	1 M-O	1 J	4 Q-T	19 J-R
Bolsena	Clover, Crimson	Legume	0.4 L-W	1.0 G-R	3 L-U	19 L-T	1 L-O	1 J	4 Q-T	18 K-R
Dixie	Clover, Crimson	Legume	0.2 R-Y	1.6 B-M	4 H-R	10 S-X	2 K-M	1 J	4 Q-T	23 F-M
Kentucky Pride	Clover, Crimson	Legume	0.1 W-Y	1.0 J-R	3 M-V	11 R-X	1 M-O	1 J	2 T	17 L-R
SECCM18	Clover, Crimson	Legume	0.2 T-Y	1.6 B-N	2 P-V	13 P-X	1 L-N	1 J	4 R-T	18 K-R
White Cloud	Clover, Crimson	Legume	0.2 P-Y	0.6 P-R	3 L-U	13 O-X	2 J-M	1 J	3 R-T	13 P-R
Big Red	Clover, Red	Legume	0.1 U-Y	0.8 L-R	1 W-A	6 WX	1 O-Q	1 J	2 T	13 P-R
Blaze	Clover, Red	Legume	0.0 V-Y	0.7 O-R	2 O-V	8 U-X	1 O-Q	1 J	2 T	14 N-R
GA9909	Clover, Red	Legume	0.0 XY	0.8 N-R	0 Z-A	7 WX	1 N-P	1 J	3 R-T	16 M-R
VNS	Clover, Red	Legume	0.0 XY	0.6 P-R	4 U-Y	7 V-X	1 O-Q	1 J	3 R-T	12 QR
VNS	Vetch, Common	Legume	0.7 D-K	3.2 A	2 Q-W	30 G-K	4 B-G	5 C-E	16 G-I	20 H-Q
AU Merit	Vetch, Hairy	Legume	1.3 A	1.9 B-G	3 R-X	72 AB	4 D-G	5 C-E	15 H-J	20 H-Q
Patagonia Inta	Vetch, Hairy	Legume	1.1 A-E	1.5 C-P	4 K-T	77 A	4 D-G	4 E-H	13 I-M	17 L-R
Purple Bounty	Vetch, Hairy	Legume	0.8 C-J	1.6 B-N	1 T-X	47 EF	4 B-G	1 J	16 G-I	19 I-R
Villana	Vetch, Hairy	Legume	0.9 B-H	1.8 B-I	2 S-X	48 E	4 B-G	1 J	15 H-J	21 G-P
WinterKing	Vetch, Hairy	Legume	1.2 AB	1.6 B-O	2 N-V	65 BC	4 G	3 F-I	15 H-J	18 K-R
Namoi	Vetch, Woollypod	Legume	0.6 F-O	1.4 E-Q	0 Y-A	63 B-D	4 E-G	7 A-C	13 I-M	18 K-R
Double OO	Winter Pea	Legume	0.7 F-M	1.9 B-I	6 D-O	37 FG	4 C-G	1 J	7 N-S	28 D-H
Survivor	Winter Pea	Legume	0.9 B-G	2.4 AB	5 F-Q	60 CD	4 A-F	1 J	15 H-J	22 F-N
VNS (1)	Winter Pea	Legume	0.8 B-J	2.0 B-E	3 L-U	48 E	4 G	2 IJ	13 I-M	25 D-L
VNS (2)	Winter Pea	Legume	1.0 A-F	2.3 B-D	6 D-N	61 CD	4 FG	2 IJ	14 H-L	21 G-P
Windham	Winter Pea	Legume	0.6 G-N	1.9 B-H	4 G-Q	32 G-J	4 A-F	1 J	5 O-T	21 G-Q
WyoWinter (1)	Winter Pea	Legume	0.8 B-J	2.3 A-C	4 G-Q	56 C-E	4 B-G	1 J	11 J-N	24 F-M
WyoWinter (2)	Winter Pea	Legume	1.1 A-C	1.8 B-J	5 E-P	53 DE	4 B-G	2 H-J	15 H-J	23 F-M
Average			0.5	1.6	3	31	2	2	8	19
Min			0.0	0.6	0	3	0	1	1	4
Max			1.3	3.2	6	77	4	7	16	28
Range			1.3	2.6	5	74	4	6	15	24

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

Table 5-d. Summary statistics and ANOVA p-values for by location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.

Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
	Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicacae</b>								
Average	0.5	1.1	5	23	2	4	20	27
Min	0.2	0.5	2	15	2	1	3	24
Max	0.7	1.7	10	36	2	6	26	34
Range	0.6	1.2	8	21	1	5	23	10
<b>Cereals</b>								
Average	0.5	1.5	14	23	4	5	16	38
Min	0.1	0.6	2	19	4	1	3	16
Max	1.1	2.1	22	34	5	8	36	64
Range	1.0	1.4	21	15	1	7	33	48
<b>Legumes</b>								
Average	0.5	1.6	3	31	2	2	8	19
Min	0.0	0.6	0	3	0	1	1	4
Max	1.3	3.2	6	77	4	7	16	28
Range	1.3	2.6	5	74	4	6	15	24
<b>Across Groups</b>								
Average	0.5	1.5	7	27	3	3	13	27
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	0.0	0.5	0	3	0	1	1	4
Max	1.3	3.2	22	77	5	8	36	64
Range	1.3	2.7	22	74	5	7	35	60
<b>ANOVA p-values</b>								
- Variety	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Variety x Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

**Table 6-a. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education in Spring Hill, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicac</b>										
Impact	Collards	Brassica	0.1 P-U	0.2 VW	3 W-Z	11 S-W	1 N-S	2 G-I	3 W-Y	2 ST
Extender	Hyb. Brassica	Brassica	0.0 U	0.2 VW	3 YZ	9 VW	1 N-R	1 I	10 L-P	13 L-O
Viva	Hyb. Brassica	Brassica	0.0 TU	0.2 VW	6 M-W	12 R-W	1 N-S	1 I	13 H-L	13 L-O
Vivant	Hyb. Brassica	Brassica	0.0 U	0.2 VW	5 T-Z	12 R-W	1 N-S	1 I	6 Q-X	5 Q-T
Aerifi	Radish	Brassica	0.1 R-U	0.2 U-W	5 S-Z	10 U-W	1 O-S	1 I	5 S-Y	2 ST
Digger	Radish	Brassica	0.0 TU	0.2 VW	4 S-Z	10 T-W	1 N-S	1 I	11 K-O	5 Q-T
Driller	Radish	Brassica	0.0 U	0.1 W	12 I-R	10 VW	1 O-S	1 I	5 R-Y	11 M-Q
SERALPHA	Radish	Brassica	0.0 U	0.2 VW	5 R-Z	11 S-W	1 O-S	1 I	8 N-V	1 T
SERWF19	Radish	Brassica	0.1 R-U	0.1 W	3 Z	8 W	1 N-S	1 I	3 W-Y	1 T
Smart	Radish	Brassica	0.1 R-U	0.2 T-W	3 YZ	11 S-W	1 O-S	1 I	6 P-X	4 R-T
Jackpot	Turnip	Brassica	0.1 S-U	0.2 VW	4 W-Z	10 U-W	1 N-S	2 G-I	17 D-H	7 O-T
<b>Average</b>			0.0	0.2	5	10	1	1	8	6
<b>Min</b>			0.0	0.1	3	8	1	1	3	1
<b>Max</b>			0.1	0.2	12	12	1	2	17	13
<b>Range</b>			0.1	0.1	9	4	1	1	14	12

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 6-b. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education in Spring Hill, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	0.1 R-U	0.7 P-V	5 N-Y	20 M-R	4 G-K	2 G-I	9 L-R	16 H-M
Lowboy	Annual Ryegrass	Cereal	0.0 U	0.3 T-W	4 V-Z	13 P-W	3 M	1 I	4 W-Y	8 O-S
140760	Barley	Cereal	0.2 M-U	0.9 L-S	8 I-R	14 P-W	4 H-L	5 B-E	10 K-P	21 E-K
140789	Barley	Cereal	0.1 R-U	0.7 O-U	11 D-L	21 M-Q	4 H-K	4 D-F	6 P-X	15 J-N
140797	Barley	Cereal	0.1 P-U	1.0 J-R	13 C-J	19 M-U	5 F-J	4 D-F	8 N-V	16 I-M
SB255	Barley	Cereal	0.2 L-U	1.1 I-Q	15 A-D	21 M-R	5 E-I	4 D-F	10 L-P	21 E-K
Secretariat	Barley	Cereal	0.2 M-U	1.3 G-N	10 D-L	18 M-V	4 K-M	4 C-F	9 M-S	18 F-L
Bates RS4	Cereal Rye	Cereal	0.6 A-H	1.3 G-M	21 A	20 M-S	5 C-G	6 AB	21 B-E	43 C
Elbon (1)	Cereal Rye	Cereal	0.3 K-S	1.2 H-P	14 A-G	19 M-S	5 F-J	3 E-G	17 D-G	48 BC
Elbon (2)	Cereal Rye	Cereal	0.4 E-M	1.4 F-M	19 AB	26 J-M	5 C-H	4 C-F	18 B-F	48 BC
Goku	Cereal Rye	Cereal	0.4 F-N	1.5 E-J	18 A-C	19 M-T	5 C-F	5 B-E	18 C-G	48 BC
NF95319B	Cereal Rye	Cereal	0.7 A-D	1.7 C-H	20 AB	22 M-P	6 AB	6 A	22 AB	48 BC
NF97325	Cereal Rye	Cereal	0.5 B-J	1.6 D-I	14 A-G	19 M-T	5 D-I	5 A-D	21 B-D	54 AB
NF99362	Cereal Rye	Cereal	0.5 C-K	1.3 G-M	15 A-D	20 M-S	6 B-D	6 A-D	22 A-C	50 AB
Wintergrazer 70	Cereal Rye	Cereal	0.5 E-K	1.4 F-L	14 A-F	19 M-U	6 A-C	6 A	26 A	55 A
Yankee	Cereal Rye	Cereal	0.1 R-U	0.8 M-S	15 A-E	18 M-V	5 C-H	1 HI	9 M-T	31 D
Bob	Oat	Cereal	0.3 K-S	1.0 J-R	10 D-L	15 N-W	5 D-I	5 A-D	11 J-N	24 EF
Cosaque	Oat	Cereal	0.2 L-U	0.9 K-R	14 B-I	16 N-W	5 F-J	5 B-E	9 M-T	16 I-M
Hilliard	Wheat	Cereal	0.3 I-Q	1.2 G-O	10 D-K	25 J-M	5 F-J	6 A-C	14 G-K	22 E-I
Liberty 5658	Wheat	Cereal	0.5 E-L	1.1 I-P	14 A-H	22 M-Q	5 C-F	6 A-C	17 D-H	24 E-G
Average			0.3	1.1	13	19	5	4	14	31
Min			0.0	0.3	4	13	3	1	4	8
Max			0.7	1.7	21	26	6	6	26	55
Range			0.7	1.4	16	13	3	5	22	48

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 6-c. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education in Spring Hill, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Legumes</b>										
FIXatioN	Clover, Balansa	Legume	0.2 M-U	0.9 M-S	9 J-S	21 M-R	0 RS	1 I	7 O-W	17 G-L
Paradana	Clover, Balansa	Legume	0.1 N-U	0.6 Q-W	5 O-Y	13 P-W	1 P-S	1 I	5 Q-Y	9 N-R
Viper	Clover, Balansa	Legume	0.1 O-U	0.8 N-T	6 M-W	18 M-V	1 P-S	1 I	5 S-Y	12 L-P
Balady	Clover, Berseem	Legume	0.0 U	0.1 W	2 (-A)	9 VW	0 S	1 I	4 V-Y	1 T
Frosty	Clover, Berseem	Legume	0.3 J-R	1.1 I-P	4 T-Z	22 M-Q	1 O-S	2 G-I	8 N-U	18 F-L
AU Sunrise	Clover, Crimson	Legume	0.5 E-L	2.0 B-E	8 I-R	36 F-H	1 N-R	1 I	8 N-U	22 E-I
Bolsena	Clover, Crimson	Legume	0.6 A-G	2.2 A-C	7 I-R	36 F-H	1 N-Q	1 I	9 L-Q	23 E-H
Dixie	Clover, Crimson	Legume	0.6 A-I	2.1 A-D	7 J-T	34 F-K	1 N-S	1 I	10 L-P	21 E-J
Kentucky Pride	Clover, Crimson	Legume	0.7 A-C	2.5 AB	8 I-Q	33 F-L	1 N-P	1 I	8 N-V	18 F-L
SECCM18	Clover, Crimson	Legume	0.5 B-I	2.0 A-D	9 F-M	39 E-G	2 N	3 E-G	10 L-P	20 E-K
White Cloud	Clover, Crimson	Legume	0.4 E-M	1.9 C-F	9 E-M	34 F-J	2 NO	1 I	10 L-P	19 F-L
Big Red	Clover, Red	Legume	0.1 Q-U	0.4 S-W	6 O-Y	11 S-W	1 N-S	1 I	2 XY	6 P-T
Blaze	Clover, Red	Legume	0.0 U	0.2 VW	5 P-Y	13 Q-W	1 Q-S	1 I	1 Y	6 Q-T
GA9909	Clover, Red	Legume	0.0 U	0.3 T-W	5 M-X	14 P-W	1 O-S	1 I	4 U-Y	7 O-T
VNS	Clover, Red	Legume	0.2 M-U	0.5 R-W	4 W-Z	15 O-W	1 O-S	1 I	5 T-Y	9 N-R
VNS	Vetch, Common	Legume	0.2 N-U	0.5 R-W	5 Q-Y	8 W	4 I-L	3 F-H	10 L-P	13 L-O
AU Merit	Vetch, Hairy	Legume	0.5 B-J	2.5 AB	8 H-O	69 A	5 C-G	5 A-D	15 F-I	24 D-F
Patagonia Inta	Vetch, Hairy	Legume	0.6 A-E	2.0 A-E	7 J-T	61 AB	6 B-E	4 B-E	15 F-I	23 E-G
Purple Bounty	Vetch, Hairy	Legume	0.6 A-F	2.2 A-C	4 X-Z	49 CD	5 E-I	3 E-G	18 D-G	26 DE
Villana	Vetch, Hairy	Legume	0.6 A-G	1.4 F-K	4 U-Z	35 F-I	4 G-K	4 D-F	15 F-J	22 E-I
WinterKing	Vetch, Hairy	Legume	0.8 A	2.1 A-C	4 T-Z	53 BC	6 B-E	4 B-E	18 C-G	24 E-G
Namoi	Vetch, Woollypod	Legume	0.6 A-I	1.2 G-O	5 Q-Y	26 I-M	7 A	4 C-F	13 I-M	21 E-J
Double OO	Winter Pea	Legume	0.3 H-P	1.9 C-F	8 I-R	24 K-N	3 LM	2 G-I	10 K-P	26 DE
Survivor	Winter Pea	Legume	0.5 D-K	2.5 A	9 G-N	32 G-L	4 H-L	3 E-G	12 I-N	23 E-G
VNS (1)	Winter Pea	Legume	0.8 AB	1.8 C-G	8 I-P	42 D-F	4 I-L	3 E-G	17 E-H	26 DE
VNS (2)	Winter Pea	Legume	0.3 K-T	1.6 D-I	6 L-V	24 L-O	4 K-M	1 I	11 J-N	24 EF
Windham	Winter Pea	Legume	0.5 D-K	1.7 C-H	8 I-R	22 M-Q	5 E-I	1 I	9 L-Q	14 K-N
WyoWinter (1)	Winter Pea	Legume	0.3 G-O	1.5 E-J	7 K-U	27 H-M	4 J-M	2 G-I	11 I-N	23 E-G
WyoWinter (2)	Winter Pea	Legume	0.6 A-E	2.5 AB	9 E-M	46 C-E	4 I-L	5 B-E	15 F-I	27 DE
Average			0.4	1.5	6	30	3	2	10	18
Min			0.0	0.1	2	8	0	1	1	1
Max			0.8	2.5	9	69	7	5	18	27
Range			0.8	2.4	7	62	6	4	17	26

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

Table 6-d. Summary statistics and ANOVA p-values for by location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education in Spring Hill, TN during 2019-2020.

Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
	Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicac</b>								
Average	0.0	0.2	5	10	1	1	8	6
Min	0.0	0.1	3	8	1	1	3	1
Max	0.1	0.2	12	12	1	2	17	13
Range	0.1	0.1	9	4	1	1	14	12
<b>Cereals</b>								
Average	0.3	1.1	13	19	5	4	14	31
Min	0.0	0.3	4	13	3	1	4	8
Max	0.7	1.7	21	26	6	6	26	55
Range	0.7	1.4	16	13	3	5	22	48
<b>Legumes</b>								
Average	0.4	1.5	6	30	3	2	10	18
Min	0.0	0.1	2	8	0	1	1	1
Max	0.8	2.5	9	69	7	5	18	27
Range	0.8	2.4	7	62	6	4	17	26
<b>Across Groups</b>								
Average	0.3	1.1	8	23	3	3	11	20
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	0.0	0.1	2	8	0	1	1	1
Max	0.8	2.5	21	69	7	6	26	55
Range	0.8	2.4	19	62	6	5	24	54
<b>ANOVA p-values</b>								
- Variety	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Variety x Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001



**Table 7-a. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicac</b>										
Impact	Collards	Brassica	0.5 M-T	1.3 F-O	6 J-O	11 N-T	3 M-O	2 MN	6 N-T	32 E-K
Extender	Hyb. Brassica	Brassica	0.6 L-T	0.7 J-P	6 J-L	15 K-T	3 N-P	10 BC	25 FG	33 D-H
Viva	Hyb. Brassica	Brassica	0.8 I-Q	1.7 C-L	30 A-E	39 D-I	4 F-L	6 G-L	36 B-D	48 B
Vivant	Hyb. Brassica	Brassica	0.3 Q-T	0.7 K-P	18 F-J	18 J-T	4 I-N	4 K-M	20 G-I	34 D-F
Aerifi	Radish	Brassica	0.8 J-R	1.8 B-K	23 A-G	44 D-H	5 F-I	9 CD	28 EF	28 E-N
Digger	Radish	Brassica	0.7 K-R	2.1 B-I	18 C-I	39 D-I	5 E-H	9 C-E	29 D-F	24 H-Q
Driller	Radish	Brassica	0.4 N-T	1.8 B-K	11 I-K	24 H-R	3 L-O	6 F-L	25 FG	25 G-P
SERALPHA	Radish	Brassica	0.9 H-P	2.6 B-D	15 E-J	49 C-E	4 F-K	9 CD	31 C-F	27 F-O
SERWF19	Radish	Brassica	1.0 F-N	2.0 B-I	17 D-I	38 D-J	4 F-J	8 C-H	34 C-E	29 E-M
Smart	Radish	Brassica	1.1 E-L	2.2 B-H	21 B-I	38 D-J	5 D-F	8 C-G	43 AB	30 E-L
Jackpot	Turnip	Brassica	0.7 K-S	1.3 F-O	11 J-L	23 I-S	3 K-O	5 H-L	24 FG	37 C-E
<b>Average</b>			0.7	1.7	16	31	4	7	27	31
<b>Min</b>			0.3	0.7	6	11	3	2	6	24
<b>Max</b>			1.1	2.6	30	49	5	10	43	48
<b>Range</b>			0.8	1.9	24	38	3	8	36	24

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 7-b. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	0.3 P-T	0.7 K-P	4 J-O	23 I-S	4 I-N	5 J-L	8 L-T	17 P-T
Lowboy	Annual Ryegrass	Cereal	0.1 T	0.2 OP	4 J-O	13 L-T	2 O-Q	1 N	2 ST	10 T-V
140760	Barley	Cereal	0.7 K-R	2.0 B-I	42 A-D	33 E-L	6 BC	6 G-L	12 J-P	22 L-R
140789	Barley	Cereal	1.1 E-L	2.2 B-I	47 A-D	39 D-I	6 CD	7 D-J	9 J-S	25 G-P
140797	Barley	Cereal	0.7 J-R	1.7 B-L	53 AB	37 D-J	7 A-C	5 H-L	11 J-R	30 E-M
SB255	Barley	Cereal	0.6 L-T	1.2 G-P	38 A-D	22 I-S	6 CD	4 K-M	16 H-K	23 K-R
Secretariat	Barley	Cereal	0.8 I-R	1.7 C-M	22 A-H	25 F-Q	5 D-G	4 L-N	12 J-O	23 I-Q
Bates RS4	Cereal Rye	Cereal	2.1 A	3.9 A	61 A	37 D-J	8 A	16 A	49 A	62 A
Elbon (1)	Cereal Rye	Cereal	1.5 B-G	2.9 AB	57 A	35 D-K	7 A-C	5 I-L	35 C-E	63 A
Elbon (2)	Cereal Rye	Cereal	1.0 E-M	2.1 B-I	52 A-C	27 F-O	6 BC	5 I-L	30 C-F	58 A
Goku	Cereal Rye	Cereal	1.2 D-K	2.3 B-H	41 A-D	28 F-N	7 A-C	9 C-F	37 BC	63 A
NF95319B	Cereal Rye	Cereal	1.7 A-D	2.7 B-D	46 A-D	22 I-S	7 AB	10 BC	43 AB	60 A
NF97325	Cereal Rye	Cereal	2.0 AB	2.3 B-H	36 A-D	38 D-I	7 AB	12 B	48 A	64 A
NF99362	Cereal Rye	Cereal	1.5 A-F	2.6 B-E	43 A-D	33 E-L	6 B-D	9 CD	37 BC	61 A
Wintergrazer 70	Cereal Rye	Cereal	1.3 D-J	2.1 B-I	38 A-D	29 E-N	6 BC	12 B	46 A	61 A
Yankee	Cereal Rye	Cereal	0.7 J-R	1.9 B-I	52 A-C	30 E-N	7 AB	5 H-L	13 I-O	44 BC
Bob	Oat	Cereal	1.1 E-M	2.5 B-F	39 A-D	41 D-I	6 C-E	7 D-I	16 H-J	33 D-H
Cosaque	Oat	Cereal	0.9 G-O	2.0 B-I	39 A-D	39 D-I	6 C-E	6 H-L	13 H-O	21 M-R
Hilliard	Wheat	Cereal	1.2 D-K	2.3 B-H	27 A-F	29 E-N	6 BC	7 D-I	20 GH	32 E-J
Liberty 5658	Wheat	Cereal	0.6 L-T	1.6 D-M	21 B-I	24 G-R	6 BC	6 H-L	14 H-M	26 F-P
<b>Average</b>			1.1	2.0	38	30	6	7	24	40
<b>Min</b>			0.1	0.2	4	13	2	1	2	10
<b>Max</b>			2.1	3.9	61	41	8	16	49	64
<b>Range</b>			2.0	3.7	57	27	5	15	47	54

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 7-c. By location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
			Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Legumes</b>										
FIXatioN	Clover, Balansa	Legume	0.3 Q-T	1.2 G-P	0 RS	7 O-T	0 T	1 N	4 P-T	19 N-S
Paradana	Clover, Balansa	Legume	0.2 R-T	0.5 M-P	0 ST	3 ST	1 R-T	1 N	2 ST	9 T-V
Viper	Clover, Balansa	Legume	0.6 L-T	2.6 B-E	1 PQ	21 I-T	0 ST	1 N	8 K-T	18 O-T
Balady	Clover, Berseem	Legume	0.1 T	0.1 P	0 T	1 T	2 P-R	1 N	1 T	14 R-V
Frosty	Clover, Berseem	Legume	0.1 ST	0.3 N-P	0 ST	4 R-T	1 Q-S	1 N	4 Q-T	11 S-V
AU Sunrise	Clover, Crimson	Legume	0.7 J-R	1.7 C-L	7 I-K	31 E-N	1 Q-S	1 N	10 J-S	23 J-Q
Bolsena	Clover, Crimson	Legume	0.6 L-T	1.7 B-L	5 J-M	22 I-S	1 R-T	1 N	3 R-T	22 L-R
Dixie	Clover, Crimson	Legume	0.8 J-R	1.2 G-P	6 J-L	25 F-P	1 R-T	1 N	6 O-T	21 M-R
Kentucky Pride	Clover, Crimson	Legume	0.2 Q-T	1.0 I-P	4 J-O	30 E-N	1 R-T	1 N	4 Q-T	16 Q-U
SECCM18	Clover, Crimson	Legume	0.9 G-O	2.3 B-G	10 I-K	32 E-L	1 Q-S	1 N	7 M-T	24 I-Q
White Cloud	Clover, Crimson	Legume	0.4 O-T	1.1 H-P	6 J-L	15 K-T	1 R-T	1 N	4 Q-T	16 Q-U
Big Red	Clover, Red	Legume	0.1 ST	0.6 L-P	1 N-Q	5 Q-T	1 R-T	1 N	3 ST	6 V
Blaze	Clover, Red	Legume	0.1 T	0.3 N-P	2 O-Q	8 O-T	1 R-T	1 N	8 K-T	7 UV
GA9909	Clover, Red	Legume	0.2 R-T	1.2 G-P	2 L-Q	11 M-T	1 R-T	1 N	2 ST	11 S-V
VNS	Clover, Red	Legume	0.1 T	0.4 N-P	1 QR	6 P-T	1 R-T	1 N	2 ST	7 UV
VNS	Vetch, Common	Legume	1.0 F-N	3.0 A-C	3 K-Q	45 D-G	4 F-K	8 C-H	12 J-P	18 O-T
AU Merit	Vetch, Hairy	Legume	1.9 A-C	2.5 B-F	8 G-J	85 A	4 I-N	7 D-I	12 J-P	26 F-P
Patagonia Inta	Vetch, Hairy	Legume	1.4 B-H	2.2 B-H	5 J-N	73 AB	4 G-M	6 E-K	15 H-M	30 E-L
Purple Bounty	Vetch, Hairy	Legume	0.9 G-O	1.9 B-I	3 K-P	55 B-D	4 H-M	5 I-L	15 H-K	32 E-K
Villana	Vetch, Hairy	Legume	0.6 L-T	1.6 D-M	2 L-Q	37 D-J	4 G-M	6 F-L	13 I-O	32 D-I
WinterKing	Vetch, Hairy	Legume	1.6 A-E	1.6 D-M	3 K-P	41 D-I	3 J-O	5 H-L	15 H-K	31 E-L
Namoi	Vetch, Woollypod	Legume	1.4 C-I	1.8 B-K	3 M-Q	68 A-C	4 F-K	9 CD	15 H-L	25 F-P
Double OO	Winter Pea	Legume	1.0 F-N	1.8 B-K	7 I-K	32 E-M	4 H-M	6 F-L	12 J-P	36 C-E
Survivor	Winter Pea	Legume	1.0 G-N	2.1 B-I	7 I-K	45 D-F	4 F-L	5 I-L	14 H-N	34 D-G
VNS (1)	Winter Pea	Legume	0.6 L-T	1.9 B-J	7 I-K	33 E-L	4 H-M	5 H-L	9 J-S	29 E-M
VNS (2)	Winter Pea	Legume	0.9 H-P	2.1 B-I	8 H-K	44 D-H	3 K-O	5 I-L	15 H-L	41 B-D
Windham	Winter Pea	Legume	0.7 K-S	1.7 B-L	10 E-J	38 D-J	4 H-M	5 H-L	8 L-T	20 N-S
WyoWinter (1)	Winter Pea	Legume	0.7 K-S	2.0 B-I	5 J-M	37 D-J	4 G-M	5 H-L	12 J-O	30 E-M
WyoWinter (2)	Winter Pea	Legume	0.5 M-T	1.4 E-N	7 H-K	31 E-N	4 F-K	5 I-L	11 J-Q	30 E-M
Average			0.7	1.5	4	31	2	3	9	22
Min			0.1	0.1	0	1	0	1	1	6
Max			1.9	3.0	10	85	4	9	15	41
Range			1.8	2.9	10	83	4	8	14	35

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

Table 7-d. Summary statistics and ANOVA p-values for by location mean biomass, canopy cover, and height of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.

Group	Biomass (DM tons/ac)		Canopy Cover (%)		Height (in)			
	Apr <sup>†</sup>	May	Nov	Feb	Nov	Feb	Apr	May
<b>Brassicac</b>								
Average	0.7	1.7	16	31	4	7	27	31
Min	0.3	0.7	6	11	3	2	6	24
Max	1.1	2.6	30	49	5	10	43	48
Range	0.8	1.9	24	38	3	8	36	24
<b>Cereals</b>								
Average	1.1	2.0	38	30	6	7	24	40
Min	0.1	0.2	4	13	2	1	2	10
Max	2.1	3.9	61	41	8	16	49	64
Range	2.0	3.7	57	27	5	15	47	54
<b>Legumes</b>								
Average	0.7	1.5	4	31	2	3	9	22
Min	0.1	0.1	0	1	0	1	1	6
Max	1.9	3.0	10	85	4	9	15	41
Range	1.8	2.9	10	83	4	8	14	35
<b>Across Groups</b>								
Average	0.8	1.7	18	30	4	5	17	30
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	0.1	0.1	0	1	0	1	1	6
Max	2.1	3.9	61	85	8	16	49	64
Range	2.0	3.8	61	83	7	15	48	58
<b>ANOVA p-values</b>								
- Variety	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
- Variety x Location	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

**Table 8-a. Across location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassicac</b>												
Impact	Collards	Brassica	0.3 Q-V	0.7 X-BB	2.0 Q-S	1.9 N-Q	0.3	0.7	4.7	0.7	1.3	10.3
Extender	Hyb. Brassica	Brassica	0.4 M-S	0.6 Y-BB	1.9 S-W	1.6 P-S	0.3	0.3	4.0	0.0	0.3	5.3
Viva	Hyb. Brassica	Brassica	0.4 L-S	0.9 U-AA	1.9 S-W	1.6 Q-S	0.0	0.7	4.7	0.0	0.3	5.0
Vivant	Hyb. Brassica	Brassica	0.2 S-V	0.4 AA-BB	2.0 Q-T	1.9 M-P	0.0	0.7	3.0	0.0	0.7	6.0
Aerifi	Radish	Brassica	0.5 J-P	1.2 P-W	1.9 ST	1.6 P-R	0.3	1.0	6.0	0.3	0.7	10.3
Digger	Radish	Brassica	0.4 L-S	1.2 Q-X	2.1 P-S	1.8 O-Q	0.3	0.7	5.3	0.0	1.0	10.7
Driller	Radish	Brassica	0.3 P-U	1.0 T-Z	2.0 Q-S	1.8 O-R	0.3	0.7	4.0	0.3	0.7	9.3
SERALPHA	Radish	Brassica	0.5 K-Q	1.3 L-U	1.9 S-U	1.7 P-R	0.3	1.0	6.0	0.0	0.7	11.0
SERWF19	Radish	Brassica	0.6 G-M	1.3 M-U	2.0 Q-S	1.6 P-S	0.3	1.0	7.3	0.0	0.7	7.7
Smart	Radish	Brassica	0.5 J-P	1.2 Q-X	1.9 R-T	1.5 RS	0.3	0.7	5.0	0.0	0.7	7.3
Jackpot	Turnip	Brassica	0.3 P-U	0.8 V-BB	2.0 R-T	1.6 P-S	0.0	0.7	4.0	0.0	0.3	5.3
Average			0.4	1.0	2.0	1.7	0.2	0.7	4.9	0.1	0.7	8.0
Min			0.2	0.4	1.9	1.5	0.0	0.3	3.0	0.0	0.3	5.0
Max			0.6	1.3	2.1	1.9	0.3	1.0	7.3	0.7	1.3	11.0
Range			0.4	0.9	0.2	0.4	0.3	0.7	4.3	0.7	1.0	6.0

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 8-b. Across location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Cereals</b>												
Centurion	Annual Ryegrass	Cereal	0.3 Q-V	1.0 S-Z	1.5 X-AA	1.0 TU	0.0	0.0	2.3	0.0	0.0	3.3
Lowboy	Annual Ryegrass	Cereal	0.1 V	0.4 AA-BB	1.9 ST	1.3 ST	0.0	0.0	0.7	0.0	0.0	2.7
140760	Barley	Cereal	0.4 L-S	1.4 I-U	1.5 X-B	0.9 U-Y	0.0	0.0	1.7	0.0	-0.3	-0.7
140789	Barley	Cereal	0.5 K-Q	1.4 K-U	1.6 W-Z	1.0 U-W	0.0	0.0	2.3	0.0	0.0	1.3
140797	Barley	Cereal	0.4 M-S	1.2 O-W	1.6 U-Y	1.0 UV	0.0	0.0	2.0	0.0	0.0	1.0
SB255	Barley	Cereal	0.4 M-S	1.3 N-V	1.6 V-Z	1.0 U-X	0.0	0.0	2.7	0.0	0.0	1.3
Secretariat	Barley	Cereal	0.4 L-R	1.4 H-T	1.7 T-X	1.0 U-W	0.0	0.0	3.3	0.0	-0.3	1.7
Bates RS4	Cereal Rye	Cereal	1.2 AB	2.3 AB	1.2 AA-CC	0.6 Y	0.0	0.0	0.7	0.0	0.0	-6.0
Elbon (1)	Cereal Rye	Cereal	0.8 D-H	1.9 A-H	1.4 X-C	0.6 Y	0.0	0.0	2.0	0.0	0.0	-5.0
Elbon (2)	Cereal Rye	Cereal	0.6 G-M	1.6 E-Q	1.6 U-Y	0.8 U-Y	0.0	0.7	3.0	0.0	0.0	-2.3
Goku	Cereal Rye	Cereal	0.7 F-K	1.8 B-M	1.4 Y-C	0.8 V-Y	0.0	0.0	1.3	0.0	0.0	-3.7
NF95319B	Cereal Rye	Cereal	1.1 AB	2.1 A-E	1.2 AA-CC	0.7 XY	0.0	0.0	1.0	0.0	0.0	-5.0
NF97325	Cereal Rye	Cereal	1.1 A-C	1.9 A-H	1.2 AA-CC	0.6 Y	0.0	0.0	0.3	0.0	0.0	-5.7
NF99362	Cereal Rye	Cereal	1.0 B-E	1.9 A-I	1.2 AA-CC	0.6 Y	0.0	0.0	1.0	0.0	0.0	-5.0
Wintergrazer 70	Cereal Rye	Cereal	0.9 B-F	1.9 B-K	1.3 AA-CC	0.7 W-Y	0.0	0.0	1.0	0.0	0.0	-4.3
Yankee	Cereal Rye	Cereal	0.3 P-U	1.3 N-V	1.9 S-V	1.0 T-V	0.0	0.0	2.7	0.0	0.0	0.3
Bob	Oat	Cereal	0.6 G-O	1.7 D-P	1.4 X-CC	0.9 U-Y	0.0	0.0	2.7	0.0	-0.7	-1.7
Cosaque	Oat	Cereal	0.6 H-P	1.5 F-R	1.4 Y-CC	0.8 U-Y	0.0	0.0	2.3	0.0	-0.7	0.0
Hilliard	Wheat	Cereal	0.7 G-L	1.8 B-L	1.4 X-CC	0.8 U-Y	0.0	0.0	3.0	0.0	-0.7	-2.0
Liberty 5658	Wheat	Cereal	0.5 I-P	1.4 J-U	1.3 Z-CC	0.9 U-Y	0.0	0.0	2.0	0.0	-0.3	-1.3
<b>Average</b>			0.6	1.6	1.5	0.9	0.0	0.0	1.9	0.0	-0.2	-1.6
<b>Min</b>			0.1	0.4	1.2	0.6	0.0	0.0	0.3	0.0	-0.7	-6.0
<b>Max</b>			1.2	2.3	1.9	1.3	0.0	0.7	3.3	0.0	0.0	3.3
<b>Range</b>			1.1	1.9	0.8	0.7	0.0	0.7	3.0	0.0	0.7	9.3

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacae, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 8-c. Across location mean biomass, percent total nitrogen content<sup>‡</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Legumes</b>												
FIXatioN	Clover, Balansa	Legume	0.3 O-T	1.2 Q-W	3.3 E-G	2.6 IJ	0.7	2.0	12.0	2.0	5.0	36.7
Paradana	Clover, Balansa	Legume	0.2 R-V	0.7 W-BB	2.6 L-N	2.1 K-N	0.0	0.7	4.7	1.0	2.0	15.3
Viper	Clover, Balansa	Legume	0.4 M-S	1.8 D-O	3.1 G-J	2.4 JK	1.0	2.0	13.7	2.7	5.7	45.0
Balady	Clover, Berseem	Legume	0.0 V	0.3 AA-BB	1.6 U-Y	2.2 KL	0.0	0.0	0.5	0.3	0.7	6.7
Frosty	Clover, Berseem	Legume	0.2 R-V	1.1 R-Y	3.0 H-K	2.7 IJ	0.3	0.7	5.0	2.0	4.3	32.0
AU Sunrise	Clover, Crimson	Legume	0.5 K-Q	1.7 D-O	2.7 LM	2.1 K-N	0.7	1.7	11.0	1.7	4.3	32.7
Bolsena	Clover, Crimson	Legume	0.5 J-Q	1.6 E-R	2.9 I-L	2.1 K-N	1.0	2.0	12.7	1.7	3.7	30.3
Dixie	Clover, Crimson	Legume	0.5 K-Q	1.6 E-Q	2.8 K-M	2.2 KL	0.7	1.7	12.0	1.7	4.7	33.3
Kentucky Pride	Clover, Crimson	Legume	0.3 O-T	1.5 F-S	2.8 KL	2.2 KL	0.3	1.3	8.7	1.7	4.3	32.3
SECCM18	Clover, Crimson	Legume	0.5 I-P	2.0 A-F	2.8 J-L	2.2 K-M	0.7	2.0	13.0	2.0	4.7	36.7
White Cloud	Clover, Crimson	Legume	0.3 N-T	1.2 P-W	2.7 K-M	2.0 L-O	0.3	1.3	8.0	1.3	2.7	22.7
Big Red	Clover, Red	Legume	0.1 UV	0.6 Z-BB	2.3 O-Q	2.6 IJ	0.0	0.0	1.3	0.7	2.0	16.3
Blaze	Clover, Red	Legume	0.1 V	0.4 AA-BB	2.3 N-P	2.9 G-I	0.0	0.0	0.7	1.0	2.0	14.0
GA9909	Clover, Red	Legume	0.1 T-V	0.7 W-BB	2.5 M-O	3.0 F-H	0.0	0.3	2.0	1.3	3.3	24.0
VNS	Clover, Red	Legume	0.1 T-V	0.5 Z-BB	2.2 O-R	3.0 F-H	0.0	0.0	1.0	1.0	2.0	17.0
VNS	Vetch, Common	Legume	0.6 G-M	2.2 A-D	3.3 F-H	2.7 IJ	1.3	3.0	18.7	4.0	9.0	70.0
AU Merit	Vetch, Hairy	Legume	1.2 A	2.3 A-C	4.1 A	3.9 A	3.0	7.0	44.3	5.3	12.3	91.7
Patagonia Inta	Vetch, Hairy	Legume	1.0 A-D	1.9 A-I	4.0 A	3.5 BC	2.3	6.3	37.0	3.7	8.3	62.7
Purple Bounty	Vetch, Hairy	Legume	0.8 E-I	1.9 A-H	4.0 A	3.0 F-H	2.0	4.3	29.0	3.0	7.3	53.3
Villana	Vetch, Hairy	Legume	0.7 G-L	1.6 E-R	3.8 A-C	3.5 B	1.7	4.0	25.3	3.3	8.3	61.7
WinterKing	Vetch, Hairy	Legume	1.2 AB	1.8 C-N	3.9 AB	3.4 B-D	3.0	6.3	40.0	3.7	8.3	61.7
Namoi	Vetch, Woollypod	Legume	0.8 C-G	1.5 G-T	3.8 A-C	3.3 B-F	1.7	4.0	27.0	2.7	6.0	46.0
Double OO	Winter Pea	Legume	0.7 G-L	1.8 B-K	3.1 G-I	2.8 HI	1.3	3.0	17.0	2.7	6.7	52.0
Survivor	Winter Pea	Legume	0.8 D-I	2.4 A	3.2 F-H	3.1 E-G	1.7	3.7	22.3	4.0	9.3	70.0
VNS (1)	Winter Pea	Legume	0.7 E-K	1.9 A-J	3.3 E-G	2.9 G-I	1.3	3.7	21.3	3.0	7.0	55.7
VNS (2)	Winter Pea	Legume	0.7 E-K	2.0 A-G	3.6 C-E	3.4 B-E	1.3	4.0	24.3	3.7	9.0	66.0
Windham	Winter Pea	Legume	0.6 G-N	1.8 C-N	3.6 B-D	3.0 F-H	1.3	3.3	19.7	3.0	7.3	56.7
WyoWinter (1)	Winter Pea	Legume	0.6 G-M	1.9 A-H	3.5 D-F	3.2 C-F	1.7	3.3	19.3	3.7	9.0	66.3
WyoWinter (2)	Winter Pea	Legume	0.8 E-J	1.9 A-H	3.3 D-G	3.2 D-G	1.7	4.0	24.7	3.3	8.0	59.3
<b>Average</b>			0.5	1.5	3.1	2.8	1.1	2.6	16.4	2.4	5.8	43.7
<b>Min</b>			0.0	0.3	1.6	2.0	0.0	0.0	0.5	0.3	0.7	6.7
<b>Max</b>			1.2	2.4	4.1	3.9	3.0	7.0	44.3	5.3	12.3	91.7
<b>Range</b>			1.2	2.0	2.4	1.9	3.0	7.0	43.8	5.0	11.7	85.0

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacae, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

Table 8-d. Summary statistics and ANOVA p-values for across location mean biomass, percent total nitrogen content<sup>‡</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.

Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
	Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassic</b>										
Average	0.4	1.0	2.0	1.7	0	1	5	0	1	8
Min	0.2	0.4	1.9	1.5	0	0	3	0	0	5
Max	0.6	1.3	2.1	1.9	0	1	7	1	1	11
Range	0.4	0.9	0.2	0.4	0	1	4	1	1	6
<b>Cereals</b>										
Average	0.6	1.6	1.5	0.9	0	0	2	0	0	-2
Min	0.1	0.4	1.2	0.6	0	0	0	0	-1	-6
Max	1.2	2.3	1.9	1.3	0	1	3	0	0	3
Range	1.1	1.9	0.8	0.7	0	1	3	0	1	9
<b>Legumes</b>										
Average	0.5	1.5	3.1	2.8	1	3	16	2	6	44
Min	0.0	0.3	1.6	2.0	0	0	1	0	1	7
Max	1.2	2.4	4.1	3.9	3	7	44	5	12	92
Range	1.2	2.0	2.4	1.9	3	7	44	5	12	85
<b>Across Groups</b>										
Average	0.5	1.4	2.4	1.9	1	1	9	1	3	22
Standard Error	0.1	0.1	0.1	0.1	0	0	1	0	0	3
Min	0.0	0.3	1.2	0.6	0	0	0	0	-1	-6
Max	1.2	2.4	4.1	3.9	3	7	44	5	12	92
Range	1.2	2.0	2.9	3.3	3	7	44	5	13	98
<b>ANOVA p-values</b>										
- Variety	<0.001	<0.001	<0.001	<0.001						
- Location	<0.001	<0.001	<0.001	<0.001						
- Variety x Location	<0.001	<0.001	<0.001	<0.001						

‡ Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

§ Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.



**Table 9-a. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassic</b>												
Impact	Collards	Brassica	0.2 S-Y	0.6 QR	2.1 J-N	2.1 L-Q	0	1	3	1	2	12
Extender	Hyb. Brassica	Brassica	0.5 I-R	1.0 I-R	2.1 J-P	1.7 N-S	1	1	8	0	1	10
Viva	Hyb. Brassica	Brassica	0.5 K-U	0.8 L-R	1.8 J-Q	1.5 R-U	0	1	5	0	1	6
Vivant	Hyb. Brassica	Brassica	0.3 P-Y	0.5 R	1.9 J-Q	2.1 L-P	0	1	4	0	1	8
Aerifi	Radish	Brassica	0.7 E-L	1.7 B-M	2.2 J-M	1.6 O-S	1	2	11	1	1	17
Digger	Radish	Brassica	0.5 H-R	1.3 E-R	2.1 J-N	1.6 O-S	1	1	8	0	1	13
Driller	Radish	Brassica	0.5 H-R	0.9 K-R	2.2 J-L	1.8 N-S	1	2	8	1	1	12
SERALPHA	Radish	Brassica	0.6 G-P	1.2 E-R	2.3 JK	1.5 Q-T	1	2	9	0	1	11
SERWF19	Radish	Brassica	0.7 D-K	1.7 B-L	2.4 IJ	1.4 R-W	1	2	13	0	1	12
Smart	Radish	Brassica	0.4 K-U	1.2 E-R	2.2 J-M	1.4 S-W	1	1	7	0	1	8
Jackpot	Turnip	Brassica	0.2 P-Y	0.8 L-R	2.1 J-O	1.5 P-V	0	1	4	0	1	7
Average			0.5	1.1	2.1	1.7	1	1	7	0	1	11
Min			0.2	0.5	1.8	1.4	0	1	3	0	1	6
Max			0.7	1.7	2.4	2.1	1	2	13	1	2	17
Range			0.6	1.2	0.6	0.7	1	1	10	1	1	11

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassic, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 9-b. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Cereals</b>												
Centurion	Annual Ryegrass	Cereal	0.4 K-V	1.6 B-N	1.5 O-Q	0.9 W-Y	0	0	3	0	0	2
Lowboy	Annual Ryegrass	Cereal	0.1 W-Y	0.6 P-R	2.2 J-M	1.3 S-X	0	0	1	0	0	4
140760	Barley	Cereal	0.4 K-U	1.2 E-R	1.5 PQ	0.8 W-Y	0	0	2	0	0	-2
140789	Barley	Cereal	0.3 O-Y	1.2 F-R	1.7 K-Q	1.0 T-Y	0	0	2	0	0	1
140797	Barley	Cereal	0.3 N-Y	1.0 H-R	1.7 K-Q	1.0 U-Y	0	0	3	0	0	-2
SB255	Barley	Cereal	0.4 K-V	1.5 C-P	1.6 L-Q	0.9 V-Y	0	0	3	0	0	0
Secretariat	Barley	Cereal	0.4 M-X	1.3 E-R	1.7 J-Q	0.9 T-Y	0	0	3	0	0	1
Bates RS4	Cereal Rye	Cereal	0.8 B-J	1.8 B-K	1.3 Q	0.6 Y	0	0	2	0	0	-6
Elbon (1)	Cereal Rye	Cereal	0.7 F-N	1.7 B-M	1.5 N-Q	0.7 Y	0	0	3	0	0	-4
Elbon (2)	Cereal Rye	Cereal	0.4 K-U	1.4 C-P	1.8 J-Q	0.9 W-Y	0	1	3	0	0	-1
Goku	Cereal Rye	Cereal	0.5 J-T	1.6 B-N	1.6 M-Q	0.8 XY	0	0	2	0	0	-3
NF95319B	Cereal Rye	Cereal	0.9 B-G	1.9 B-G	1.3 Q	0.6 Y	0	0	2	0	0	-6
NF97325	Cereal Rye	Cereal	0.8 C-J	2.0 B-F	1.4 Q	0.7 XY	0	0	2	0	0	-5
NF99362	Cereal Rye	Cereal	0.9 B-I	1.8 B-J	1.3 Q	0.7 Y	0	0	2	0	0	-4
Wintergrazer 70	Cereal Rye	Cereal	1.1 A-D	2.1 B-E	1.3 Q	0.7 Y	0	0	2	0	0	-5
Yankee	Cereal Rye	Cereal	0.2 R-Y	1.1 G-R	2.2 J-M	1.0 T-Y	0	0	3	0	0	0
Bob	Oat	Cereal	0.4 K-U	1.7 B-K	1.5 PQ	0.8 XY	0	0	3	0	-1	-2
Cosaque	Oat	Cereal	0.5 I-S	1.6 B-N	1.3 Q	0.8 XY	0	0	3	0	-1	-2
Hilliard	Wheat	Cereal	0.4 K-U	1.9 B-H	1.5 PQ	0.8 XY	0	0	3	0	-1	-2
Liberty 5658	Wheat	Cereal	0.6 G-N	1.4 D-P	1.4 Q	0.8 XY	0	0	3	0	0	-2
Average			0.5	1.5	1.6	0.8	0	0	3	0	0	-2
Min			0.1	0.6	1.3	0.6	0	0	1	0	-1	-6
Max			1.1	2.1	2.2	1.3	0	1	3	0	0	4
Range			1.0	1.4	0.9	0.6	0	1	2	0	1	10

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 9-c. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr <sup>  </sup>	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Legumes</b>												
FIXatioN	Clover, Balansa	Legume	0.6 H-Q	1.5 C-O	4.0 E-G	2.9 F-J	2	4	23	3	7	50
Paradana	Clover, Balansa	Legume	0.2 Q-Y	1.1 F-R	3.0 HI	2.1 L-O	0	1	6	1	3	23
Viper	Clover, Balansa	Legume	0.5 J-T	1.9 B-F	4.1 E-G	2.6 I-L	2	4	21	3	7	52
Balady	Clover, Berseem	Legume	0.0 Y	0.8 M-R	.	2.2 K-P	.	.	.	1	2	15
Frosty	Clover, Berseem	Legume	0.2 P-Y	1.9 B-H	3.5 GH	3.1 E-I	1	1	7	3	8	59
AU Sunrise	Clover, Crimson	Legume	0.3 O-Y	1.5 C-P	.	2.2 L-O	0	1	6	2	4	28
Bolsena	Clover, Crimson	Legume	0.4 L-W	1.0 G-R	3.0 HI	2.3 K-N	1	2	10	1	3	19
Dixie	Clover, Crimson	Legume	0.2 R-Y	1.6 B-M	.	2.4 J-M	0	1	5	2	5	35
Kentucky Pride	Clover, Crimson	Legume	0.1 W-Y	1.0 J-R	.	2.2 K-O	0	0	1	1	3	20
SECCM18	Clover, Crimson	Legume	0.2 T-Y	1.6 B-N	2.9 HI	2.2 K-N	0	1	4	2	4	28
White Cloud	Clover, Crimson	Legume	0.2 P-Y	0.6 P-R	.	2.0 M-R	0	1	6	1	1	10
Big Red	Clover, Red	Legume	0.1 U-Y	0.8 L-R	.	2.9 G-J	0	0	2	1	3	25
Blaze	Clover, Red	Legume	0.0 V-Y	0.7 O-R	.	3.5 C-F	0	0	0	2	4	27
GA9909	Clover, Red	Legume	0.0 XY	0.8 N-R	.	2.8 H-J	0	0	0	1	3	21
VNS	Clover, Red	Legume	0.0 XY	0.6 P-R	.	3.7 B-D	0	0	0	1	3	25
VNS	Vetch, Common	Legume	0.7 D-K	3.2 A	4.0 E-G	3.2 D-H	2	5	26	7	16	117
AU Merit	Vetch, Hairy	Legume	1.3 A	1.9 B-G	4.4 B-E	4.3 A	4	9	48	5	11	84
Patagonia Inta	Vetch, Hairy	Legume	1.1 A-E	1.5 C-P	5.3 A	4.3 A	4	10	56	4	8	62
Purple Bounty	Vetch, Hairy	Legume	0.8 C-J	1.6 B-N	4.7 A-D	2.8 H-K	3	6	36	2	5	34
Villana	Vetch, Hairy	Legume	0.9 B-H	1.8 B-I	4.9 A-C	4.4 A	3	7	42	5	11	84
WinterKing	Vetch, Hairy	Legume	1.2 AB	1.6 B-O	4.4 C-E	4.1 AB	4	8	47	4	9	67
Namoi	Vetch, Woollypod	Legume	0.6 F-O	1.4 E-Q	5.1 AB	3.9 A-C	2	5	31	3	7	55
Double OO	Winter Pea	Legume	0.7 F-M	1.9 B-I	3.7 FG	3.4 C-G	2	4	22	4	9	67
Survivor	Winter Pea	Legume	0.9 B-G	2.4 AB	4.1 D-G	3.7 B-D	3	6	34	4	10	76
VNS (1)	Winter Pea	Legume	0.8 B-J	2.0 B-E	4.0 E-G	3.9 A-C	2	5	30	4	10	77
VNS (2)	Winter Pea	Legume	1.0 A-F	2.3 B-D	4.8 A-C	3.6 B-E	3	8	46	4	10	75
Windham	Winter Pea	Legume	0.6 G-N	1.9 B-H	4.2 D-F	3.6 B-E	2	4	25	4	10	75
WyoWinter (1)	Winter Pea	Legume	0.8 B-J	2.3 A-C	4.4 C-E	4.1 AB	3	6	34	6	14	101
WyoWinter (2)	Winter Pea	Legume	1.1 A-C	1.8 B-J	4.1 D-F	3.8 A-C	3	7	41	4	9	68
Average			0.5	1.6	4.1	3.2	2	4	22	3	7	51
Min			0.0	0.6	2.9	2.0	0	0	0	1	1	10
Max			1.3	3.2	5.3	4.4	4	10	56	7	16	117
Range			1.3	2.6	2.4	2.4	4	10	56	6	15	107

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers across all entries and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacs, cereals, legumes). Mean values for top performers within each functional group are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

<sup>||</sup> Entries with missing values did not have enough biomass to grind and analyze using NIRS. For entries with missing values for N content at RECM, mean N content across the remaining locations was used to estimate N release.

Table 9-d. Summary statistics and ANOVA p-values for by location mean biomass, percent total nitrogen content<sup>‡</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee AgResearch and Education Center at Milan in Milan, TN during 2019-2020.

Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
	Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassicas</b>										
Average	0.5	1.1	2.1	1.7	1	1	7	0	1	11
Min	0.2	0.5	1.8	1.4	0	1	3	0	1	6
Max	0.7	1.7	2.4	2.1	1	2	13	1	2	17
Range	0.6	1.2	0.6	0.7	1	1	10	1	1	11
<b>Cereals</b>										
Average	0.5	1.5	1.6	0.8	0	0	3	0	0	-2
Min	0.1	0.6	1.3	0.6	0	0	1	0	-1	-6
Max	1.1	2.1	2.2	1.3	0	1	3	0	0	4
Range	1.0	1.4	0.9	0.6	0	1	2	0	1	10
<b>Legumes</b>										
Average	0.5	1.6	4.1	3.2	2	4	22	3	7	51
Min	0.0	0.6	2.9	2.0	0	0	0	1	1	10
Max	1.3	3.2	5.3	4.4	4	10	56	7	16	117
Range	1.3	2.6	2.4	2.4	4	10	56	6	15	107
<b>Across Groups</b>										
Average	0.5	1.5	2.7	2.1	1	2	13	1	3	26
Standard Error	0.1	0.3	0.2	0.2	0	0	2	0	1	4
Min	0.0	0.5	1.3	0.6	0	0	0	0	-1	-6
Max	1.3	3.2	5.3	4.4	4	10	56	7	16	117
Range	1.3	2.7	4.0	3.7	4	10	56	7	17	123
<b>ANOVA p-values</b>										
- Variety	<0.001	<0.001	<0.001	<0.001						

‡ Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

§ Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 10-a. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education Center at Spring Hill, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassicac</b>												
Impact	Collards	Brassica	0.6 L-T	0.7 J-P	1.8 O-X	1.8 M-P	0	0	1	0	0	2
Extender	Hyb. Brassica	Brassica	0.5 M-T	1.3 F-O	2.0 N-U	1.7 O-Q	0	0	0	0	0	2
Viva	Hyb. Brassica	Brassica	0.0 TU	0.2 VW	1.9 N-V	2.0 L-O	0	0	0	0	0	3
Vivant	Hyb. Brassica	Brassica	0.0 U	0.2 VW	1.9 N-W	2.0 L-O	0	0	0	0	0	3
Aerifi	Radish	Brassica	0.1 R-U	0.2 U-W	2.1 L-R	2.0 K-O	0	0	1	0	1	4
Digger	Radish	Brassica	0.0 TU	0.2 VW	2.3 J-N	2.3 G-M	0	0	0	0	1	4
Driller	Radish	Brassica	0.0 U	0.2 VW	2.1 L-Q	2.2 I-O	0	0	0	0	0	3
SERALPHA	Radish	Brassica	0.1 R-U	0.1 W	1.7 P-Y	2.1 J-O	0	0	0	0	0	2
SERWF19	Radish	Brassica	0.1 R-U	0.2 T-W	1.9 N-U	2.2 H-O	0	0	1	0	1	5
Smart	Radish	Brassica	0.0 U	0.1 W	2.0 M-S	1.8 M-P	0	0	0	0	0	2
Jackpot	Turnip	Brassica	0.1 S-U	0.2 VW	1.8 N-W	1.9 M-P	0	0	0	0	0	2
<b>Average</b>			0.1	0.3	2.0	2.0	0	0	0	0	0	3
<b>Min</b>			0.0	0.1	1.7	1.7	0	0	0	0	0	2
<b>Max</b>			0.6	1.3	2.3	2.3	0	0	1	0	1	5
<b>Range</b>			0.6	1.2	0.6	0.6	0	0	1	0	1	3

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 10-b By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education Center at Spring Hill, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Cereals</b>												
Centurion	Annual Ryegrass	Cereal	0.1 R-U	0.7 P-V	1.7 Q-Y	1.2 RS	0	0	1	0	0	4
Lowboy	Annual Ryegrass	Cereal	0.0 U	0.3 T-W	1.9 N-U	1.4 P-R	0	0	0	0	0	2
140760	Barley	Cereal	0.2 M-U	0.9 L-S	1.9 N-W	1.1 RS	0	0	2	0	0	2
140789	Barley	Cereal	0.1 R-U	0.7 O-U	1.8 N-W	1.1 RS	0	0	1	0	0	2
140797	Barley	Cereal	0.1 P-U	1.0 J-R	2.0 N-T	1.2 RS	0	0	1	0	0	5
SB255	Barley	Cereal	0.2 L-U	1.1 I-Q	1.8 O-X	1.1 RS	0	0	2	0	0	3
Secretariat	Barley	Cereal	0.2 M-U	1.3 G-N	1.9 N-W	1.2 RS	0	0	2	0	0	5
Bates RS4	Cereal Rye	Cereal	0.6 A-H	1.3 G-M	1.3 Y	0.7 S	0	0	1	0	0	-3
Elbon (1)	Cereal Rye	Cereal	0.3 K-S	1.2 H-P	1.5 T-Y	0.7 S	0	0	1	0	0	-3
Elbon (2)	Cereal Rye	Cereal	0.4 E-M	1.4 F-M	1.8 O-X	0.8 S	0	1	3	0	0	-2
Goku	Cereal Rye	Cereal	0.4 F-N	1.5 E-J	1.5 U-Y	0.8 S	0	0	2	0	0	-2
NF95319B	Cereal Rye	Cereal	0.7 A-D	1.7 C-H	1.3 Y	0.9 S	0	0	2	0	0	-1
NF97325	Cereal Rye	Cereal	0.5 B-J	1.6 D-I	1.3 XY	0.7 S	0	0	1	0	0	-4
NF99362	Cereal Rye	Cereal	0.5 C-K	1.3 G-M	1.4 W-Y	0.7 S	0	0	2	0	0	-3
Wintergrazer 70	Cereal Rye	Cereal	0.5 E-K	1.4 F-L	1.4 V-Y	0.7 S	0	0	1	0	0	-3
Yankee	Cereal Rye	Cereal	0.1 R-U	0.8 M-S	2.1 M-S	1.2 Q-S	0	0	1	0	0	2
Bob	Oat	Cereal	0.3 K-S	1.0 J-R	1.6 R-Y	1.0 RS	0	0	2	0	0	3
Cosaque	Oat	Cereal	0.2 L-U	0.9 K-R	1.7 P-Y	1.1 RS	0	0	2	0	0	3
Hilliard	Wheat	Cereal	0.3 I-Q	1.2 G-O	1.6 S-Y	1.0 RS	0	0	2	0	0	2
Liberty 5658	Wheat	Cereal	0.5 E-L	1.1 I-P	1.4 V-Y	1.1 RS	0	0	2	0	0	2
Average			0.3	1.1	1.6	1.0	0	0	2	0	0	1
Min			0.0	0.3	1.3	0.7	0	0	0	0	0	-4
Max			0.7	1.7	2.1	1.4	0	1	3	0	0	5
Range			0.7	1.4	0.8	0.8	0	1	3	0	0	9

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacs, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 10-c. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education Center at Spring Hill, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Legumes</b>												
FIXatioN	Clover, Balansa	Legume	0.2 M-U	0.9 M-S	2.8 F-I	2.6 E-I	0	1	4	1	4	27
Paradana	Clover, Balansa	Legume	0.1 N-U	0.6 Q-W	2.5 I-M	2.2 I-O	0	0	3	1	2	12
Viper	Clover, Balansa	Legume	0.1 O-U	0.8 N-T	2.2 K-O	2.2 I-O	0	0	2	1	2	17
Balady	Clover, Berseem	Legume	0.0 U	0.1 W	1.6 R-Y	1.8 N-P	0	0	0	0	0	2
Frosty	Clover, Berseem	Legume	0.3 J-R	1.1 I-P	2.9 E-I	2.6 E-I	0	1	6	2	4	29
AU Sunrise	Clover, Crimson	Legume	0.5 E-L	2.0 B-E	2.6 G-K	2.3 G-N	1	2	9	2	6	42
Bolsena	Clover, Crimson	Legume	0.6 A-G	2.2 A-C	2.7 F-J	2.1 I-O	1	2	13	2	5	41
Dixie	Clover, Crimson	Legume	0.6 A-I	2.1 A-D	3.0 D-H	2.3 G-M	1	2	14	2	6	44
Kentucky Pride	Clover, Crimson	Legume	0.7 A-C	2.5 AB	3.0 C-G	2.3 G-N	1	3	19	3	7	55
SECCM18	Clover, Crimson	Legume	0.5 B-I	2.0 A-D	2.9 E-I	2.3 G-N	1	2	13	2	6	43
White Cloud	Clover, Crimson	Legume	0.4 E-M	1.9 C-F	2.9 E-I	2.2 I-O	1	2	10	2	5	39
Big Red	Clover, Red	Legume	0.1 Q-U	0.4 S-W	1.7 P-Y	2.4 F-L	0	0	0	0	1	8
Blaze	Clover, Red	Legume	0.0 U	0.2 VW	2.0 M-S	2.6 E-K	0	0	0	0	1	5
GA9909	Clover, Red	Legume	0.0 U	0.3 T-W	2.1 K-P	3.0 B-E	0	0	0	0	1	9
VNS	Clover, Red	Legume	0.2 M-U	0.5 R-W	2.2 K-O	2.8 D-G	0	0	2	1	2	15
VNS	Vetch, Common	Legume	0.2 N-U	0.5 R-W	2.5 H-L	2.6 E-J	0	1	3	1	2	14
AU Merit	Vetch, Hairy	Legume	0.5 B-J	2.5 AB	3.5 AB	3.5 AB	1	3	15	5	13	92
Patagonia Inta	Vetch, Hairy	Legume	0.6 A-E	2.0 A-E	3.7 A	3.5 AB	1	4	20	4	10	75
Purple Bounty	Vetch, Hairy	Legume	0.6 A-F	2.2 A-C	3.4 A-C	3.3 B-D	1	3	18	4	10	72
Villana	Vetch, Hairy	Legume	0.6 A-G	1.4 F-K	3.5 AB	3.9 A	1	3	18	3	9	65
WinterKing	Vetch, Hairy	Legume	0.8 A	2.1 A-C	3.7 A	3.4 A-C	2	5	25	4	10	74
Namoi	Vetch, Woollypod	Legume	0.6 A-I	1.2 G-O	3.1 B-F	2.9 C-F	1	2	14	2	5	37
Double OO	Winter Pea	Legume	0.3 H-P	1.9 C-F	3.1 B-F	2.5 E-K	1	2	9	2	6	47
Survivor	Winter Pea	Legume	0.5 D-K	2.5 A	3.1 B-G	2.9 C-F	1	2	13	4	10	75
VNS (1)	Winter Pea	Legume	0.8 AB	1.8 C-G	3.3 A-E	2.9 C-F	1	4	22	3	7	53
VNS (2)	Winter Pea	Legume	0.3 K-T	1.6 D-I	3.1 B-F	3.5 AB	0	1	7	3	9	63
Windham	Winter Pea	Legume	0.5 D-K	1.7 C-H	3.3 A-E	2.7 D-H	1	3	14	2	6	47
WyoWinter (1)	Winter Pea	Legume	0.3 G-O	1.5 E-J	3.4 A-D	3.4 A-C	1	2	10	3	8	56
WyoWinter (2)	Winter Pea	Legume	0.6 A-E	2.5 AB	3.2 B-F	2.9 C-F	1	3	18	4	10	71
Average			0.4	1.5	2.9	2.7	1	2	10	2	6	42
Min			0.0	0.1	1.6	1.8	0	0	0	0	0	2
Max			0.8	2.5	3.7	3.9	2	5	25	5	13	92
Range			0.8	2.4	2.1	2.1	2	5	25	5	13	90

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

‡ Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

§ Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

Table 10-d. Summary statistics and ANOVA p-values for by location mean biomass, percent total nitrogen content<sup>‡</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee Middle Tennessee AgResearch and Education Center at Spring Hill, TN during 2019-2020.

Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
	Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassicacae</b>										
Average	0.1	0.3	2.0	2.0	0	0	0	0	0	3
Min	0.0	0.1	1.7	1.7	0	0	0	0	0	2
Max	0.6	1.3	2.3	2.3	0	0	1	0	1	5
Range	0.6	1.2	0.6	0.6	0	0	1	0	1	3
<b>Cereals</b>										
Average	0.3	1.1	1.6	1.0	0	0	2	0	0	1
Min	0.0	0.3	1.3	0.7	0	0	0	0	0	-4
Max	0.7	1.7	2.1	1.4	0	1	3	0	0	5
Range	0.7	1.4	0.8	0.8	0	1	3	0	0	9
<b>Legumes</b>										
Average	0.4	1.5	2.9	2.7	1	2	10	2	6	42
Min	0.0	0.1	1.6	1.8	0	0	0	0	0	2
Max	0.8	2.5	3.7	3.9	2	5	25	5	13	92
Range	0.8	2.4	2.1	2.1	2	5	25	5	13	90
<b>Across Groups</b>										
Average	0.3	1.1	2.3	2.0	0	1	6	1	3	21
Standard Error	0.1	0.3	0.2	0.2	0	0	1	0	0	3
Min	0.0	0.1	1.3	0.7	0	0	0	0	0	-4
Max	0.8	2.5	3.7	3.9	2	5	25	5	13	92
Range	0.8	2.4	2.4	3.2	2	5	25	5	13	96
<b>ANOVA p-values</b>										
- Variety	<0.001	<0.001	<0.001	<0.001						

† Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

§ Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.



**Table 11-a. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May. Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassicac</b>												
Impact	Collards	Brassica	0.6 L-T	0.7 J-P	2.1 L-O	1.7 M-O	1	1	10	1	2	17
Extender	Hyb. Brassica	Brassica	0.5 M-T	1.3 F-O	1.6 O-U	1.4 O-Q	0	0	4	0	0	4
Viva	Hyb. Brassica	Brassica	0.8 I-Q	1.7 C-L	1.9 M-Q	1.2 P-U	0	1	9	0	0	6
Vivant	Hyb. Brassica	Brassica	0.3 Q-T	0.7 K-P	2.2 K-N	1.6 N-P	0	1	5	0	1	7
Aerifi	Radish	Brassica	0.8 J-R	1.8 B-K	1.6 O-U	1.3 O-S	0	1	6	0	0	10
Digger	Radish	Brassica	0.7 K-R	2.1 B-I	1.9 M-Q	1.4 O-Q	0	1	8	0	1	15
Driller	Radish	Brassica	0.4 N-T	1.8 B-K	1.7 N-R	1.4 O-R	0	0	4	0	1	13
SERALPHA	Radish	Brassica	0.9 H-P	2.6 B-D	1.8 N-R	1.4 O-Q	0	1	9	0	1	20
SERWF19	Radish	Brassica	1.0 F-N	2.0 B-I	1.7 N-S	1.1 Q-V	0	1	8	0	0	6
Smart	Radish	Brassica	1.1 E-L	2.2 B-H	1.6 O-T	1.3 O-S	0	1	8	0	1	12
Jackpot	Turnip	Brassica	0.7 K-S	1.3 F-O	2.0 M-P	1.3 O-Q	0	1	8	0	0	7
<b>Average</b>			0.7	1.7	1.8	1.4	0	1	7	0	1	11
<b>Min</b>			0.3	0.7	1.6	1.1	0	0	4	0	0	4
<b>Max</b>			1.1	2.6	2.2	1.7	1	1	10	1	2	20
<b>Range</b>			0.8	1.9	0.6	0.5	1	1	6	1	2	16

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

‡ Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

§ Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 11-b. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Cereals</b>												
Centurion	Annual Ryegrass	Cereal	0.3 P-T	0.7 K-P	1.5 P-V	1.1 Q-V	0	0	3	0	0	4
Lowboy	Annual Ryegrass	Cereal	0.1 T	0.2 OP	1.7 N-R	1.3 O-T	0	0	1	0	0	2
140760	Barley	Cereal	0.7 K-R	2.0 B-I	1.1 V-X	0.8 U-W	0	0	1	0	-1	-2
140789	Barley	Cereal	1.1 E-L	2.2 B-I	1.2 S-X	0.9 R-W	0	0	4	0	0	1
140797	Barley	Cereal	0.7 J-R	1.7 B-L	1.2 T-X	0.9 R-W	0	0	2	0	0	0
SB255	Barley	Cereal	0.6 L-T	1.2 G-P	1.4 Q-W	0.9 S-W	0	0	3	0	0	1
Secretariat	Barley	Cereal	0.8 I-R	1.7 C-M	1.5 Q-V	0.8 T-W	0	0	5	0	-1	-1
Bates RS4	Cereal Rye	Cereal	2.1 A	3.9 A	1.0 WX	0.5 W	0	0	-1	0	0	-9
Elbon (1)	Cereal Rye	Cereal	1.5 B-G	2.9 AB	1.2 S-X	0.5 W	0	0	2	0	0	-8
Elbon (2)	Cereal Rye	Cereal	1.0 E-M	2.1 B-I	1.3 R-X	0.7 W	0	0	3	0	0	-4
Goku	Cereal Rye	Cereal	1.2 D-K	2.3 B-H	1.0 V-X	0.6 W	0	0	0	0	0	-6
NF95319B	Cereal Rye	Cereal	1.7 A-D	2.7 B-D	0.9 X	0.5 W	0	0	-1	0	0	-8
NF97325	Cereal Rye	Cereal	2.0 AB	2.3 B-H	0.9 X	0.5 W	0	0	-2	0	0	-8
NF99362	Cereal Rye	Cereal	1.5 A-F	2.6 B-E	0.9 X	0.5 W	0	0	-1	0	0	-8
Wintergrazer 70	Cereal Rye	Cereal	1.3 D-J	2.1 B-I	1.0 V-X	0.7 W	0	0	0	0	0	-5
Yankee	Cereal Rye	Cereal	0.7 J-R	1.9 B-I	1.5 P-V	0.9 S-W	0	0	4	0	0	-1
Bob	Oat	Cereal	1.1 E-M	2.5 B-F	1.1 V-X	0.7 VW	0	0	3	0	-1	-6
Cosaque	Oat	Cereal	0.9 G-O	2.0 B-I	1.1 U-X	0.8 U-W	0	0	2	0	-1	-1
Hilliard	Wheat	Cereal	1.2 D-K	2.3 B-H	1.2 R-X	0.7 VW	0	0	4	0	-1	-6
Liberty 5658	Wheat	Cereal	0.6 L-T	1.6 D-M	1.1 V-X	0.7 VW	0	0	1	0	-1	-4
<b>Average</b>			1.1	2.0	1.2	0.8	0	0	2	0	0	-3
<b>Min</b>			0.1	0.2	0.9	0.5	0	0	-2	0	-1	-9
<b>Max</b>			2.1	3.9	1.7	1.3	0	0	5	0	0	4
<b>Range</b>			2.0	3.7	0.9	0.8	0	0	7	0	1	13

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacs, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>§</sup> Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 11-c. By location mean biomass, percent total nitrogen content<sup>†</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
			Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Legumes</b>												
FIXatioN	Clover, Balansa	Legume	0.3 Q-T	1.2 G-P	3.1 C-G	2.4 E-J	0	1	9	2	4	33
Paradana	Clover, Balansa	Legume	0.2 R-T	0.5 M-P	2.3 J-M	2.1 I-M	0	1	5	1	1	11
Viper	Clover, Balansa	Legume	0.6 L-T	2.6 B-E	3.1 D-H	2.4 D-I	1	2	18	4	8	66
Balady	Clover, Berseem	Legume	0.1 T	0.1 P	1.7 O-T	2.7 C-F	0	0	1	0	0	3
Frosty	Clover, Berseem	Legume	0.1 ST	0.3 N-P	2.6 G-K	2.3 F-L	0	0	2	1	1	8
AU Sunrise	Clover, Crimson	Legume	0.7 J-R	1.7 C-L	2.8 F-J	2.0 L-N	1	2	18	1	3	28
Bolsena	Clover, Crimson	Legume	0.6 L-T	1.7 B-L	2.9 D-I	2.0 I-M	1	2	15	2	3	31
Dixie	Clover, Crimson	Legume	0.8 J-R	1.2 G-P	2.6 G-K	2.0 I-N	1	2	17	1	3	21
Kentucky Pride	Clover, Crimson	Legume	0.2 Q-T	1.0 I-P	2.6 H-K	2.2 H-L	0	1	6	1	3	22
SECCM18	Clover, Crimson	Legume	0.9 G-O	2.3 B-G	2.7 G-J	2.0 K-N	1	3	22	2	4	39
White Cloud	Clover, Crimson	Legume	0.4 O-T	1.1 H-P	2.5 I-L	1.9 L-N	0	1	8	1	2	19
Big Red	Clover, Red	Legume	0.1 ST	0.6 L-P	2.7 G-J	2.6 C-H	0	0	2	1	2	16
Blaze	Clover, Red	Legume	0.1 T	0.3 N-P	2.7 G-K	2.7 C-E	0	0	2	1	1	10
GA9909	Clover, Red	Legume	0.2 R-T	1.2 G-P	2.8 E-I	3.3 B	0	1	6	3	6	42
VNS	Clover, Red	Legume	0.1 T	0.4 N-P	2.3 J-M	2.6 C-H	0	0	1	1	1	11
VNS	Vetch, Common	Legume	1.0 F-N	3.0 A-C	3.2 C-F	2.2 G-L	2	3	27	4	9	79
AU Merit	Vetch, Hairy	Legume	1.9 A-C	2.5 B-F	4.3 A	3.9 A	4	9	70	6	13	99
Patagonia Inta	Vetch, Hairy	Legume	1.4 B-H	2.2 B-H	3.1 D-H	2.7 C-F	2	5	35	3	7	51
Purple Bounty	Vetch, Hairy	Legume	0.9 G-O	1.9 B-I	3.9 AB	2.9 BC	2	4	33	3	7	54
Villana	Vetch, Hairy	Legume	0.6 L-T	1.6 D-M	3.1 C-G	2.4 E-K	1	2	16	2	5	36
WinterKing	Vetch, Hairy	Legume	1.6 A-E	1.6 D-M	3.6 BC	2.8 CD	3	6	48	3	6	44
Namoi	Vetch, Woollypod	Legume	1.4 C-I	1.8 B-K	3.3 C-E	2.9 BC	2	5	36	3	6	46
Double OO	Winter Pea	Legume	1.0 F-N	1.8 B-K	2.6 I-L	2.3 F-L	1	3	20	2	5	42
Survivor	Winter Pea	Legume	1.0 G-N	2.1 B-I	2.6 I-L	2.7 C-F	1	3	20	4	8	59
VNS (1)	Winter Pea	Legume	0.6 L-T	1.9 B-J	2.5 I-L	2.0 J-N	1	2	12	2	4	37
VNS (2)	Winter Pea	Legume	0.9 H-P	2.1 B-I	2.8 F-I	3.0 BC	1	3	20	4	8	60
Windham	Winter Pea	Legume	0.7 K-S	1.7 B-L	3.4 B-D	2.6 C-G	1	3	20	3	6	48
WyoWinter (1)	Winter Pea	Legume	0.7 K-S	2.0 B-I	2.6 G-K	2.2 G-L	1	2	14	2	5	42
WyoWinter (2)	Winter Pea	Legume	0.5 M-T	1.4 E-N	2.7 F-J	2.8 C-E	1	2	15	2	5	39
Average			0.7	1.5	2.9	2.5	1	2	18	2	5	38
Min			0.1	0.1	1.7	1.9	0	0	1	0	0	3
Max			1.9	3.0	4.3	3.9	4	9	70	6	13	99
Range			1.8	2.9	2.7	2.0	4	9	69	6	13	96

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacs, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

‡ Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

§ Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

Table 11-d. Summary statistics and ANOVA p-values for by location mean biomass, percent total nitrogen content<sup>‡</sup>, and estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at the University of Tennessee East Tennessee AgResearch and Education Center in Knoxville, TN during 2019-2020.

Group	Biomass (DM tons/ac)		Total Nitrogen (%)		Estimated N Released: Apr. Term. (lbs/ac)			Estimated N Released: May Term. (lbs/ac)		
	Apr <sup>†</sup>	May	Apr	May	2 wks.	4 wks.	12 wks.	2 wks.	4 wks.	12 wks.
<b>Brassicac</b>										
Average	0.7	1.7	1.8	1.4	0	1	7	0	1	11
Min	0.3	0.7	1.6	1.1	0	0	4	0	0	4
Max	1.1	2.6	2.2	1.7	1	1	10	1	2	20
Range	0.8	1.9	0.6	0.5	1	1	6	1	2	16
<b>Cereals</b>										
Average	1.1	2.0	1.2	0.8	0	0	2	0	0	-3
Min	0.1	0.2	0.9	0.5	0	0	-2	0	-1	-9
Max	2.1	3.9	1.7	1.3	0	0	5	0	0	4
Range	2.0	3.7	0.9	0.8	0	0	7	0	1	13
<b>Legumes</b>										
Average	0.7	1.5	2.9	2.5	1	2	18	2	5	38
Min	0.1	0.1	1.7	1.9	0	0	1	0	0	3
Max	1.9	3.0	4.3	3.9	4	9	70	6	13	99
Range	1.8	2.9	2.7	2.0	4	9	69	6	13	96
<b>Across Groups</b>										
Average	0.8	1.7	2.1	1.7	0	1	11	1	2	19
Standard Error	0.1	0.3	0.1	0.1	0	0	2	0	0	3
Min	0.1	0.1	0.9	0.5	0	0	-2	0	-1	-9
Max	2.1	3.9	4.3	3.9	4	9	70	6	13	99
Range	2.0	3.8	3.4	3.5	4	9	72	6	14	108
<b>ANOVA p-values</b>										
- Variety	<0.001	<0.001	<0.001	<0.001						

‡ Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

§ Estimated using quality constituents from NIRS inputted into the UGA cover crop nitrogen calculator.

**Table 12-a. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)							
			Apr <sup>†</sup>				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicac</b>										
Impact	Collards	Brassica	0.3 Q-V	0.2 S-Y	0.6 L-T	0.6 L-T	0.7 X-BB	0.6 QR	0.7 J-P	0.7 J-P
Extender	Hyb. Brassica	Brassica	0.4 M-S	0.5 I-R	0.5 M-T	0.5 M-T	0.6 Y-BB	1.0 I-R	1.3 F-O	1.3 F-O
Viva	Hyb. Brassica	Brassica	0.4 L-S	0.5 K-U	0.0 TU	0.8 I-Q	0.9 U-AA	0.8 L-R	0.2 VW	1.7 C-L
Vivant	Hyb. Brassica	Brassica	0.2 S-V	0.3 P-Y	0.0 U	0.3 Q-T	0.4 AA-BB	0.5 R	0.2 VW	0.7 K-P
Aerifi	Radish	Brassica	0.5 J-P	0.7 E-L	0.1 R-U	0.8 J-R	1.2 P-W	1.7 B-M	0.2 U-W	1.8 B-K
Digger	Radish	Brassica	0.4 L-S	0.5 H-R	0.0 TU	0.7 K-R	1.2 Q-X	1.3 E-R	0.2 VW	2.1 B-I
Driller	Radish	Brassica	0.3 P-U	0.5 H-R	0.0 U	0.4 N-T	1.0 T-Z	0.9 K-R	0.2 VW	1.8 B-K
SERALPHA	Radish	Brassica	0.5 K-Q	0.6 G-P	0.1 R-U	0.9 H-P	1.3 L-U	1.2 E-R	0.1 W	2.6 B-D
SERWF19	Radish	Brassica	0.6 G-M	0.7 D-K	0.1 R-U	1.0 F-N	1.3 M-U	1.7 B-L	0.2 T-W	2.0 B-I
Smart	Radish	Brassica	0.5 J-P	0.4 K-U	0.0 U	1.1 E-L	1.2 Q-X	1.2 E-R	0.1 W	2.2 B-H
Jackpot	Turnip	Brassica	0.3 P-U	0.2 P-Y	0.1 S-U	0.7 K-S	0.8 V-BB	0.8 L-R	0.2 VW	1.3 F-O
Average			0.4	0.5	0.1	0.7	1.0	1.1	0.3	1.7
Min			0.2	0.2	0.0	0.3	0.4	0.5	0.1	0.7
Max			0.6	0.7	0.6	1.1	1.3	1.7	1.3	2.6
Range			0.4	0.6	0.6	0.8	0.9	1.2	1.2	1.9

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 12-b. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)							
			Apr <sup>†</sup>				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	0.3 Q-V	0.4 K-V	0.1 R-U	0.3 P-T	1.0 S-Z	1.6 B-N	0.7 P-V	0.7 K-P
Lowboy	Annual Ryegrass	Cereal	0.1 V	0.1 W-Y	0.0 U	0.1 T	0.4 AA-BB	0.6 P-R	0.3 T-W	0.2 OP
140760	Barley	Cereal	0.4 L-S	0.4 K-U	0.2 M-U	0.7 K-R	1.4 I-U	1.2 E-R	0.9 L-S	2.0 B-I
140789	Barley	Cereal	0.5 K-Q	0.3 O-Y	0.1 R-U	1.1 E-L	1.4 K-U	1.2 F-R	0.7 O-U	2.2 B-I
140797	Barley	Cereal	0.4 M-S	0.3 N-Y	0.1 P-U	0.7 J-R	1.2 O-W	1.0 H-R	1.0 J-R	1.7 B-L
SB255	Barley	Cereal	0.4 M-S	0.4 K-V	0.2 L-U	0.6 L-T	1.3 N-V	1.5 C-P	1.1 I-Q	1.2 G-P
Secretariat	Barley	Cereal	0.4 L-R	0.4 M-X	0.2 M-U	0.8 I-R	1.4 H-T	1.3 E-R	1.3 G-N	1.7 C-M
Bates RS4	Cereal Rye	Cereal	1.2 AB	0.8 B-J	0.6 A-H	2.1 A	2.3 AB	1.8 B-K	1.3 G-M	3.9 A
Elbon (1)	Cereal Rye	Cereal	0.8 D-H	0.7 F-N	0.3 K-S	1.5 B-G	1.9 A-H	1.7 B-M	1.2 H-P	2.9 AB
Elbon (2)	Cereal Rye	Cereal	0.6 G-M	0.4 K-U	0.4 E-M	1.0 E-M	1.6 E-Q	1.4 C-P	1.4 F-M	2.1 B-I
Goku	Cereal Rye	Cereal	0.7 F-K	0.5 J-T	0.4 F-N	1.2 D-K	1.8 B-M	1.6 B-N	1.5 E-J	2.3 B-H
NF95319B	Cereal Rye	Cereal	1.1 AB	0.9 B-G	0.7 A-D	1.7 A-D	2.1 A-E	1.9 B-G	1.7 C-H	2.7 B-D
NF97325	Cereal Rye	Cereal	1.1 A-C	0.8 C-J	0.5 B-J	2.0 AB	1.9 A-H	2.0 B-F	1.6 D-I	2.3 B-H
NF99362	Cereal Rye	Cereal	1.0 B-E	0.9 B-I	0.5 C-K	1.5 A-F	1.9 A-I	1.8 B-J	1.3 G-M	2.6 B-E
Wintergrazer 70	Cereal Rye	Cereal	0.9 B-F	1.1 A-D	0.5 E-K	1.3 D-J	1.9 B-K	2.1 B-E	1.4 F-L	2.1 B-I
Yankee	Cereal Rye	Cereal	0.3 P-U	0.2 R-Y	0.1 R-U	0.7 J-R	1.3 N-V	1.1 G-R	0.8 M-S	1.9 B-I
Bob	Oat	Cereal	0.6 G-O	0.4 K-U	0.3 K-S	1.1 E-M	1.7 D-P	1.7 B-K	1.0 J-R	2.5 B-F
Cosaque	Oat	Cereal	0.6 H-P	0.5 I-S	0.2 L-U	0.9 G-O	1.5 F-R	1.6 B-N	0.9 K-R	2.0 B-I
Hilliard	Wheat	Cereal	0.7 G-L	0.4 K-U	0.3 I-Q	1.2 D-K	1.8 B-L	1.9 B-H	1.2 G-O	2.3 B-H
Liberty 5658	Wheat	Cereal	0.5 I-P	0.6 G-N	0.5 E-L	0.6 L-T	1.4 J-U	1.4 D-P	1.1 I-P	1.6 D-M
Average			0.6	0.5	0	1	2	2	1	2
Min			0.1	0.1	0	0	0	1	0	0
Max			1.2	1.1	1	2	2	2	2	4
Range			1.1	1.0	1	2	2	1	1	4

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 12-c. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Biomass (DM tons/ac)							
			Apr <sup>†</sup>				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Legumes</b>										
FIXationN	Clover, Balansa	Legume	0.3 O-T	0.6 H-Q	0.2 M-U	0.3 Q-T	1.2 Q-W	1.5 C-O	0.9 M-S	1.2 G-P
Paradana	Clover, Balansa	Legume	0.2 R-V	0.2 Q-Y	0.1 N-U	0.2 R-T	0.7 W-BB	1.1 F-R	0.6 Q-W	0.5 M-P
Viper	Clover, Balansa	Legume	0.4 M-S	0.5 J-T	0.1 O-U	0.6 L-T	1.8 D-O	1.9 B-F	0.8 N-T	2.6 B-E
Balady	Clover, Berseem	Legume	0.0 V	0.0 Y	0.0 U	0.1 T	0.3 AA-BB	0.8 M-R	0.1 W	0.1 P
Frosty	Clover, Berseem	Legume	0.2 R-V	0.2 P-Y	0.3 J-R	0.1 ST	1.1 R-Y	1.9 B-H	1.1 I-P	0.3 N-P
AU Sunrise	Clover, Crimson	Legume	0.5 K-Q	0.3 O-Y	0.5 E-L	0.7 J-R	1.7 D-O	1.5 C-P	2.0 B-E	1.7 C-L
Bolsena	Clover, Crimson	Legume	0.5 J-Q	0.4 L-W	0.6 A-G	0.6 L-T	1.6 E-R	1.0 G-R	2.2 A-C	1.7 B-L
Dixie	Clover, Crimson	Legume	0.5 K-Q	0.2 R-Y	0.6 A-I	0.8 J-R	1.6 E-Q	1.6 B-M	2.1 A-D	1.2 G-P
Kentucky Pride	Clover, Crimson	Legume	0.3 O-T	0.1 W-Y	0.7 A-C	0.2 Q-T	1.5 F-S	1.0 J-R	2.5 AB	1.0 I-P
SECCM18	Clover, Crimson	Legume	0.5 I-P	0.2 T-Y	0.5 B-I	0.9 G-O	2.0 A-F	1.6 B-N	2.0 A-D	2.3 B-G
White Cloud	Clover, Crimson	Legume	0.3 N-T	0.2 P-Y	0.4 E-M	0.4 O-T	1.2 P-W	0.6 P-R	1.9 C-F	1.1 H-P
Big Red	Clover, Red	Legume	0.1 UV	0.1 U-Y	0.1 Q-U	0.1 ST	0.6 Z-BB	0.8 L-R	0.4 S-W	0.6 L-P
Blaze	Clover, Red	Legume	0.1 V	0.0 V-Y	0.0 U	0.1 T	0.4 AA-BB	0.7 O-R	0.2 VW	0.3 N-P
GA9909	Clover, Red	Legume	0.1 T-V	0.0 XY	0.0 U	0.2 R-T	0.7 W-BB	0.8 N-R	0.3 T-W	1.2 G-P
VNS	Clover, Red	Legume	0.1 T-V	0.0 XY	0.2 M-U	0.1 T	0.5 Z-BB	0.6 P-R	0.5 R-W	0.4 N-P
VNS	Vetch, Common	Legume	0.6 G-M	0.7 D-K	0.2 N-U	1.0 F-N	2.2 A-D	3.2 A	0.5 R-W	3.0 A-C
AU Merit	Vetch, Hairy	Legume	1.2 A	1.3 A	0.5 B-J	1.9 A-C	2.3 A-C	1.9 B-G	2.5 AB	2.5 B-F
Patagonia Inta	Vetch, Hairy	Legume	1.0 A-D	1.1 A-E	0.6 A-E	1.4 B-H	1.9 A-I	1.5 C-P	2.0 A-E	2.2 B-H
Purple Bounty	Vetch, Hairy	Legume	0.8 E-I	0.8 C-J	0.6 A-F	0.9 G-O	1.9 A-H	1.6 B-N	2.2 A-C	1.9 B-I
Villana	Vetch, Hairy	Legume	0.7 G-L	0.9 B-H	0.6 A-G	0.6 L-T	1.6 E-R	1.8 B-I	1.4 F-K	1.6 D-M
WinterKing	Vetch, Hairy	Legume	1.2 AB	1.2 AB	0.8 A	1.6 A-E	1.8 C-N	1.6 B-O	2.1 A-C	1.6 D-M
Namoi	Vetch, Woollypod	Legume	0.8 C-G	0.6 F-O	0.6 A-I	1.4 C-I	1.5 G-T	1.4 E-Q	1.2 G-O	1.8 B-K
Double OO	Winter Pea	Legume	0.7 G-L	0.7 F-M	0.3 H-P	1.0 F-N	1.8 B-K	1.9 B-I	1.9 C-F	1.8 B-K
Survivor	Winter Pea	Legume	0.8 D-I	0.9 B-G	0.5 D-K	1.0 G-N	2.4 A	2.4 AB	2.5 A	2.1 B-I
VNS (1)	Winter Pea	Legume	0.7 E-K	0.8 B-J	0.8 AB	0.6 L-T	1.9 A-J	2.0 B-E	1.8 C-G	1.9 B-J
VNS (2)	Winter Pea	Legume	0.7 E-K	1.0 A-F	0.3 K-T	0.9 H-P	2.0 A-G	2.3 B-D	1.6 D-I	2.1 B-I
Windham	Winter Pea	Legume	0.6 G-N	0.6 G-N	0.5 D-K	0.7 K-S	1.8 C-N	1.9 B-H	1.7 C-H	1.7 B-L
WyoWinter (1)	Winter Pea	Legume	0.6 G-M	0.8 B-J	0.3 G-O	0.7 K-S	1.9 A-H	2.3 A-C	1.5 E-J	2.0 B-I
WyoWinter (2)	Winter Pea	Legume	0.8 E-J	1.1 A-C	0.6 A-E	0.5 M-T	1.9 A-H	1.8 B-J	2.5 AB	1.4 E-N
Average			0.5	0.5	0	1	2	2	1	2
Min			0.0	0.0	0	0	0	1	0	0
Max			1.2	1.3	1	2	2	3	3	3
Range			1.2	1.3	1	2	2	3	2	3

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 12-d. Summary statistics for location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Group	Biomass (DM tons/ac)							
	Apr <sup>†</sup>				May			
	Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicac</b>								
Average	0.4	0.5	0	1	1	1	0	2
Min	0.2	0.2	0	0	0	0	0	1
Max	0.6	0.7	1	1	1	2	1	3
Range	0.4	0.6	1	1	1	1	1	2
<b>Cereals</b>								
Average	0.6	0.5	0	1	2	2	1	2
Min	0.1	0.1	0	0	0	1	0	0
Max	1.2	1.1	1	2	2	2	2	4
Range	1.1	1.0	1	2	2	1	1	4
<b>Legumes</b>								
Average	0.5	0.5	0	1	2	2	1	2
Min	0.0	0.0	0	0	0	1	0	0
Max	1.2	1.3	1	2	2	3	3	3
Range	1.2	1.3	1	2	2	3	2	3
<b>Across Groups</b>								
Average	0.5	0.5	0	1	1	1	1	2
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	0.0	0.0	0	0	0	0	0	0
Max	1.2	1.3	1	2	2	3	3	4
Range	1.2	1.3	1	2	2	3	2	4



**Table 13-a. Location comparison of mean cover of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Canopy Cover (%)							
			Nov				Feb			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicac</b>										
Impact	Collards	Brassica	4 O-R	2 S-X	3 W-Z	6 J-O	13 M-Q	18 M-V	11 S-W	11 N-T
Extender	Hyb. Brassica	Brassica	4 L-P	3 L-U	3 YZ	6 J-L	15 L-P	21 J-R	9 VW	15 K-T
Viva	Hyb. Brassica	Brassica	14 E-H	6 F-Q	6 M-W	30 A-E	29 E-G	36 GH	12 R-W	39 D-I
Vivant	Hyb. Brassica	Brassica	10 H-K	6 C-N	5 T-Z	18 F-J	17 H-O	21 K-S	12 R-W	18 J-T
Aerifi	Radish	Brassica	11 G-J	5 I-R	5 S-Z	23 A-G	24 E-K	18 M-U	10 U-W	44 D-H
Digger	Radish	Brassica	10 F-I	6 D-N	4 S-Z	18 C-I	24 E-K	23 I-P	10 T-W	39 D-I
Driller	Radish	Brassica	7 H-L	5 E-Q	5 R-Z	11 I-K	23 E-L	36 GH	11 S-W	24 H-R
SERALPHA	Radish	Brassica	7 I-N	4 J-S	3 Z	15 E-J	27 E-G	22 J-Q	8 W	49 C-E
SERWF19	Radish	Brassica	8 H-K	4 G-Q	3 YZ	17 D-I	24 E-L	21 J-Q	11 S-W	38 D-J
Smart	Radish	Brassica	14 D-G	10 A-J	12 I-R	21 B-I	25 E-I	27 G-M	10 VW	38 D-J
Jackpot	Turnip	Brassica	8 H-L	9 B-L	4 W-Z	11 J-L	16 K-O	15 N-W	10 U-W	23 I-S
Average			8.8	5.5	5	16	21	23	10	31
Min			3.8	2.0	3	6	13	15	8	11
Max			14.3	9.7	12	30	29	36	12	49
Range			10.4	7.7	9	24	16	21	4	38

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 13-b. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Canopy Cover (%)							
			Nov				Feb			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	4 K-P	3 L-U	5 N-Y	4 J-O	26 E-G	34 G-I	20 M-R	23 I-S
Lowboy	Annual Ryegrass	Cereal	3 N-Q	2 S-X	4 V-Z	4 J-O	16 J-O	21 J-Q	13 P-W	13 L-T
140760	Barley	Cereal	23 A-D	18 AB	8 I-R	42 A-D	23 E-L	23 J-P	14 P-W	33 E-L
140789	Barley	Cereal	24 A-D	15 A-E	11 D-L	47 A-D	27 E-G	21 K-R	21 M-Q	39 D-I
140797	Barley	Cereal	28 A-C	19 A-C	13 C-J	53 AB	27 E-G	26 G-M	19 M-U	37 D-J
SB255	Barley	Cereal	22 A-D	14 A-F	15 A-D	38 A-D	22 G-M	22 J-Q	21 M-R	22 I-S
Secretariat	Barley	Cereal	15 C-E	13 A-G	10 D-L	22 A-H	22 F-L	24 I-O	18 M-V	25 F-Q
Bates RS4	Cereal Rye	Cereal	33 A	17 A-C	21 A	61 A	26 E-G	22 J-Q	20 M-S	37 D-J
Elbon (1)	Cereal Rye	Cereal	28 A-C	14 A-H	14 A-G	57 A	26 E-G	24 I-N	19 M-S	35 D-K
Elbon (2)	Cereal Rye	Cereal	29 AB	16 A-D	19 AB	52 A-C	26 E-G	26 H-M	26 J-M	27 F-O
Goku	Cereal Rye	Cereal	25 A-C	16 A-D	18 A-C	41 A-D	22 E-L	20 K-T	19 M-T	28 F-N
NF95319B	Cereal Rye	Cereal	26 A-C	12 A-I	20 AB	46 A-D	25 E-J	29 G-L	22 M-P	22 I-S
NF97325	Cereal Rye	Cereal	20 B-E	11 B-M	14 A-G	36 A-D	26 E-G	19 L-T	19 M-T	38 D-I
NF99362	Cereal Rye	Cereal	24 A-C	14 A-F	15 A-D	43 A-D	25 E-G	24 I-O	20 M-S	33 E-L
Wintergrazer 70	Cereal Rye	Cereal	21 A-D	11 A-J	14 A-F	38 A-D	24 E-K	24 I-N	19 M-U	29 E-N
Yankee	Cereal Rye	Cereal	30 AB	22 A	15 A-E	52 A-C	22 E-L	19 K-T	18 M-V	30 E-N
Bob	Oat	Cereal	22 A-D	18 AB	10 D-L	39 A-D	26 E-G	23 I-P	15 N-W	41 D-I
Cosaque	Oat	Cereal	23 A-D	16 A-D	14 B-I	39 A-D	25 E-H	21 J-Q	16 N-W	39 D-I
Hilliard	Wheat	Cereal	16 B-E	11 A-I	10 D-K	27 A-F	26 E-G	22 J-Q	25 J-M	29 E-N
Liberty 5658	Wheat	Cereal	15 C-F	10 A-K	14 A-H	21 B-I	23 E-L	23 I-P	22 M-Q	24 G-R
Average			21.6	13.5	13	38	24	23	19	30
Min			3.4	1.8	4	4	16	19	13	13
Max			32.8	22.4	21	61	27	34	26	41
Range			29.5	20.6	16	57	11	15	13	27

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 13-c. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Canopy Cover (%)							
			Nov				Feb			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Legumes</b>										
FIXation	Clover, Balansa	Legume	3 ST	1 V-Z	9 J-S	0 RS	12 N-Q	10 T-X	21 M-R	7 O-T
Paradana	Clover, Balansa	Legume	2 TU	0 (-A)	5 O-Y	0 ST	9 O-Q	10 S-X	13 P-W	3 ST
Viper	Clover, Balansa	Legume	2 ST	0 Z-A	6 M-W	1 PQ	16 I-O	10 S-X	18 M-V	21 I-T
Balady	Clover, Berseem	Legume	1 U	1 X-A	2 (-A)	0 T	5 Q	3 X	9 VW	1 T
Frosty	Clover, Berseem	Legume	2 T	1 V-Z	4 T-Z	0 ST	13 N-Q	12 Q-X	22 M-Q	4 R-T
AU Sunrise	Clover, Crimson	Legume	6 I-M	3 N-V	8 I-R	7 I-K	27 E-G	15 N-W	36 F-H	31 E-N
Bolsena	Clover, Crimson	Legume	5 I-N	3 L-U	7 I-R	5 J-M	26 E-G	19 L-T	36 F-H	22 I-S
Dixie	Clover, Crimson	Legume	6 H-L	4 H-R	7 J-T	6 J-L	23 E-L	10 S-X	34 F-K	25 F-P
Kentucky Pride	Clover, Crimson	Legume	5 J-O	3 M-V	8 I-Q	4 J-O	24 E-K	11 R-X	33 F-L	30 E-N
SECCM18	Clover, Crimson	Legume	7 I-N	2 P-V	9 F-M	10 I-K	28 E-G	13 P-X	39 E-G	32 E-L
White Cloud	Clover, Crimson	Legume	6 I-L	3 L-U	9 E-M	6 J-L	21 G-N	13 O-X	34 F-J	15 K-T
Big Red	Clover, Red	Legume	3 Q-S	1 W-A	6 O-Y	1 N-Q	7 PQ	6 WX	11 S-W	5 Q-T
Blaze	Clover, Red	Legume	3 O-R	2 O-V	5 P-Y	2 O-Q	9 O-Q	8 U-X	13 Q-W	8 O-T
GA9909	Clover, Red	Legume	3 RS	0 Z-A	5 M-X	2 L-Q	11 O-Q	7 WX	14 P-W	11 M-T
VNS	Clover, Red	Legume	3 RS	4 U-Y	4 W-Z	1 QR	9 O-Q	7 V-X	15 O-W	6 P-T
VNS	Vetch, Common	Legume	4 M-Q	2 Q-W	5 Q-Y	3 K-Q	27 E-G	30 G-K	8 W	45 D-G
AU Merit	Vetch, Hairy	Legume	7 I-N	3 R-X	8 H-O	8 G-J	75 A	72 AB	69 A	85 A
Patagonia Inta	Vetch, Hairy	Legume	5 I-N	4 K-T	7 J-T	5 J-N	71 A	77 A	61 AB	73 AB
Purple Bounty	Vetch, Hairy	Legume	3 P-R	1 T-X	4 X-Z	3 K-P	50 BC	47 EF	49 CD	55 B-D
Villana	Vetch, Hairy	Legume	2 P-S	2 S-X	4 U-Z	2 L-Q	40 D	48 E	35 F-I	37 D-J
WinterKing	Vetch, Hairy	Legume	3 M-Q	2 N-V	4 T-Z	3 K-P	53 B	65 BC	53 BC	41 D-I
Namoi	Vetch, Woollypod	Legume	3 RS	0 Y-A	5 Q-Y	3 M-Q	52 B	63 B-D	26 I-M	68 A-C
Double OO	Winter Pea	Legume	7 G-K	6 D-O	8 I-R	7 I-K	31 E	37 FG	24 K-N	32 E-M
Survivor	Winter Pea	Legume	7 G-K	5 F-Q	9 G-N	7 I-K	46 B-D	60 CD	32 G-L	45 D-F
VNS (1)	Winter Pea	Legume	6 H-L	3 L-U	8 I-P	7 I-K	41 D	48 E	42 D-F	33 E-L
VNS (2)	Winter Pea	Legume	7 G-K	6 D-N	6 L-V	8 H-K	43 CD	61 CD	24 L-O	44 D-H
Windham	Winter Pea	Legume	7 G-J	4 G-Q	8 I-R	10 E-J	31 EF	32 G-J	22 M-Q	38 D-J
WyoWinter (1)	Winter Pea	Legume	5 H-L	4 G-Q	7 K-U	5 J-M	40 D	56 C-E	27 H-M	37 D-J
WyoWinter (2)	Winter Pea	Legume	7 G-J	5 E-P	9 E-M	7 H-K	43 CD	53 DE	46 C-E	31 E-N
Average			4.4	2.6	6	4	31	31	30	31
Min			1.0	0.2	2	0	5	3	8	1
Max			7.3	5.6	9	10	75	77	69	85
Range			6.4	5.4	7	10	71	74	62	83

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 13-d. Summary statistics for location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Group	Canopy Cover (%)							
	Nov				Feb			
	Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicacae</b>								
Average	8.8	5.5	5	16	21	23	10	31
Min	3.8	2.0	3	6	13	15	8	11
Max	14.3	9.7	12	30	29	36	12	49
Range	10.4	7.7	9	24	16	21	4	38
<b>Cereals</b>								
Average	21.6	13.5	13	38	24	23	19	30
Min	3.4	1.8	4	4	16	19	13	13
Max	32.8	22.4	21	61	27	34	26	41
Range	29.5	20.6	16	57	11	15	13	27
<b>Legumes</b>								
Average	4.4	2.6	6	4	31	31	30	31
Min	1.0	0.2	2	0	5	3	8	1
Max	7.3	5.6	9	10	75	77	69	85
Range	6.4	5.4	7	10	71	74	62	83
<b>Across Groups</b>								
Average	10.9	6.8	8	18	27	27	23	30
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	1.0	0.2	2	0	5	3	8	1
Max	32.8	22.4	21	61	75	77	69	85
Range	31.9	22.2	19	61	71	74	62	83

**Table 14-a. Location comparison of mean height in Nov. and Feb. of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Height (in)							
			Nov				Feb			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicac</b>										
Impact	Collards	Brassica	2 Q-S	2 I-L	1 N-S	3 M-O	2 S-U	1 J	2 G-I	2 MN
Extender	Hyb. Brassica	Brassica	2 Q-S	2 H-K	1 N-R	3 N-P	4 H-M	2 IJ	1 I	10 BC
Viva	Hyb. Brassica	Brassica	2 N-Q	2 H-L	1 N-S	4 F-L	3 M-R	3 F-I	1 I	6 G-L
Vivant	Hyb. Brassica	Brassica	2 N-Q	2 HI	1 N-S	4 I-N	3 Q-S	3 G-I	1 I	4 K-M
Aerifi	Radish	Brassica	2 N-P	2 H-J	1 O-S	5 F-I	5 E-J	5 C-F	1 I	9 CD
Digger	Radish	Brassica	3 M-O	2 HI	1 N-S	5 E-H	5 G-K	5 D-G	1 I	9 C-E
Driller	Radish	Brassica	2 P-R	2 HI	1 O-S	3 L-O	3 M-R	3 F-I	1 I	6 F-L
SERALPHA	Radish	Brassica	3 M-O	2 H	1 N-S	4 F-K	5 E-H	5 C-E	1 I	9 CD
SERWF19	Radish	Brassica	2 N-P	2 HI	1 O-S	4 F-J	5 F-K	6 C-E	1 I	8 C-H
Smart	Radish	Brassica	3 MN	2 HI	1 O-S	5 D-F	4 H-N	3 F-I	1 I	8 C-G
Jackpot	Turnip	Brassica	2 O-Q	2 HI	1 N-S	3 K-O	4 L-R	3 F-I	2 G-I	5 H-L
Average			2.3	2.1	1	4	4	4	1	7
Min			1.9	1.8	1	3	2	1	1	2
Max			2.7	2.4	1	5	5	6	2	10
Range			0.8	0.6	1	3	4	5	1	8

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 14-b. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Height (in)							
			Nov				Feb			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	4 J-L	4 G	4 G-K	4 I-N	4 H-N	6 B-D	2 G-I	5 J-L
Lowboy	Annual Ryegrass	Cereal	3 M	4 G	3 M	2 O-Q	1 U	1 J	1 I	1 N
140760	Barley	Cereal	5 D-G	5 A-C	4 H-L	6 BC	5 E-H	5 C-E	5 B-E	6 G-L
140789	Barley	Cereal	5 GH	5 A-E	4 H-K	6 CD	5 G-L	3 G-I	4 D-F	7 D-J
140797	Barley	Cereal	5 B-G	5 A	5 F-J	7 A-C	5 G-K	5 C-F	4 D-F	5 H-L
SB255	Barley	Cereal	5 D-G	5 AB	5 E-I	6 CD	4 K-Q	3 G-I	4 D-F	4 K-M
Secretariat	Barley	Cereal	4 I-K	4 E-G	4 K-M	5 D-G	4 H-N	5 C-F	4 C-F	4 L-N
Bates RS4	Cereal Rye	Cereal	6 AB	5 A-E	5 C-G	8 A	10 A	7 A-C	6 AB	16 A
Elbon (1)	Cereal Rye	Cereal	5 C-G	5 A-E	5 F-J	7 A-C	4 I-O	4 E-H	3 E-G	5 I-L
Elbon (2)	Cereal Rye	Cereal	5 C-G	5 A-E	5 C-H	6 BC	3 M-R	1 J	4 C-F	5 I-L
Goku	Cereal Rye	Cereal	6 A-D	5 A-D	5 C-F	7 A-C	6 DE	5 C-E	5 B-E	9 C-F
NF95319B	Cereal Rye	Cereal	6 A	5 A-E	6 AB	7 AB	8 BC	8 AB	6 A	10 BC
NF97325	Cereal Rye	Cereal	6 A-C	5 A	5 D-I	7 AB	9 AB	8 A	5 A-D	12 B
NF99362	Cereal Rye	Cereal	5 B-F	5 A-E	6 B-D	6 B-D	7 CD	6 B-D	6 A-D	9 CD
Wintergrazer 70	Cereal Rye	Cereal	6 A-C	5 AB	6 A-C	6 BC	9 AB	8 A	6 A	12 B
Yankee	Cereal Rye	Cereal	5 B-E	4 B-G	5 C-H	7 AB	3 O-S	2 IJ	1 HI	5 H-L
Bob	Oat	Cereal	5 F-H	4 B-G	5 D-I	6 C-E	6 DE	6 B-D	5 A-D	7 D-I
Cosaque	Oat	Cereal	5 F-H	5 A-E	5 F-J	6 C-E	5 E-I	5 C-E	5 B-E	6 H-L
Hilliard	Wheat	Cereal	5 D-G	5 A-E	5 F-J	6 BC	6 DE	6 C-E	6 A-C	7 D-I
Liberty 5658	Wheat	Cereal	5 B-G	4 A-F	5 C-F	6 BC	6 D-G	6 B-D	6 A-C	6 H-L
<b>Average</b>			5.1	4.4	5	6	5	5	4	7
<b>Min</b>			3.0	3.8	3	2	1	1	1	1
<b>Max</b>			6.0	4.9	6	8	10	8	6	16
<b>Range</b>			2.9	1.1	3	5	9	7	5	15

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 14-c. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Height (in)							
			Nov				Feb			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Legumes</b>										
FIXationN	Clover, Balansa	Legume	0 Y	0 QR	0 RS	0 T	1 U	1 J	1 I	1 N
Paradana	Clover, Balansa	Legume	1 W-Y	0 R	1 P-S	1 R-T	1 U	1 J	1 I	1 N
Viper	Clover, Balansa	Legume	0 XY	0 R	1 P-S	0 ST	1 U	1 J	1 I	1 N
Balady	Clover, Berseem	Legume	1 U-W	1 O-Q	0 S	2 P-R	1 U	1 J	1 I	1 N
Frosty	Clover, Berseem	Legume	1 U-X	0 P-R	1 O-S	1 Q-S	1 TU	1 J	2 G-I	1 N
AU Sunrise	Clover, Crimson	Legume	1 TU	1 M-O	1 N-R	1 Q-S	1 U	1 J	1 I	1 N
Bolsena	Clover, Crimson	Legume	1 T-V	1 L-O	1 N-Q	1 R-T	1 U	1 J	1 I	1 N
Dixie	Clover, Crimson	Legume	1 TU	2 K-M	1 N-S	1 R-T	1 U	1 J	1 I	1 N
Kentucky Pride	Clover, Crimson	Legume	1 T-V	1 M-O	1 N-P	1 R-T	1 U	1 J	1 I	1 N
SECCM18	Clover, Crimson	Legume	2 R-T	1 L-N	2 N	1 Q-S	2 S-U	1 J	3 E-G	1 N
White Cloud	Clover, Crimson	Legume	1 ST	2 J-M	2 NO	1 R-T	1 U	1 J	1 I	1 N
Big Red	Clover, Red	Legume	1 U-W	1 O-Q	1 N-S	1 R-T	1 U	1 J	1 I	1 N
Blaze	Clover, Red	Legume	1 V-Y	1 O-Q	1 Q-S	1 R-T	1 U	1 J	1 I	1 N
GA9909	Clover, Red	Legume	1 U-W	1 N-P	1 O-S	1 R-T	1 U	1 J	1 I	1 N
VNS	Clover, Red	Legume	1 U-Y	1 O-Q	1 O-S	1 R-T	1 U	1 J	1 I	1 N
VNS	Vetch, Common	Legume	4 I-K	4 B-G	4 I-L	4 F-K	5 E-H	5 C-E	3 F-H	8 C-H
AU Merit	Vetch, Hairy	Legume	4 IJ	4 D-G	5 C-G	4 I-N	6 D-F	5 C-E	5 A-D	7 D-I
Patagonia Inta	Vetch, Hairy	Legume	4 HI	4 D-G	6 B-E	4 G-M	5 F-K	4 E-H	4 B-E	6 E-K
Purple Bounty	Vetch, Hairy	Legume	4 I-K	4 B-G	5 E-I	4 H-M	3 N-R	1 J	3 E-G	5 I-L
Villana	Vetch, Hairy	Legume	4 I-K	4 B-G	4 G-K	4 G-M	4 K-Q	1 J	4 D-F	6 F-L
WinterKing	Vetch, Hairy	Legume	4 IJ	4 G	6 B-E	3 J-O	4 H-N	3 F-I	4 B-E	5 H-L
Namoi	Vetch, Woollypod	Legume	5 E-H	4 E-G	7 A	4 F-K	7 D	7 A-C	4 C-F	9 CD
Double OO	Winter Pea	Legume	4 KL	4 C-G	3 LM	4 H-M	3 O-R	1 J	2 G-I	6 F-L
Survivor	Winter Pea	Legume	4 I-K	4 A-F	4 H-L	4 F-L	3 O-R	1 J	3 E-G	5 I-L
VNS (1)	Winter Pea	Legume	4 J-L	4 G	4 I-L	4 H-M	4 L-R	2 IJ	3 E-G	5 H-L
VNS (2)	Winter Pea	Legume	4 L	4 FG	4 K-M	3 K-O	3 Q-S	2 IJ	1 I	5 I-L
Windham	Winter Pea	Legume	4 IJ	4 A-F	5 E-I	4 H-M	2 R-T	1 J	1 I	5 H-L
WyoWinter (1)	Winter Pea	Legume	4 J-L	4 B-G	4 J-M	4 G-M	3 P-S	1 J	2 G-I	5 H-L
WyoWinter (2)	Winter Pea	Legume	4 I-K	4 B-G	4 I-L	4 F-K	4 J-P	2 H-J	5 B-E	5 I-L
Average			2.5	2.5	3	2	2	2	2	3
Min			0.3	0.2	0	0	1	1	1	1
Max			4.9	4.4	7	4	7	7	5	9
Range			4.6	4.2	6	4	6	6	4	8

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 14-d. Summary statistics for location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Group	Height (in)							
	Nov				Feb			
	Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicacae</b>								
Average	2.3	2.1	1	4	4	4	1	7
Min	1.9	1.8	1	3	2	1	1	2
Max	2.7	2.4	1	5	5	6	2	10
Range	0.8	0.6	1	3	4	5	1	8
<b>Cereals</b>								
Average	5.1	4.4	5	6	5	5	4	7
Min	3.0	3.8	3	2	1	1	1	1
Max	6.0	4.9	6	8	10	8	6	16
Range	2.9	1.1	3	5	9	7	5	15
<b>Legumes</b>								
Average	2.5	2.5	3	2	2	2	2	3
Min	0.3	0.2	0	0	1	1	1	1
Max	4.9	4.4	7	4	7	7	5	9
Range	4.6	4.2	6	4	6	6	4	8
<b>Across Groups</b>								
Average	3.3	3.1	3	4	4	3	3	5
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	0.3	0.2	0	0	1	1	1	1
Max	6.0	4.9	7	8	10	8	6	16
Range	5.6	4.7	6	7	9	7	5	15



**Table 15-a. Location comparison of mean height in Apr. and May. of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Height (in)							
			Apr				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicac</b>										
Impact	Collards	Brassica	20 D	24 C-E	10 L-P	25 FG	24 H-L	25 E-L	13 L-O	33 D-H
Extender	Hyb. Brassica	Brassica	4 T-X	3 ST	3 W-Y	6 N-T	21 K-Q	28 D-H	2 ST	32 E-K
Viva	Hyb. Brassica	Brassica	25 C	24 C-E	13 H-L	36 B-D	31 E	34 D	13 L-O	48 B
Vivant	Hyb. Brassica	Brassica	13 H-M	13 I-M	6 Q-X	20 G-I	22 H-O	27 D-J	5 Q-T	34 D-F
Aerifi	Radish	Brassica	18 D-F	21 E-G	5 S-Y	28 EF	19 M-R	26 D-K	2 ST	28 E-N
Digger	Radish	Brassica	19 DE	19 F-H	11 K-O	29 D-F	18 N-R	26 D-K	5 Q-T	24 H-Q
SERALPHA	Radish	Brassica	18 D-F	21 E-G	8 N-V	25 FG	17 P-R	26 D-K	1 T	25 G-P
SERWF19	Radish	Brassica	19 D-F	23 D-F	3 W-Y	31 C-F	17 P-R	24 F-M	1 T	27 F-O
Smart	Radish	Brassica	21 D	22 D-F	6 P-X	34 C-E	20 L-Q	26 D-K	4 R-T	29 E-M
Driller	Radish	Brassica	25 C	26 CD	5 R-Y	43 AB	23 H-N	28 D-H	11 M-Q	30 E-L
Jackpot	Turnip	Brassica	21 D	22 D-F	17 D-H	24 FG	24 H-L	27 D-I	7 O-T	37 C-E
Average			18.4	19.8	8	27	21	27	6	31
Min			3.9	2.7	3	6	17	24	1	24
Max			24.6	26.0	17	43	31	34	13	48
Range			20.7	23.3	14	36	14	10	12	24

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicac, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 15-b. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Height (in)							
			Apr				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	8 N-R	8 N-R	9 L-R	8 L-T	21 J-P	30 D-F	16 H-M	17 P-T
Lowboy	Annual Ryegrass	Cereal	3 V-X	3 R-T	4 W-Y	2 ST	11 TU	16 M-R	8 O-S	10 T-V
140760	Barley	Cereal	11 K-O	9 L-P	10 K-P	12 J-P	23 H-O	25 D-L	21 E-K	22 L-R
140789	Barley	Cereal	7 P-T	5 O-T	6 P-X	9 J-S	20 L-Q	20 H-Q	15 J-N	25 G-P
140797	Barley	Cereal	9 N-Q	7 N-S	8 N-V	11 J-R	23 H-M	24 F-M	16 I-M	30 E-M
SB255	Barley	Cereal	13 H-M	13 I-M	10 L-P	16 H-K	23 H-M	26 D-K	21 E-K	23 K-R
Secretariat	Barley	Cereal	11 J-N	12 I-N	9 M-S	12 J-O	20 L-Q	18 K-R	18 F-L	23 I-Q
Bates RS4	Cereal Rye	Cereal	33 AB	29 BC	21 B-E	49 A	53 BC	55 B	43 C	62 A
Elbon (1)	Cereal Rye	Cereal	25 C	22 D-F	17 D-G	35 C-E	57 AB	61 AB	48 BC	63 A
Elbon (2)	Cereal Rye	Cereal	21 D	14 H-K	18 B-F	30 C-F	54 BC	56 AB	48 BC	58 A
Goku	Cereal Rye	Cereal	26 C	21 D-F	18 C-G	37 BC	54 BC	53 BC	48 BC	63 A
NF95319B	Cereal Rye	Cereal	32 B	31 AB	22 AB	43 AB	56 A-C	60 AB	48 BC	60 A
NF97325	Cereal Rye	Cereal	32 B	28 BC	21 B-D	48 A	59 A	60 AB	54 AB	64 A
NF99362	Cereal Rye	Cereal	27 C	23 D-F	22 A-C	37 BC	52 C	45 C	50 AB	61 A
Wintergrazer 70	Cereal Rye	Cereal	36 A	36 A	26 A	46 A	60 A	64 A	55 A	61 A
Yankee	Cereal Rye	Cereal	10 L-P	9 M-Q	9 M-T	13 I-O	40 D	46 C	31 D	44 BC
Cosaque	Oat	Cereal	13 I-M	11 J-N	11 J-N	16 H-J	30 EF	33 DE	24 EF	33 D-H
Bob	Oat	Cereal	10 K-O	10 K-O	9 M-T	13 H-O	19 L-R	22 F-O	16 I-M	21 M-R
Hilliard	Wheat	Cereal	16 E-H	14 H-L	14 G-K	20 GH	26 F-I	24 F-M	22 E-I	32 E-J
Liberty 5658	Wheat	Cereal	16 F-I	16 HI	17 D-H	14 H-M	26 F-H	29 D-G	24 E-G	26 F-P

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacs, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 15-c. Location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Height (in)							
			Apr				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Legumes</b>										
FIXation	Clover, Balansa	Legume	5 R-X	4 Q-T	7 O-W	4 P-T	20 L-Q	24 F-M	17 G-L	19 N-S
Paradana	Clover, Balansa	Legume	4 S-X	5 O-T	5 Q-Y	2 ST	10 UV	11 RS	9 N-R	9 T-V
Viper	Clover, Balansa	Legume	6 Q-V	5 P-T	5 S-Y	8 K-T	15 R-T	14 O-R	12 L-P	18 O-T
Balady	Clover, Berseem	Legume	2 X	1 T	4 V-Y	1 T	6 V	4 S	1 T	14 R-V
Frosty	Clover, Berseem	Legume	7 P-T	9 M-Q	8 N-U	4 Q-T	18 O-R	25 D-L	18 F-L	11 S-V
AU Sunrise	Clover, Crimson	Legume	7 O-T	4 Q-T	8 N-U	10 J-S	21 J-P	19 J-R	22 E-I	23 J-Q
Bolsena	Clover, Crimson	Legume	6 Q-W	4 Q-T	9 L-Q	3 R-T	21 J-P	18 K-R	23 E-H	22 L-R
Dixie	Clover, Crimson	Legume	7 P-U	4 Q-T	10 L-P	6 O-T	21 I-P	23 F-M	21 E-J	21 M-R
Kentucky Pride	Clover, Crimson	Legume	4 S-X	2 T	8 N-V	4 Q-T	17 P-R	17 L-R	18 F-L	16 Q-U
SECCM18	Clover, Crimson	Legume	7 P-T	4 R-T	10 L-P	7 M-T	21 K-P	18 K-R	20 E-K	24 I-Q
White Cloud	Clover, Crimson	Legume	6 Q-W	3 R-T	10 L-P	4 Q-T	16 Q-S	13 P-R	19 F-L	16 Q-U
Big Red	Clover, Red	Legume	2 WX	2 T	2 XY	3 ST	8 UV	13 P-R	6 P-T	6 V
Blaze	Clover, Red	Legume	4 T-X	2 T	1 Y	8 K-T	9 UV	14 N-R	6 Q-T	7 UV
GA9909	Clover, Red	Legume	3 V-X	3 R-T	4 U-Y	2 ST	11 S-U	16 M-R	7 O-T	11 S-V
VNS	Clover, Red	Legume	3 U-X	3 R-T	5 T-Y	2 ST	9 UV	12 QR	9 N-R	7 UV
VNS	Vetch, Common	Legume	13 I-M	16 G-I	10 L-P	12 J-P	17 P-R	20 H-Q	13 L-O	18 O-T
AU Merit	Vetch, Hairy	Legume	14 G-J	15 H-J	15 F-I	12 J-P	23 H-M	20 H-Q	24 D-F	26 F-P
Patagonia Inta	Vetch, Hairy	Legume	14 G-J	13 I-M	15 F-I	15 H-M	23 H-M	17 L-R	23 E-G	30 E-L
Purple Bounty	Vetch, Hairy	Legume	16 E-G	16 G-I	18 D-G	15 H-K	26 F-J	19 I-R	26 DE	32 E-K
Villana	Vetch, Hairy	Legume	14 G-J	15 H-J	15 F-J	13 I-O	25 G-K	21 G-P	22 E-I	32 D-I
WinterKing	Vetch, Hairy	Legume	16 E-H	15 H-J	18 C-G	15 H-K	24 H-L	18 K-R	24 E-G	31 E-L
Namoi	Vetch, Woollypod	Legume	14 G-K	13 I-M	13 I-M	15 H-L	21 I-P	18 K-R	21 E-J	25 F-P
Double OO	Winter Pea	Legume	10 M-P	7 N-S	10 K-P	12 J-P	30 EF	28 D-H	26 DE	36 C-E
Survivor	Winter Pea	Legume	13 G-K	15 H-J	12 I-N	14 H-N	26 F-H	22 F-N	23 E-G	34 D-G
VNS (1)	Winter Pea	Legume	13 H-M	13 I-M	17 E-H	9 J-S	27 E-H	25 D-L	26 DE	29 E-M
VNS (2)	Winter Pea	Legume	13 G-L	14 H-L	11 J-N	15 H-L	29 E-G	21 G-P	24 EF	41 B-D
Windham	Winter Pea	Legume	7 O-S	5 O-T	9 L-Q	8 L-T	18 N-R	21 G-Q	14 K-N	20 N-S
WyoWinter (1)	Winter Pea	Legume	11 J-N	11 J-N	11 I-N	12 J-O	26 F-J	24 F-M	23 E-G	30 E-M
WyoWinter (2)	Winter Pea	Legume	14 G-K	15 H-J	15 F-I	11 J-Q	26 F-H	23 F-M	27 DE	30 E-M
<b>Average</b>			8.8	8.3	10	9	20	19	18	22
<b>Min</b>			1.9	1.0	1	1	6	4	1	6
<b>Max</b>			16.4	16.3	18	15	30	28	27	41
<b>Range</b>			14.4	15.3	17	14	24	24	26	35

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicicas, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

**Table 15-d. Summary statistics for location comparison of mean biomass of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Group	Height (in)							
	Apr				May			
	Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicas</b>								
Average	19.0	22.7	3	31	17	24	1	27
Min	20.7	22.0	6	34	20	26	4	29
Max	24.6	26.0	5	43	23	28	11	30
Range	21.0	21.7	17	24	24	27	7	37
<b>Cereals</b>								
Average	12.6	10.7	11	16	30	33	24	33
Min	10.4	9.7	9	13	19	22	16	21
Max	16.2	14.0	14	20	26	24	22	32
Range	15.8	16.0	17	14	26	29	24	26
<b>Legumes</b>								
Average	8.8	8.3	10	9	20	19	18	22
Min	1.9	1.0	1	1	6	4	1	6
Max	16.4	16.3	18	15	30	28	27	41
Range	14.4	15.3	17	14	24	24	26	35
<b>Across Groups</b>								
Average	13.0	12.2	11	16	26	27	21	30
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	1.9	1.0	1	1	6	4	1	6
Max	35.8	35.7	26	49	60	64	55	64
Range	33.9	34.7	24	48	54	60	54	58

**Table 16-a. Location comparison of mean percent total nitrogen content<sup>†</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Total Nitrogen (%)							
			Apr <sup>†</sup>				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassic</b>										
Impact	Collards	Brassica	2.0 Q-S	2.1 J-N	1.8 O-X	2.1 L-O	1.9 N-Q	2.1 L-Q	1.8 M-P	1.7 M-O
Extender	Hyb. Brassica	Brassica	1.9 S-W	2.1 J-P	2.0 N-U	1.6 O-U	1.6 P-S	1.7 N-S	1.7 O-Q	1.4 O-Q
Viva	Hyb. Brassica	Brassica	1.9 S-W	1.8 J-Q	1.9 N-V	1.9 M-Q	1.6 Q-S	1.5 R-U	2.0 L-O	1.2 P-U
Vivant	Hyb. Brassica	Brassica	2.0 Q-T	1.9 J-Q	1.9 N-W	2.2 K-N	1.9 M-P	2.1 L-P	2.0 L-O	1.6 N-P
Aerifi	Radish	Brassica	1.9 ST	2.2 J-M	2.1 L-R	1.6 O-U	1.6 P-R	1.6 O-S	2.0 K-O	1.3 O-S
Digger	Radish	Brassica	2.1 P-S	2.1 J-N	2.3 J-N	1.9 M-Q	1.8 O-Q	1.6 O-S	2.3 G-M	1.4 O-Q
Driller	Radish	Brassica	2.0 Q-S	2.2 J-L	2.1 L-Q	1.7 N-R	1.8 O-R	1.8 N-S	2.2 I-O	1.4 O-R
SERALPHA	Radish	Brassica	1.9 S-U	2.3 JK	1.7 P-Y	1.8 N-R	1.7 P-R	1.5 Q-T	2.1 J-O	1.4 O-Q
SERWF19	Radish	Brassica	2.0 Q-S	2.4 IJ	1.9 N-U	1.7 N-S	1.6 P-S	1.4 R-W	2.2 H-O	1.1 Q-V
Smart	Radish	Brassica	1.9 R-T	2.2 J-M	2.0 M-S	1.6 O-T	1.5 RS	1.4 S-W	1.8 M-P	1.3 O-S
Jackpot	Turnip	Brassica	2.0 R-T	2.1 J-O	1.8 N-W	2.0 M-P	1.6 P-S	1.5 P-V	1.9 M-P	1.3 O-Q
Average			2.0	2.1	2	2	2	2	2	1
Min			1.9	1.8	2	2	1	1	2	1
Max			2.1	2.4	2	2	2	2	2	2
Range			0.2	0.6	1	1	0	1	1	1

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassic, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

**Table 16-b. Location comparison of mean percent total nitrogen content<sup>†</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Total Nitrogen (%)							
			Apr <sup>†</sup>				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	1.5 X-AA	1.5 O-Q	1.7 Q-Y	1.5 P-V	1.0 TU	0.9 W-Y	1.2 RS	1.1 Q-V
Lowboy	Annual Ryegrass	Cereal	1.9 ST	2.2 J-M	1.9 N-U	1.7 N-R	1.3 ST	1.3 S-X	1.4 P-R	1.3 O-T
140760	Barley	Cereal	1.5 X-B	1.5 PQ	1.9 N-W	1.1 V-X	0.9 U-Y	0.8 W-Y	1.1 RS	0.8 U-W
140789	Barley	Cereal	1.6 W-Z	1.7 K-Q	1.8 N-W	1.2 S-X	1.0 U-W	1.0 T-Y	1.1 RS	0.9 R-W
140797	Barley	Cereal	1.6 U-Y	1.7 K-Q	2.0 N-T	1.2 T-X	1.0 UV	1.0 U-Y	1.2 RS	0.9 R-W
SB255	Barley	Cereal	1.6 V-Z	1.6 L-Q	1.8 O-X	1.4 Q-W	1.0 U-X	0.9 V-Y	1.1 RS	0.9 S-W
Secretariat	Barley	Cereal	1.7 T-X	1.7 J-Q	1.9 N-W	1.5 Q-V	1.0 U-W	0.9 T-Y	1.2 RS	0.8 T-W
Bates RS4	Cereal Rye	Cereal	1.2 AA-CC	1.3 Q	1.3 Y	1.0 WX	0.6 Y	0.6 Y	0.7 S	0.5 W
Elbon (1)	Cereal Rye	Cereal	1.4 X-C	1.5 N-Q	1.5 T-Y	1.2 S-X	0.6 Y	0.7 Y	0.7 S	0.5 W
Elbon (2)	Cereal Rye	Cereal	1.6 U-Y	1.8 J-Q	1.8 O-X	1.3 R-X	0.8 U-Y	0.9 W-Y	0.8 S	0.7 W
Goku	Cereal Rye	Cereal	1.4 Y-C	1.6 M-Q	1.5 U-Y	1.0 V-X	0.8 V-Y	0.8 XY	0.8 S	0.6 W
NF95319B	Cereal Rye	Cereal	1.2 AA-CC	1.3 Q	1.3 Y	0.9 X	0.7 XY	0.6 Y	0.9 S	0.5 W
NF97325	Cereal Rye	Cereal	1.2 AA-CC	1.4 Q	1.3 XY	0.9 X	0.6 Y	0.7 XY	0.7 S	0.5 W
NF99362	Cereal Rye	Cereal	1.2 AA-CC	1.3 Q	1.4 W-Y	0.9 X	0.6 Y	0.7 Y	0.7 S	0.5 W
Wintergrazer 70	Cereal Rye	Cereal	1.3 AA-CC	1.3 Q	1.4 V-Y	1.0 V-X	0.7 W-Y	0.7 Y	0.7 S	0.7 W
Yankee	Cereal Rye	Cereal	1.9 S-V	2.2 J-M	2.1 M-S	1.5 P-V	1.0 T-V	1.0 T-Y	1.2 Q-S	0.9 S-W
Bob	Oat	Cereal	1.4 X-CC	1.5 PQ	1.6 R-Y	1.1 V-X	0.9 U-Y	0.8 XY	1.0 RS	0.7 VW
Cosaque	Oat	Cereal	1.4 Y-CC	1.3 Q	1.7 P-Y	1.1 U-X	0.8 U-Y	0.8 XY	1.1 RS	0.8 U-W
Hilliard	Wheat	Cereal	1.4 X-CC	1.5 PQ	1.6 S-Y	1.2 R-X	0.8 U-Y	0.8 XY	1.0 RS	0.7 VW
Liberty 5658	Wheat	Cereal	1.3 Z-CC	1.4 Q	1.4 V-Y	1.1 V-X	0.9 U-Y	0.8 XY	1.1 RS	0.7 VW
Average			1.5	1.6	2	1	1	1	1	1
Min			1.2	1.3	1	1	1	1	1	0
Max			1.9	2.2	2	2	1	1	1	1
Range			0.8	0.9	1	1	1	1	1	1

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacae, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

**Table 16-c. Location comparison of mean percent total nitrogen content<sup>†</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Total Nitrogen (%)							
			Apr <sup>†</sup>				May			
			Avg.	RECM <sup>  </sup>	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Legumes</b>										
FIXatioN	Clover, Balansa	Legume	3.3 E-G	4.0 E-G	2.8 F-I	3.1 C-G	2.6 IJ	2.9 F-J	2.6 E-I	2.4 E-J
Paradana	Clover, Balansa	Legume	2.6 L-N	3.0 HI	2.5 I-M	2.3 J-M	2.1 K-N	2.1 L-O	2.2 I-O	2.1 I-M
Viper	Clover, Balansa	Legume	3.1 G-J	4.1 E-G	2.2 K-O	3.1 D-H	2.4 JK	2.6 I-L	2.2 I-O	2.4 D-I
Balady	Clover, Berseem	Legume	1.6 U-Y	.	1.6 R-Y	1.7 O-T	2.2 KL	2.2 K-P	1.8 N-P	2.7 C-F
Frosty	Clover, Berseem	Legume	3.0 H-K	3.5 GH	2.9 E-I	2.6 G-K	2.7 IJ	3.1 E-I	2.6 E-I	2.3 F-L
AU Sunrise	Clover, Crimson	Legume	2.7 LM	.	2.6 G-K	2.8 F-J	2.1 K-N	2.2 L-O	2.3 G-N	2.0 L-N
Bolsena	Clover, Crimson	Legume	2.9 I-L	3.0 HI	2.7 F-J	2.9 D-I	2.1 K-N	2.3 K-N	2.1 I-O	2.0 I-M
Dixie	Clover, Crimson	Legume	2.8 K-M	.	3.0 D-H	2.6 G-K	2.2 KL	2.4 J-M	2.3 G-M	2.0 I-N
Kentucky Pride	Clover, Crimson	Legume	2.8 KL	.	3.0 C-G	2.6 H-K	2.2 KL	2.2 K-O	2.3 G-N	2.2 H-L
SECCM18	Clover, Crimson	Legume	2.8 J-L	2.9 HI	2.9 E-I	2.7 G-J	2.2 K-M	2.2 K-N	2.3 G-N	2.0 K-N
White Cloud	Clover, Crimson	Legume	2.7 K-M	.	2.9 E-I	2.5 I-L	2.0 L-O	2.0 M-R	2.2 I-O	1.9 L-N
Big Red	Clover, Red	Legume	2.3 O-Q	.	1.7 P-Y	2.7 G-J	2.6 IJ	2.9 G-J	2.4 F-L	2.6 C-H
Blaze	Clover, Red	Legume	2.3 N-P	.	2.0 M-S	2.7 G-K	2.9 G-I	3.5 C-F	2.6 E-K	2.7 C-E
GA9909	Clover, Red	Legume	2.5 M-O	.	2.1 K-P	2.8 E-I	3.0 F-H	2.8 H-J	3.0 B-E	3.3 B
VNS	Clover, Red	Legume	2.2 O-R	.	2.2 K-O	2.3 J-M	3.0 F-H	3.7 B-D	2.8 D-G	2.6 C-H
VNS	Vetch, Common	Legume	3.3 F-H	4.0 E-G	2.5 H-L	3.2 C-F	2.7 IJ	3.2 D-H	2.6 E-J	2.2 G-L
AU Merit	Vetch, Hairy	Legume	4.1 A	4.4 B-E	3.5 AB	4.3 A	3.9 A	4.3 A	3.5 AB	3.9 A
Patagonia Inta	Vetch, Hairy	Legume	4.0 A	5.3 A	3.7 A	3.1 D-H	3.5 BC	4.3 A	3.5 AB	2.7 C-F
Purple Bounty	Vetch, Hairy	Legume	4.0 A	4.7 A-D	3.4 A-C	3.9 AB	3.0 F-H	2.8 H-K	3.3 B-D	2.9 BC
Villana	Vetch, Hairy	Legume	3.8 A-C	4.9 A-C	3.5 AB	3.1 C-G	3.5 B	4.4 A	3.9 A	2.4 E-K
WinterKing	Vetch, Hairy	Legume	3.9 AB	4.4 C-E	3.7 A	3.6 BC	3.4 B-D	4.1 AB	3.4 A-C	2.8 CD
Namoi	Vetch, Woolypod	Legume	3.8 A-C	5.1 AB	3.1 B-F	3.3 C-E	3.3 B-F	3.9 A-C	2.9 C-F	2.9 BC
Double OO	Winter Pea	Legume	3.1 G-I	3.7 FG	3.1 B-F	2.6 I-L	2.8 HI	3.4 C-G	2.5 E-K	2.3 F-L
Survivor	Winter Pea	Legume	3.2 F-H	4.1 D-G	3.1 B-G	2.6 I-L	3.1 E-G	3.7 B-D	2.9 C-F	2.7 C-F
VNS (1)	Winter Pea	Legume	3.3 E-G	4.0 E-G	3.3 A-E	2.5 I-L	2.9 G-I	3.9 A-C	2.9 C-F	2.0 J-N
VNS (2)	Winter Pea	Legume	3.6 C-E	4.8 A-C	3.1 B-F	2.8 F-I	3.4 B-E	3.6 B-E	3.5 AB	3.0 BC
Windham	Winter Pea	Legume	3.6 B-D	4.2 D-F	3.3 A-E	3.4 B-D	3.0 F-H	3.6 B-E	2.7 D-H	2.6 C-G
WyoWinter (1)	Winter Pea	Legume	3.5 D-F	4.4 C-E	3.4 A-D	2.6 G-K	3.2 C-F	4.1 AB	3.4 A-C	2.2 G-L
WyoWinter (2)	Winter Pea	Legume	3.3 D-G	4.1 D-F	3.2 B-F	2.7 F-J	3.2 D-G	3.8 A-C	2.9 C-F	2.8 C-E
<b>Average</b>			3.1	4.1	2.9	2.9	3	3.2	2.7	2.5
<b>Min</b>			1.6	2.9	1.6	1.7	2	2.0	1.8	1.9
<b>Max</b>			4.1	5.3	3.7	4.3	4	4.4	3.9	3.9
<b>Range</b>			2.4	2.4	2.1	2.7	2	2.4	2.1	2.0

<sup>†</sup> Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacae, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.

<sup>||</sup> Entries with missing values did not have enough biomass to grind and analyze using NIRS.

**Table 16-d. Summary statistics for location comparison of mean percent total nitrogen content<sup>‡</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Group	Total Nitrogen (%)							
	Apr <sup>†</sup>				May			
	Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicas</b>								
Average	2.0	2.1	2	2	2	2	2	1
Min	1.9	1.8	2	2	1	1	2	1
Max	2.1	2.4	2	2	2	2	2	2
Range	0.2	0.6	1	1	0	1	1	1
<b>Cereals</b>								
Average	1.5	1.6	2	1	1	1	1	1
Min	1.2	1.3	1	1	1	1	1	0
Max	1.9	2.2	2	2	1	1	1	1
Range	0.8	0.9	1	1	1	1	1	1
<b>Legumes</b>								
Average	3.1	4.1	3	3	3	3	3	2
Min	1.6	2.9	2	2	2	2	2	2
Max	4.1	5.3	4	4	4	4	4	4
Range	2.4	2.4	2	3	2	2	2	2
<b>Across Groups</b>								
Average	2.4	2.7	2	2	2	2	2	2
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	1.2	1.3	1	1	1	1	1	0
Max	4.1	5.3	4	4	4	4	4	4
Range	2.9	4.0	2	3	3	4	3	3

<sup>‡</sup> Analyzed using near infrared spectroscopy (NIRS) with the appropriate calibration for each species.



Table 17-a. Location comparison of mean estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.

Variety	Common Name	Group	Estimated N Released Over 12 wks (lbs/ac)							
			Apr <sup>†</sup>				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassic</b>										
Impact	Collards	Brassica	5	3	1	10	10	12	2	17
Extender	Hyb. Brassica	Brassica	4	8	0	4	5	10	2	4
Viva	Hyb. Brassica	Brassica	5	5	0	9	5	6	3	6
Vivant	Hyb. Brassica	Brassica	3	4	0	5	6	8	3	7
Aerifi	Radish	Brassica	6	11	1	6	10	17	4	10
Digger	Radish	Brassica	5	8	0	8	11	13	4	15
Driller	Radish	Brassica	4	8	0	4	9	12	3	13
SERALPHA	Radish	Brassica	6	9	0	9	11	11	2	20
SERWF19	Radish	Brassica	7	13	1	8	8	12	5	6
Smart	Radish	Brassica	5	7	0	8	7	8	2	12
Jackpot	Turnip	Brassica	4	4	0	8	5	7	2	7
Average			4.9	7	0	7	8	11	3	11
Min			3.0	3	0	4	5	6	2	4
Max			7.3	13	1	10	11	17	5	20
Range			4.3	10	1	6	6	11	3	16

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassic, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

§ Estimated using quality constituents from near infrared spectroscopy inputted into the UGA cover crop nitrogen calculator.

Table 17-b. Location comparison of mean estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.

Variety	Common Name	Group	Estimated N Released Over 12 wks (lbs/ac)							
			Apr <sup>†</sup>				May			
			Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Cereals</b>										
Centurion	Annual Ryegrass	Cereal	2.3	3	1	3	3	2	4	4
Lowboy	Annual Ryegrass	Cereal	0.7	1	0	1	3	4	2	2
140760	Barley	Cereal	1.7	2	2	1	-1	-2	2	-2
140789	Barley	Cereal	2.3	2	1	4	1	1	2	1
140797	Barley	Cereal	2.0	3	1	2	1	-2	5	0
SB255	Barley	Cereal	2.7	3	2	3	1	0	3	1
Secretariat	Barley	Cereal	3.3	3	2	5	2	1	5	-1
Bates RS4	Cereal Rye	Cereal	0.7	2	1	-1	-6	-6	-3	-9
Elbon (1)	Cereal Rye	Cereal	2.0	3	1	2	-5	-4	-3	-8
Elbon (2)	Cereal Rye	Cereal	3.0	3	3	3	-2	-1	-2	-4
Goku	Cereal Rye	Cereal	1.3	2	2	0	-4	-3	-2	-6
NF95319B	Cereal Rye	Cereal	1.0	2	2	-1	-5	-6	-1	-8
NF97325	Cereal Rye	Cereal	0.3	2	1	-2	-6	-5	-4	-8
NF99362	Cereal Rye	Cereal	1.0	2	2	-1	-5	-4	-3	-8
Wintergrazer 70	Cereal Rye	Cereal	1.0	2	1	0	-4	-5	-3	-5
Yankee	Cereal Rye	Cereal	2.7	3	1	4	0	0	2	-1
Bob	Oat	Cereal	2.7	3	2	3	-2	-2	3	-6
Cosaque	Oat	Cereal	2.3	3	2	2	0	-2	3	-1
Hilliard	Wheat	Cereal	3.0	3	2	4	-2	-2	2	-6
Liberty 5658	Wheat	Cereal	2.0	3	2	1	-1	-2	2	-4
Average			1.9	2.5	2	2	-2	-2	1	-3
Min			0.3	1.0	0	-2	-6	-6	-4	-9
Max			3.3	3.0	3	5	3	4	5	4
Range			3.0	2.0	3	7	9	10	9	13

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacae, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

§ Estimated using quality constituents from near infrared spectroscopy inputted into the UGA cover crop nitrogen calculator.

**Table 17-c. Location comparison of mean estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.**

Variety	Common Name	Group	Estimated N Released Over 12 wks (lbs/ac)							
			Apr <sup>†</sup>				May			
			Avg.	RECM <sup>  </sup>	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Legumes</b>										
FIXatioN	Clover, Balansa	Legume	12	23	4	9	37	50	27	33
Paradana	Clover, Balansa	Legume	5	6	3	5	15	23	12	11
Viper	Clover, Balansa	Legume	14	21	2	18	45	52	17	66
Balady	Clover, Berseem	Legume	1	.	0	1	7	15	2	3
Frosty	Clover, Berseem	Legume	5	7	6	2	32	59	29	8
AU Sunrise	Clover, Crimson	Legume	11	6	9	18	33	28	42	28
Bolsena	Clover, Crimson	Legume	13	10	13	15	30	19	41	31
Dixie	Clover, Crimson	Legume	12	5	14	17	33	35	44	21
Kentucky Pride	Clover, Crimson	Legume	9	1	19	6	32	20	55	22
SECCM18	Clover, Crimson	Legume	13	4	13	22	37	28	43	39
White Cloud	Clover, Crimson	Legume	8	6	10	8	23	10	39	19
Big Red	Clover, Red	Legume	1	2	0	2	16	25	8	16
Blaze	Clover, Red	Legume	1	0	0	2	14	27	5	10
GA9909	Clover, Red	Legume	2	0	0	6	24	21	9	42
VNS	Clover, Red	Legume	1	0	2	1	17	25	15	11
VNS	Vetch, Common	Legume	19	26	3	27	70	117	14	79
AU Merit	Vetch, Hairy	Legume	44	48	15	70	92	84	92	99
Patagonia Inta	Vetch, Hairy	Legume	37	56	20	35	63	62	75	51
Purple Bounty	Vetch, Hairy	Legume	29	36	18	33	53	34	72	54
Villana	Vetch, Hairy	Legume	25	42	18	16	62	84	65	36
WinterKing	Vetch, Hairy	Legume	40	47	25	48	62	67	74	44
Namoi	Vetch, Woolypod	Legume	27	31	14	36	46	55	37	46
Double OO	Winter Pea	Legume	17	22	9	20	52	67	47	42
Survivor	Winter Pea	Legume	22	34	13	20	70	76	75	59
VNS (1)	Winter Pea	Legume	21	30	22	12	56	77	53	37
VNS (2)	Winter Pea	Legume	24	46	7	20	66	75	63	60
Windham	Winter Pea	Legume	20	25	14	20	57	75	47	48
WyoWinter (1)	Winter Pea	Legume	19	34	10	14	66	101	56	42
WyoWinter (2)	Winter Pea	Legume	25	41	18	15	59	68	71	39
<b>Average</b>			16	22	10	18	44	51	42	38
<b>Min</b>			1	0	0	1	7	10	2	3
<b>Max</b>			44	56	25	70	92	117	92	99
<b>Range</b>			44	56	25	69	85	107	90	96

† Varieties that have any MS letter in common are not significantly different (Fisher's Protected LSD,  $P < 0.05$ ). Mean separation was performed across all entries. Varieties within the "A group" were top performers **across all entries** and mean separation letters of these entries are highlighted in dark orange.

For ease of viewing, the table is broken into functional groups (brassicacae, cereals, legumes). Mean values for top performers **within each functional group** are highlighted in light orange (50th - 75th percentile) and dark orange (> 75th percentile).

§ Estimated using quality constituents from near infrared spectroscopy inputted into the UGA cover crop nitrogen calculator.

|| For entries with missing values for N content at RECM, mean N content across the remaining locations was used to estimate N release.

Table 17-d. Summary statistics for location comparison of mean estimated nitrogen release<sup>§</sup> of 60 cover crop varieties evaluated in small plot replicated trials at three University of Tennessee AgResearch and Education Center locations in Tennessee during 2019-2020.

Group	Estimated N Released Over 12 wks (lbs/ac)							
	Apr <sup>†</sup>				May			
	Avg.	RECM	MTREC	ETREC	Avg.	RECM	MTREC	ETREC
<b>Brassicas</b>								
Average	4.9	7.3	0	7	8	11	3	11
Min	3.0	3.0	0	4	5	6	2	4
Max	7.3	13.0	1	10	11	17	5	20
Range	4.3	10.0	1	6	6	11	3	16
<b>Cereals</b>								
Average	1.9	2.5	2	2	-2	-2	1	-3
Min	0.3	1.0	0	-2	-6	-6	-4	-9
Max	3.3	3.0	3	5	3	4	5	4
Range	3.0	2.0	3	7	9	10	9	13
<b>Legumes</b>								
Average	16.4	21.8	10	18	44	51	42	38
Min	0.5	0.0	0	1	7	10	2	3
Max	44.3	56.0	25	70	92	117	92	99
Range	43.8	56.0	25	69	85	107	90	96
<b>Across Groups</b>								
Average	9.5	12.5	6	11	22	26	21	19
Standard Error	0.1	0.3	2	5	0	1	2	3
Min	0.3	0.0	0	-2	-6	-6	-4	-9
Max	44.3	56.0	25	70	92	117	92	99
Range	44.0	56.0	25	72	98	123	96	108

§ Estimated using quality constituents from near infrared spectroscopy inputted into the UGA cover crop nitrogen calculator.