CCB Network
Variety Release Availability List

The **Cover Crop Breeding Network** is a nationwide collaboration among universities, USDA-ARS research programs, and USDA-NRCS Plant Materials Centers that has been working to develop improved cover crop varieties since 2015. After selecting material in breeding nurseries, Advanced Line Trials allow evaluation of emergence, vigor, winter survival, maturity time, and biomass in multiple environments over several years.

This **Variety Release Availability List** highlights CCB Network hairy vetch, winter pea, and crimson clover lines with excellent Advanced Line Trial performance. Please find full trial results for these and other well-performing entries on the **CCB Network Advanced Line Trial Results** tables that follow.

To express interest in trialing or licensing any of these CCB Network varieties, please contact Solveig at ccbn@cornell.edu or another CCB Network member, by April 15, 2026. After this date, we will go forward with licensing arrangements for the Fall 2026 planting season. Please contact Solveig Hanson, CCB Network Coordinator, at ccbn@cornell.edu with questions.

Winter Pea: 'CCB Doudlah Diehard' (14WPX1508-1-0-1-0 / ALT 5)

This line was selected by CCB Network breeder Lisa Kissing Kucek and farmer Mark Doudlah on his family farm near Evansville, Wisconsin. Across 34 site-years of trialing, it has outperformed best check 'WyoWinter' for fall vigor, spring vigor, biomass, and winter survival. Widely adapted and especially suited for Northern tier sites. Purple flower, mottled seed, normal leaf, vining, Austrian Winter Pea type. Doudlah Farms Organics will license this line, but applicants for co-licensing are welcome.

Winter Pea: 14WPX1551-1-3-0-0 / ALT 19 and 18PodWP-41-0 / ALT 42

These two lines have been tested extensively and show improved fall vigor, spring vigor, and biomass compared with the 5-best-check mean, without sacrificing winter survival. Both are purple flowered, normal leaf, vining, Austrian Winter Pea types.

Winter Pea: 14WPX1541-1-0-0P-1T-0 / ALT 68 and 16WPX1761-0-a-0-1T-0 / ALT 70

Over two years of trialing, these normal leaf, white flowered lines have outperformed best check means for fall vigor, spring vigor, biomass, and winter survival. We will trial these lines for at least another year before entertaining release, but requests for small-scale trial seed will be considered.

Winter Pea: 'CCB Elsa' (18PodWP-42-0 / ALT 33)

Named for the well-loved Disney snow princess, 'CCB Elsa' has shown improved vigor, biomass, and winter survival over 28 site-years of testing. 'CCB Elsa' performs well nationwide, but this normal-leaf, purple flowered Austrian Winter Pea line is especially suited to the Northern tier. Licensing to Albert Lea Seed in progress.

Funding provided by USDA-NIFA-OREI 2021-51300-34899 and *collaborative project supported by the USDA-NIFA, Grant No. 2023-68012-38993, "**Cover Crop Variety Development Coordinated Agricultural Project**"(Cover Crop Variety Project): "**Catalyzing Cover Crop Advancement As A Climate-Smart Practice Through A National Variety Improvement And Seed Production Program**"*

Highlighted CCB Network
Vetch and Crimson Clover Populations

Hairy Vetch: 21MDS
Selected in Maryland, this entry has been tested across 17 site-years and is in the upper tier for both biomass yield and seed yield. It is later flowering and was the highest yielding variety in Maryland, Missouri, and New York.

Hairy vetch: 17NCL
This North Carolina-selected line is similarly late flowering and shows similarly strong biomass as 21MDS, but it also has confirmed strong winter survival. 17NCL has the highest biomass ranking in Wisconsin evaluations, with 151% check biomass across two site years.

Hairy vetch: 22OR
This entry is notable because of its strong performance in winter survival, biomass and seed yield. It also is the 3rd best soft-seed entry in the program. 22OR was selected in the Pacific Northwest but shows wide adaptation and has out-performed check populations in Maryland, Wisconsin, and North Carolina.

Hairy vetch: 23WI and 22MDS
These are the first two entries created with our genetic selection program targeting soft seed. Both entries have substantially greater soft seed along with strong biomass and excellent seed yield.

Crimson clover: 20NCCCLH and 20WICC
Both populations are earlier maturing than commercial checks, show similar or better winter survival, and have similar biomass productivity.

Crimson clover: 17MDCCS
This line offers the best winter survival among experimental lines, with comparable biomass, maturity, and vigor to even the best commercial checks.

Crimson clover: 20NCCCE
A top performing, later maturing line with the best biomass productivity among the experimental populations.

All CCB Network hairy vetch and crimson clover experimental populations have breeder seed available for trialing or commercial release.

Funding provided by USDA-NIFA-OREI 2021-51300-34899 and *collaborative project supported by the USDA-NIFA, Grant No. 2023-68012-38993, "**Cover Crop Variety Development Coordinated Agricultural Project**"(Cover Crop Variety Project): "**Catalyzing Cover Crop Advancement As A Climate-Smart Practice Through A National Variety Improvement And Seed Production Program**"*

CCB Network Advanced Line Trials: Winter Pea

Line ratings are from 2019-2025 CCB Advanced line trials.
Trait ratings are presented as percent of mean check scores. †

ccbn@cornell.edu
www.covercropbreeding.com

Experimental Lines

Entry No.	Entry	Winter Survival	Fall Vigor	Spring Vigor	Biomass	Seed Yield	Cold Winter	Mild Winter	Bio & Vigor	Wint Surv	Flw	Notes
		% of Mean Checks ± Standard Error					Rank		Site-Years			
68	14WPX1541-1-0-0P-1T-0	103	117 ±6	124 ±6	114 ±5	119 ±23	4	2	12	3	W	Available for Trial
52	16WPX1753-0-7-1-0-3I-0-0	74	142 ±7	111 ±7	113 ±6		24	4	10	5	W	
70	16WPX1761-0-a-0-1T-0	114	139 ±6	113 ±6	110 ±5	111 ±23	3	3	12	3	W	Available for Trial
51	18-PodWp-47-0	87	135 ±7	125 ±7	105 ±5		16	5	10	5	W	
19	14WPX1551-1-3-0-0	97	125 ±3	106 ±3	104 ±3		13	12	36	11	P	Available for Release
4c	14WPX1553-3-2-4	94	124 ±3	105 ±4	104 ±3		18	14	28	6	W/P	
33	18PodWP-42-0 / 'CCB Elsa'	101	120 ±4	104 ±4	104 ±3	116 ±23	10	15	28	9	P	Release in Progress
42	18PodWP-41-0	99	111 ±4	110 ±4	104 ±4	135 ±23	9	17	25	9	P	Available for Release
15	14WPX1117-0-0-0-0	77	128 ±3	112 ±3	104 ±2		33	13	40	13	P	
5	14WPX1508-1-0-1-0 / 'CCB Doudlah Diehard'	102	111 ±3	108 ±3	103 ±2	115 ±23	8	20	34	13	P	Release in Progress
30	18PodWP-37-0	77	118 ±4	105 ±4	103 ±3		39	26	28	9	P	
47	16WPX1753-0-3-1-0-lH-0-0	91	150 ±6	109 ±6	103 ±5		22	9	13	6	W	
56	18PodWP-50-0	96	154 ±7	116 ±8	101 ±6		14	6	8	3	W/P	
13	14WPX1551-1-4-0-0	84	128 ±2	107 ±3	101 ±2		32	22	42	14	P	
35	Podoll-Pea-1b-0	106	94 ±4	99 ±4	100 ±3		11	35	25	7	P	Available for Release

Checks

Entry No.	Entry	Winter Survival	Fall Vigor	Spring Vigor	Biomass	Seed Yield	Cold Winter	Mild Winter	Bio & Vigor	Wint Surv	Flw	Notes
		% of Mean Checks ± Standard Error					Rank		Site-Years			
16	Romack	91	115 ±3	111 ±3	106 ±2		17	11	37	14	P	
26	***WyoWinter***	101	***103*** ±3	***105*** ±3	***102*** ±2	***94*** ***±23***	***12***	***29***	***39***	***12***	***P***	***Best commercial check***
18	AWP-vnsWI	103	90 ±3	102 ±3	99 ±2		15	39	32	13	P	*2016 Albert Lea Seed*
46	Survivor	103	102 ±5	96 ±5	96 ±4	131 ±23	21	41	19	7	P	*Commercially available*
17	AWP-vnsNC	102	89 ±3	87 ±4	96 ±3		27	47	27	8	P	*Sourced 2016 in NC*
44	Blaze	105	72 ±4	71 ±4	86 ±3	111 ±23	40	56	25	9	W	*Commercially available*
14	Windham	91	62 ±3	59 ±3	78 ±3	64 ±23	51	62	29	13	W	
28	Icicle	37	55 ±7	59 ±6	72 ±5		61	67	11	2	W	*Commercially available*
45	Whistler	56	62 ±5	59 ±4	63 ±4		58	68	19	8	W	*Commercially available*

Cold Winter Rank = 2(Biomass) + 6(Winter Survival)+ 1(Fall Vigor) + 6(Spring Vigor).
Mild Winter Rank = 2(Biomass) + 1(Winter Survival)+ 3(Fall Vigor) + 3(Spring Vigor).
Flower color: W = white and P = purple.
Seed yield data are from 1 year of trials in Pullman, WA.
'**Available for Trial**' and '**Available for Release**' lines are targeted for larger seed increases, but we are glad to discuss trial or licensing of any experimental lines.
† Performance expressed as percent relative to the mean of 5 top checks (Romack, WyoWinter, Albert Lea 2016 VNS, Survivor, and a 2016 VNS AWP sourced in NC). All entries tested for at least 2 years.

Funding provided by USDA-NIFA-OREI 2021-51300-34899 and *collaborative project supported by the USDA-NIFA, Grant No. 2023-68012-38993, "**Cover Crop Variety Development Coordinated Agricultural Project**"(Cover Crop Variety Project): "**Catalyzing Cover Crop Advancement As A Climate-Smart Practice Through A National Variety Improvement And Seed Production Program**"*

CCB Network Advanced Line Trials: Hairy Vetch

Line ratings are from 2019-2025 CCB Advanced line trials.
Trait ratings are presented as percent of mean check values.

ccbn@cornell.edu
www.covercropbreeding.com

Experimental Populations														
Entry	Seed Yield		Soft Seed*		Winter Survival**		Biomass		Maturity		1000 Seed wt.	
	% of Mean Checks ± Standard Errors								Higher is Earlier		Grams	
21MDHVS	121	±8	48	±18	124	±21	122	±5	0.8	±0.07	28.8	±0.6
17NCHVL	102	±9	-		133	±17	121	±6	1.0	±0.08	27.4	±1.2
20MDHVS	123	±8	69	±14	124	±17	117	±3	0.9	±0.05	29.4	±0.5
19NCHVE	114	±8	66	±16	122	±17	116	±3	1.1	±0.05	27.9	±0.5
18MDHV	118	±8	67	±16	117	±14	116	±3	1.0	±0.04	28.8	±0.5
22MDHVS	128	±10	137	±26	131	±23	116	±6	0.9	±0.08	29.9	±1
23MNHV	113	±9	75	±26	158	±21	114	±6	1.1	±0.08	29.3	±0.8
20MNHV	97	±9	70	±33	122	±19	114	±4	0.9	±0.06	29.8	±0.6
22NCHVE	112	±9	76	±25	129	±21	113	±6	1.4	±0.08	30.2	±0.8
22ORHV	124	±9	100	±21	152	±21	113	±6	0.9	±0.07	29.5	±0.7
23WIHV	125	±9	157	±25	140	±21	108	±6	0.8	±0.08	28.8	±0.8
Check Populations												
Entry	Seed Yield		Soft Seed*		Winter Survival**		Biomass		Maturity		1000 Seed wt.	
	% of Mean Checks ±Standard Errors								Higher is Earlier		Grams	
Albert Lea VNS	92	±9	93	±25	118	±18	95	±6	0.8	±0.07	28.9	±0.6
AU Early Cover (SV)	94	±10	-		79	±18	77	±7	1.6	±0.09	20.4	±1
TNT (SV)	81	±11	-		-		-		-		22.7	±1
Patagonia	130	±10	124	±26	36	±34	119	±6	1.2	±0.08	31.9	±1
AU Merit	118	±8	18	±16	107	±16	111	±3	1.0	±0.04	29.2	±0.5
Hungvillosa	112	±8	94	±16	128	±14	111	±3	0.9	±0.03	30.1	±0.5
MSP 4102	87	±11	-		124	±16	100	±4	0.9	±0.05	28.4	±0.6
Purple Bounty (SV)	95	±8	119	±14	92	±14	92	±3	1.4	±0.03	25.1	±0.5
Villana	92	±9	147	±20	-		81	±7	1.5	±0.1	35	±0.7
CCB Releases												
CCB Nitrous	106	±3	67	±15	132	±15	118	±3	1.1	±0.04	28.8	±0.5
CCB Purple Reign	118	±9	77	±20	142	±21	112	±5	1.0	±0.07	29.7	±0.7
22NYHV (In progress)	94	±9	67	±26	136	±21	124	±6	1.3	±0.09	27.6	±0.8

All experimental populations have breeder seed available for trialing or commercial release.
* = 1-3 years of soft seed estimates in Oregon. Average check soft seed was 51%.
** = Spring survival after harsh winters. Average check 'harsh' winter survival was 49%.
SV = Cultivar contains an agronomically meaningful percentage of smooth vetch (*Vicia varia* Host)
† = On average, 1 point on the maturity scale equals 4-5 days difference.
Percent of mean checks calculated within site-year.

Funding provided by USDA-NIFA-OREI 2021-51300-34899 and *collaborative project supported by the USDA-NIFA, Grant No. 2023-68012-38993, "**Cover Crop Variety Development Coordinated Agricultural Project**"(Cover Crop Variety Project): "**Catalyzing Cover Crop Advancement As A Climate-Smart Practice Through A National Variety Improvement And Seed Production Program**"*

CCB Network Advanced Line Trials: Crimson Clover

Line ratings are from 2019-2025 CCB Advanced line trials.
Trait ratings are presented as percent of mean check scores.†

ccbn@cornell.edu
www.covercropbreeding.com

Experimental Populations

Entry	Biomass		Maturity *Higher is later*		Winter Survival		Fall Vigor		Spring Vigor		Yrs	Site-Yrs	Seed Yield*		1000 Seed Weight*		Harvest Index*		Proportion Hard Seed**	
	% of Mean Checks ± Standard Error												% of Mean Checks ± Standard Error							
20NCCCE	107	±7	111	±3	81	±20	91	±6	101	±6	3	12	85	±16	101	±4	91	±6	0.4	±0.2
17MDCCS	103	±5	101	±2	109	±14	91	±4	98	±4	6	29	75	±13	101	±3	99	±5	0	±0
19NCCCE	103	±6	110	±3	98	±22	101	±6	101	±6	2	12								
18NCCCEGiant	101	±5	109	±2	101	±16	86	±5	102	±5	4	19	72	±18	101	±5	96	±8	0.1	±0
19MDCC	100	±5	103	±2	96	±16	98	±4	99	±4	6	30	93	±13	106	±3	100	±5	0	±0
22NCCCE	99	±6	106	±3	88	±17	93	±6	96	±6	3	15	89	±13	103	±3	106	±5	0.3	±0
23NCCCE Elite	99	±7	102	±3	99	±21	90	±7	80	±8	2	10	68	±16	106	±4	95	±6		
17MDCCH	98	±4	104	±2	91	±14	86	±4	95	±4	7	36	89	±13	98	±3	97	±5	0.1	±0
22NCCCLH	97	±6	91	±3	99	±17	80	±6	83	±6	3	15	103	±13	97	±3	95	±5	0.1	±0
19NCCCLS	95	±5	81	±2	97	±19	83	±5	84	±5	4	21	53	±16	95	±4	88	±6	0.1	±0
23NCCCE	94	±7	106	±3	93	±21	89	±7	87	±8	2	9	77	±16	107	±4	95	±6		
20NCCCLH	93	±7	84	±3	108	±22	72	±6	75	±6	3	13	78	±18	96	±5	91	±6	0.1	±0
20WICC	93	±7	86	±3	107	±20	84	±7	83	±7	2	10	74	±16	95	±4	94	±6	0.1	±0
19NCCCLH	89	±6	79	±3	97	±20	77	±5	79	±5	3	16	55	±16	96	±4	89	±6	0.2	±0.1
23NCCCLS Elite	88	±7	89	±3	94	±20	89	±7	75	±8	2	10	55	±16	103	±4	89	±6		
22NCCCLS	87	±6	89	±3	92	±17	81	±6	77	±6	3	15	75	±13	94	±3	92	±5	0	±0
21MDCC	86	±10	97	±3	100	±0	74	±6	84	±7	2	9	80	±18	99	±5	95	±6	0.1	±0

Check Populations

Entry	Biomass		Maturity *Higher is later*		Winter Survival		Fall Vigor		Spring Vigor		Yrs	Site-Yrs	Seed Yield*		1000 Seed Weight*		Harvest Index*		Proportion Hard Seed*	
	% of Mean Checks ± Standard Error												% of Mean Checks ± Standard Error							
Dixie	110	±4	102	±2	94	±14	118	±4	117	±4	7	36	119	±13	108	±3	100	±5	0	±0
Linkarus	103	±5	98	±2	111	±16	99	±4	105	±4	6	30	103	±16	97	±4	108	±6	0.2	±0
Aldo	100	±7	105	±3	83	±21	92	±7	96	±8	2	10	88	±15	101	±4	96	±6	0.1	±0
Rokali	96	±7	101	±3	98	±20	104	±7	94	±7	2	10	95	±16	104	±4	95	±6	0	±0
Heusers Ostsaat	91	±7	95	±3	115	±20	87	±7	87	±7	2	10	95	±15	91	±4	100	±6	0	±0
Kariba	82	±7	76	±3	104	±20	67	±7	73	±8	2	10	110	±16	90	±4	116	±6	0	±0
Kentucky Pride	60	±7	86	±3	56	±20	44	±7	51	±7	2	10	59	±14	97	±4	90	±5	0	±0

***Seed trait data** are based on 1-3 years of seed yield testing in Corvallis, OR.
****Hard seed data** based on 1-3 years of germ tests.
Yrs and Site-Years are the average number of trial years and location-years, respectively, per entry for cover crop traits.
Higher maturity ratings indicate earlier maturity.
† Performance expressed as percent relative to the mean of 5 top commercial check varieties (Dixie, Linkarus, Aldo, Rokali and Heusers Ostsaat).
All entries tested for at least 2 years.

Funding provided by USDA-NIFA-OREI 2021-51300-34899 and *collaborative project supported by the USDA-NIFA, Grant No. 2023-68012-38993, "**Cover Crop Variety Development Coordinated Agricultural Project**"(Cover Crop Variety Project): "**Catalyzing Cover Crop Advancement As A Climate-Smart Practice Through A National Variety Improvement And Seed Production Program**"*