

2022 SCN UNIFORM 0

Strain	FPhm	Parentage	Previous testing	Gen. Comp.	Cooperator reported	
					Traits	SCN Resistance source
1 ND Dickey (0)	PGy	P.91M10 x Sheyenne	3	F4		None
2 MN0095	PGibl	M92-270029 x M93-313135	11	F5	Rps1	None
3 MN0404CN (SCN)	PTbl	MN0902CN x MN0304	4	F5	Rps1k	PI 88788
4 MN1511CN	PGbf	M06-288181 x M06-358188	21SCN U I	F5		PI 88788
5 M13-118036	PGy	M06-288155 x U09-118017	3	F5		PI 88788
6 M13-250056	WGbf	M06-288190 x AR09-191018	3	F5		PI 88788
7 M13-257047	PGy	M07-209037 x LD08-12441a	21SCN U0	F5		PI 88788
8 M15-221040	PGbf	ND10-2993 x M07-292111	21SCN U0	F5		PI 88788
9 M15-108094	WGy	M04-239147 x ND10-3330	21SCN U0	F5	APHID	PI 88788
10 M15-220021	WGy	ND10-2993 x M07-292111	21SCN U0	F5		PI 88788
11 M16-215122	PGbf/ibl	LD10-5213a x M10-218053	NEW	F7	Aphid R	PI 88788
12 M16-121069	WLt+Gy	M07-209037 x MN0208CN	NEW	F7	Rhizo	PI 88788
13 M16-465-20015	WTbr	MSC09-774074 x (M08-362045 X Williams 82T)	NEW		Triple NULL	PI567516C
14 ND17-20565	WGy	ND10-3601 x Pioneer 91M10	21SCN U0	F5		PI 88788
15 ND17-20754	P+WGy	ND10-3610 x Pioneer 91M10	21SCN U0	F5		PI 88788
16 ND17-22117	WGbf	ND10-3610 x Pioneer 91M10	21SCN U0	F5		PI 88788
17 ND17-22120	PGy	ND10-3610 x Pioneer 91M10	21SCN U0	F5		PI 88788
18 OAC 19-05C-SCN	WLt+Ggr	OAC Prescott x M05-363022	21SCN U0	F4		PI 88788

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Entry	MO SCN screening						SNP marker analysis			MN
	HG 7		HG 2.5.7		HG 1.2.5.7		SCN			IDC
	FI	rating	FI	rating	FI	rating	Rhg1-88788	Rhg1-Peking	Rhg4	score
1 ND Dickey (0)	no data						S	S	S	3.3
2 MN0095	no data						.	S	S	1.8
3 MN0404CN (SCN)	9	HR					R	S	S	1.8
4 MN1511CN	6	HR					R	S	R	1.8
5 M13-118036	6	HR	87	NR	90	NR	R	S	S	3.5
6 M13-250056	1	HR	1	HR	19	R	S	R	R	1.0
7 M13-257047	21	R					R	S	S	2.5
8 M15-221040	13	R					R	S	S	3.0
9 M15-108094	27	MR					R	S	S	3.8
10 M15-220021	14	R					R	S	S	1.8
11 M16-215122	11	R					R	S	S	1.5
12 M16-121069	11	R					R	S	S	1.5
13 M16-465-20015	4	HR	70	NR	89	NR	R	S	S	1.5
14 ND17-20565	11	R					R	S	S	2.5
15 ND17-20754	56	LR					S	S	S	4.3
16 ND17-22117	7	HR					R	S	S	2.3
17 ND17-22120	12	R					R	S	S	2.3
18 OAC 19-05C-SCN	10	R					no data			2.3

(**)=rep data too variable to rate

Mean 2.4
 CV 33.8
 LSD 1.7

Predicted resistance genes based on SNP marker analysis

Entry	SCN	Iron Chlorosis	Phytophthora	Root Knot Nematode	Brown Stem Rot	Frogeye Leaf Spot	Stem Canker
1 ND Dickey (0)	none	R-(LgA1+Ch13)	Rps1c	S	S	S	R
2 MN0095	none	R-(LgA1+Ch13)	Het-(Rps1a+Rps1k)	S	Het	S	R
3 MN0404CN (SCN)	Rhg1_PI88788	R-(LgA1+LgN+Ch13)	Rps1k + Rps6	S	R	S	R
4 MN1511CN	Rhg1_PI88788+Rhg4	R-(LgA1+LgN+Ch13)	Rps1c	S	Het	S	R
5 M13-118036	Rhg1_PI88788	R-Ch13		S	R	S	R
6 M13-250056	Rhg1_Peking+Rhg4	R-(LgA1+Ch13)	Rps1c	S	R	S	R
7 M13-257047	Rhg1_PI88788	R-(LgA1+LgN+Ch13)	Rps1a	S	R	S	R
8 M15-221040	Rhg1_PI88788	Het-LgN + R-Ch13	Rps1a + Rps6	S	R	S	R
9 M15-108094	Rhg1_PI88788	Het-(LgA1+LgN+Ch13)		S	S	S	R
10 M15-220021	Rhg1_PI88788	Het-LgN + R-Ch13		S	R	S	R
11 M16-215122	Rhg1_PI88788	R-Ch13		S		S	R
12 M16-121069	Rhg1_PI88788	R-(LgA1+Ch13) + Het-LgN		S	Het	S	R
13 M16-465-20015	Rhg1_PI88788	R-Ch13		S	R	S	R
14 ND17-20565	Rhg1_PI88788	R-(LgA1+Ch13)	Rps6	S	Het	S	R
15 ND17-20754	none	R-(LgA1+Ch13)	Rps6	S	Het	S	R
16 ND17-22117	Rhg1_PI88788	R-(LgA1+Ch13)		S	R	S	R
17 ND17-22120	Rhg1_PI88788	R-(LgA1+Ch13)		S	Het	S	R
18 OAC 19-05C-SCN	no marker data available						

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2 Year Summary

Entry	Locations	Yield				Maturity date	Lodging score	Height in.	Seed					
		All bu/a	rank	Infested bu/a	rank				Non-infested bu/a	rank	weight g/100	quality score	protein @13%	oil @13%
		10		5		6		11	8	6	8	8	10	10
1	ND Dickey (0)	54.6	3	54.8	5	55.0	1	9/18	1.1	29	17.9	1.0	34.8	17.8
2	MN0095	42.7	14	45.0	14	42.5	13	-11	1.2	27	13.3	1.5	35.3	18.7
3	MN0404CN (SCN)	43.6	13	48.0	13	40.6	14	-6	1.2	29	14.2	1.2	34.5	18.7
5	M13-118036	55.2	2	59.8	2	52.5	3	1	1.2	29	15.9	1.3	34.5	17.8
6	M13-250056	55.6	1	62.6	1	50.8	4	1	1.1	32	16.1	1.3	33.8	18.5
7	M13-257047	48.2	10	52.8	9	45.5	10	-4	1.1	32	17.8	1.5	35.6	18.5
8	M15-221040	46.4	12	50.2	11	44.4	12	-5	1.2	29	14.8	1.3	35.8	18.1
9	M15-220021	46.7	11	49.6	12	45.5	10	-6	1.2	29	13.5	1.2	35.3	18.8
10	M15-108094	50.7	7	53.0	8	49.6	7	1	1.2	32	16.9	1.4	34.8	18.1
14	ND17-20565	50.1	8	54.0	7	49.2	9	3	1.2	29	17.6	1.2	35.5	18.4
15	ND17-20754	49.5	9	50.6	10	49.8	6	-3	1.0	24	15.0	1.1	34.5	18.6
16	ND17-22117	53.7	5	59.3	3	50.8	4	1	1.1	28	13.9	1.4	34.9	18.7
17	ND17-22120	54.1	4	57.3	4	52.8	2	-1	1.1	29	15.9	1.4	34.3	19.1
18	OAC 19-05C-SCN	51.4	6	54.3	6	49.6	8	1	1.2	33	15.9	1.3	35.5	17.9
	Mean	50.2		53.7		48.5		-2.2	1.1	29.5	15.7	1.3	34.9	18.4

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Yield (bu/a)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)	64.1	52.0	68.0	46.1	65.1	49.3	50.1
2 MN0095	48.1	33.5	63.9	38.6	50.4	34.0	42.2
3 MN0404CN (SCN)	49.3	42.6	60.2	37.9	42.6	36.9	41.5
4 MN1511CN	58.4	65.9	67.7	37.9	61.3	45.2	55.9
5 M13-118036	65.4	67.2	72.4	46.7	61.5	44.2	47.8
6 M13-250056	67.2	56.1	63.4	44.7	64.7	45.0	45.5
7 M13-257047	57.4	45.3	63.3	42.2	57.2	40.9	28.5
8 M15-221040	50.7	60.3	58.3	42.3	56.6	35.9	37.7
9 M15-108094	53.9	54.8	67.6	43.9	59.2	44.9	44.3
10 M15-220021	51.7	54.1	55.2	39.9	57.9	35.8	37.6
11 M16-215122	55.5	62.2	65.8	34.9	60.8	40.1	45.1
12 M16-121069	43.1	41.1	61.5	36.9	50.8	35.6	29.7
13 M16-465-20015	51.7	53.2	68.2	41.0	59.4	41.9	36.0
14 ND17-20565	58.7	58.2	67.4	38.0	69.8	41.4	45.6
15 ND17-20754	54.8	52.9	65.7	42.6	61.4	38.8	42.4
16 ND17-22117	61.7	67.0	62.3	41.2	59.8	42.2	46.6
17 ND17-22120	55.9	55.1	74.7	40.7	58.0	51.7	47.8
18 OAC 19-05C-SCN	59.5	64.0	67.9	42.2	53.8	48.3	43.3
Mean	55.9	56.7	65.2	41.0	58.3	41.8	42.6
C.V. %	11.6	18.8	6.6	9.5	11.0	8.3	11.4
LSD(2-sided,.05)	13.7	17.8	7.1	6.5	10.8	5.8	9.7
Replications	2*	3	3	3	3	3	3
Row spacing (in.)	30	30	30	30	30	13	17.7

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Yield (rank)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)	3	14	4	2	2	2	2
2 MN0095	17	18	11	13	17	18	12
3 MN0404CN (SCN)	16	16	16	15	18	14	13
4 MN1511CN	7	3	6	16	6	4	1
5 M13-118036	2	1	2	1	4	7	3
6 M13-250056	1	8	12	3	3	5	7
7 M13-257047	8	15	13	8	13	11	18
8 M15-221040	15	6	17	6	14	15	14
9 M15-108094	12	10	7	4	10	6	9
10 M15-220021	13	11	18	12	12	16	15
11 M16-215122	10	5	9	18	7	12	8
12 M16-121069	18	17	15	17	16	17	17
13 M16-465-20015	14	12	3	10	9	9	16
14 ND17-20565	6	7	8	14	1	10	6
15 ND17-20754	11	13	10	5	5	13	11
16 ND17-22117	4	2	14	9	8	8	5
17 ND17-22120	9	9	1	11	11	1	4
18 OAC 19-05C-SCN	5	4	5	7	15	3	10

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Maturity

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)	9/27	9/18	9/20	9/22		9/24	9/23
2 MN0095	-12	-9	-12	-15		-7	-11
3 MN0404CN (SCN)	-7	-3	-11	-9		-5	-12
4 MN1511CN	4	12	6	4		6	1
5 M13-118036	1	7	0	1		1	-1
6 M13-250056	2	7	0	1		-2	-5
7 M13-257047	-2	5	-7	-3		-1	-8
8 M15-221040	-9	-1	-9	0		-4	-7
9 M15-108094	1	4	-1	5		4	-2
10 M15-220021	-2	-2	-7	-11		-6	-6
11 M16-215122	3	11	-1	9		10	3
12 M16-121069	-7	-2	-7	-11		-5	-10
13 M16-465-20015	-1	6	-5	4		4	0
14 ND17-20565	2	10	-2	8		3	1
15 ND17-20754	-2	0	-6	2		-2	-3
16 ND17-22117	1	5	0	1		2	1
17 ND17-22120	-2	4	-2	1		1	-2
18 OAC 19-05C-SCN	-1	5	2	4		-1	-3
Planted	6/06	5/25	5/23	5/27	5/28	5/25	5/13

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Lodging (score)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)	1.0	1.0	1.0	1.7		1.0	1.3
2 MN0095	1.0	1.0	1.0	2.0		1.0	1.0
3 MN0404CN (SCN)	1.0	1.0	1.0	2.0		1.0	1.0
4 MN1511CN	1.0	1.0	1.0	1.7		1.0	1.0
5 M13-118036	1.0	1.0	1.0	1.7		1.0	1.0
6 M13-250056	1.0	1.0	1.0	1.7		1.0	1.0
7 M13-257047	1.0	1.0	1.0	2.0		1.0	1.0
8 M15-221040	1.0	1.0	1.0	2.0		1.0	1.0
9 M15-108094	1.0	1.0	1.0	2.0		1.0	1.0
10 M15-220021	1.3	1.0	1.0	1.7		1.0	1.0
11 M16-215122	1.0	1.0	1.0	1.3		1.0	1.0
12 M16-121069	1.0	1.0	1.0	1.7		1.0	1.0
13 M16-465-20015	1.0	1.0	1.0	1.3		1.0	1.0
14 ND17-20565	1.0	1.0	1.0	1.7		1.0	1.0
15 ND17-20754	1.0	1.0	1.0	1.0		1.0	1.0
16 ND17-22117	1.0	1.0	1.0	1.3		1.0	1.0
17 ND17-22120	1.0	1.0	1.0	1.3		1.0	1.0
18 OAC 19-05C-SCN	2.0	1.0	1.0	1.3		1.0	1.0

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Height (inches)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)			36	26		31	19
2 MN0095			37	24		26	15
3 MN0404CN (SCN)			38	25		27	18
4 MN1511CN			46	29		36	20
5 M13-118036			37	26		29	19
6 M13-250056			40	30		32	18
7 M13-257047			39	27		33	17
8 M15-221040			35	27		30	17
9 M15-108094			40	29		34	20
10 M15-220021			38	26		29	16
11 M16-215122			36	22		30	17
12 M16-121069			37	26		29	15
13 M16-465-20015			36	27		29	16
14 ND17-20565			37	26		29	19
15 ND17-20754			31	23		23	17
16 ND17-22117			37	25		29	17
17 ND17-22120			36	24		30	18
18 OAC 19-05C-SCN			41	30		35	23

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Seed Weight (g/100)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)				14.3	19.5	16.4	22.9
2 MN0095				10.9	15.3	12.8	16.8
3 MN0404CN (SCN)				12.1	14.7	14.0	17.9
4 MN1511CN				11.1	15.3	14.2	19.8
5 M13-118036				12.8	16.9	14.5	20.5
6 M13-250056				13.1	16.9	13.3	20.5
7 M13-257047				15.1	19.7	18.8	22.0
8 M15-221040				12.1	17.1	14.6	18.1
9 M15-108094				13.1	18.5	16.4	22.8
10 M15-220021				11.1	15.6	12.0	18.0
11 M16-215122				12.7	14.5	14.7	20.3
12 M16-121069				13.0	17.4	14.3	19.3
13 M16-465-20015				14.6	17.6	15.0	20.6
14 ND17-20565				14.8	19.9	16.0	22.7
15 ND17-20754				12.9	16.3	13.7	20.4
16 ND17-22117				10.8	14.5	13.4	18.7
17 ND17-22120				12.3	17.3	14.4	21.0
18 OAC 19-05C-SCN				13.8	16.0	14.7	19.8

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Seed Quality (score)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)				1.0	1.0	1.5	1.0
2 MN0095				1.0	1.0	1.5	1.7
3 MN0404CN (SCN)				1.0	1.0	1.5	1.7
4 MN1511CN				1.0	1.0	1.5	1.0
5 M13-118036				1.0	1.0	2.0	1.0
6 M13-250056				1.0	1.0	1.5	1.0
7 M13-257047				1.0	1.0	1.5	1.0
8 M15-221040				1.0	1.0	1.5	1.0
9 M15-108094				1.0	1.0	1.5	2.3
10 M15-220021				1.0	1.0	1.0	2.0
11 M16-215122				1.0	1.0	1.5	1.0
12 M16-121069				1.0	1.0	1.5	2.7
13 M16-465-20015				1.0	1.0	1.0	1.0
14 ND17-20565				1.0	1.0	1.5	1.7
15 ND17-20754				1.0	1.0	1.5	1.0
16 ND17-22117				1.0	1.0	1.5	2.3
17 ND17-22120				1.0	1.0	1.5	2.0
18 OAC 19-05C-SCN				1.0	1.0	1.5	1.0

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Protein (%)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0	2.7	NI	NI	NI	NI
Strain							
1 ND Dickey (0)	34.4			35.7	35.0	34.9	35.6
2 MN0095	35.3			34.2	35.2	36.1	35.9
3 MN0404CN (SCN)	34.5			34.3	34.5	34.4	34.8
4 MN1511CN	34.0			34.1	33.4	34.3	35.3
5 M13-118036	34.4			33.8	33.7	35.5	34.2
6 M13-250056	33.9			33.9	33.1	33.5	34.3
7 M13-257047	35.1			35.4	35.7	36.5	36.5
8 M15-221040	36.3			35.1	36.5	36.1	36.4
9 M15-108094	34.9			35.0	34.5	35.8	35.3
10 M15-220021	34.9			35.5	35.2	35.3	37.4
11 M16-215122	34.7			33.4	32.6	34.3	34.4
12 M16-121069	36.7			35.7	36.4	36.8	36.3
13 M16-465-20015	33.7			33.8	33.1	33.6	34.0
14 ND17-20565	35.8			35.0	35.6	35.7	36.3
15 ND17-20754	34.7			34.9	34.7	35.8	34.9
16 ND17-22117	35.6			35.1	34.6	35.7	36.7
17 ND17-22120	34.6			34.3	34.0	35.1	35.0
18 OAC 19-05C-SCN	36.1			35.6	34.8	36.9	35.7

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Oil (%)

	Absaraka	Prosper	Wyndmere	Crookston	Moorhead	Elora	Ottawa
	ND	ND	ND	MN	MN	ON	ON
SCN HG Type	2.7	0		NI	NI	NI	NI
Strain							
1 ND Dickey (0)	18.2			17.2	17.6	17.2	18.0
2 MN0095	18.6			19.0	18.4	18.2	18.3
3 MN0404CN (SCN)	18.4			18.5	18.7	19.2	18.6
4 MN1511CN	17.9			18.4	18.1	18.0	18.1
5 M13-118036	17.7			17.7	18.1	17.4	18.6
6 M13-250056	18.4			18.0	18.1	19.0	18.5
7 M13-257047	18.4			18.6	18.6	17.7	18.8
8 M15-221040	17.7			18.2	17.5	18.5	17.6
9 M15-108094	18.2			18.4	17.6	17.3	18.0
10 M15-220021	18.4			19.1	18.4	18.5	18.6
11 M16-215122	18.0			19.0	18.4	18.7	18.2
12 M16-121069	17.4			18.4	17.7	17.6	18.5
13 M16-465-20015	19.0			19.5	18.6	19.2	19.2
14 ND17-20565	18.6			17.8	18.1	19.2	17.9
15 ND17-20754	18.5			18.5	17.9	18.2	18.5
16 ND17-22117	17.9			18.4	18.1	18.6	18.5
17 ND17-22120	18.4			19.9	18.0	18.5	18.6
18 OAC 19-05C-SCN	17.6			17.7	17.9	16.9	18.1