

A1469-23 (November 2023)

# North Dakota Dry Pea

## *Variety Trial Results for 2023 and Selection Guide*

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### Introduction

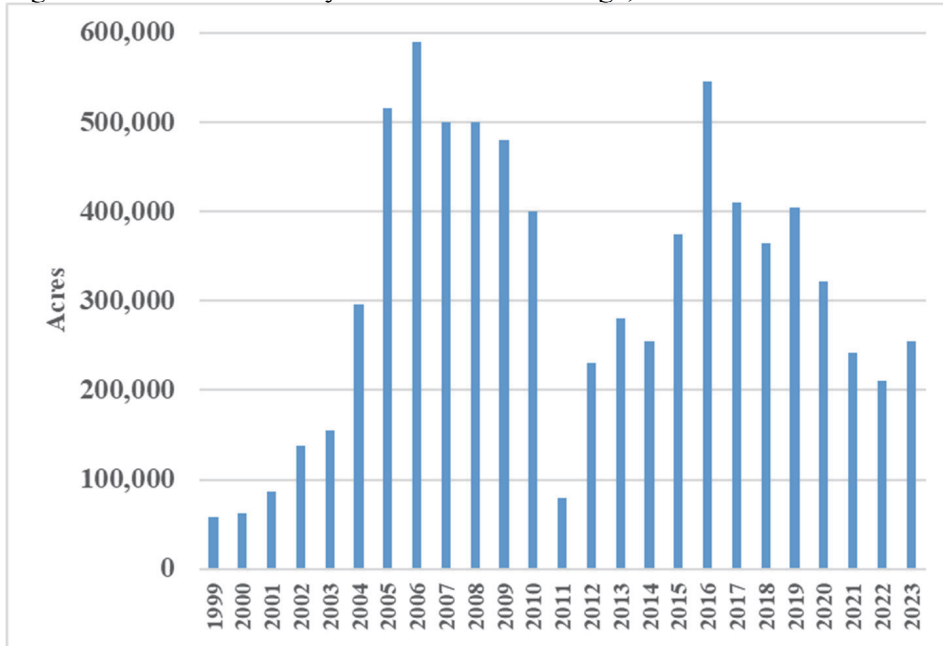
Field peas fit well into small-grain rotations. Field peas are primarily used for human consumption or as livestock feed. The green- and yellow-seeded varieties are processed for human consumption as dry split peas. Field pea seeds are fractionated into components (protein, starch, minerals) and used in diverse food products such as wheat flour in pasta, plant protein meat substitutes (burger), extruded snacks, noodles, and livestock and pigeon feeds. Field peas also are becoming attractive for addressing Type 2 diabetes and obesity due to their moderate protein concentration, slowly digestible starch and insoluble fiber content.

Field pea stems grow to a length of 33 to 36 inches, and the plant reaches its maximum height at the early pod-fill stage. A cool growing season (a mean temperature of 55 to 65 F) is necessary for optimum pea yields. Hot weather during flowering may result in a reduced seed set.

In North Dakota, field peas require about 60 days from seeding until flowering and 90 to 100 days to maturity. The moisture requirement for field peas is similar to that for cereal grains.

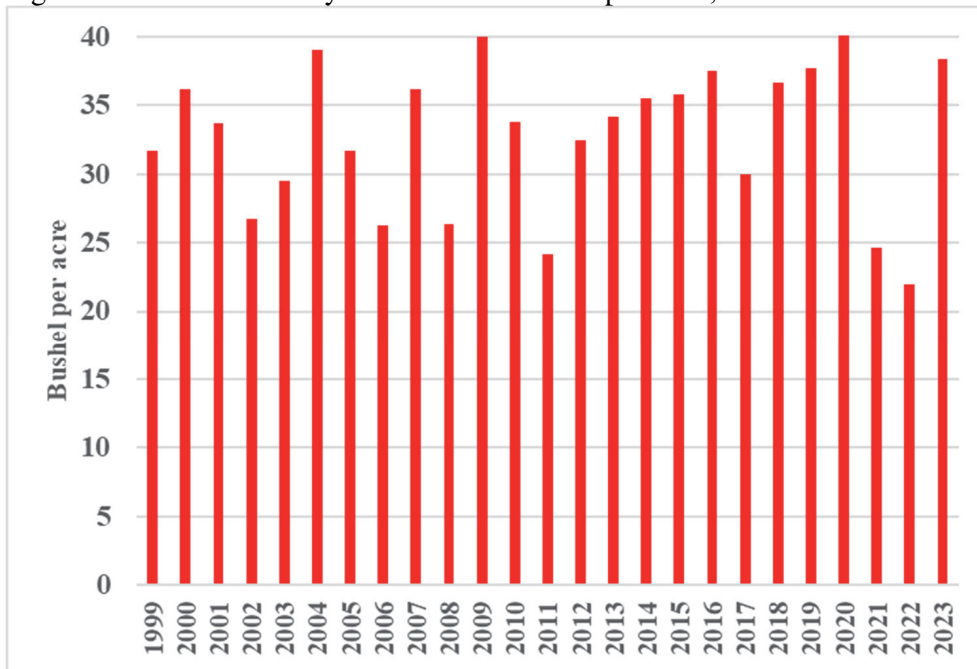
For production information, see publication A1166, "Field Pea Production" ([www.ndsu.edu/agriculture/ag-hub/publications/field-pea-production](http://www.ndsu.edu/agriculture/ag-hub/publications/field-pea-production)). Dry pea-planted acres and yield have fluctuated during the past 25 growing seasons, as shown in Figures 1 and 2.

Figure 1. North Dakota Dry Pea Harvested Acreage, 1999 to 2023.



Source: North Dakota Agricultural Statistics Service – U.S. Department of Agriculture.

Figure 2. North Dakota Dry Pea Yield in Bushels per Acre, 1999 to 2023.



Source: North Dakota Agricultural Statistics Service – USDA.

The agronomic data presented in this publication are from replicated research plots using experimental designs that enable the use of statistical analysis. The LSD (least significant difference) numbers beneath the columns in the tables are derived from the statistical analyses and only apply to the numbers in the column in which they appear. If the difference between two varieties exceeds the LSD value, it means that with 95% or 90% probability (LSD 0.05 or 0.10), the higher-yielding variety has a significant yield advantage. If the difference between two varieties is less than the LSD value, then the variety yields are considered similar.

The abbreviation NS indicates no significant difference for that trait among any of the varieties. The CV (coefficient of variation) is a measure of variability in the trial and is expressed as a percentage. Large CVs mean a large amount of variation that could not be attributed to differences in the varieties. In the tables, the mean indicates the average of the observations in the column. The abbreviation PM stands for physiologically mature. Physiological maturity is reached when 90% of the pods are starting to turn brown.

Yields are reported at 15% moisture content. The standard for reporting protein in field peas is at 0 % moisture. The protein content data are not intended to be compared among locations, but only to compare within the table in which they appear. The harvest ease score is taken at the time the plants are dried sufficiently to allow threshing or harvesting to occur. Harvest ease is an assessment of combining efficiency. The lower the score, the easier the operator will be able to get the cutter bar underneath the lowest pods and make decent travel speed through the field.

In the tables, the dry pea varieties are arranged in alphabetical order within market class (yellow and green cotyledon types). Footnotes provide more details for the table under which they appear. Characteristics to evaluate for selecting a dry pea variety include market class, yield potential in your area, test weight, reaction to problematic diseases and maturity date.

When selecting a high-yielding and good-quality variety, use data that summarize several years and locations. Table 2 provides information on where varieties were tested. Choose the variety that, on average, performs the best at multiple locations near your farm during several years.

Presentation of data for the varieties tested does not imply approval or endorsement by the authors or agencies conducting the test. North Dakota State University approves the reproduction of any table in this publication only if no portion is deleted, appropriate footnotes are given, the order of the data is not rearranged and NDSU is given credit for conducting the trial.

## **Acknowledgments**

Research specialists and technicians helped with the fieldwork and data compilation. The assistance given by many secretaries in typing respective portions of this document is very much appreciated.

**Table 1. 2023 Locations Where Pea Varieties Were Tested.**

Pea Variety	Company	Carrington	Langdon	Dickinson	Hettinger
<b>Yellow Cotyledon Type</b>					
AAC Beyond	Meridian Seeds	x	x	x	x
AAC Chrome	Valesco Genetics	x	x	--	x
AAC Julius	Valesco Genetics	x	x	x	x
AAC Profit	Premier Genetics LLC	x	x	x	x
AC Agassiz	Meridian Seeds	x	x	x	x
CDC Amarillo	Meridian Seeds	x	x	x	x
CDC Inca	Meridian Seeds	x	x	x	x
CDC Spectrum	Meridian Seeds	x	x	x	x
DS Admiral	Pulse USA	x	x	x	x
Hyline	Valesco Genetics	x	x	--	x
MS GrowPro	Meridian Seeds	x	x	x	x
MS Prostar	Meridian Seeds	x	x	x	x
ND Dawn	NDSU/NDCIA	x	x	x	x
Orchestra	Premier Genetics LLC	x	x	x	x
PG 2601	Pulse Genetics	x	--	--	--
PG Cash	Premier Genetics LLC	x	x	x	x
Pizzazz	ProGene	x	x	--	x
PSTSPS50	Photosyntech	--	x	--	--
Salamanca	Valesco Genetics	x	x	--	x
Spider	Lafrenz Seed	x	x	--	--
<b>Green Cotyledon Type</b>					
Aragorn	Great Northern Ag	x	x	x	x
Arcadia	Pulse USA	x	x	x	x
CDC Striker	Pulse USA	x	x	x	x
ND Victory	NDSU/NDCIA	x	x	x	x
Shamrock	Valesco Genetics	x	x	--	x

**Table 2. 2023 Dry Pea - Carrington - Authors, K. Simons, M. Hafner and M. Ostlie.**

Variety	Days to Flower	Days to PM	Canopy Height <sup>1</sup>	Harvest Ease <sup>2</sup>	1,000 Seed Wt.	Seeds/Pound	Seed Protein	Test Weight	Seed Yield	
	(DAP) <sup>3</sup>	(DAP) <sup>3</sup>	(inch)	(0-9)	(gram)	(seeds)	(%)	(lb/bu)	2023	3-yr. Avg.
<b>Yellow Cotyledon Type</b>										
AAC Beyond	44	86	20	5	259	1,765	26.2	64.3	79.2	--
AAC Chrome	44	89	18	5	292	1,553	24.2	64.4	79.5	49.6
AAC Julius	44	83	20	4	253	1,801	26.9	63.7	72.4	--
AAC Profit	46	90	21	5	267	1,703	26.9	64.2	71.9	48.9
Agassiz	44	89	19	4	283	1,606	26.6	64.1	65.2	43.3
CDC Amarillo	45	90	20	2	260	1,754	26.2	64.3	65.6	45.2
CDC Inca	45	90	20	4	267	1,697	27.4	63.9	70.1	47.2
CDC Spectrum	45	91	20	4	277	1,640	27.3	63.7	61.5	42.2
DS Admiral	41	82	16	6	280	1,621	27.0	63.1	51.8	39.6
Hyline	45	86	20	4	298	1,523	25.1	64.0	66.2	--
MS GrowPro	43	90	24	4	351	1,293	30.4	63.5	66.4	45.1
MS Prostar	45	87	18	5	305	1,486	27.3	63.3	61.5	--
ND Dawn	43	85	18	6	281	1,617	25.4	62.9	61.9	40.9
Orchestra	43	90	18	6	322	1,410	29.8	64.0	49.8	34.5
PG 2601	44	85	19	5	256	1,782	27.1	64.3	64.8	42.9
PG Cash	43	86	21	5	307	1,478	27.9	63.4	70.5	--
Pizzaz	40	82	16	7	346	1,312	27.1	63.3	50.7	--
Salamanca	43	84	18	5	269	1,692	28.3	62.7	52.1	--
Spider	41	84	18	5	291	1,566	28.0	63.8	57.8	--
<b>Green Cotyledon Type</b>										
Aragorn	43	84	17	7	250	1,817	27.4	62.5	56.1	37.5
Arcadia	43	85	15	7	252	1,801	25.3	63.2	51.8	38.5
CDC Striker	44	87	19	5	268	1,699	29.1	64.0	54.4	37.6
ND Victory	43	92	26	2	210	2,057	26.4	64.0	65.3	--
Shamrock	46	89	21	3	280	1,633	27.1	64.2	59.4	40.3
Mean	44	88	20	5	285	1,612	27.3	63.7	62.5	42.2
CV %	2.8	4.8	18	27	5.4	6.3	3.0	0.8	14.7	--
LSD 0.05	1.7	5.9	4.8	--	21	143	1.1	0.7	12.9	--
LSD 0.10	1.4	4.9	4.0	--	18	120	1.0	0.6	10.8	--

Planted: May 4. Harvested: Aug. 9. Previous crop: flax.

<sup>1</sup>Height to the top of the canopy at harvest.<sup>2</sup>Harvest ease: 0 = all plants upright - very easy harvest, to 9 = all plants flat - very difficult to harvest directly.<sup>3</sup>DAP = Days after planting.

**Table 3. 2023 Dry Pea - Langdon - Authors, B. Hanson, L. Henry and R. Duerr.**

Variety	Days to Flower	Days to PM	Canopy Height <sup>1</sup>	Harvest Ease <sup>2</sup>	1,000 Seed Wt.	Seed Protein	Seeds/Pound	Test Weight	Seed Yield	
	(DAP) <sup>3</sup>	(DAP) <sup>3</sup>	(inch)	(0-9)	(gram)	(%)	(seeds)	(lb/bu)	2023	2-yr. Avg.
<b>Yellow Cotyledon Type</b>										
AAC Beyond	48	80	32	2	215	25.3	2,110	62.3	87.8	--
AAC Chrome	48	83	31	1	247	24.0	1,840	63.1	84.5	77.6
AAC Julius	47	80	35	0	206	24.9	2,197	63.7	86.6	72.6
AAC Profit	47	81	37	1	226	26.2	2,022	63.3	81.0	77.2
Agassiz	45	82	37	0	229	26.1	1,995	63.2	87.2	76.6
CDC Amarillo	49	82	36	0	230	24.4	1,982	63.5	76.8	74.0
CDC Inca	47	83	39	0	238	24.7	1,911	63.6	77.7	74.4
CDC Spectrum	47	82	35	1	242	25.3	1,875	62.9	83.9	72.4
DS Admiral	42	77	33	2	247	24.2	1,846	63.0	82.1	76.2
Hyline	46	80	33	2	244	23.5	1,863	64.3	85.3	70.4
MS GrowPro	46	82	37	0	321	26.2	1,413	63.1	80.0	74.9
MS ProStar	47	78	34	1	251	24.4	1,819	62.5	78.0	--
ND Dawn	44	79	30	0	243	23.7	1,859	62.8	73.7	60.0
Orchestra	42	80	34	2	279	26.2	1,628	62.7	82.1	69.0
PG Cash	45	77	33	0	264	24.4	1,721	63.1	75.9	--
Pizzaz	37	77	32	5	309	24.5	1,466	63.6	78.0	--
PSTSPS50	45	80	36	2	324	26.3	1,403	63.5	81.5	79.5
Salamanca	43	79	35	1	262	25.5	1,728	63.8	77.0	70.5
Spider	46	80	37	1	251	25.2	1,806	63.8	80.4	--
<b>Green Cotyledon Type</b>										
Aragorn	42	77	26	4	224	25.7	2,032	63.0	67.6	54.0
Arcadia	43	78	29	5	215	23.9	2,111	63.0	78.5	61.2
CDC Striker	46	78	33	0	240	25.6	1,898	63.7	70.2	58.4
ND Victory	50	86	41	1	175	26.3	2,608	63.0	72.4	58.6
Shamrock	47	80	34	0	233	25.0	1,943	63.0	81.4	71.4
Mean	45	80	35	2	248	25.1	1,860	63.2	78.9	70.0
CV %	2.4	1.6	8.1	77	3.2	2.8	3.6	1.0	7.4	--
LSD 0.05	1.8	2.0	4.6	2.0	13	1.1	110	1.1	9.5	--
LSD 0.10	1.5	1.7	3.8	1.7	11	1.0	92	0.9	7.9	--

Planted: May 19. Harvested: Aug. 28. Previous crop: wheat.

<sup>1</sup>Height to the top of the canopy at harvest.<sup>2</sup>Harvest ease: 0 = all plants upright - very easy harvest, to 9 = all plants flat - very difficult to harvest directly.<sup>3</sup>DAP = Days after planting.

**Table 4. 2023 Dry Pea - Dickinson - Author, G. Martin.**

Variety	Days to Flower (DAP) <sup>2</sup>	Days to PM (DAP) <sup>2</sup>	Canopy Height <sup>1</sup> (inch)	1000 Seed Wt. (gram)	Seeds/ Pound (seeds)	Test Weight (lb/bu)	Protein (%)	Seed Yield	
								2023	3-yr.Avg.
								------(bu/a)-----	
<b>Yellow Cotyledon Type</b>									
AAC Beyond	45	82	13	105	4,309	65.9	26.3	36.1	--
AAC Julius	46	84	20	112	4,049	66.3	26.7	33.6	31.4
AAC Profit	47	85	19	118	3,851	66.2	28.2	39.0	--
Agassiz	44	84	20	115	3,959	65.9	26.2	27.7	28.1
CDC Amarillo	47	84	18	112	4,050	66.0	26.3	28.8	27.3
CDC Inca	47	82	20	103	4,403	66.0	26.4	27.3	28.3
CDC Spectrum	47	84	18	115	3,969	65.7	27.4	31.4	28.6
DS Admiral	44	82	16	119	3,837	65.2	26.8	24.2	28.1
MS GrowPro	46	85	20	143	3,180	67.4	27.7	28.9	25.1
MS Prostar	47	85	22	121	3,767	66.7	26.6	31.5	--
ND Dawn	45	83	14	114	4,012	65.3	25.9	23.2	26.4
Orchestra	44	82	17	130	3,518	65.9	28.9	25.3	--
PG Cash	45	85	21	113	4,065	65.8	27.4	35.2	--
<b>Green Cotyledon Type</b>									
Aragorn	42	80	11	105	4,346	62.9	27.4	21.6	22.5
Arcadia	44	82	16	111	4,099	65.2	27.0	25.5	27.0
CDC Striker	47	84	16	112	4,046	66.2	28.4	22.6	27.0
ND Victory	47	85	22	95	4,818	65.9	26.2	24.5	--
Mean	45	83	17	116	3,965	65.8	26.8	27.9	27.3
CV %	1.5	2.0	16.2	8.4	10.3	1.0	2.1	9.1	--
LSD 0.05	0.8	2.0	3.3	11.5	479	0.8	0.7	2.3	--
LSD 0.10	0.6	1.5	2.6	8.9	372	0.6	0.5	2.0	--

Planted: May 3. Harvested: Aug. 2. Previous crop: cover crop forage.

<sup>1</sup>Height to the top of the canopy at harvest.<sup>2</sup>DAP = Days after planting.

**Table 5. 2023 Dry Pea - Hettinger - Authors, J. Rickertsen and M. Wells.**

Variety	Days to Flower	Days to PM	Canopy Height <sup>1</sup>	Lodge	Seed Protein	1,000 Seed Wt.	Seeds/Pound	Test Weight	Seed Yield	
	(DAP) <sup>2</sup>	(DAP) <sup>2</sup>	(inch)	(0-9)	(%)	(gram)	(seeds)	(lb/bu)	2023	2-yr. Avg.
<b>Yellow Cotyledon Type</b>										
AAC Beyond	49	88	31	8	25.7	199	2,273	63.6	67.4	--
AAC Chrome	49	88	30	6	24.9	227	2,000	64.1	73.3	45.1
AAC Julius	49	88	31	5	25.1	202	2,228	63.9	66.2	--
AAC Profit	50	90	35	6	27.3	201	2,258	63.8	65.7	44.3
Agassiz	49	90	34	7	24.8	219	2,069	63.1	62.1	41.7
CDC Amarillo	51	92	36	4	25.6	209	2,171	63.9	69.7	44.0
CDC Inca	50	90	35	4	25.9	216	2,105	64.4	72.4	47.9
CDC Specturm	49	91	34	7	26.7	226	2,012	63.0	70.7	47.7
DS Admiral	47	83	29	8	24.4	236	1,928	63.0	61.5	44.3
Hyline	48	87	30	8	25.0	237	1,909	63.4	69.5	--
MS Growpro	49	88	34	6	27.5	275	1,659	62.9	60.4	41.5
MS ProStar	49	87	32	7	25.6	235	1,936	63.1	69.2	--
ND Dawn	48	83	29	7	24.1	230	1,971	63.1	61.5	43.8
Orchestra	47	85	31	7	26.4	253	1,807	63.2	58.4	40.3
PG Cash	48	84	32	7	25.7	245	1,850	62.8	66.3	--
Pizzazz	46	83	30	8	24.1	278	1,641	64.0	62.7	--
Salamanca	49	86	35	5	25.3	235	1,939	63.9	63.7	45.3
<b>Green Cotyledon Type</b>										
Aragorn	47	85	29	9	24.3	204	2,232	62.3	40.5	--
Arcadia	49	84	28	9	24.4	202	2,239	63.7	52.4	34.9
CDC Striker	49	83	26	7	27.5	226	2,009	63.9	59.6	39.8
ND Victory	51	93	40	4	26.1	152	3,002	64.0	63.0	41.4
Shamrock	50	86	33	7	25.0	224	2,033	63.0	61.9	--
Mean	49	87	32	6	25.8	226	2,035	63.4	63.2	43.0
CV %	1.0	1.3	6.3	18	2.5	4.0	4.1	1.3	8.2	--
LSD 0.05	0.6	1.3	2.4	1.3	0.8	11	97	1.0	6.1	--
LSD 0.10	0.5	1.0	1.8	1.0	0.7	8	76	0.8	4.7	--

Planted: May 3. Harvested: Aug. 9. Previous crop: corn.

<sup>1</sup>Height to the top of the canopy at harvest.<sup>2</sup>Days after planting.

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