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North Dakota Dry Pea

Variety Trial Results for 2022 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 component.

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*). Dry pea-planted acres and yield have fluctuated during the past 24 growing seasons, as shown in Figures 1 and 2.



Figure 1. North Dakota Dry Pea Harvested Acreage, 1999 to 2022.

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



Figure 2. North Dakota Dry Pea Yield in Bushels per Acre, 1999 to 2022.

Source: North Dakota Agricultural Statistics Service - USDA.

2022 Dry Pea Performance Trials

Variety trial data from all NDSU Research Extension Centers for all crops can be found at *www.ag.ndsu.edu/varietytrials*. Weather data are provided in Table 1.

Table 1. April-September 2022 Average Temperature, Precipitation and Rankings for Selected North Dakota Locations.

Location	Average Temperature (Ranking)	Total Precipitation (Ranking)
Bowman	59.2 F (52nd warmest period since 1915)	12.5 inches (49th wettest period since 1915)
Bismarck	61.7 F (36th warmest period since 1875)	12.7 inches (65th wettest period since 1875)
Cavalier	56.8 F (21st coolest period since 1934)	20.9 inches (8th wettest period since 1927)
Fargo	60 F (68th coolest period since 1881)	16.9 inches (58th wettest period since 1881)
Minot Exp. Station	58.3 F (53rd warmest period since 1905)	15.1 inches (30th wettest period since 1894)
Williston Exp. Station	60 F (49th warmest period since 1894)	11.7 inches (49th wettest period since 1894)
North Dakota Average ¹	58.7 F (58th warmest period since 1895)	15.1 inches (38th wettest period since 1895)

Source: Adnan Akyüz, NDSU, North Dakota state climatologist.

¹Statewide values are calculated based on all available locations in North Dakota rather than the mathematical average of the list above.

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 is used to indicate no significant difference for that trait among any of the varieties. The CV is a measure of variability in the trial. The CV stands for coefficient of variation 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

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Table 2. 2022 Locations Where Pea Varieties Were Tested.											
Pea Variety	Company	Carrington	Langdon	Minot	Dickinson	Williston	Hettinger				
Yellow Cotyledon Type											
AAC Asher	Premier Genetics LLC	х	х				х				
AAC Chrome	Valesco Genetics	х	х	х	х	Х	х				
AAC Julius	Valesco Genetics	Х	х	Х	х	Х	х				
AAC Profit	Premier Genetics LLC	Х	х				Х				
AC Agassiz	Meridian Seeds	Х	Х	Х	х	Х	Х				
CDC Amarillo	Meridian Seeds	Х	х	Х	х	Х	х				
CDC Inca	Meridian Seeds	Х	Х	Х	х	Х	Х				
CDC Spectrum	Meridian Seeds	Х	Х	Х	х	Х	Х				
CP5222Y	WinField/Croplan	Х	х	Х	х	Х	х				
CP5244Y	WinField/Croplan	Х	х	Х	х	Х	Х				
DL Apollo	Pulse USA	Х	Х	Х		Х	Х				
DS Admiral	Pulse USA	Х	х	Х	х	Х	х				
Durwood	Pulse USA	Х					Х				
Goldenwood	ProGene						Х				
Hyline	Valesco Genetics		х	Х		Х					
Korando	Pulse USA	х					Х				
LG Stunner	Pulse USA	Х	х	Х		Х	х				
MS GrowPro	Meridian Seeds	Х	х	Х	х	Х	х				
ND Dawn	NDSU/NDCIA	Х	х	Х	х	Х	Х				
Orchestra	Premier Genetics LLC	х	Х				Х				
Pizzazz	ProGene						Х				
Salamanca	Valesco Genetics		х	Х	х	Х	Х				
Green Cotyledon Type											
Aragorn	Great Northern Ag	Х	х	Х	х	Х	х				
Arcadia	Pulse USA	Х	х	Х	х	Х	х				
CDC Striker	Pulse USA	Х	Х	Х	х	Х	Х				
Ginny 2	ProGene			Х							
ND Victory	NDSU/NDCIA	X	Х	Х	Х	Х	Х				
Shamrock	Valesco Genetics	Х	Х	Х	Х	Х	Х				

Table 3. 2022 Dry Pea - Carrington - Author, M. Ostlie.													
<u></u>	Days to	Flower	Days	Vine	Canopy	Plant	Harvest	1,000	Seeds/	Seed	Test	See	d Yield
Variety	Flower	Duration	to PM	Length	Height ¹	Lodge ²	Ease ³	Seed Wt.	Pound	Protein	Weight	2022	3-yr. Avg.
	$(DAP)^4$	(days)	$(DAP)^4$	(inch)	(inch)	(0-9)	(0-9)	(gram)		(%)	(lb/bu)	(bu/a)
Yellow Cotyled	lon Type												
AAC Asher	48	9	79	27	16	6	6	281	1,617	23.1	63.8	47.8	39.5
AAC Chrome	50	8	79	29	15	6	8	251	1,809	21.2	63.4	47.7	37.6
AAC Julius	49	9	75	33	19	4	5	218	2,085	23.5	63.6	43.1	
AAC Profit	50	7	78	31	15	7	7	259	1,752	24.0	63.6	45.2	37.9
AC Agassiz	47	12	78	30	18	6	6	255	1,782	23.9	62.9	42.9	34.9
CDC Amarillo	51	7	78	29	20	5	5	239	1,904	24.5	62.8	41.8	36.3
CDC Inca	50	8	76	29	22	3	4	226	2,011	24.1	63.8	43.7	37.6
CDC Spectrum	50	8	79	30	18	4	4	239	1,906	24.9	62.7	38.6	35.2
CP5222Y	45	12	78	28	17	7	7	279	1,639	26.1	62.5	36.7	
CP5244Y	45	14	79	32	18	7	6	247	1,840	25.5	62.8	35.5	
DL Apollo	47	10	78	33	19	4	5	225	2,032	24.4	63.1	39.0	29.5
DS Admiral	49	9	77	33	22	3	4	226	2,014	24.7	63.6	45.4	34.0
Durwood	48	8	77	35	19	4	4	247	1,842	24.7	63.1	37.3	30.6
Korando	44	13	79	33	19	6	7	277	1,641	25.8	62.7	37.3	28.1
LG Stunner	46	12	80	32	18	5	6	211	2,159	27.4	62.7	30.2	
MS GrowPro	49	11	80	36	21	5	5	306	1,485	26.7	62.5	42.5	35.0
ND Dawn	49	8	77	31	19	6	6	239	1,901	23.1	62.6	38.8	30.9
Orchestra	47	10	81	33	18	6	6	275	1,656	27.4	62.0	32.9	25.9
Green Cotyled	on Type												
Aragorn	46	12	77	27	17	8	8	226	2,009	24.3	61.5	35.0	25.9
Arcadia	48	9	77	27	16	6	7	217	2,099	23.6	63.4	41.4	33.0
CDC Striker	49	6	77	30	18	5	6	224	2,030	23.9	63.6	37.0	28.8
ND Victory	52	8	82	32	18	5	6	170	2,690	24.3	63.7	32.9	
Shamrock	51	6	79	31	15	7	8	250	1,819	23.3	63.3	39.5	32.2
Mean	48	9	78	31	18	5	6	243	1,901	24.5	63.0	39.6	32.9
CV %	1.4	11.8	2.1	7.1	13	16	17	4.9	5.2	3.7	0.7	10.9	
LSD 0.05	0.9	1.5	2.3	3.1	3.3	1.2	1.4	17	139	1.3	0.7	6.0	
LSD 0.10	0.8	1.3	1.9	2.6	2.8	1.0	1.2	14	116	1.1	0.6	5.1	

Planted: May 16. Harvested: Aug. 11. Previous crop: flax. ¹Height to the top of the canopy at harvest. ²Lodging: 0 = none, 9 = lying flat on the ground.³Harvest ease: 0 = all plants upright - very easy harvest, to 9 = all plants flat - very difficult to harvest directly. ⁴DAP = Days after planting.

Table 4. 2022 Dry Pea - Langdon - Authors, B. Hanson, L. Henry and R. Duerr.											
	Days to	Days to	Canopy	Harvest	1,000	Seed	Seeds/	Test	See	d Yield	
Variety	Flower	PM	Height ¹	Ease ²	Seed Wt.	Protein	Pound	Weight	2022	2-yr. Avg.	
	$(DAP)^3$	$(DAP)^3$	(inch)	(0-9)	(gram)	(%)	(seeds)	(lb/bu)	(bu/a)	
Yellow Cotyledon 7	уре										
AAC Asher	46	83	15	7	236	25.0	1,927	64.1	54.2	48.6	
AAC Chrome	47	87	15	6	232	25.7	1,959	64.9	70.8	66.3	
AAC Julius	47	82	17	6	194	25.8	2,352	64.6	58.6	56.0	
AAC Profit	49	90	14	7	213	27.9	2,133	64.3	73.4	61.5	
AC Agassiz	45	85	15	7	227	27.0	2,001	64.9	66.0	55.1	
CDC Amarillo	49	91	19	6	222	26.5	2,047	65.2	71.3	62.2	
CDC Inca	49	87	22	4	203	26.7	2,234	64.1	71.0	60.7	
CDC Spectrum	48	90	15	6	213	27.5	2,131	64.0	61.0	53.2	
CP5222Y	45	83	19	6	288	27.2	1,579	63.5	71.2		
CP5244Y	43	88	19	3	223	26.7	2,036	64.0	64.0		
DL Apollo	46	81	19	2	221	26.3	2,053	64.5	61.7	51.6	
DS Admiral	48	86	18	4	201	25.9	2,262	64.5	70.3	54.9	
Hyline	47	84	16	7	229	26.2	1,977	63.6	55.6	54.4	
LG Stunner	44	84	17	5	203	28.2	2,245	64.3	66.7	56.0	
MS GrowPro	48	87	24	2	304	28.2	1,500	64.0	69.9	61.4	
ND Dawn	47	79	11	8	186	24.6	2,435	63.1	46.4	42.4	
Orchestra	46	83	14	5	279	27.4	1,629	63.9	55.9	48.9	
Salamanca	46	83	19	6	250	28.0	1,816	64.5	64.1	55.2	
Green Cotyledon T	уре										
Aragorn	44	77	8	9	188	26.1	2,421	63.4	40.4	37.5	
Arcadia	46	81	8	9	196	25.1	2,321	63.7	43.9	41.7	
CDC Striker	47	80	13	8	216	27.0	2,105	64.4	46.6	45.6	
ND Victory	51	92	20	4	145	26.6	3,142	64.3	44.9		
Shamrock	49	87	17	6	226	26.3	2,004	64.1	61.4	54.7	
Mean	47	85	16	6	222	26.6	2,100	64.2	60.4	53.4	
CV %	0.9	1.4	12.2	16	4.1	2.1	4.3	1.1	7.4	10.5	
LSD 0.05	0.5	1.5	2.5	1.1	15	0.7	145	1.1	6.0	11.8	
LSD 0.10	0.4	1.3	2.1	0.9	13	0.6	121	0.9	5.0	9.7	

Planted: May 26. Harvested: Sept. 7. Previous crop: spring wheat.

¹Height to the top of the canopy at harvest.

²Harvest ease: 0 = all plants upright - very easy harvest, to 9 = all plants flat - very difficult to harvest directly.

 3 DAP = Days after planting.

Table 5. 2022 Dry Pea - Minot - Authors, E. Eriksmoen, J. Hansen and A. Kraklau.										
	Days to	Days to	Canopy	Test	Seed	Seed Yield				
Variety	Flower	PM	Height ¹	Weight	Protein	2022				
	$(DAP)^2$	$(DAP)^2$	(inch)	(lb/bu)	(%)	(bu/a)				
Yellow Cotyledon Type										
AAC Chrome	51	85	22	68	24.1	45.2				
AAC Julius	55	84	22	68	25.7	43.3				
AC Agassiz	54	84	23	67	26.1	44.2				
CDC Amarillo	54	85	24	68	24.5	49.4				
CDC Inca	56	85	30	68	25.6	50.2				
CDC Spectrum	56	87	28	67	25.8	47.8				
CP5222Y	51	83	21	68	26.2	43.1				
CP5244Y	56	87	26	68	25.4	44.7				
DL Apollo	53	83	27	68	26.0	38.5				
DS Admiral	55	84	27	68	25.1	48.8				
Hyline	53	84	20	67	24.5	45.7				
LG Stunner	54	84	24	67	27.9	32.5				
MS GrowPro	56	86	31	67	27.6	45.0				
ND Dawn	52	82	18	67	25.1	27.9				
Salamanca	55	83	27	66	27.4	43.9				
Green Cotyledon Type										
Aragorn	53	84	20	66	27.0	39.0				
Arcadia	54	84	16	67	24.9	38.7				
CDC Striker	55	84	19	67	27.4	42.6				
Ginny 2	55	86	19	68	25.3	38.9				
ND Victory	57	88	26	68	25.5	41.8				
Shamrock	53	85	24	68	25.6	46.7				
Mean	54	85	24	67	25.8	42.8				
CV %	2.0	1.3	12.9	1.3	2.2	7.7				
LSD 0.05	2.0	2.0	5.0	1.4	0.9	5.2				
LSD 0.10	1.0	2.0	4.0	1.2	0.8	4.4				

Planted: May 18. Harvested: Aug. 25. Previous crop: spring wheat. ¹Height to the top of the canopy at harvest. ²DAP = Days after planting.

Table 6. 2022 Dry Pea - Dickinson - Author, G. Martin.											
	Days to	Days to	Canopy	1000	Seeds/	Test		See	ed Yield		
Variety	Flower	PM	Height ¹	Seed Wt.	Pound	Weight	Protein	2022	3-yr.Avg.		
	$(DAP)^2$	$(DAP)^2$	(inch)	(gram)	(seeds)	(lb/bu)	(%)	((bu/a)		
Yellow Cotyledon Type											
AAC Chrome	52	85	23	272	1,676	65.7	25.9	42.3	27.4		
AAC Julius	53	81	23	225	2,024	65.0	26.9	45.2			
AC Agassiz	49	83	23	275	1,664	64.6	27.1	41.8	27.0		
CDC Amarillo	52	84	24	240	1,892	65.7	26.9	39.1	29.2		
CDC Inca	51	84	23	272	1,711	66.4	27.3	41.4	29.0		
CDC Spectrum	52	84	21	259	1,751	65.3	27.7	39.3	28.0		
CP5222Y	49	80	18	293	1,552	64.3	29.2	41.2			
CP5244Y	49	84	22	248	1,832	65.8	26.3	39.6			
DS Admiral	50	82	24	245	1,857	65.6	27.5	43.8	30.2		
MS GrowPro	50	84	22	323	1,418	65.3	29.1	31.9			
ND Dawn	50	74	21	244	1,865	64.5	26.1	39.9	27.3		
Salamanca	50	81	23	277	1,643	64.0	29.1	39.1	26.7		
Green Cotyledon Type											
Aragorn	49	79	18	237	1,937	62.8	28.1	34.6	23.1		
Arcadia	50	80	17	230	1,994	64.3	26.0	40.6	29.7		
CDC Striker	50	83	20	263	1,728	65.1	29.7	43.7	27.2		
ND Victory	54	88	25	204	2,222	64.1	27.0	32.0			
Shamrock	51	83	21	235	1,931	65.7	26.9	32.2	26.0		
Mean	50	82	22	255	1,806	65.0	27.5	39.3	27.6		
CV %	2.4	5.0	7.9	9.1	8.0	1.3	1.7	9.8			
LSD 0.05	1.7	5.8	2.5	33.2	203	1.2	0.7	5.5			
LSD 0.10	1.4	4.9	2.1	27.7	170	1.0	0.5	4.6			

Planted: May 12. Harvested: Aug. 12. Previous crop: cover crop forage.

¹Height to the top of the canopy at harvest.

 2 DAP = Days after planting.

Table 7. 2022 Dry Pea - Williston - Authors, G. Pradhan, C. Sperling and J. Bergman.											
	Days to	Days to	Canopy	Seed	Test	Seed	l Yield				
Variety	Flower	PM	Height ¹	Protein	Weight	2022	3-yr.Avg.				
	$(DAP)^2$	$(DAP)^2$	(inch)	(%)	(lb/bu)	(b	ou/a)				
Yellow Cotyledon Type											
AAC Chrome	54	80	20	21.4	59.9	43.6	27.2				
AAC Julius	54	77	22	24.4	60.8	41.3					
AC Agassiz	52	78	22	22.6	60.0	36.7	25.2				
CDC Amarillo	55	78	25	22.6	60.8	40.6	25.8				
CDC Inca	54	79	24	22.8	61.1	41.7	25.7				
CDC Spectrum	55	78	22	22.8	60.7	42.3	26.9				
CP5222Y	50	77	21	23.4	61.1	42.2					
CP5244Y	49	78	21	22.4	61.7	39.3					
DL Apollo	52	77	22	23.7	62.1	35.1	21.2				
DS Admiral	54	77	24	23.1	61.3	43.5	26.2				
Hyline	52	77	22	21.5	60.9	40.6					
LG Stunner	50	77	23	26.2	60.8	35.6	25.3				
MS GrowPro	51	78	24	26.0	59.5	41.6					
ND Dawn	53	77	22	21.1	60.4	40.4	22.9				
Salamanca	52	78	22	23.4	60.6	39.3	24.3				
Green Cotyledon Type											
Aragorn	49	76	19	21.7	60.5	39.1	22.3				
Arcadia	51	77	19	21.7	60.6	35.1	24.2				
CDC Striker	53	78	19	23.7	60.9	34.6	23.5				
ND Victory	56	86	27	23.0	60.7	36.3					
Shamrock	54	77	23	23.3	61.7	39.6	23.1				
Mean	52	78	22	23.0	60.8	39.4	24.6				
CV %	1.3	1.3	8.4	3.2	0.7	11.9	12.9				
LSD 0.05	0.9	1.4	2.6	1.0	0.6	6.4	NS				
LSD 0.10	0.8	1.2	2.2	0.9	0.5	5.3	NS				

Planted: May 7. Harvested: Aug. 3. Previous crop: oat. ¹Height to the top of the canopy at harvest. ²DAP = Days after planting.

Table 8. 2022 Dry Pea -	Table 8. 2022 Dry Pea - Hettinger - Authors, J. Rickertsen and M. Wells.									
	Days to	Days to	Canopy		Seed	1,000	Seeds/	Test	See	ed Yield
Variety	Flower	PM	Height ¹	Lodge	Protein	Seed Wt.	Pound	Weight	2022	2-yr. Avg.
	$(DAP)^2$	$(DAP)^2$	(inch)	(0-9)	(%)	(gram)	(seeds)	(lb/bu)	((bu/a)
Yellow Cotyledon Type										
AAC Asher	55	80	25	5	27.4	216	2,100	62.3	34.0	31.1
AAC Chrome	57	81	25	4	26.9	206	2,223	62.5	38.1	30.9
AAC Julius	57	81	25	4	28.4	168	2,693	61.6	41.7	
AAC Profit	58	82	26	5	29.0	194	2,350	62.1	42.7	33.7
AC Agassiz	56	80	24	7	28.9	192	2,365	62.1	39.1	31.6
CDC Amarillo	58	82	27	3	27.2	195	2,328	61.0	38.5	31.1
CDC Inca	58	82	29	3	28.0	208	2,188	62.8	45.2	35.7
CDC Specturm	57	81	25	4	28.3	195	2,331	61.6	45.2	36.1
CP5222Y	55	78	23	6	29.1	223	2,034	61.4	41.3	
CP5244Y	55	79	24	7	27.4	206	2,227	61.8	38.4	
DL Apollo	56	80	25	5	29.2	178	2,561	57.6	36.0	30.5
DS Admiral	57	82	27	2	27.6	194	2,342	63.0	48.6	35.8
Durwood	57	81	27	6	28.5	207	2,209	61.6	40.9	33.0
Goldenwood	61	84	21	3	28.7	162	2,828	59.3	31.4	
Korando	54	79	25	7	28.6	225	2,023	60.8	39.1	31.6
LG Stunner	55	79	25	5	30.1	183	2,477	62.4	32.3	27.2
MS GrowPro	58	82	27	7	29.9	252	1,808	60.3	38.2	32.1
ND Dawn	57	80	23	7	26.8	194	2,335	62.4	44.6	34.9
Orchestra	56	80	26	7	30.2	225	2,020	62.2	38.4	31.3
Pizzazz	54	79	24	7	28.2	229	1,982	62.7	42.9	
Salamanca	56	80	27	6	29.1	215	2,113	61.9	46.6	36.1
Green Cotyledon Type										
Aragorn	54	78	21	8	27.9	162	2,802	61.7	32.4	26.1
Arcadia	56	82	22	8	27.2	159	2,856	62.4	36.3	29.9
CDC Striker	56	80	24	5	29.0	212	2,153	62.0	36.9	30.5
ND Victory	59	82	26	7	29.2	156	2,905	63.1	40.1	
Shamrock	58	82	24	6	28.3	189	2,411	61.9	36.6	30.2
Mean	57	81	25	6	28.4	198	2,333	61.7	39.4	32.0
CV %	0.9	1.2	8.1	19	2.2	6.0	6.2	1.2	8.6	9.6
LSD 0.05	0.6	0.7	2.4	1.3	0.8	14	172	0.9	4.0	6.4
LSD 0.10	0.5	0.6	1.8	1.0	0.6	11	133	0.7	3.1	5.3

Planted: May 4. Harvested: Aug. 8. Previous crop: corn. ¹Height to the top of the canopy at harvest. ²Days after planting.

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