Pindak—The First Pinto Bean Variety Released by North Dakota State University

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The release of Pindak, a new pinto bean variety, was announced January 29, 1981 by the North Dakota Agricultural Experiment Station and the AR-SEA, USDA. The name "Pindak" is derived from the words Pinto and Dakota.

Breeding History

The parentage of Pindak is an early maturing, plump, red-seeded Japanese bush bean x [(Pinto UI-114⁴ Fusarium resistant P.I. 203958)⁴Pinto UI-114].

Pindak was selected from a cross made in 1966 and 1970 by D. W. Burke with the assistance of H. W. Barker, as were subsequent disease and performance tests and pedigreed selection.

Performance Trials

Since 1977, the North Dakota State University Experiment Station has screened numerous experimental lines from the AR-SEA, USDA program at Prosser, Washington, for their potential in North Dakota. Evaluations are made under both dryland and irrigated conditions. Pindak was tested as experimental line 6R-354 from 1977 to 1980 at several of the branch stations and at off-station trials located in the major bean growing area. Pindak was tested as ND354 in the National Cooperative Dry Bean Trial in 1980.

Pindak has a semi-vining growth habit, with white flowers. Within the major bean growing areas of North Dakota, it has outyielded UI-114, a commonly grown cultivar in Nortoh Dakota by about 10 per cent (Table 1).

In North Dakota, Pindak matures 3 to 4 days earlier and has shorter, more upright vines than Pinto UI-114. It has lower seed weight than UI-114, a very large seeded variety. Pindak, however, is more uniform in size and plumpness, and fewer seeds are lost in tare than with UI-114 (Table 2).

Quality Evaluation and Disease Resistance

Pindak is resistant to the prevalent type and New York 15 strains of the bean common mosaic virus, is immune to curly top virus, and has an effective level of resistance to Fusarium root rot. In the field it appeared to have field resistance to some of the prevalent bean rust races found in North Dakota during the 1980 growing season.

Canning tests conducted by S. R. Drake at Prosser, Washington indicated that Pindak produces a cooked product similar to popular Pinto UI-111. Pindak was rated equal to or better than other pinto selections in nutritional analyses and in cooked flavor and textural evaluation by trained panelists.

TABLE 1. Yield performance of Pindak as a per cent of UI-114 at various locations in North Dakota.

Location	Yield as a percent of UI-114	
North Dakota[1]	Years tested	Pindak
Oakes (Irrig.)	78-80	102
Barney	77,78,80	110
Hatton	77-80	121
Fargo	78-80	106
Langdon	77-79	82
Minot	79,80	102
Williston	79,80	95
Carrington	79,80	89
Avg. 13 N.D. Location years[2]		110
Avg. 22 N.D. Location years[3]		103

[1]All dryland locations except Oakes.
[2]Average of Oakes, Barney, Hatton, and Fargo, these locations represent an area where approximately 75% of the acreage planted to dry beans in North Dakota have been grown.
[3]Average over all locations and years.

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TABLE 2. Per Cent Total Solids of Crystal and Two Standard Varieties Grown at Park River and Grand Forks, ND 1975-1979.

	1975		1976		1977		1978		1979		Average		
Variety	Park River	Grand Forks	Park River	Grand Forks	Park River	Grand Forks	Park River	Grand Forks[1]	Park River	Grand Forks	Park River	Grand Forks	Average both locations
	%	%	%	%	%	%	%	%	%	%	%	%	%
Crystal	22.9	22.4	22.4	21.8	20.5	19.0	20.3		22.4	20.3	21.7	20.9	21.3
Kennebec	20.9	20.7	19.0	21.4	17.1	17.7	19.2		22.0	20.9	19.6	20.2	19.9
Norchip	23.5	23.1	22.2	23.3	21.4	21.4	21.2		22.7	22.4	22.2	22.6	22.4

[1]No data - plot flooded out.

TABLE 3. Color Chart Readings and Per Cent Recoverable Chip Yield of Crystal and Two Standard Varieties Grown at Park River and Grand Forks, North Dakota.

	Color Chart[1]				Percent Chip Yield[2]				Average[1] Color Chart		Average[2] % Chip Yield	
	1977		1978		1977		1978					
Variety	Park River	Grand Forks	Park River	Grand Forks	Park River	Grand Forks	Park River	Grand Forks	Park River	Grand Forks	Park River	Grand Forks
Crystal	5.0	5.5	5.0	5.8	35.0	33.5	35.3	36.5	5.0	5.7	35.2	35.0
Kennebec	4.0	6.0	5.0	6.2	34.5	30.5	31.5	31.0	4.5	6.1	33.0	30.8
Norchip	6.0	4.0	5.5	5.0	38.5	32.7	34.5	36.0	5.8	4.5	36.5	34.4

[1] PCI Color Chart (1 = very white; 10 = very dark)
[2] Per cent chips from 100 lbs. potatoes.

boiling and other prepared potato dishes.

Crystal has been increased by foundation seed growers in North Dakota and Minnesota. A list of growers having certified seed of Crystal may be obtained by writing to the North Dakota State Seed Department, North Dakota State University, Fargo, ND 58105 or the Minnesota State Seed Department, 620 State Office Building, St. Paul, MN 55101.

TABLE 4. Frozen French Fry and Flake Quality[1] Test Conducted by the NDSU Foods and Nutrition Department, 1979-80.

	French Fry			Flakes		
Variety	Color	Texture	Flavor	Color	Texture	Flavor
Crystal	5.9	5.3	5.9	7.3	7.3	6.5
Kennebec	4.0	4.4	4.5			
Russet Burbank	5.0	4.6	4.8			
Norchip				7.3	7.5	7.8

[1]Ranked on a scale of 1-9
1-4 Poor, not acceptable
5-6 Fair, but acceptable
7-9 Good, very acceptable

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TABLE 2. Days to maturity, seed weight and percentage dockage comparisons of Pindak to check varieties.

	Days to maturity[1]	250 seed wt.[2]
		grams
UI-114	101.0	92.9
Pindak	96.9	81.8
NW590	----	82.7
NW410	----	81.0

[1]14 location years
28 locations 1980

	Percentage dockage through various slotted screen sizes	
	1980[1]	1979[2]
Genotype	10/64 x 3/4	11/64 x 3/4
UI-114	1.4	4.1
Pindak	.5	1.4
Wyo 166	2.0	---

[1]Average of Fargo, Oakes, Barney, and Hatton.
[2]Average of Hatton and Oakes.