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New Public Soybean Varieties for Indiana

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Within the next 2 years (1980-1981), ten new public soybean varieties will be available to Indiana farmers for general production. It is the policy of the Agricultural Experiment Station at Purdue University to only release soybean varieties that are superior in one or more characteristics to existing varieties of the same maturity.

As a soybean producer, you may have difficulty making a choice among the ten new varieties. All have very good yield potential; but care must be taken to select the one or ones that will best fit your production system and that will contribute to increased yield potential by their superior characteristics.

The purpose of this publication is to introduce you to the new soybean varieties, describe their characteristics and compare their performance to some common public varieties. *Varieties available in 1981* have been distributed to Indiana seed producers for 1980 seed production so as to be in supply for 'market' soybean production the next year. *Varieties available in 1980* are presently available to all soybeans producers as long as supplies last.

Group II Maturity (Table 1)

Wells II was developed by the Indiana AES and the USDA. Like Wells, it matures 3 days later than Corsoy and 2 days earlier than Amsoy 71. At the Bluffton and Greenfield soybean variety test plots, Wells II averaged above Amsoy 71, Beeson and Wells in yield because of its resistance to races 1, 2, 3, 6, 7, 8 and 9 of phytophthora root rot. Wells II was one of the best lodging-resistant varieties in Group II. It is available to farmers for 1980 planting.

Beeson 80 is a USDA- and Indiana AES-developed backcross derivative of Beeson that is resistant to races 1, 2, 3, 6, 7, 8 and 9 of phytophthora root rot. In the 1978 Uniform Soybean Tests for Northern States, it averaged 3 bushels higher in yield and matured 1 day earlier than Beeson. It has been intermediate in lodging between Amsoy 71 and Wells II in performance plots. Beeson 80 will be available for general production in 1981.

Century is also a USDA- and Indiana AES-developed Group II variety. In the Uniform Soybean Tests for Northern States, this strain was higher yielding than any Group II variety and had excellent lodging resistance. Similar results were obtained in the Indiana tests. Century matures about 1 day later than Amsoy 71 and has lodging resistance almost as good as Wells or Wells II. It has purple flowers, tawny pubescence, black hila and is large seeded. It is resistant only to races 1 and 2 of phytophthora. Century will be available for general production in 1981.

Gnome is a Group II determinant variety. It is a sister line of Elf, but maturing about 8 days earlier. Also like Elf, it should be considered as a special purpose variety. In 30-inch rows, Gnome has been lower in seed yield than most Group II varieties. However, it was developed specifically for high-yield environments where lodging is a barrier to higher soybean yields, and has been very responsive to solid seeding in 7-inch rows. It is susceptible to all known races of phytophthora and should not be grown where this disease is a problem. Gnome will be available to farmers in 1981.

Table 1. Performance of Group II Soybean Varieties at Bluffton, Greenfield and Lafayette, IN, 1978-1979.

Variety	Yield (30" rows)	Date mature	Lodging score*	Plant height	Phytoph. resist.**	Seeds per lb.
	bu./ac.			in.		no.
Amsoy 71	44.3	9/21	2.7	42	R	2340
Beeson	42.3	9/21	2.2	37	R	2200
BEESON 80	46.1	9/20	1.9	36	R^X	2200
CENTURY	46.5	9/22	1.8	36	R	2260
Corsoy	43.5	9/18	2.6	36	S	2690
GNOME	42.7	9/23	1.7	22	S	2730
NEBSOY	44.5	9/19	2.0	34	R	2430
WELLS II	46.7	9/19	1.8	37	R^X	2580

*1 = very good; 5 = poor.

**S = Susceptible to phytophthora root rot.
R = Resistant to phytophthora races 1 and 2.
R^X = Resistant to phytophthora races 1, 2, 3, 6, 7, 8 and 9.

Nebsoy is an early Group II variety developed in Nebraska. It matures a day earlier, is higher in yield and is more resistant to lodging than Amsoy 71. It is shorter than any other indeterminate Group II variety tested. Nebsoy is resistant only to races 1 and 2 of phytophthora. It will be available to farmers in 1981.

Amsoy 71 was developed by the Indiana Agricultural Experiment Station and the U.S. Department of Agriculture's Regional Soybean Laboratory. Amsoy 71 has been a consistently high-yielding variety and has wide acceptance. It was the second most popular soybean variety grown in Indiana, accounting for 17.7 percent of the state acreage in 1978. It has purple flowers, gray pubescence, colorless hila and ovate leaves. It is 3 days later than Horosoy 63 and is resistant to races 1 and 2 of phytophthora root rot. An upright intermediate-size plant, Amsoy 71 is one of the least lodging resistant Group II varieties.

Beeson was developed by the Indiana AES and the USDA. It is also well known to most Hoosier farmers, accounting for 7.3 percent of the state acreage in 1978. It has purple flowers, gray pubescence, imperfect black hila and ovate leaves. It is about 1 day later maturing than Amsoy 71. Beeson is resistant to races 1 and 2 phytophthora rot.

Wells was developed by the Indiana AES and the USDA. It has been an excellent variety in its areas of adaptation in northern Indiana, where it is noted for its excellent lodging resistance. In addition, it is resistant to races 1 and 2 of phytophthora. Wells now accounts for about 5 percent of the soybean acreage in the northern third of Indiana.

Group III Maturity (Table 2)

Oakland was developed by the Iowa Agricultural Experiment Station. It has purple flowers, tawny pubescence and brown pods. Seeds are yellow with black hila. It matures 1 day later than Woodworth, is similar in yield to Cumberland and Woodworth, but yields about 3 bushels per acre higher than Calland. It carries the same phytophthora resistance as Calland (races 1 and 2) but has better lodging resistance. It is intermediate in height between Williams and Cumberland. Oakland is available for 1980 planting.

Cumberland was also developed by the Iowa Experiment Station. It has purple flowers, gray pubescence and brown pods. Seeds are yellow in color with an imperfect black hila. It is susceptible to phytophthora rot and matures 1 day later than Woodworth, which is about the same as Williams. It is not quite as good as Williams in lodging resistance, however. Cumberland is available to farmers in 1980.

Pella, developed by the Iowa Experiment Station, is a high-yielding Group III variety that has good lodging resistance. In Indiana tests, it has yielded more than Calland, Cumberland or Elf in 30-inch rows and has better lodging resistance than either Calland or Cumberland. It is resistant to races 1 and 2 of phytophthora

Table 2. Performance of Group III Soybean Varieties at Lafayette, Greenfield and Sullivan, IN, 1978-1979.

Variety	Yield (30" rows)	Date mature	Lodging score*	Plant height	Phytoph. resist.**	Seeds per lb.
	bu./ac.			in.		no.
Calland	41.0	9/20	2.8	43	R	2580
Cumberland	45.6	9/23	2.7	40	S	2400
Elf	42.8	9/27	1.4	23	S	2690
PELLA	46.2	9/20	2.3	42	R	2210
WILL	46.8	9/20	1.8	34	S	2650
WILLIAMS 79	46.2	9/24	2.3	44	R^X	2510

*1 = very good; 5 = poor.

**S = Susceptible to phytophthora root rot.
R = Resistant to phytophthora races 1 and 2.
R^X = Resistant to phytophthora races 1, 2, 3, 6, 7, 8 and 9.

root rot. Pella has purple flowers, tawny pubescence, tan pods and black hila on the seeds. It has the largest seed size of any Group III variety discussed. Pella will be available to Indiana farmers in 1981.

Will is a semi-determinate derivative of Williams that has been the highest-yielding Group III variety in Indiana tests in 1978 and 1979. Will is 6-10 inches shorter than other Group III varieties and has excellent lodging resistance. It matures about 4 days earlier than Williams or Williams 79 and is susceptible to all known races of phytophthora root rot. It has white flowers, tawny pubescence, tan pods and seeds with black hila. Will can be purchased for general production for 1981 planting.

Williams 79 is a backcross derivative of Williams that is resistant to races 1, 2, 3, 6, 7, 8 and 9 of phytophthora. Like Williams, it has white flowers, tawny pubescence, tan pods and black hila on the seeds. In Indiana tests, Williams 79 has yielded well and has good resistance to lodging. In other agronomic characteristics, this variety is essentially the same as Williams. It will be available in 1981.

Elf is a determinate variety developed by the Illinois Agricultural Experiment Station and the USDA. It has purple flowers, tawny pubescence and tan pods. Seeds are yellow with black hila. It is susceptible to phytophthora and matures a day or two later than Williams. Elf should be considered only for high-yield environments where lodging is a problem. It has been responsive to solid seeding. Elf is presently available to Indiana farmers.

Calland was developed by the Indiana AES and the USDA. It has been the only Group III public variety with resistance to phytophthora (races 1 and 2). Calland accounted for 8.4 percent of the soybean acreage in Indiana in 1978. It has purple flowers, brown pubescence, black hila and ovate leaves. Calland matures about 3 days earlier than Williams.

Williams was developed by the Illinois Agricultural Experiment Station and the USDA Regional Soybean Laboratory. It has white flowers, brown pubescence, black hila and ovate leaves. It has good lodging resistance and matures about 3 days later than Wayne. It is moderately susceptible to phytophthora rot. Williams has been very well received by Indiana farmers and is now the most widely grown variety in the state (24.7 percent of the 1978 soybean acreage).

Comments on Phytophthora Resistance

The reaction of all varieties discussed to phytophthora root rot should be noted. In many areas of Indiana, particularly the northern and northeastern parts, new races of phytophthora are a problem. In increasing cases, we are not getting the protection needed with varieties resistant to just races 1 and 2, hence the increasing importance of developing varieties resistant to the new races.

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