

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Northrup, King and Company

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

"B 186"

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this twelfth day of December in the year of our Lord one thousand nine hundred and seventy-five

Attest:

J. J. Rollin

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Earl L. Butz
Secretary of Agriculture



APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1. VARIETY NAME OR TEMPORARY DESIGNATION B 186	2. KIND NAME Soybeans	FOR OFFICIAL USE ONLY	
		PV NUMBER 7500088	
3. GENUS AND SPECIES NAME <u>Glycine max</u> (L.) Merr.	4. FAMILY NAME (Botanical) Leguminosae	FILING DATE 5.8.75	TIME 2:30 P.M.
		FEE RECEIVED \$ 250	BALANCE DUE \$ —
	5. DATE OF DETERMINATION January 1970	\$ 250	\$ —
		\$ 250	\$ —
6. NAME OF APPLICANT(S) Northrup, King & Co.	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P. O. Box 959 Minneapolis, Minnesota 55440	8. TELEPHONE AREA CODE AND NUMBER 612-781-8011	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. STATE OF INCORPORATION Minnesota	11. DATE OF INCORPORATION 1896

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Allenby L. White
Northrup, King & Co.
P. O. Box 959
Minneapolis, Minnesota 55440

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- 13B. Exhibit B, Botanical Description of the Variety
- 13C. Exhibit C, Objective Description of the Variety
- 13D. Exhibit D, Data Indicative of Novelty
- 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? (See Section 83(a). (If "Yes," answer 14B and 14C below.) YES NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? YES NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? FOUNDATION REGISTERED CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

May 5, 1975
(DATE)

Allenby L. White
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)



7500088

EXHIBIT A
ORIGIN AND BREEDING HISTORY OF B 186 SOYBEANS

- 1969 60 plants were selected from an F_4 bulk population from the cross 'Corsoy' x 'Wayne'. The population had been advanced to the F_4 generation by harvesting 2 pods from approximately 400 plants in each generation.
- 1969-70 Seeds from each selected plant were grown in a progeny row. One of these was designated 9436. Each row was bulk-harvested if uniform.
- 1970 9436 was yield tested at Hudson, Iowa. On the basis of its high yield and early maturity, it was chosen as an experimental variety worthy of further testing.
- 1971 9436 was yield tested at Stanton, Minnesota; Homer, Michigan; and Hudson, Iowa.
- 1972 9436 was yield tested at Stanton, Minnesota; Delavan, Wisconsin; and Hudson, Iowa. Since 9436 was heterogeneous for hilum color (50% brown, 50% black), a brown-seeded subplot was hand-picked and increased. From this, 200 representative plants with seed with brown hila were harvested individually to be grown as progeny rows in 1973.
- 1973 9436 was yield tested at Stanton and Minnesota Lake, Minnesota; and Hudson, Dayton, and Washington, Iowa. It was tested in University Trials in Minnesota, Iowa, and Wisconsin. Two-hundred progeny rows were grown, and any rows containing off-type plants were discarded. The rest were bulk-harvested to produce pedigree seed of the variety.
- 1974 9436 was tested at all the locations listed for 1973 plus Darien, Wisconsin, and Van Wert, Ohio. An increase block was planted from the pedigree seed produced in 1973 and was harvested to produce breeder seed. In addition, pedigree seed was produced as in 1973. The pedigree method of maintaining varietal purity will continue as long as the variety is produced.
- 1975 9436 was named B 186 and released to foundation growers.

B 186 is stable and uniform for all normal descriptive characteristics. A very low frequency of variants would be expected through mutation, outcrossing, or mechanical mixture. These will be prevented from becoming a significant constituent of the variety through application of the time-proven pedigree method referred to above.



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EXHIBIT B
BOTANICAL DESCRIPTION OF B 186 SOYBEANS

I. Seed.

Cotyledons of B 186 are yellow. Seeds have dull-yellow seed coats and brown hila. Seed size is between Corsoy and Hark (18.1 g per 100 vs. 20.1 for Steele, 19.0 for Hodgson, 18.9 for Hark, and 17.6 for Corsoy). Seed shape is spherical, or similar to most common varieties.

II. Seedling.

When grown for 10 days at 25° C. under constant light, seedlings of B 186 averaged 98 mm in length compared to 118 mm for Chippewa 64 and 117 mm for Corsoy. Length of cotyledon was 16 mm for B 186 vs. 14 mm for Chippewa 64 and 15 mm for Corsoy. Width of cotyledon was 9 mm for B 186 vs. 8 mm for Chippewa 64 and Corsoy.

Hypocotyl color of B 186 is purple.

III. Flowering.

When planted about May 15, B 186 will begin flowering in about 43 days at Washington, Iowa; about the same as for Hark. Duration of flowering is similar to Hark, and flowering pattern is similar to other indeterminate, Maturity Group I varieties. Flower color is purple.

IV. Fruiting.

Flowering and beginning pod set overlap, as is true of other indeterminate varieties. At full vegetative growth, B 186 has medium-sized, ovate leaflets which are a medium-green color. The canopy is intermediate, or similar to Chippewa 64.

V. Disease Reaction.

B 186 is similar to most northern soybean varieties in its susceptibility to common foliar diseases. It is susceptible to Phytophthora root rot.

VI. Mature Plant.

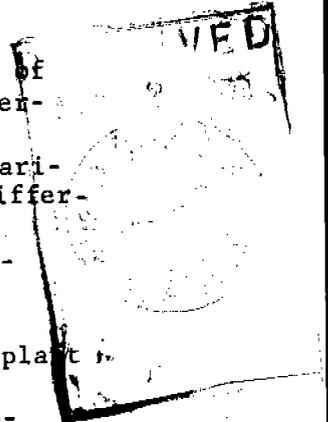
B 186 has tawny or brown pubescence and brown pods. Plant height and lodging resistance are very similar to Chippewa 64 and Steele. Most pods are 2 or 3 seeded, and there are normally several pods per node, depending upon yield level. In 15 NK trials, B 186 has an average yield of about 116% of Chippewa 64. It is about 3 days later than Steele and 3 days earlier than Hark.

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and \$250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.
- 13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.
- 13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.
- 13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.
- 13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.
- 13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.



OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (GLYCINE MAX)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) Northrup, King & Co.	FOR OFFICIAL USE ONLY PVPO NUMBER 7500088
ADDRESS (Street and No., or R.F.D. No.; City, State, and ZIP Code) P. O. Box 959 Minneapolis, Minnesota 55440	VARIETY NAME OR TEMPORARY DESIGNATION B 186

Place the appropriate number that describes the varietal character of this variety in the boxes below.

1. SEED SHAPE: <input type="checkbox"/> 1 = SPHERICAL <input type="checkbox"/> 2 = SPHERICAL FLATTENED <input type="checkbox"/> 3 = ELONGATE <input type="checkbox"/> 4 = OTHER (Specify)	
2. SEED COAT COLOR: SHADE: <input type="checkbox"/> 1 = YELLOW <input type="checkbox"/> 2 = GREEN <input type="checkbox"/> 3 = BROWN <input type="checkbox"/> 4 = BLACK <input type="checkbox"/> 1 = LIGHT <input type="checkbox"/> 2 = MEDIUM <input type="checkbox"/> 3 = DARK <input type="checkbox"/> 5 = OTHER (Specify)	
3. SEED COAT LUSTER: <input type="checkbox"/> 1 = DULL <input type="checkbox"/> 2 = SHINY	4. SEED SIZE <input type="checkbox"/> 1 <input type="checkbox"/> 8 GRAMS PER 100 SEEDS
5. HILUM COLOR: SHADE: <input type="checkbox"/> 3 <input type="checkbox"/> 1 = BUFF <input type="checkbox"/> 2 = YELLOW <input type="checkbox"/> 3 = BROWN <input type="checkbox"/> 4 = GRAY <input type="checkbox"/> 5 = IMPERFECT BLACK <input type="checkbox"/> 1 = LIGHT <input type="checkbox"/> 2 = MEDIUM <input type="checkbox"/> 3 = DARK <input type="checkbox"/> 6 = BLACK <input type="checkbox"/> 7 = OTHER (Specify)	
6. COTYLEDON COLOR: <input type="checkbox"/> 1 <input type="checkbox"/> 1 = YELLOW <input type="checkbox"/> 2 = GREEN	7. LEAFLET SIZE (See Reverse): <input type="checkbox"/> 2 <input type="checkbox"/> 1 = SMALL <input type="checkbox"/> 2 = MEDIUM <input type="checkbox"/> 3 = LARGE
8. LEAFLET SHAPE: <input type="checkbox"/> 1 <input type="checkbox"/> 1 = OVATE <input type="checkbox"/> 2 = OBLONG <input type="checkbox"/> 3 = LANCEOLATE <input type="checkbox"/> 4 = ELLIPTICAL <input type="checkbox"/> 5 = OTHER (Specify)	
9. LEAF COLOR (See reverse): <input type="checkbox"/> 2 <input type="checkbox"/> 1 = LIGHT GREEN <input type="checkbox"/> 2 = MEDIUM GREEN <input type="checkbox"/> 3 = DARK GREEN	10. FLOWER COLOR: <input type="checkbox"/> 2 <input type="checkbox"/> 1 = WHITE <input type="checkbox"/> 2 = PURPLE <input type="checkbox"/> 3 = OTHER (Specify)
11. POD COLOR: <input type="checkbox"/> 2 <input type="checkbox"/> 1 = TAN <input type="checkbox"/> 2 = BROWN <input type="checkbox"/> 3 = BLACK	12. POD SET: <input type="checkbox"/> 2 <input type="checkbox"/> 1 = SCATTERED <input type="checkbox"/> 2 = CONCENTRATED
13. PLANT PUBESCENCE COLOR: SHADE: <input type="checkbox"/> 2 <input type="checkbox"/> 1 = GRAY <input type="checkbox"/> 2 = BROWN <input type="checkbox"/> 3 = OTHER (Specify) <input type="checkbox"/> 1 = LIGHT <input type="checkbox"/> 2 = MEDIUM <input type="checkbox"/> 3 = DARK	
14. PLANT TYPES (See Reverse): <input type="checkbox"/> 3 <input type="checkbox"/> 1 = SLENDER <input type="checkbox"/> 2 = BUSHY <input type="checkbox"/> 3 = INTERMEDIATE	15. PLANT HABIT: <input type="checkbox"/> 2 <input type="checkbox"/> 1 = DETERMINATE <input type="checkbox"/> 2 = INDETERMINATE <input type="checkbox"/> 3 = OTHER (Specify)
16. HYPOCOTYL COLOR: <input type="checkbox"/> 2 <input type="checkbox"/> 1 = GREEN <input type="checkbox"/> 2 = PURPLE	17. SEED PROTEIN: <input type="checkbox"/> 2 <input type="checkbox"/> 1 = A <input type="checkbox"/> 2 = B
18. NUMBER OF DAYS TO FLOWERING (Place a zero in first box (e.g. <input type="checkbox"/> 0 <input type="checkbox"/> 9) when days are 9 or less.) <input type="checkbox"/> 4 <input type="checkbox"/> 3	19. MATURITY GROUP: <input type="checkbox"/> 3 <input type="checkbox"/> 1 = 00 <input type="checkbox"/> 2 = 0 <input type="checkbox"/> 3 = I <input type="checkbox"/> 4 = II <input type="checkbox"/> 5 = III <input type="checkbox"/> 6 = IV <input type="checkbox"/> 7 = V <input type="checkbox"/> 8 = VI <input type="checkbox"/> 9 = VII <input type="checkbox"/> 10 = VIII
20. SIZE OF 10 DAY OLD SEEDLING GROWN UNDER CONSTANT LIGHT (Growth Chamber) AT 25° C. (Place a zero in first box (e.g. <input type="checkbox"/> 0 <input type="checkbox"/> 2) when size is 9 mm. or less.) <input type="checkbox"/> 9 <input type="checkbox"/> 8 MM. LENGTH OF SEEDLING <input type="checkbox"/> 1 <input type="checkbox"/> 6 MM. LENGTH OF COTYLEDON <input type="checkbox"/> 0 <input type="checkbox"/> 9 MM. WIDTH OF COTYLEDON	
21. DISEASE: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)	
<input type="checkbox"/> 1 BACTERIAL PUSTULE <input type="checkbox"/> 0 SOYBEAN CYST <input type="checkbox"/> 0 DOWNY MILDEW <input type="checkbox"/> 1 PURPLE STAIN <input type="checkbox"/> 1 POD AND STEM BLIGHT <input type="checkbox"/> 0 ROOT KNOT	<input type="checkbox"/> 0 FROGEYE <input type="checkbox"/> 1 STEM CANKER <input type="checkbox"/> 1 PHYTO-PHTHORA <input type="checkbox"/> 1 BROWN STEM ROT <input type="checkbox"/> 0 TARGET SPOT <input type="checkbox"/> 1 BROWN SPOT
<input type="checkbox"/> 0 BUD BLIGHT <input type="checkbox"/> 0 WILDFIRE <input type="checkbox"/> 1 RHIZOCTONIA ROT <input type="checkbox"/> OTHER (Specify)	



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EXHIBIT D
DATA INDICATIVE OF NOVELTY FOR B 186 SOYBEANS

I. Seed.

A. Seed description.

Seed of B 186 have dull-yellow seed coats, yellow cotyledons, brown hila, and are spherical in shape.

B. Seed size.

<u>Variety</u>	<u>Wt. in g per 100 seeds*</u>
B 186	18.1
Steele	20.1
Hodgson	19.0
Hark	18.9
Corsoy	17.6

* Average of 4 trials.

C. Chemical Composition of Seed.

<u>Variety</u>	<u>Protein %</u>	<u>Oil %</u>	<u>Iodine No.</u>
B 186	39.2	20.1	137
Chippewa 64	38.6	20.1	
Hark	40.0	20.0	135
Corsoy	37.6	20.8	137

D. Seed protein (Larson and Caldwell; Crop Science. 9:385).

B 186 has type B protein.

II. Seedling.

A. Hypocotyl color is purple.

B. Size of 10-day old seedling under constant light at 25° C.

<u>Variety</u>	<u>Seedling Length (mm)</u>	<u>Cotyledon Length (mm)</u>	<u>Cotyledon Width (mm)</u>
B 186	98	16	9
Chippewa 64	118	14	8
Corsoy	117	15	8



Exhibit D cont'd.

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III. Leaf and Canopy.

A. Leaf characteristics.

Variety	Leaf Color	Leaf Shape	Leaf Width (mm)	Leaf Length (mm)
B 186	Medium	Ovate	57	82
Chippewa 64	Medium	Ovate	57	88
Hark	Medium	Ovate	44	94
Corsoy	Light	Ovate	50	94

B. Canopy and growth characteristics.

Variety	Canopy Openness	Canopy Shape	Determinancy
B 186	Intermediate	Intermediate	Indeterminate
Chippewa 64	Intermediate	Intermediate	Indeterminate
Hark	Open	Slender	Indeterminate
Corsoy	Intermediate	Intermediate	Indeterminate

IV. Flower Color - Purple.

V. Mature Plant.

A. Description. B 186 has tawny pubescence and brown pods.

B. Agronomic Data.

Variety	Yield (K/ha) (\bar{X}_{15} 1972-74)	Maturity (\bar{X}_3 1973-74)	Lodging* (\bar{X}_{11} 1973-74)	Height (cm) (\bar{X}_2 1973-74)
B 186	2739	9-18	1.6	76
Chippewa 64	2366	9-12	1.6	78
Anoka	2386	9-13	2.0	66
Steele		9-15	1.9	76
Hark	2752	9-21	1.8	83

* 1 = erect; 5 = prostrate.

VI. Disease Reaction

- A. Similar to most northern soybeans varieties in susceptibility to common foliar diseases.
- B. Similar to most northern varieties in susceptibility to Rhizoctonia, Pythium, and Fusarium root rots.
- C. Susceptible to Phytophthora root rot.



NORTHROP, KING & CO.
P.O. BOX 49, WASHINGTON, IOWA 52353

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EXHIBIT E.
STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

The soybean variety, B 186, was developed by Northrup, King & Co.'s breeding staff at its Washington, Iowa research farm from germ plasm sources cited in Exhibit A of this application. Northrup, King & Co. believes that the variety it has created is novel as defined in the Plant Variety Protection Act and, therefore, that Northrup, King & Co. is the sole owner of the variety.

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant shape	Corsoy	Petiole angle	Corsoy
Leaf shape	Chippewa 64	Seed size	Hark
Leaf color	Chippewa 64	Seed shape	Hark
Leaf surface	Chippewa 64	Seedling pigmentation	Chippewa 64

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY:

VARIETY	NO. OF DAYS TO MATURITY	LODGING SCORE	PLANT HEIGHT	LEAF SIZE		CONTENT		AVERAGE NO. OF PODS PER PLANT	IODINE NO.
				Width	Length	Protein	Oil		
Submitted	126	1.6	76 cm	57 mm	82 mm	39.2	20.1 %	17 @ 350000 p/ha	137
Name of similar variety Hark	129	1.8	83 cm	44 mm	94 mm	40.0	20.0	17 @ 350000 p/ha	135

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for completing this form:

1. Scott, Walter O. and Samuel R. Aldrich, 1970, Modern Soybean Production, The Farmer Quarterly.
2. Norman, A. G., 1963, The Soybean: Genetics, Breeding, Physiology, Nutrition, Management.
3. McKie, J. W., and K. L. Anderson, 1970, The Soybean Book.

LEAF COLOR: Nickerson's or any recognized color fan may be used to determine the leaf color of the described variety. The following Soybean varieties may be used as a guide to identify the colors listed on the form.

COLOR	VARIETY
Light Green	"Ada"
Medium Green	"Wilkin"
Dark Green	"Swift"

LEAF SIZE: The following varieties may be used as a guide to identify the relative size leaves.

SIZE	VARIETY
Small	"Amsoy"
Medium	"Bonus"
Large	"Anoka"

PLANT TYPE: The following varieties may be used as a guide to identify the plant type.

TYPE	VARIETY
Slender	"Vansoy"
Intermediate	"Wirth"
Bushy	"Adelphia"

