

No.



930089

# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**W. Brotherton Seed Co., Inc.**

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 *eighteen* 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, 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 (7 U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEA

'Tye'

*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, D.C. this 30th day of September in the year of our Lord one thousand nine hundred and ninety-three.*

Attest:

*Kenneth A. Evans*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Mike Esny*  
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**  
(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) <b>W. BROTHERTON SEED CO. INC.</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.	3. VARIETY NAME <b>RAINIER</b> <i>type</i> <i>3/10/93</i>
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) <b>P. O. BOX 1136 MOSES LAKE, WA 98837</b>		5. PHONE (include area code)	FOR OFFICIAL USE ONLY PVPO NUMBER <b>9300089</b>
6. GENUS AND SPECIES NAME <b>Pisum sativum L.</b>	7. FAMILY NAME (Botanical) <b>Leguminosae</b>		
8. CROP KIND NAME (Common Name) <b>Garden Pea</b>	9. DATE OF DETERMINATION <b>1987</b> <i>7/15/87</i> <i>3/10/93</i>		F I L I N G Date <b>January 15, 1993</b> Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M. Filing and Examination Fee. <b>\$2150.00</b> Date <b>January 15, 1993</b> Certificate Fee. <b>\$250.00</b> Date <b>July 30, 1993</b>
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Corporation</b>			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Washington</b>	12. DATE OF INCORPORATION <b>1955</b>		
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS <b>Jerome Brotherton P. O. Box 1136 Moses Lake, WA 98837</b>			
			PHONE (include area code): <b>509/765-1816</b>

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a.  Exhibit A, Origin and Breeding History of the Variety
- b.  Exhibit B, Novelty Statement
- c.  Exhibit C, Objective Description of Variety
- d.  Exhibit D, Additional Description of Variety
- e.  Exhibit E, Statement of the Basis of Applicant's Ownership
- f.  Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office \_\_\_\_\_
- g.  Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. 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) of the Plant Variety Protection Act)

- YES (If "YES," answer items 16 and 17 below)  NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

- YES  NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

- FOUNDATION  REGISTERED  CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

- YES (If "YES," through  Plant Variety Protection Act  Patent Act. Give date \_\_\_\_\_ )  
 NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

- YES (If "YES," give names of countries and dates) **'type' RAINIER was widely distributed for field-scale trials in the USA, Europe and New Zealand, initially in 1992. First commercial sales anticipated in 1993**  
*4/1/92* *3/10/93*  
 NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) 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(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s)) <i>Jerome Brotherton</i>	CAPACITY OR TITLE <b>President</b>	DATE <b>Jan. 12, 1993</b> <i>3/10/93</i>
SIGNATURE OF APPLICANT (Owner(s))	CAPACITY OR TITLE	DATE

## INSTRUCTIONS

**GENERAL:** To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A,B,C,E; (3) at least 2,500 viable untreated seeds; (4) check, drawn on a U.S. bank, payable to "Treasurer of the United States" in the amount of \$2,150 (\$250 filing fee and \$1,900 examination fee). (See section 180.175 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for 30 days, then returned to the applicant as unfiled. Mail application and other requirements to: Plant Variety Protection Office, AMS, USDA, Rm. 500, NAL Building, 10301 Baltimore Blvd., Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the Application are self-explanatory unless noted below. Corrections on the Application form and Exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a Certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$250 for issuance of the Certificate.

Plant Variety Protection Office  
Telephone: 301/344-2518

### ITEM

9. Give the date when there has been at least a tentative determination that the variety has been sexually reproduced with recognized characteristics, whether or not the novelty of those characteristics has been determined. [See section 41(d) of the Plant Variety Protection Act (Act).]
- 14a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability. (See sections 41 and 52 of the Act.)
- 14b. Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons which clearly indicate novelty.
- 14c. Exhibit C forms are available from the PVPO; specify crop kind. Fill in the Exhibit C (Objective Description of Variety form) to describe your variety.
- 14d. Optional additional characteristics and/or photographs: Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 14e. Section 52(4) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. The applicant may be the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.
15. If "Yes" is specified (*seed of this variety be sold by variety name only as a class of certified seed*), the applicant may **NOT** reverse this affirmative decision after the variety has either been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified the applicant may change the choice. (See section 180.16 of the Regulations and Rules of Practice.)
19. See sections 41 (i, j) and 42 of the Act and section 180.7 of the Regulations and Rules of Practice for eligibility requirements.

### NOTES:

It is the responsibility of the applicant/owner to keep the PVPO informed of any change of address or change of ownership or assignment during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment is \$25. [See section 101 of the Act, and sections 180.130, 180.131, 180.132, and 180.175(h) of the Regulations and Rules of Practice.]

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Rm. 213, Building 306, Beltsville Agricultural Research Center -- East, Beltsville, MD 20705. Telephone: 301/344-2089.

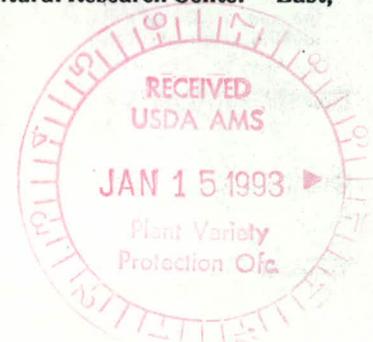




Exhibit A. Origin and Breeding History of "~~RAINIER~~".

<sup>'Tye' K88 2/10/93</sup>  
~~RAINIER~~ is derived from a cross between "PARLAY" and a Brotherton breeding line known as "N1-10", made in a nursery at Yuma, Arizona, during the winter of 1979-80. N1-10 was selected from a cross between "QUINCY" and a source of resistance to Fusarium wilt Race 6 and powdery mildew known to us as "G11". The objective of the cross was to develop a variety which combined resistance to Races 1, 5, and 6 of Fusarium wilt and powdery mildew with the yield and quality traits required by the commercial processors of frozen peas. The F<sub>1</sub> was grown at Moses Lake, WA. in 1980 and the bulk F<sub>2</sub> was grown there in 1981. Single plant selections were made in the F<sub>2</sub>. The selection which gave rise to RAINIER was noted as having good resistance to powdery mildew. The seed from that selection was divided and planted in separate Fusarium wilt Race 5 and 6 nurseries in the Mount Vernon, WA. area as well as at Moses Lake in 1982. The selection was resistant to Race 6 and segregating for Race 5. Single plant selections were made in the Race 6 nursery and planted at Moses Lake in 1983. The subselection which became RAINIER was selected for its vigor and good powdery mildew resistance. It was advanced by mass selection to the F<sub>7</sub> generation in our Moses Lake nursery in subsequent years. The subselection was tested in the wilt nurseries in 1984, 85, and 86 and was judged resistant to both Race 5 and Race 6 each year. A single plant selection was made from the F<sub>7</sub> in 1986. It was tested in the Race 5 and Race 6 wilt nurseries in 1987 and confirmed resistant to both races. A portion of the seed of that selection was also planted in Moses Lake. That row at Moses Lake was harvested in bulk to form the line which would later be known as ~~RAINIER~~.<sup>'Tye'</sup> It was entered in our observation trials in 1988 and in replicated trials beginning in 1989 under the code FR 785. Seed increases began in 1988.

<sup>'Tye' K88 2/10/93</sup>  
We have observed ~~RAINIER~~ through five generations of increase. It has proven to be uniform and stable. No characteristic rogues have been noted, although rare off-type plants attributable to inadvertant mixture are seen.



'Tye' ~~155~~ 3/10/93

Exhibit B. Novelty Statement for ~~RAINIER~~.

'Tye' ~~RAINIER~~ is <sup>most</sup> similar to its parent PARLAY than to other commercial pea varieties. It differs from PARLAY in the following ways:

1) ~~RAINIER~~ is resistant to Race 5 of Fusarium wilt. This was confirmed several times in our wilt nursery near Mount Vernon, WA. as described in Exhibit A. The Washington State University Research and Extension Unit conducts pea variety trials which include tests for resistance to Races 5 and 6 of Fusarium wilt. Their trials included PARLAY in 1979 and ~~RAINIER~~ (as FR 785) in 1991. Their tests confirm that ~~RAINIER~~ is resistant and PARLAY susceptible to Race 5.

2) At harvest maturity, the green peas of ~~RAINIER~~ are smaller than those of PARLAY and have darker color. We compared PARLAY and ~~RAINIER~~ in four Brotherton Seed Co. trials during the years 1990 to 1992. The data below summarize that comparison in those trials:

Trial #	Reps	Variety	Vine Length	Yield g/plot	Color	Mean Sieve size	Relative Season
900A	2	<del>RAINIER</del>	26"	598	3.0	3.5	-1.2
		PARLAY	27"	731	3.5	3.8	
900B	2	<del>RAINIER</del>	18"	660	N/T	3.4	-1.5
		PARLAY	17"	536	N/T	3.8	
917	3	<del>RAINIER</del>	31"	894	3.1	3.7	+1.5
		PARLAY	33"	692	3.8	3.9	
927	3	<del>RAINIER</del>	22"	744	3.0	3.7	+0.1
		PARLAY	22"	464	3.3	3.9	

For color ratings, I use a scale on which 1 is a very dark freezer color and 9 is a very light canner color - a rating of 3 is typical of freezer types. Mean sieve-size is measured by volumetric displacement of water by a sample of 100 peas. In each trial, both varieties were harvested the same day (within a replicate) and yield and sieve-size were adjusted for tenderometer differences with a standard correction factor. Simple t tests of the color and sieve-size data above indicate a probability of less than .001 that the varieties are not different for those characters. PARLAY is now obsolete and was not included in most of the trials in which FR 785 has been tested.

Gilbert bond  
25% cotton

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION  
NATIONAL AGRICULTURAL LIBRARY  
BELTSVILLE, MARYLAND 20705  
OBJECTIVE DESCRIPTION OF VARIETY  
PEA (*PISUM SATIVUM*)

NAME OF APPLICANT(S)

W. BROTHERTON SEED CO., INC.

VARIETY NAME OR TEMPORARY DESIGNATION

~~RAINIER~~ Tyee <sup>1182</sup> 3/10/93

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

P. O. BOX 1136  
MOSES LAKE, WA 98837

FOR OFFICIAL USE ONLY

PVPO NUMBER

9300089

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

Place a zero in first box (e.g.  or ) when number is either 99 or less or 9 or less.

1. TYPE:

1 = GARDEN    2 = FIELD    3 = EDIBLE-PODDED

2. MATURITY:

Node number of first bloom:     No. of days to processing     Heat Units

No. of days Earlier than     } 1 = ALASKA WR    2 = THOMAS LAXTON WR    3 = LITTLE MARVEL

No. of days Later than     } 4 = WANDO    5 = ALDERMAN WR    6 = AUSTRIAN WINTER

3. PLANT HEIGHT:

CM. HIGH

Cm. Shorter than     } 1 = ALASKA WR    2 = THOMAS LAXTON WR    3 = LITTLE MARVEL

Cm. Taller than     } 4 = WANDO    5 = ALDERMAN WR    6 = AUSTRIAN WINTER

4. VINE:

Habit: 1 = DETERMINATE    2 = INDETERMINATE     Stockiness: 1 = SLIM (Alaska)    3 = HEAVY (Alderman)  
2 = MEDIUM (Thomas Laxton WR)

Branching: 1 = NONE (Alaska)    2 - 1-2 BRANCHES (Little Marvel)    3 = MORE THAN 2 BRANCHES (Dwarf Gray Sugar)

Internodes: 1 = STRAIGHT    2 = ZIG ZAG     NUMBER OF NODES

5. LEAFLETS:

Color: 1 = LIGHT GREEN (Alaska WR)    2 = MED. GREEN (Thomas Laxton WR)    3 = DARK GREEN (Alderman)  
4 = OTHER (Specify)

Wax: 1 = NONE    2 = LIGHT    3 = MEDIUM     1 = NOT MARBLED    2 = MARBLED (Alaska)  
4 = HEAVY

Number of leaflet pairs: 1 = NOT PAIRED    2 = ONE    3 = TWO    4 = THREE OR MORE

6. STIPULES:

1 = LACKING    2 = PRESENT     1 = NOT CLASPING    2 = CLASPING

1 = NOT MARBLED    2 = MARBLED     Size (Compared with leaflets): 1 = SMALLER    2 = SAME  
3 = LARGER

Color (Compared with leaflets): 1 = LIGHTER    2 = SAME    3 = DARKER

7. FLOWER COLOR:

VENATION     STANDARD     WING     KEEL    1 = WHITE    2 = GREENISH    3 = LAVENDER  
4 = PURPLE    5 = RED  
6 = OTHER (Specify)

8. PODS:

1 Shape: 1 = STRAIGHT 2 = SLIGHTLY CURVED  2 End: 1 = POINTED (Alderman) 2 = BLUNT (Alaska)  
 3 Color: 3 = CURVED  2 End: 1 = POINTED (Alderman) 2 = BLUNT (Alaska)  
 1 = LIGHT GREEN (Alaska WR) 2 = MEDIUM GREEN 3 = DARK GREEN (Alderman)  
 3 Color: 4 = OTHER (Specify) \_\_\_\_\_  
 1 Surface: 1 = SMOOTH 2 = ROUGH  2 Surface: 1 = SHINY 2 = DULL  
 5 Borne: 1 = SINGLE 2 = DOUBLE 3 = SINGLE AND DOUBLE 4 = SINGLE, DOUBLE, & TRIPEE  
 5 = DOUBLE & TRIPLE 6 = TRIPLE 7 = OTHER (Specify) \_\_\_\_\_  
 0  6 CM. LENGTH  1  3 MM. WIDTH (Between sutures)  0  8 NO. SEEDS PER POD

9. SEEDS (95-100 Tenderometer):

3 Color: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = OTHER (Specify) \_\_\_\_\_  
 Seive: %  0  1  1  1  2  8  4  2  1  7  0  1  0  0  0  0  3  .  7

SEEDS (Dry, Mature):

2 Shape: 1 = FLATTENED 2 = ANGULAR 3 = OVAL 4 = ROUNDED  
 3 Surface: 1 = SMOOTH 2 = DIMPLED  2 Surface: 1 = SHINY 2 = DULL  
 3 = WRINKLED  
 1 Color Pattern: 1 = MONOCOLOR 2 = MOTTLED 3 = STRIPED 4 = DOTTED  
 4 Primary Color: 1 = CREAMY-WHITE 2 = CREAM & GREEN 3 = LIGHT GREEN 4 = MEDIUM GREEN  
 5 = DARK GREEN 6 = BLUE-GREEN 7 = YELLOW 8 = BROWN 9 = RED  
 3 Secondary Color: 10 = GRAY 11 = BLACK  
 1 Hilum Floor Color: 1 = WHITE 2 = TAN  1 Cotyledon Color: 1 = GREEN 2 = YELLOW 3 = ORANGE  
 3 = BLACK

1  7 GRAMS PER 100 SEEDS

10. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

2 FUSARIUM WILT  0 NEAR-WILT  0 DOWNY MILDEW  
 0 ASCOCHYTA BLIGHT  2 POWDERY MILDEW  0 BACTERIAL BLIGHT  
 0 MOSAIC  1 PEA ENATION MOSAIC  0 YELLOW BEAN MOSAIC  
 2 OTHER (Specify) Fusarium wilt Races 5 and 6

11. INSECT: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

0 APHIDS  0 OTHER (Specify) \_\_\_\_\_

12. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Leafiness	PARLAY	Fresh Seed Color	PARLAY
Leaf Color	"	Mature Seed Color	"
Pod Color	"	Seed Shape	"
Pod Shape	BOLERO	Plant Habit	PARLAY

COMMENTS:

5



'Tye' <sup>to spikes</sup>

Exhibit D. Additional Description of ~~RAINIER~~.

<sup>'Tye'</sup>  
~~RAINIER~~ is a freezing-type pea developed for the pea processing industry. It was developed to combine acceptable yield and quality traits for that industry with resistance to powdery mildew and Races 1, 5, and 6 of Fusarium wilt-diseases which are important in specific green pea production areas. In appearance it is fairly typical of the "PUGET" type multipodded varieties used for the later portion of the pack in many commercial pea freezing operations. It is later in season and smaller in sieve-size than most varieties in its class. Its vine tends to be more upright and more determinate than most varieties of this type. Few available pea varieties combine the desired yield and quality traits for the processing industry with resistance to the new wilt races and powdery mildew.



Exhibit E. Statement of the Basis of Applicant's Ownership of  
~~RAINIER~~ 'Tye' <sup>KX</sup> <sub>3/10/93</sub>

W. Brotherton Seed Co., Inc., Moses Lake, Washington, is the  
sole, original, and first breeder <sup>and sole owner</sup> of the ~~RAINIER~~ 'Tye' <sup>KX</sup> variety of  
garden pea, for which it hereby solicits a certificate of  
protection.

<sup>KX</sup>  
6/14/93

Gilbert bond  
25% cotton