No. 9900081

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Brotherton Seed Co., Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, 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 TWENTY 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 CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEA

'Tonic'

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 eighteenth day of September, in the year of our Lord two thousand.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

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)*
Brotherton Seed Co.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
FR 341

3. VARIETY NAME
TONIC

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
P.O. Box 1136
Moses Lake, WA 98837
U.S.A.

5. TELEPHONE *(include area code)*
509/765-1816

6. FAX *(include area code)*
509/765-1817

FOR OFFICIAL USE ONLY

PVPO NUMBER
9900081

FILING DATE
11-27-98

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 2450.00
DATE 11-27-98
CERTIFICATION FEE: $ 302
DATE 9/5/00

7. GENUS AND SPECIES NAME
Pisum sativum L.

8. FAMILY NAME *(Botanical)*
Leguminosae

9. CROP KIND NAME *(Common name)*
garden pea

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Washington

12. DATE OF INCORPORATION
1955

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Ted Lund
Brotherton Seed Co.
P.O. Box 1136
Moses Lake, WA 98837

14. TELEPHONE *(include area code)*
509/765-1816

15. FAX *(include area code)*
509/765-1817

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT 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 18 and 19 below)* ☒ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☒ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM 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)* ☐ NO

The variety was used in commercial trials in the USA and Italy in the spring of 1998.

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, 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))*		SIGNATURE OF APPLICANT *(Owner(s))*	
NAME *(Please print or type)* Jerome Brotherton		NAME *(Please print or type)*	
CAPACITY OR TITLE President	DATE 11/23/98	CAPACITY OR TITLE	DATE

SD-470 (04-96) *(Previous editions are to be destroyed)*

(See reverse for instructions and information collection burden statement)

EXHIBIT A
Origin and Breeding History of FR 341

FR 341 was selected from the progeny of the cross QUINCY/MARKADO//CASELODE. The cross of the line which would later be named CASELODE to the F1 of QUINCY/MARKADO was made in the Brotherton Greenhouse near Moses Lake, WA, by Teddy L. Lund during the winter of 1988-89. QUINCY and CASELODE are Brotherton varieties and MARKADO was a Sluis & Groot variety. The F1 was grown near Moses Lake in the summer of 1989 and harvested without selection. The F2 was grown in the Brotherton greenhouse in the fall of 1989 and single plant selections were made. Pedigree selection followed through the F5 generation in the summers of 1990, 1991, and 1992 near Moses Lake. Selection emphasized multiple pods per node, earliness, open and upright vine habit, dark berry-color, and sweetness. In 1993 an F6 single-plant progeny row which exhibited uniformity and a desirable combination of the above traits was selected and harvested in bulk to constitute the initial stock of the variety. This stock was multiplied near Moses Lake in the summer of 1994; near Yuma, AZ, in the winter of 1994-95; near Moses Lake in the summer of 1995; again near Yuma in 1995-96; near Ellensburg, WA, in 1996; and near Moses Lake in 1997 and 1998. The multiplication plots and, later, fields were carefully inspected in each generation and no characteristic rogues, mixtures, or detectable variants were found. The variety is therefore uniform and stable.

Replicated yield testing began in our in-house trials in 1995 and the variety was entered in small-scale public and customer trials beginning in 1996. Field-scale testing began in 1998.

EXHIBIT B
Statement of Distinctness for FR 341

FR 341 is quite distinctive in appearance but is most similar to the variety CASELODE. It is distinguishable from CASELODE in the following ways:

1) FR 341 is lighter in foliage color (RHS 137A) than is CASELODE (RHS 139A).

2) FR 341 has three leaflets per leaf on its upper leaves whereas CASELODE has only two.

3) The leaflets of FR 341 are small relative to those of CASELODE. The data below represents measurements taken of the leaflet length of what appeared to be the largest leaflet on the largest leaf on each of five typical, healthy plants in each of the four replicates of the trials 97ST3 and 98ST4, grown in 1997 and 1998 respectively near Moses Lake, WA:

Trial	Rep	Planting Date	Plot #	Variety	Mean Leaflet Length (mm)	dif.
97ST3	1	3/29/97	3116	CASELODE	63.0	
			3117	FR 341	51.8	11.2
	2	"	3204	CASELODE	65.6	
			3216	FR 341	51.2	14.4
	3	4/14/97	3332	CASELODE	62.6	
			3347	FR341	42.6	20.0
	4	"	3429	CASELODE	62.8	
			3436	FR 341	43.2	19.6
98ST4	1	3/27/98	4105	CASELODE	61.6	
			4140	FR 341	46.0	15.6
	2	"	4224	CASELODE	63.6	
			4239	FR 341	47.4	16.2
	3	4/10/98	4317	CASELODE	58.8	
			4338	FR341	41.0	17.8
	4		4410	FR341	41.0	
			4416	CASELODE	60.4	19.4
						134.2

$s_d^2 = \frac{2315.96 - (18009.64/8)}{8\,(7)} = \frac{64.755}{56} = 1.156$

$s_d = 1.075$

$t = \frac{16.8}{1.075} = 15.6^{**}$ for 7df

4) FR 341 is earlier to reach green harvest maturity (100 tenderometer) than is CASELODE. Data is available from seven trials in which these two varieties were compared. Original data was presented as tenderometer readings and heat unit accumulation to date of harvest if harvest dates differed.

Maturity differences in days were calculated using as a conversion factor the rule of thumb, 1 day = -10 tenderometer points = 30 heat units.

Yr.	Trial	Location	Harvest date Difference(HU)	Tenderometer Difference	Calculated Days FR 341 minus Caselode
'97	ST3	Moses Lake	0	29	-2.9
'97	ST4	"	0	27	-2.7
'98	ST4	"	0	20	-2.0
'96	Echo	Hermiston, OR	-47	1	-1.7
'97		Hermiston, OR	-83	-3	-2.5
'97	DM SE/EA Obs	Rochelle, IL	-72	1	-2.5
'98	DM SE/EA Rep	Mendota, IL	-22	3	-1.0
					-15.3

$s_d^2 = \frac{36.09 - (234.09/7)}{7(6)} = \frac{2.65}{42} = 0.631$

$s_d = 0.251$

$t = \frac{2.19}{0.251} = 8.70^{**}$ for 6df

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-14
(3-78)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
NATIONAL AGRICULTURAL LIBRARY
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Pea)

OBJECTIVE DESCRIPTION OF VARIETY
PEA *(PISUM SATIVUM)*

NAME OF APPLICANT(S)
Brotherton Seed Co.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
P.O. Box 1136
Moses Lake, WA 98837

VARIETY NAME OR TEMPORARY DESIGNATION
FR 341

FOR OFFICIAL USE ONLY
PVPO NUMBER 9900081

Place the appropriate number that describes the varietal character in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[1] 1 = GARDEN 2 = FIELD 3 = EDIBLE-PODDED

2. MATURITY:

[11] Node number of first bloom: [ ][6][2] No. of days to processing [1][2][9][0] Heat Units

[0][2] No. of days *Earlier* than . . . [3] 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL

[0][0] No. of days *Later* than . . . . [2] 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

3. PLANT HEIGHT:

[ ][6][2] CM. HIGH

[1][1] Cm. *Shorter* than . . . . . [4] 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL

[2][2] Cm. *Taller* than . . . . . [3] 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

4. VINE:

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

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

[2] Internodes: 1 = STRAIGHT 2 = ZIG ZAG [1][8] NUMBER OF NODES

5. LEAFLETS:

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

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

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

6. STIPULES:

[2] 1 = LACKING 2 = PRESENT [2] 1 = NOT CLASPING 2 = CLASPING

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

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

7. FLOWER COLOR:

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

APPENDIX
OBJECTIVE DESCRIPTION OF VARIETY
PEA (*Pisum sativum*)

Variety Name or Temporary Designation: FR 341

LEAFLET CHARACTERISTICS:

[3] **Leaflet Type: 1=Leafless 2=Semi 3=Normal**

STIPULE CHARACTERISTICS:

[3] **Color:**
1=Light-Green 2=Medium-Green 3=Dark-Green 4=Blue-Green 5=Yellow-Green 6=Other _____

Please provide example varieties of similar specified color or check varieties and stipule color.

Variety Name	Stipule Color
FR 341	RHS 137A

Variety Name	Stipule Color
QUINCY	RHS 137A

Variety Name	Stipule Color
ALDERMAN	137 B

[1] **Size: 1=Small 2=Medium 3=Large**

Please provide example varieties of similar specified size or check varieties and stipule size.

Variety Name	Stipule Size
FR 341	Small

Variety Name	Stipule Size
MARKADO	Small

Variety Name	Stipule Size
ALASKA	Small

OTHER CHARACTERISTICS: Describe other characteristics that may aid in identification.

FR 341 will, under favorable conditions, produce five blossoms on each peduncle.

This trait is rare in varieties that early.

9900081

8. PODS:

[2] Shape: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED [2] End: 1 = POINTED (Alderman) 2 = BLUNT (Alaska)

[3] Color: 1 = LIGHT GREEN (Alaska WR) 2 = MEDIUM GREEN 3 = DARK GREEN (Alderman) 4 = OTHER (Specify) _____

[1] Surface: 1 = SMOOTH 2 = ROUGH [1] Surface: 1 = SHINY 2 = DULL

[4] Borne: 1 = SINGLE 2 = DOUBLE 3 = SINGLE AND DOUBLE 4 = SINGLE, DOUBLE, & TRIPEE 5 = DOUBLE & TRIPLE 6 = TRIPLE 7 = OTHER (Specify) _____

[0 7] CM. LENGTH [1 2] 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: %	1	2	3	4	5	6	7	8	AVERAGE
	[2]	[4]	[1 1]	[3 1]	[3 8]	[1 3]	[0 1]	[ ]	[4 . 4]

SEEDS (Dry, Mature):

[3] Shape: 1 = FLATTENED 2 = ANGULAR 3 = OVAL 4 = ROUNDED

[3] Surface: 1 = SMOOTH 2 = DIMPLED 3 = WRINKLED [2] Surface: 1 = SHINY 2 = DULL

[1] Color Pattern: 1 = MONOCOLOR 2 = MOTTLED 3 = STRIPED 4 = DOTTED

[2] 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

[ ] Secondary Color: 10 = GRAY 11 = BLACK

[1] Hilum Floor Color: 1 = WHITE 2 = TAN 3 = BLACK [2] Cotyledon Color: 1 = GREEN 2 = YELLOW 3 = ORANGE

[1 9] GRAMS PER 100 SEEDS

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

[2] FUSARIUM WILT [2] NEAR--WILT [1] DOWNY MILDEW

[0] ASCOCHYTA BLIGHT [1] POWDERY MILDEW [1] BACTERIAL BLIGHT

[2] MOSAIC [1] PEA ENATION MOSAIC [0] YELLOW BEAN MOSAIC

[ ] OTHER (Specify) _____

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

[0] APHIDS [ ] OTHER (Specify) _____

12. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Leafiness	MARKADO	Fresh Seed Color	CASELODE
Leaf Color	QUINCY	Mature Seed Color	CASELODE
Pod Color	MARKADO	Seed Shape	CASELODE
Pod Shape	QUINCY	Plant Habit	QUINCY

COMMENTS:

FORM GR-470-14 (3-78) REVERSE

Exhibit D
Additional Description of FR 341

FR 341 is a freezing-type pea developed for the green pea processing industry. It is a second-early variety with excellent processed color and quality. It has a medium height vine which is relatively open and resists lodging well.

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

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)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Brotherton Seed Co., Inc.	FR 341	TONIC
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*	**5. TELEPHONE** *(include area code)*	**6. FAX** *(include area code)*
P.O. Box 1136 Moses Lake, WA 98837	509/765-1816	509/765-1817
	7. PVPO NUMBER 9900081	

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant *(individual or company)* a U.S. national or U.S. based company? [X] YES [ ] NO
If no, give name of country _____

10. Is the applicant the original owner? [X] YES [ ] NO ***If no, please answer the following:***

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

[ ] YES [ ] NO *If no, give name of country* _____

b. If original rights to variety were owned by a company, is the original owner(s) a U.S. based company?

[ ] YES [ ] NO *If no, give name of country* _____

11. Additional explanation on ownership *(If needed, use reverse for extra space):*

FR 341 was bred by Teddy L. Lund, an employee of Brotherton Seed Co.
By agreement with Brotherton Seed Co., all rights to varieties bred by
employees are assigned to Brotherton Seed Co. with no rights retained by the employees.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD).
To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.