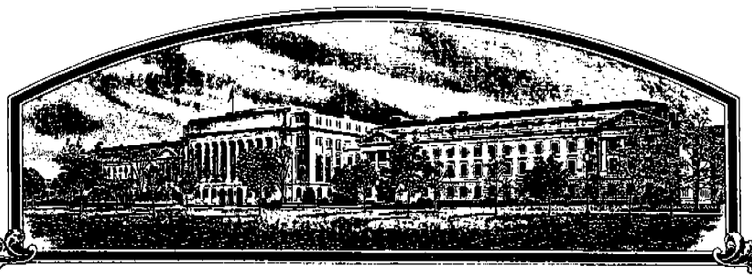

No. 7400068

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Cargill, Incorporated

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 A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS ESTABLISHED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Bounty 309'

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* 17 th *day of* October *in the year of our Lord one thousand nine hundred and* seventy-five

PLANT VARIETY PROTECTION OFFICE · U.S. DEPARTMENT OF AGRICULTURE

Attest:

L. R. Rollin

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Earl L. Butz

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION BOUNTY-309	2. KIND NAME Hard Red Spring Wheat	FOR OFFICIAL USE ONLY PV NUMBER 7400068
3. GENUS AND SPECIES NAME Triticum aestivum spp. vulgare	4. FAMILY NAME *(Botanical)* Graminae	FILING DATE 3.1.74 / TIME 10 A.M.
	5. DATE OF DETERMINATION August, 1971	FEE RECEIVED $ 250 / $ 250 / $ 250 / BALANCE DUE $ — / $ — / $ —
6. NAME OF APPLICANT(S) Cargill, Incorporated	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* Cargill Building Minneapolis, Minnesota 55402	8. TELEPHONE AREA CODE AND NUMBER AC 612 473-8811

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Corporation	10. STATE OF INCORPORATION Delaware	11. DATE OF INCORPORATION July 18,1930

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

Dr. Marvin W. Formo
Cargill, Incorporated
Cargill Building
Minneapolis, Minnesota 55402
Telephone: 612-473-8811 Ext 741

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

[X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

[X] 13B. Exhibit B, Botanical Description of the Variety

[X] 13C. Exhibit C, Objective Description of the Variety

[X] 13D. Exhibit D, Data Indicative of Novelty

[X] 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.)* [X] YES [ ] NO

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

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

April 18, 1975
(DATE)

Marvin W. Formo
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

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.

RECEIVED
APR 22 1975
PVPO

7400068

12A EXHIBIT A, ORIGIN AND BREEDING HISTORY OF BOUNTY 309

Bounty 309 is a hard red spring wheat variety originating from bulk F_2 seed obtained from the CIMMYT (Centro Internacional de Mejoramiento. de Maiz Y Trigo) breeding program in Mexico. Individual plant selections from the F_3 populations grown at Fort Collins, Colorado in 1968 were grown as F_4 progenies in California in the winter of 1968-69. Plant selections were grown as F_5's at Glyndon, Minnesota in 1969 where a single F_5 plant progeny was harvested in bulk for subsequent yield testing as Bounty 309. Yield trials, which included Bounty 309, have been conducted in California, Arizona, Idaho, Minnesota, North Dakota, South Dakota, and Colorado during the period 1970-1973.

The initial seed multiplication began from the single F_5 plant progeny selected in 1969. By growing two generations (one each in California and Minnesota) per year about 2000 bushels were harvested in August, 1972. For further purification, 250 individual plant progenies were grown under isolation in the 1971-72 California season and 150 of these were selected for further production as individual lines under isolation in Minnesota in 1972. The repurified seed source will supplant the original seed in future multiplications. A total of about 40 variants per acre were found in the original increase of Bounty 309. There were:

Plants of Bounty 309 type but 2 to 3 inches taller

Tall and awnless (very few)

Bronze chaff and awned (very few)

Careful roguing of the initial small increases eliminated practically all the variants except for some of the taller plants of the Bounty 309 type. In the repurification progenies, all off-types were removed.

The pedigree of Bounty 309 is:

CENTRIFEN/5/FRONTANA//KENYA 58/NEWTHATCH/3/NORIN 10/BREVOR/4/GABO 55/6/CHRIS//TOM THUMB/SONORA 64/3/CRIM.

EXHIBIT A, continued

'Bounty 309' has been grown in several yield trials and increase fields during the years 1970-1973. In all of these tests and increases 'Bounty 309' has maintained good "trueness to type". There has been no increase in variation or off-type plants. Out-crossing has not been a problem suggesting that 'Bounty 309' is genetically stable. Crosses of 'Bounty 309' with many other wheat variaties have produced normal progenies (F1 to F4) with no evidence of aberrant plants attributable to genetic instability. No sterile plants have been found in populations of 'Bounty 309'. The four professional wheat breeders who contributed to the development of 'Bounty 309' attest to the fact that it is as stable as any variety with which they have been associated.

FORM GR-470-6
(10-16-72)

FORM APPROVED. OMB NO. 40-R3712

EXHIBIT C
(Wheat)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
CARGILL, INCORPORATED

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
Cargill Building
Minneapolis, Minnesota 55402
Attn: Dr. Marvin Formo

FOR OFFICIAL USE ONLY

PVPO NUMBER KRE
7400068

VARIETY NAME OR TEMPORARY DESIGNATION KRE
Bounty 309

Place the appropriate number that describes the varietal character of this variety 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. KIND:
[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:
[1] 1 = SPRING 2 = WINTER 3 = OTHER *(Specify)* _____
[2] 1 = SOFT 2 = HARD 3 = OTHER *(Specify)* _____
[2] 1 = WHITE 2 = RED 3 = OTHER *(Specify)* _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:
[0][7][4] FIRST FLOWERING [0][8][2] LAST FLOWERING
Colorado data

4. MATURITY (50% *Flowering*):
[0][2] NO. OF DAYS *EARLIER* THAN ..... [3] 1 = ARTHUR 2 = SCOUT 3 = CHRIS
[ ][ ] NO. OF DAYS *LATER* THAN ..... [ ] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (*From soil level to top of head*):
[0][8][0] CM. HIGH Colorado data
[~~1~~][~~8~~] CM. TALLER THAN ..... [~~3~~] 1 = ARTHUR 2 = SCOUT 3 = CHRIS
KE letter 3/26/74
[1][8] CM. SHORTER THAN ..... [3] KE 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (*See reverse*):
[3] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:
[1] 1 = YELLOW 2 = PURPLE

8. STEM:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom: 1 = ABSENT 2 = PRESENT
[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[1] Internodes: 1 = HOLLOW 2 = SOLID
[0][3] NO. OF NODES *(Originating from node above ground)*
[1][5] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness: 1 = ABSENT 2 = PRESENT
Sparse hairiness on periphy of auricles.

10. LEAF:
[2] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____
[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[2] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[1][2] MM. LEAF WIDTH *(First leaf below flag leaf)*
[1][5] CM. LEAF LENGTH *(First leaf below flag leaf)*:

7400068

12D, EXHIBIT D, DATA INDICATIVE OF NOVELTY.

There is no difficulty in differentiating 'Bounty 309' from other varieties when grown in Comparative trials. The variety most similar to 'Bounty 309' is 'Era'. The major differences between these varieties are as follows:-

Straw diameter and strength: 'Bounty 309' straw has greater diameter and is stronger than 'Era'.

Tillering: 'Era' tillers more than 'Bounty 309'.

Spike size: 'Bounty 309' has a longer and larger spike than 'Era'.

Glume size: 'Bounty 309' has a much longer lemma and palea than 'Era'.

Quality: 'Bounty 309' averages about 1% higher in protein, 3 to 4% higher in water absorption, and has slightly stronger gluten than 'Era'. 'Era' has a higher milling extraction than 'Bounty 309'.

Maturity: 'Bounty 309' matures 3 to 4 days earlier than 'Era'.

The combination of visible field characters that distinguishes 'Bounty 309' from other varieties is:-

1. Extremely vigorous and productive appearance at maturity.
2. Large head size and large glumes
3. Good standability

7400068

12E, EXHIBIT E, STATEMENT OF THE BASIS OF CARGILL, INC. OWNERSHIP OF BOUNTY 309

Cargill, Incorporated, selected, tested and increased Bounty 309 from germplasm material received in 1967 from the CIMMYT program in Mexico. This germplasm was made available to Cargill to use without any restrictions.

7400068

12B, EXHIBIT B, BOTANICAL DESCRIPTION OF BOUNTY 309

The juvenile growth of Bounty 309 is typical of most spring wheat varieties. A botanical description follows: plant spring habit, day-length insensitive, medium maturing, semi-dwarf in height; stem white, strong; spike awned, mid-dense, multiflorous, inclined; glumes glabrous, long, midwide, white, shoulders wanting at base and apiculate at apex of spike; beaks midwide, acuminate, 5 to 10 mm. long; awns white, 3 to 8 cm. long; kernels red, mid-long, hard, elliptical, germ midsized, crease midwide, mid-deep; cheeks rounded; brush mid-sized, ~~short~~ midlong.*

For the expected area of adaptation in Arizona and California, Bounty 309 should be compared with Siete Cerros and the Bluebird types, particularly Cajeme and Yecora.

Bounty 309 in comparison with Siete Cerros is slightly taller and earlier maturing, more lax and longer spike, and white chaff (Siete Cerros has brown chaff). Another distinguishing trait is the strong S-shaped peduncle exhibited by Siete Cerros which is mostly lacking in Bounty 309.

The varieties Cajeme and Yecora are much shorter in height than Bounty 309 and have a less erect growth habit, being almost bushy in appearance.

*Letter to Mario Formo from Boyd Curtis May 2, 1974

FORM GR-470-6 (REVERSE) 7400068

11. HEAD:

[1] Density: 1 = LAX 2 = DENSE

[1] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER *(Specify)* _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[1] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER *(Specify)*: _____

[1 1] CM. LENGTH

[1 8] MM. WIDTH

12. GLUMES AT MATURITY:

[3] Length: 1 = SHORT *(CA. 7 mm.)* 2 = MEDIUM *(CA. 8 mm.)* 3 = LONG *(CA. 9 mm.)*

[2] Width: 1 = NARROW *(CA. 3 mm.)* 2 = MEDIUM *(CA. 3.5 mm.)* 3 = WIDE *(CA. 4 mm.)*

[1] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[3] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[3] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

not known [2.5] Phenol reaction *(See instructions)*: 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER *(Specify)* _____

[0 7] MM. LENGTH [0 2.5] MM. WIDTH [4 0] GM. PER 100 SEEDS

17. SEED CREASE:

[~~1~~ 2] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[2] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[1] STEM RUST *(Races)* 151

[2] LEAF RUST *(Races)* not known

[0] STRIPE RUST *(Races)* _____

[1] LOOSE SMUT

[0] POWDERY MILDEW

[0] BUNT

[ ] OTHER *(Specify)* _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY

[0] APHID *(Bydv.)*

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[ ] OTHER *(Specify)* _____

HESSIAN FLY RACES: [ ] GP [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	CHRIS	Seed size	CHRIS
Leaf size	CHRIS	Seed shape	BOUNTY 208
Leaf color	ERA	Coleoptile elongation	NOT KNOWN
Leaf carriage	BOUNTY 208	Seedling pigmentation	CHRIS

INSTRUCTIONS

Letter Jan 10, 1975

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Associati[illegible] Official Seed Analysts. *(See attachment.)*

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

KE * Generally resistant to prevalent races of stem rust (letter 3/26/74) * Letter May 2, 1974 to Mary Thorne