

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## North American Plant Breeders

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. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS MASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS DETERMINED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'Lud'

*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 20th day of December in the year of our Lord one thousand nine hundred and seventy-six*

Attest:

*S. J. Rollins*  
Commissioner  
Plant Variety Protection Office  
Grain Division  
Agricultural Marketing Service

*John C. Ashby*  
Secretary of Agriculture





NORTH AMERICAN PLANT BREEDERS INC.

5201 JOHNSON DRIVE, P.O. BOX 2955  
MISSION, KANSAS 66201  
(913) 384-4940 TWX 910-743-4160

May 3, 1984

Mr. Lloyd McCord  
Jerome, Idaho 83338

RE: LUD BARLEY

Dear Mr. McCord:

It has been drawn to our attention that you have been advertising LUD Barley for sale in The Times News.

LUD Barley is a variety which is protected under the Plant Variety Protection Act. LUD can be sold only by variety name as a class of certified seed. North American Plant Breeders Inc. is the owner of the patent for LUD Barley.

Your advertisement and assumed sales of LUD Barley are in violation of NAPB's patent rights, the Federal Seed Act and state seed laws. NAPB demands that you immediately cease and desist from advertising and/or selling uncertified LUD seed. You must inform this office in writing that the illegal advertisement has been terminated. If you do not accede to this demand, we shall promptly initiate litigation in the appropriate federal court requesting a restraining order, permanent injunction and civil damages.

If compliance is not assured within seven (7) days of the date of this correspondence, we shall proceed without further notice to you.

Sincerely,

William F. Schwer  
Corporate Counsel

WFS:rd

cc: U. S. Department of Agriculture ✓  
Idaho Crop Inspectors Association

First in the science of yields.

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1. VARIETY NAME OR TEMPORARY DESIGNATION <b>LUD</b>		2. KIND NAME <b>Cereal Spring Barley</b>		FOR OFFICIAL USE ONLY PV NUMBER <b>7500001</b>	
3. GENUS AND SPECIES NAME <b>Hordeum Sativum</b>		4. FAMILY NAME (Botanical) <b>Gramineae</b>		FILING DATE <b>7-1-74</b>	TIME <b>10:30</b> A.M.
		5. DATE OF DETERMINATION <b>1969</b>		FEE RECEIVED \$ <b>250.00</b>	BALANCE DUE \$ <b>—</b>
				\$ <b>250.00</b>	\$ <b>—</b>
				\$ <b>250.00</b>	\$ <b>—</b>
6. NAME OF APPLICANT(S) <b>North American Plant Breeders</b>		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) <del>P. O. Box 991</del> <b>P.O. Box 2955</b> <del>1120 Marshall St.</del> <b>5201 Johnson Dr.</b> <del>Little Rock, Arkansas 72203</del> <b>MISSION, KS 66205</b> <i>ECG 9/22/76</i>		8. TELEPHONE AREA CODE AND NUMBER <del>(913) 384-4940</del> <del>(501) 374-1652</del> <i>ECG 9/22/76</i>	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) <b>Partnership</b>			10. STATE OF INCORPORATION <b>Connecticut</b>		11. DATE OF INCORPORATION <b>3/9/73</b>

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

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 *ECG 11/19/75*

14B. Does the applicant(s) specify that this variety be limited as to number of generations?  YES  NO *ECG 11/19/75*

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? *ECG 11/19/75*  
 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.

June 26, 1974  
(DATE)

(DATE)

(SIGNATURE OF APPLICANT)

North American Plant Breeders  
B.W.A. Greengrass, General Manager

(SIGNATURE OF APPLICANT)

EXHIBIT 13A

North American Plant Breeders  
5201 Johnson Drive  
P.O. Box 2955  
Mission, Kansas, 66205  
(Formerly of Little Rock, Arkansas)

ORIGIN AND BREEDING HISTORY OF VARIETY "LUD"

Lud was bred by Rothwell Plant Breeders in the United Kingdom, and was introduced for the USA by N.A.P.B. who have exclusive rights for the material for that territory.

Lud was developed from the cross (Vada x Zephyr) x 59114, made at Rothwell in 1966. The line 59114 was of Dutch origin. Pedigree selection was employed throughout for the development of the variety, the definitive plant selection fixing the type being that chosen at F<sub>4</sub>.

Plant rows were grown at F<sub>6</sub> for elimination of any deviant or off-type material, and those retained were rechecked at F<sub>7</sub> as plant row progenies before bulking as nucleus stock for multiplication here.

Stability is being ensured by fresh plant row selection each year for the initial stage of the variety multiplication program. Variants occurring in Britain at this first stage were:

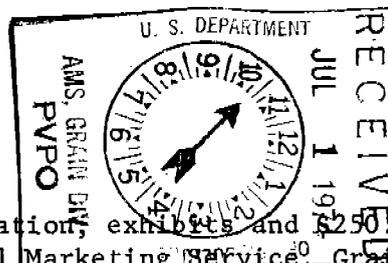
(a) Hairy ventral crease of grain	1%
(b) Foliage color differences	3%
(c) Maturity difference	1%
(d) Non-pigmented	0.5%
(e) Longer rachilla	0.05%

These variants were successfully eliminated in the first cycle of purification; strict ear row checks in 1976 showed collar variants (7%), maturity (3%), and neck type (under 1%).

Mission, Kansas  
GED:cm  
9/8/76

00002

## INSTRUCTIONS



GENERAL: Send an original copy of the application, exhibits and 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.

EXHIBIT 13B

North American Plant Breeders  
5201 Johnson Drive  
P.O. Box 2955  
Mission, Kansas, 66205  
(Formerly of Little Rock, Arkansas)

BOTANICAL DESCRIPTION OF THE VARIETY "LUD"

EVK/10/5/76 <sup>medium-short</sup>  
10/5/76 "Lud" is a ~~short~~, two-row spring barley variety. It's fairly early in maturity and is generally similar to Zephyr but has very stiff straw. It has semi-erect early growth habit, and semi-lax ears with a slight taper.

Lud has good tolerance to mildew and moderate tolerance to brown rust. It has susceptibility to scald (Rhynchosporium secalis).

CVG/10/5/76 Grain features are: <sup>Short</sup> long-haired Rachilla, glabrous ventral crease.

Mission, Kansas  
GED:cm  
9/8/76

00003

7 of 15

OBJECTIVE DESCRIPTION OF VARIETY  
BARLEY (*HORDEUM VULGARE*)

00007

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) North American Plant Breeders	FOR OFFICIAL USE ONLY
	PVPO NUMBER 7500002
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P. O. Box 991, 1120 Marshall St. Little Rock, Arkansas 72203	VARIETY NAME OR TEMPORARY DESIGNATION GEORGIE

Place the appropriate number that describes the varietal character of this variety in the boxes below.  
Place a zero in first box (i.e. 089 or 09 ) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 = SPRING    2 = FACULTATIVE WINTER    3 = WINTER     3    Early Growth: 1 = PROSTRATE    2 = SEMIPROSTRATE  
3 = ERECT

2. MATURITY (50% Flowering):

2    1 = EARLY (California Mariout)    2 = MIDSEASON (Betzes)    3 = LATE (Frontier)

No. of days Earlier than . . . . .  } 1 = BETZES    2 = CALIFORNIA MARIOUT    3 = CONQUEST    4 = DICKSON

2    No. of days Later than . . . . .  1 } 5 = PIROLINE    6 = PRIMUS    7 = UNITAN

3. PLANT HEIGHT (From soil level to top of head):

3    1 = SEMIDWARF    2 = SHORT (California Mariout)    3 = MEDIUM TALL (Betzes)    4 = TALL (Conquest)

0    2    Cm. Shorter than . . . . .  1 } 1 = BETZES    2 = CALIFORNIA MARIOUT    3 = CONQUEST    4 = DICKSON

Cm. Taller than . . . . .  } 5 = PIROLINE    6 = PRIMUS    7 = UNITAN

4. STEM:

Exertion (Flag to spike at maturity): 1 = 0 - 3 cm.    2 = 3 - 10 cm.     2    Anthocyanin: 1 = ABSENT    2 = PRESENT  
3 = 10 - 15 cm.

NO. OF NODES (Originating from node above ground)

4    Collar Shape: 1 = CLOSED    2 = V-SHAPED    3 = OPEN    4 = MODIFIED CLOSED OR OPEN     1    Shape of Neck: 1 = STRAIGHT    2 = SNAKY  
3 = OTHER (Specify)

5. LEAF:

1    Basal leaf sheath (seedling): 1 = GLABROUS    2 = PUBESCENT     1    Position of flag leaf (at boot stage): 1 = DROOPING  
2 = UPRIGHT

3    Waxiness: 1 = ABSENT (Glossy)    2 = SLIGHTLY WAXY    3 = WAXY     MM. WIDTH (First leaf below flag leaf)

CM. LENGTH (First leaf below flag leaf)     2    Anthocyanin in leaf sheath: 1 = ABSENT    2 = PRESENT

6. HEAD:

1    Type: 1 = TWO-ROWED    2 = SIX-ROWED     1    Density: 1 = LAX    2 = ERECT (Not dense)  
3 = ERECT (Dense)

1    Shape: 1 = TAPERING    2 = STRAP    3 = CLAVATE    4 = OTHER (Specify)     3    Waxiness: 1 = ABSENT (Glossy)    2 = SLIGHTLY WAXY  
3 = WAXY

1    Lateral Kernels Overlap: 1 = NONE    2 = AT TIP    3 = 1/4 - 1/2 OF HEAD     3    Rachis (Hair on edge): 1 = LACKING    2 = FEW    3 = COVERED

7. GLUME:

1    Length: 1 = 1/3 OF LEMMA    2 = 1/2 OF LEMMA    3 = MORE THAN 1/2 OF LEMMA     3    Hairs: 1 = NONE    2 = SHORT    3 = LONG

4    Hair covering: 1 = NONE    2 = RESTRICTED TO MIDDLE    3 = CONFINED TO BAND    4 = COMPLETELY COVERED

3    Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES    2 = EQUAL TO LENGTH OF GLUMES  
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

1    Awn Surface: 1 = SMOOTH    2 = SEMISMOOTH    3 = ROUGH

EXHIBIT D

North American Plant Breeders  
5201 Johnson Drive  
P.O. Box 2955  
Mission, Kansas, 66205  
(Formerly of Little Rock, Arkansas)

DATA INDICATIVE OF NOVELTY: "LUD"

Lud is most similar to Zephyr, and differs from that variety in having waxier stems and ears (i.e. having higher glaucosity, as recognized in U.P.O.V. countries). It also has stiffer straw than Zephyr. Lud can also be differentiated from Zephyr by having 100% (i.e. all plants) susceptibility to D.D.T.; whereas, Zephyr shows segregation for this characteristic and 40-60% of the plants are resistant and the balance are susceptible.

Mission, Kansas  
GED:cm  
10/6/76

00006

EXHIBIT E

North American Plant Breeders  
5201 Johnson Drive  
P.O. Box 2955  
Mission, Kansas, 66205  
(Formerly of Little Rock, Arkansas)

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP: "LUD"

Lud was bred by full-time employees of Rothwell Plant Breeders Limited. Pursuant to terms of employment of such employees, ownership of the variety vested in Rothwell Plant Breeders Limited.

Pursuant to an agreement dated March 9, 1973, between Rothwell Plant Breeders and North American Plant Breeders, ownership of the variety in the U.S.A. and the right to apply for plant variety protection in U.S.A. passed to the applicant.

Further information on this matter has been provided in the letter of February 3, 1976 from Mr. B. W. Greengrass, together with a notarized copy establishing N.A.P.B. as assignee of title to all Rothwell Plant Breeders' bred varieties in U.S.A.

Mission, Kansas  
GED:cm  
9/8/76

00007

Excerpts from:

NAPB-RPB  
TECHNICAL COLLABORATION AGREEMENT

"AGREEMENT dated this 9th day of March 1973, between NORTH AMERICAN PLANT BREEDERS, a partnership of R-P and OPB (both as hereinafter defined) existing under the laws of the State of Connecticut, USA ("NAPB") on the one hand and ROTHWELL PLANT BREEDERS LIMITED, a company incorporated in England with its registered office at Field House, Grimsby, Lincolnshire, England ("RPB") on the other relating to technical collaboration between them as hereinafter recited.....

"WITNESSETH THAT the parties hereto agree as follows:

"ARTICLE I - DEFINITIONS

Following terms used herein shall have the following meanings:

- (4) 'Seed' means any reproductive material of Agricultural Crops.
- (5) 'Seed Know-How' means any knowledge, expertise and other information, and any rights of whatever nature (including but not limited to plant breeders' and similar rights) relating in any way to Agricultural Crops or Seed, or relating in any way to all processes, methods and apparatus for the breeding, planting, harvesting, production and treating of Agricultural Crops and Seed. Proprietary or secret knowledge, expertise and other information and rights relating to chemicals used for treating Agricultural Crops or Seed are excluded from the definition of 'Seed Know-How' but such proprietary or secret knowledge, expertise and other information and rights relating to chemicals used for treating Agricultural Crops or Seed for the purpose of creating inheritable characteristics in Agricultural Crops or Seed are included in such definition.

00008

"ARTICLE IV - TECHNICAL COLLABORATION AND LICENSING

- (1) RPB, to the extent of its rights and during the term of this Agreement, shall (a) make available to NAPB on a continuing basis, all Seed available to RPB for the NAPB territory from all sources in quantities for initial plant breeding purposes, (b) disclose and transfer to NAPB on a continuing basis for use in the NAPB territory in connection with the breeding, development, production and sale of Seed all present and future Seed Know-How available to RPB for the NAPB territory from all sources, and (c) assign and continue to assign to NAPB all its right, title and interest in and to said Seed Know-How and said Seed for exploitation throughout the NAPB territory.....
- (4) Any assignments made or licenses granted under the provisions of Clauses (1), (2) or (3) hereof shall be in perpetuity or for the life of the rights being assigned or licensed. However, the respective obligations of the parties to make such assignments and grant such licenses to each other hereunder with respect to new Seed or new Seed Know-How, shall terminate forthwith upon termination of this Agreement for any reason.
- (7) Insofar as NAPB has the right by way of assignment of all right, title and interest in Seed Know-How: (i) NAPB shall have the exclusive right to take whatever action it deems necessary to protect Seed Know-How in the NAPB territory by filing application for plant breeders certificate and similar rights; (ii) RPB shall assist NAPB in securing and transmitting all information for the completion and prosecution of such applications; (iii) within thirty (30) days after the execution of this Agreement RPB shall assign to NAPB all applications for U.S. Certificate

for Plant Variety Protection and hereby grants to NAPB the exclusive right to file applications for Plant Variety Protection Certificates and to be the owner of all rights with respect thereto, including the right to enforce such Certificates and rights represented thereby against unauthorized third parties. Reciprocally, RPB shall have similar exclusive rights for the RPB territory and NAPB shall render similar assistance and make similar assignments to RPB.

"IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first above written.

NORTH AMERICAN PLANT BREEDERS

By /s/ B.W.A. Greengrass

Title: General Manager

ROTHWELL PLANT BREEDERS LIMITED

By /s/ F. M. Collins

Title: Managing Director"

I certify this document to be true excerpts from the original agreement.

*Rosalyn Snyderman*

A Notary Public for the County  
of Pulaski, State of Arkansas

My Commission Expires Nov. 1, 1979

8. LEMMA:

5 Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS  
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)  
 5 = LONG (longer than spike) 6 = HOODED

3 Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

1 Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS  1 Hair: 1 = ABSENT 2 = PRESENT

1 Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE  2 Rachilla Hairs: 1 = SHORT 2 = LONG

9. STIGMA:

Hairs: 1 = FEW 2 = MANY

10. SEED:

2 Type: 1 = NAKED 2 = COVERED  1 Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT

3 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)  
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)

2 Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED

2 Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE

PERCENT ABORTIVE  3  9 GMS. PER 1000 SEEDS

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

<input type="checkbox"/> SEPTORIA	<input type="checkbox"/> NET BLOTCH	<input type="checkbox"/> SPOT BLOTCH	<input checked="" type="checkbox"/> 2 POWDERY MILDEW
<input type="checkbox"/> LOOSE SMUT	<input type="checkbox"/> BACTERIAL BLIGHT	<input type="checkbox"/> COVERED SMUT	<input type="checkbox"/> FALSE LOOSE SMUT
<input type="checkbox"/> STEM RUST	<input type="checkbox"/> LEAF RUST	<input type="checkbox"/> SCAB	<input type="checkbox"/> SCALD
<input type="checkbox"/> AY	<input type="checkbox"/> BSMV	<input type="checkbox"/> BYDV	<input type="checkbox"/> OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)

<input type="checkbox"/> GREEN BUG	<input type="checkbox"/> ENGLISH GRAIN APHID	<input type="checkbox"/> CHINCH BUG	<input type="checkbox"/> ARMYWORM
<input type="checkbox"/> GRASS HOPPERS	<input type="checkbox"/> CERIAL LEAF BETTLE	<input type="checkbox"/> OTHER (Specify)	
HESSIAN FLY RACES			
<input type="checkbox"/> GP	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C
<input type="checkbox"/> D	<input type="checkbox"/> E	<input type="checkbox"/> F	<input type="checkbox"/> G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

1 DDT  OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Not known at date of application	Seed size	Not known at date of application
Leaf size		Coleoptile elongation	
Leaf color		Seedling pigmentation	
Leaf carriage			

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

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

5/7/72

BILL OF SALE AND ASSIGNMENT

KNOW ALL MEN BY THESE PRESENTS that AGRIPRO BIOSCIENCES INC., a Delaware corporation (hereinafter referred to as "Seller"), pursuant to that certain Asset Purchase Agreement of even date herewith by and between Seller and AGR ACQUISITION CORPORATION, a Delaware corporation (hereinafter referred to as "Buyer") and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, bargain, sell, assign, convey and deliver unto Buyer, all of Seller's right, title and interest in and to the plant varieties owned/registered by Seller and more particularly set forth on Exhibit A attached hereto for which PVP Certificates have been issued by or may be pending before the U. S. Department of Agriculture.

TO HAVE AND TO HOLD UNTO PURCHASER, its successors and assigns forever.

IN WITNESS WHEREOF, Seller has executed this Bill of Sale and Assignment as of the 30th day of June, 1994.

AGRIPRO BIOSCIENCES INC.

BY: W.A. Zama  
Title: President

STATE OF KANSAS, COUNTY OF JOHNSON

Before me, the undersigned, a Notary Public of the State and County aforesaid, personally appeared W.A. ZAMA with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence) and who, upon oath, acknowledged himself to be the PRESIDENT of Agripro Biosciences Inc., the within named bargainer, a corporation, and that he as such PRESIDENT, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as PRESIDENT.

WITNESS my hand and Notarial Seal at office the day and year above written.

Alma M. Weaver  
Notary Public

My Commission Expires:

June 22, 1998

ALMA M. WEAVER  
NOTARY PUBLIC  
STATE OF KANSAS

My Appt. Exp. June 22, 1998

Office of the Secretary of State

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I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "AGR ACQUISITION CORPORATION", CHANGING ITS NAME FROM "AGR ACQUISITION CORPORATION" TO "AGRIPRO SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF JUNE, A.D. 1994, AT 4:30 O'CLOCK P.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.



*Edward J. Freel*

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2394087 8100

944121584

SECRETARY OF STATE  
AUTHENTICATION:

7169071

DATE:

07-01-94

06/30/84 14:25

0913 384 0208

ABI SHAWNEE MSN

002/002

CERTIFICATE OF AMENDMENT  
OF  
CERTIFICATE OF INCORPORATION  
OF  
AGR ACQUISITION CORPORATION

AGR Acquisition Corporation, a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware,

DOES HEREBY CERTIFY:

FIRST: that the Board of Directors of said corporation, by the unanimous written consent of its members filed with the minutes of the Board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of this corporation be amended by changing the Article thereof numbered "ARTICLE I" so that, as amended, said Article shall be and read as follows:

"ARTICLE I

Name

The name of the corporation (hereinafter called the 'Corporation') is Agripro Seeds, Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the sole shareholder of the corporation has given unanimous written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

FOURTH: That the capital of said corporation shall not be reduced under or by reason of said amendment.

IN WITNESS WHEREOF, said AGR Acquisition Corporation has caused this certificate to be signed by Gary T. Hancock, its President, and attested by Ann Steelman, its Secretary, this 30<sup>th</sup> day of June, 1994.

AGR ACQUISITION CORPORATION

BY: Gary T. Hancock  
Gary T. Hancock, President

ATTEST:

BY: Ann Steelman  
Ann Steelman, Secretary

## LAW OFFICES

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July 25, 1994

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CHAS. N. BURCH 1868-1938  
H. D. MINGO 1868-1947  
CLINTON H. MCKAY 1888-1943  
JESSEE JOHNSON, JR. 1813-1880  
JOHN S. PORTER 1808-1890

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Beltsville, MD 20705

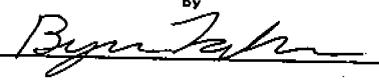
Re: Agripro Biosciences Inc. Sale of PVPs to AGR Acquisition Corporation (which has changed its name to Agripro Seeds, Inc.)

Dear Ms. Zempolich:

I am enclosing herewith the Bill of Sale and Assignment wherein Agripro Biosciences Inc. has sold and assigned all of its right, title and interest in and to the PVPs listed on the attachment to the Bill of Sale to AGR Acquisition Corporation and hereby request that your records be changed to show the new owner as Agripro Seeds, Inc., the new name of AGR Acquisition Corporation. It is our understanding that the attachment was generated by someone in your office and forwarded to Agripro Biosciences Inc. at its request, and was subsequently forwarded to our office as attorneys for the purchaser in connection with the sale transaction.

As I indicated to you in our several previous telephone conversations, AGR Acquisition Corporation changed its corporate name to Agripro Seeds, Inc. the same date as the closing of the sale. I am enclosing herewith a copy of the Certificate of Amendment filed by the Delaware Secretary of State wherein the corporate name is changed.

If I counted correctly, there are 149 PVP certificates listed on the attachment to the Bill of Sale and Assignment. I am enclosing a check in the amount of \$3,725.00 payable to United States Treasury in payment of the \$25.00 per certificate fee to change the owner's name on your records.

THIS DOCUMENT HAS A COLORED BACKGROUND - NOT A WHITE BACKGROUND		THIS DOCUMENT HAS A COLORED BACKGROUND	
	<b>HELENA CHEMICAL COMPANY</b> Suite 3200 - Clark Tower 5100 Poplar Avenue Memphis, Tennessee 38137	<b>DATE</b> 7-8-94	<b>CHECK NUMBER</b> 22406
	<b>PROTECTION AMOUNT</b> EXACTLY <b>PAY 37250000</b>	<b>PAY THIS AMOUNT</b> \$3,725.00	
<b>PAY TO THE ORDER OF</b> United States Treasury	<b>HELENA CHEMICAL COMPANY</b> by  AUTHORIZED SIGNATURES		