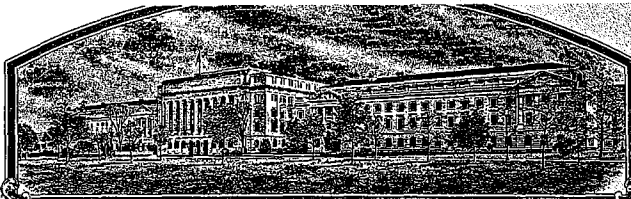


No.

200100002



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The J. C. Robinson Seed Company

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.)

CORN, FIELD

'NR401'



*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 tenth day of March, in the year two thousand three.*

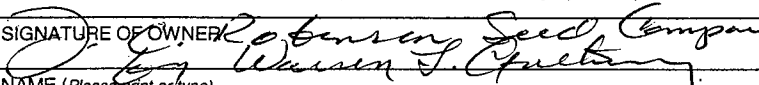
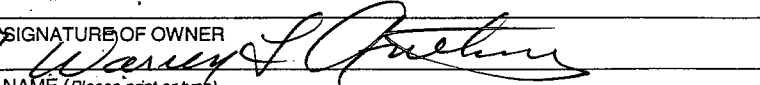
*Attest:*

*Paul M. Johnson*

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Sherrin*

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY – PLANT VARIETY PROTECTION OFFICE <b>APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE</b> <i>(Instructions and information collection burden statement on reverse)</i>		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 (u U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).	
1. NAME OF OWNER <b>The J. C. Robinson Seed Company</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME	3. VARIETY NAME <b>NR401</b>
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) <b>100 J. C. Robinson Blvd                  PO Box A                  Waterloo, NE 68069</b>		5. TELEPHONE (include area code) <b>402-289-0252</b>	FOR OFFICIAL USE ONLY PVPO NUMBER <b>200100002</b> FILING DATE <b>Oct. 2, 2000</b>
		6. FAX (include area code) <b>402-779-4370</b>	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <b>Corporation</b>	8. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Nebraska</b>	9. DATE OF INCORPORATION <b>8-1-1964</b>	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) <b>Warren Anthony                  Foundation Seed Manager                  100 J. C. Robinson Blvd                  PO Box A                  Waterloo, Ne 68069</b>		F E E S  R E C E I V E D	FILING AND EXAMINATION FEES: \$ <b>2450<sup>00</sup> + 255.00</b> DATE <b>8-14-00 + 10/2/0</b> CERTIFICATION FEE: \$ <b>320.00</b> DATE <b>1/27/2003</b>
11. TELEPHONE (include area code) <b>402-289-0252</b>	12. FAX (include area code) <b>402-779-4370</b>	13. E_MAIL <b>wanthony@jcrob.com</b>	14. CROP KIND (Common Name) <b>Corn</b>
15. GENUS AND SPECIES NAME OF CROP <b>Zea Mays E.</b>		16. FAMILY NAME (Botanical) <b>Gramineae</b>	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) <ul style="list-style-type: none"> <li>a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety</li> <li>b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness</li> <li>c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety</li> <li>d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional)</li> <li>e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership</li> <li>f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)</li> <li>g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)</li> </ul>		19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (if "no," go to item 22)	
		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
		21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO THE NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED NUMBER 1,2,3, etc. (If additional explanation is necessary, please use the space indicated on the reverse.)	
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES (Please use space indicated on reverse.)		23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
24. The owners 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 owner(s) is(are) the owner 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 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.  Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER  NAME (Please print or type) <b>Warren L. Anthony</b>		SIGNATURE OF OWNER  NAME (Please print or type) <b>Warren L. Anthony</b>	
CAPACITY OR TITLE <b>Foundation Seed Mgr</b>		DATE <b>Aug. 7, 2000</b>	CAPACITY OR TITLE <b>Foundation Seed Manager</b>
		DATE <b>Aug. 7, 2000</b>	

## 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) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,450 (\$300 filing fee and \$2,150 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, 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 \$300 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent

Plant Variety Protection Office

Telephone: (301)504-5518

Fax: (301)504-5291

Homepage: <http://www.ams.usda.gov/science/pvp.htm>

## ITEM

- 8a. 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) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 8b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all difference 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 (prints) of seed and plant comparisons which clearly indicate distinctness.
- 8c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 8d. 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.
- 8e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. 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 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 *Regulations and Rules of Practice, Section 97.103*).
20. See Section 83 of the Act for the Contents and Term of Plant Variety Protection.
21. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
22. See Section 5.5 of the Act for instructions on claiming the benefit of earlier filing date.

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21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

**No Limit**

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22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

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23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right, or Patent).)

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**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative 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 or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center—East, Beltsville, MD 20705. Telephone: (301)504-8089.

Public reporting burden for this collection of information is estimated to average 30 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. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter. Under the PRA of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

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 USDA Office of Communications at (202)720-2791. To file a complaint, write secretary of Agriculture, Washington D.C. 20250, or call (202)720-7327 (voice) or (202)720-1127 (TDD). USDA is an equal opportunity employer.

## Origin and Breeding History of Inbred NR401

## Exhibit A:

NR401 is a corn inbred line developed from selfing the F1 generation of commercial hybrid Pioneer Brand 3751. A standard pedigree ear-row method of breeding was used. Selfing and selection were conducted for six generations in the development of NR401. The selection criteria used during the development of NR401 were: good stand establishment; silking and pollen shedding ability; disease tolerance; stay green appearance during senescence; stalk and root strength; and seed quality. Testcrosses with unrelated inbred lines were made and evaluated over multiple locations and years.

Pioneer 3751 is a hybrid seed corn variety that is marketed in the upper midwest by Pioneer Hi-Bred International headquartered in Johnston, IA.

NR401 has shown uniformity and stability for all traits as described in Exhibit C- "Objective Description of Variety". It has been self-pollinated and ear-rowed a sufficient number of generations, with careful attention given to uniformity of plant type to ensure homozygosity and phenotypic purity. Several S5 ear rows were grown in Estherville, IA during the summer of 1997. A uniform S5 was selected and several S6 progeny were then grown in Molokai, HA during the winter of 1997-1998. These ear rows were evaluated to assure they were uniform and identical for phenotype. The S7 seed harvested from Hawaii was bulked and grown in a line increase isolation at Waterloo, NE during the summer of 1998. The 1998 increase was observed by The J.C. Robinson foundation manager who confirmed the uniformity of the inbred line.

No variant traits have been observed or are expected in NR401.

## Development History of NR401:

<u>Location / Season / Year:</u>	<u>Inbreeding Level:</u>
Estherville, IA / Summer/1993	S0 self
Molokai, HA / Winter/ 1993-94	S1 self and select
Estherville, IA / Summer/ 1994	S2 self and select
Estherville, IA / Summer/ 1995	S3 self and select
Estherville, IA / Summer/ 1996	S4 self and select
Estherville, IA / Summer/ 1997	S5 self and select
Molokai, HA / Winter/ 1997-98	S6 ear row and initial bulk
Waterloo, NE / Summer/ 1998	initial bulk grown in an open pollinated foundation increase

## Statement of Distinctness for Inbred NR401

## Exhibit B:

JMS 5/20/02

NR401 is most similar to A619, however, there are distinguishing differences between the two inbreds. Fifteen plants of the two inbreds were compared in side by side plots and measurements determined differences in leaf, tassel, cob, and kernel characteristics. length of the ear node leaf for NR401 was 67.3 cm (standard deviation 2.6 cm) and that of A619 was 54.4 cm (standard deviation 2.5 cm). Tassel length of NR401 was 48.4 cm (standard deviation 3.4 cm) and that of A619 was 36.8 cm (standard deviation 1.63 cm). Anthers of NR401 are red colored whereas those of A619 are yellow. The cob color of NR401 is red and that of A619 is white. When using the Munsell Color Charts for Plant Tissues as a reference, the anther color of NR401 would be classified as 2.5R 4/6 while that of A619 would be classified as 5Y 8/8. The cob color of NR401 would be classified as 10R 4/8 and that of A619 is white (5Y9/1). ~~A measurement of dried kernel characteristics found that NR401 had 71.2% round kernels (standard deviation 3.3%) and that of A619 was found to be 51.3% (standard deviation 2.9%).~~

The following traits are highly significant at the 1% level (Student's t-Test procedure).

Trait	NR401		A619		Mean Diff	t-Value	Prob
	N	Mean	N	Mean			
Leaf Width	15	9.3	15	7.0	2.3	10.89	0.0000
Leaf Length	15	67.3	15	54.4	12.9	13.78	0.0000
Leaf Number	15	4.7	15	5.1	-0.5	-3.00	0.0060
Tassel Length	15	48.4	15	36.8	11.4	11.39	0.0000
Ear Length	15	14.5	15	10.9	3.6	5.63	0.0000
Ear Diameter	15	37.4	15	40.7	-3.3	-3.76	0.0010
Kernel Thickness	15	4.8	15	4.3	0.5	2.79	0.0095

United States Department of Agriculture, Agricultural Marketing Service  
Science Division, Plant Variety Protection Office  
National Agricultural Library Building, Room 500  
Beltsville, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY  
CORN (*Zea mays* L.)

Name of Applicant(s) <b>The J. C. Robinson Seed Company</b>	Variety Seed Source	Variety Name or Temporary Designation <b>NR401</b>
Address (Street & No., or R.F.D. No., City, State, Zip Code and Country) <b>100 J. C. Robinson Blvd PO Box A Waterloo, Ne 68069</b>		FOR OFFICIAL USE PVPO Number <b>200100002</b>

Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Traits designated by a "\*" are considered necessary for an adequate variety description and must be completed.

COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices: describe #25 and #26 in Comments section):

01 = Light Green	06 = Pale Yellow	11 = Pink	16 = Pale Purple	21 = Buff
02 = Medium Green	07 = Yellow	12 = Light Red	17 = Purple	22 = Tan
03 = Dark Green	08 = Yellow-Orange	13 = Cherry Red	18 = Colorless	23 = Brown
04 = Very Dark Green	09 = Salmon	14 = Red	19 = White	24 = Bronze
05 = Green-Yellow	10 = Pink-Orange	15 = Red & White	20 = White Capped	25 = Variegated (Describe)
				26 = Other (Describe)

STANDARD INBRED CHOICES (Use the most similar (in background and maturity) of these to make comparisons based on grow-out trial data):

Yellow Dent Families:		Yellow Dent (Unrelated):		Sweet Corn:
Family	Members	Co109	ND246	C13, Iowa5125, P39, 2132
B14	CM105, A632, B64, B68	Oh7,	T232	
B37	B37, B76, H84	W117	W153R	Popcorn:
B73	N192, A679, B73, NC268	W182BN		SG1533, 4722, HP301, HP7211
C103	Mo17, Va102, Va35, A682			
Oh43	A619, MS71, H99, Va26	White Dent:		Pipecorn:
WF9	W64A, A554, A654, Pa91	Cl66, H105, Ky228		Mo15W, Mo16W, Mo24W

1. TYPE: (describe intermediate types in Comments Section) * <u>2</u> 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental 7=Popcorn	Standard Inbred Name <b>A619</b> <u>2</u>
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2. REGION WHERE DEVELOPED IN THE U.S.A.: * <u>2</u> 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other	Standard Seed Source _____ <u>2</u>
---	--

3. MATURITY (In Region Best Adaptability: show Heat unit formula in "Comments" section):	DAYS	HEAT UNITS	From emergence to 50% of plants in silk	DAYS	HEAT UNITS
*	<u>084</u>	<u>1408.0</u>		<u>079</u>	<u>1314.0</u>
*	<u>083</u>	<u>1388.0</u>	From emergence to 50% of plants in pollen	<u>078</u>	<u>1289.0</u>
	<u>002</u>	<u>0047.0</u>	From 10% to 90% pollen shed	<u>004</u>	<u>0072.4</u>
*	---	---	From 50% silk to optimum edible quality	---	---
	---	---	From 50% silk to harvest at 25% moisture	---	---

4. PLANT:	Standard Deviation	Sample Size	Standard Deviation	Sample Size
* <u>186.8</u> cm Plant Height (to tassel tip)	<u>9.05</u>	<u>15</u>	<u>155.6</u>	<u>9.52</u> <u>15</u>
* <u>051.8</u> cm Ear Height (to base of top ear node)	<u>6.5</u>	<u>15</u>	<u>031.3</u>	<u>4.86</u> <u>15</u>
<u>014.1</u> Cm Length of Top Ear Internode	<u>.95</u>	<u>15</u>	<u>011.9</u>	<u>1.05</u> <u>15</u>
<u>0.0</u> Average Number of Tillers	<u>0</u>	<u>15</u>	<u>000.0</u>	<u>0</u> <u>15</u>
* <u>1.3</u> Average Number of Ears per Stalk	<u>.45</u>	<u>15</u>	<u>001.0</u>	<u>0</u> <u>15</u>
<u>3</u> Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark			<u>1</u>	

5

Application Variety Data			Page 2		Standard Inbred Data		
5. Leaf:		Standard Deviation		Sample Size		Standard Deviation	Sample Size
* <u>0 0 9.3</u>	cm Width of Ear Node Leaf	<u>.56</u>		<u>15</u>	<u>0 0 7.0</u>	<u>.54</u>	<u>15</u>
* <u>0 6 7.3</u>	cm Length of Ear Node Leaf	<u>2.6</u>		<u>15</u>	<u>0 5 4.4</u>	<u>2.5</u>	<u>15</u>
* <u>0 5</u>	Number of leaves above top ear	<u>.48</u>		<u>15</u>	<u>0 5</u>	<u>.35</u>	<u>15</u>
<u>0 1 6</u>	Degrees Leaf Angle (measure from 2 <sup>nd</sup> leaf above ear at anthesis to stalk above leaf)	<u>2.2</u>		<u>15</u>	<u>0 1 7</u>	<u>2.8</u>	<u>15</u>
* <u>0 3</u>	Leaf Color (Munsell code <u>5GY3/4</u> )				<u>0 3</u> (Munsell code <u>7.5GY4/4</u> )		
<u>4</u>	Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz)				<u>2</u>		
<u>3</u>	Marginal Waves (Rate on scale from 1=none to 9=many)				<u>7</u>		
<u>3</u>	Longitudinal Creases (Rate on scale from 1=none to 9=many)				<u>4</u>		
6. Tassel:		Standard Deviation		Sample Size		Standard Deviation	Sample Size
* <u>0 8</u>	Number of primary Lateral Branches	<u>1.26</u>		<u>15</u>	<u>0 5</u>	<u>.88</u>	<u>15</u>
<u>0 1 4</u>	Branch Angle from Central Spike	<u>2.97</u>		<u>15</u>	<u>0 3 1</u>	<u>5.1</u>	<u>15</u>
* <u>4 8.4</u>	cm Tassel Length (from top leaf collar to tassel tip)	<u>3.4</u>		<u>15</u>	<u>3 6.8</u>	<u>1.63</u>	<u>15</u>
<u>7</u>	Pollen Shed (Rate on scale from 0=male sterile to 9=heavy shed)				<u>7</u>		
<u>1 4</u>	Anther Color (Munsell code <u>2.5R4/6</u> )				<u>0 7</u> (Munsell code <u>5Y8/8</u> )		
<u>0 2</u>	Glume Color (Munsell code <u>5GY5/6</u> )				<u>0 2</u> (Munsell code <u>5GY6/4</u> )		
<u>1</u>	Bar Glumes (Glume Bands) 1 = Absent 2 = Present				<u>1</u>		
7a. EAR (Unhusked data):							
* <u>0 5</u>	Silk Color (3 days after emergence) (Munsell code <u>2.5Y8/6</u> )				<u>0 6</u> (Munsell code <u>2.5GY8/10</u> )		
<u>0 2</u>	Fresh Husk Color (25 days after 50% silking)(Munsell code <u>5GY5/6</u> )				<u>0 2</u> (Munsell code <u>5GY6/10</u> )		
<u>2 1</u>	Dry Husk Color (65 days after 50% silking) (Munsell code <u>2.5Y8/3</u> )				<u>2 1</u> (Munsell code <u>2.5Y8/3</u> )		
* <u>1</u>	Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent				<u>2</u>		
<u>7</u>	Husk Tightness (Rate on scale from 1=Very loose to 9=Very tight)				<u>1</u>		
<u>2</u>	Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm)				<u>2</u>		
7b. EAR (Husked Ear Data):		Standard Deviation		Sample Size		Standard Deviation	Sample Size
* <u>1 4.5</u>	cm Ear Length	<u>1.39</u>		<u>15</u>	<u>1 0.9</u>	<u>2.07</u>	<u>15</u>
* <u>3 7.4</u>	mm Ear Diameter at mid-point	<u>2.2</u>		<u>15</u>	<u>4 0.7</u>	<u>2.6</u>	<u>15</u>
<u>1 0 2.6</u>	Gm Ear Weight	<u>22.5</u>		<u>15</u>	<u>0 6 4.0</u>	<u>13.5</u>	<u>15</u>
* <u>1 4</u>	Number of Kernel Rows	<u>1.2</u>		<u>15</u>	<u>1 4</u>	<u>1.4</u>	<u>15</u>
<u>1</u>	Kernel Rows: 1=Indistinct 2=Distinct				<u>2</u>		
<u>2</u>	Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral				<u>2</u>		
---	cm Shank Length	---		---	---	---	---
<u>1</u>	Ear Taper: 1=Slight 2=Average 3=Extreme				<u>2</u>		
Application Variety Data					Standard Inbred Data		

NOTE: Use chart on first page to choose color codes for traits

Application Variety Data			Page 3		Standard Inbred Data		
8. KERNEL (Dried):			Standard Deviation	Sample Size	Standard Deviation Sample Size		
<u>10.7</u>	mm Kernel Length	<u>.79</u>	<u>15</u>	<u>10.0</u>	<u>.86</u>	<u>15</u>	
<u>07.9</u>	mm Kernel Width	<u>.40</u>	<u>15</u>	<u>08.3</u>	<u>.55</u>	<u>15</u>	
<u>04.8</u>	mm Kernel Thickness	<u>.31</u>	<u>15</u>	<u>04.3</u>	<u>.60</u>	<u>15</u>	
<u>71.2</u>	% Round Kernels (Shape Grade)	<u>3.3</u>	<u>15</u>	<u>51.3</u>	<u>2.9</u>	<u>15</u>	
<u>1</u>	Aleurone Color Pattern: 1=Homozygous 2=Segregating _____			<u>1</u>			
* <u>18</u>	Aleurone Color (Munsell code <b>COLORLESS</b> )			<u>18</u>	(Munsell code <b>COLORLESS</b> )		
* <u>08</u>	Hard Endosperm Color (Munsell code <b>2.5Y7/10</b> )			<u>08</u>	(Munsell code <b>2.5Y7/10</b> )		
* <u>03</u>	Endosperm Type: 1=Sweet (sul) 2=Extra Sweet (sh2) 3=Normal Starch 4=High Amylose Starch 5=Waxy Starch 6=High Protein 7= High Lysine 8=Super Sweet (se) 9=High Oil 10=Other _____			<u>03</u>			
---	gm Weight per 100 Kernels (unsized sample) _____			---			
9. COB:			Standard Deviation	Sample Size	Standard Deviation Sample Size		
* <u>19.4</u>	mm Cob Diameter at mid-point	<u>1.8</u>	<u>15</u>	<u>24.4</u>	<u>1.9</u>	<u>15</u>	
<u>14</u>	Cob Color (Munsell code <b>10R4/8</b> )			<u>19</u>	(Munsell code <b>5Y9/1</b> )		
10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant): Leave blank if not tested: leave Race or Strain Options blank if polygenic):							
A. Leaf Blights, Wilts, and Local Infection Diseases							
_ Anthracnose Leaf Blight ( <i>Colletotrichum graminicola</i> )			--				
_ Common Rust ( <i>Puccinia sorghi</i> )			--				
_ Common Smut ( <i>Ustilago maydis</i> )			--				
<u>9</u> Eyespot ( <i>Kabatiella zea</i> )			--				
_ Goss's Wilt ( <i>Clavibacter michiganense spp. nebraskense</i> )			--				
<u>8</u> Gray Leaf Spot ( <i>Cercospora zea-maydis</i> )			--				
_ Helminthosporium Leaf Spot ( <i>Bipolaris zeicola</i> ) Race _____			_ Race _____				
<u>8</u> Northern Leaf Blight ( <i>Exserohilum turcicum</i> ) Race _____			_ Race _____				
_ Southern Leaf Blight ( <i>Bipolaris maydis</i> ) Race _____			_ Race _____				
_ Southern Rust ( <i>Puccinia polysora</i> )			--				
_ Stewart's Wilt ( <i>Erwinia stewartii</i> )			--				
_ Other (Specify) _____			--				
B. Systemic Diseases							
_ Corn Lethal Necrosis (MCMV and MDMV)			--				
_ Head Smut ( <i>Sphacelotheca reiliana</i> )			--				
_ Maize Chlorotic Dwarf Virus (MCDV)			--				
_ Maize Chlorotic Mottle Virus (MCMV)			--				
_ Maize Dwarf Mosaic Virus (MDMV) Strain _____			_ Strain _____				
_ Sorghum Downy Mildew of Corn ( <i>Peronosclerospora sorghi</i> )			--				
_ Other (Specify) _____			--				
C. Stalk Rots							
_ Anthracnose Stalk Rot ( <i>Colletotrichum graminicola</i> )			--				
_ Diplodia Stalk Rot ( <i>Stenocarpella maydis</i> )			--				
_ Fusarium Stalk Rot ( <i>Fusarium moniliforme</i> )			--				
_ Gibberella Stalk Rot ( <i>Gibberella zea</i> )			--				
_ Other (Specify) _____			--				
D. Ear and Kernel Rots							
_ Aspergillus Ear and Kernel Rot ( <i>Aspergillus flavus</i> )			--				
_ Diplodia Ear Rot ( <i>Stenocarpella maydis</i> )			--				
_ Fusarium Ear and Kernel Rot ( <i>Fusarium moniliforme</i> )			--				
_ Gibberella Ear Rot ( <i>Gibberella zea</i> )			--				
_ Other (Specify) _____			--				
Application Variety Data			Standard Inbred Data				

NOTE: Use Chart on first page to choose color codes for color traits





200100002

Additional Description of Inbred NR401

Exhibit D:

NR401 is a medium season field corn inbred that flowers approximately 45 heat units later than LH185. It can be used as either a pollinator or female in a production field.

NR401 has shown excellent yield potential in hybrid combinations involving stiff stalk inbred lines. Hybrids involving NR401 are adapted to the 100-107 day maturity regions, and in particular northern Iowa, northeastern Nebraska, and southeastern South Dakota. NR401 contributes excellent disease tolerance to hybrids.

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) The J. C. Robinson Seed Company	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME NR401
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) The J. C. Robinson Seed Company 100 J. C. Robinson Blvd PO Box A Waterloo, NE 68069	5. TELEPHONE (include area code) (402)289-0252	6. FAX (include area code) (402)779-4370
	7. PVPO NUMBER 2001 00002	

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

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

10. Is the applicant the original owner?  YES  NO If no, please answer one of 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(ies), is(are) the original owner(s) a U.S. based company?  
 YES  NO If no, give name of country

11. Additional explanation of ownership (if needed, use reverse for extra space):

The variety for which Plant Variety Protection is hereby sought was developed by Duane Grensteiner, an employee of The J. C. Robinson Seed Company. By agreement between the employee and The J. C. Robinson Seed Company all rights to any invention, discovery, or development made by the employee while employed by The J. C. Robinson Seed Company are assigned to The J. C. Robinson Seed Company with no right of any kind retained by the employee.

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.

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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.



Exhibit E. State of the Basis of Applicant's Ownership – NR401

The variety for which Plant Variety Protection is hereby sought was developed by Duane Grensteiner, an employee of The J. C. Robinson Seed Company. By agreement between the employee and The J. C. Robinson Seed Company all rights to any invention, discovery, or development made by the employee while employed by The J. C. Robinson Seed Company are assigned to The J. C. Robinson Seed Company with no right of any kind retained by the employee.