No. 7500080

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Goertzen Seed Research

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, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. I UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'III'

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* 7th *day of* September *in the year of our Lord one thousand nine hundred and* seventy-six.

John R Block

Secretary of Agriculture

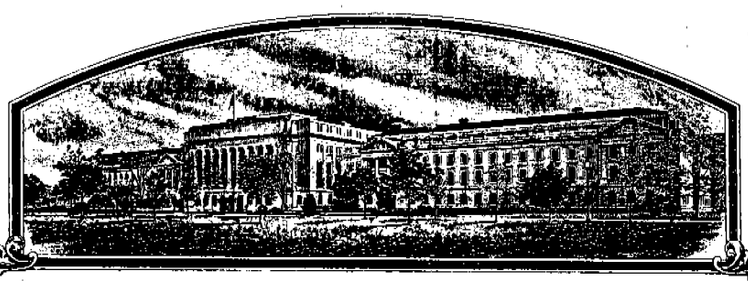
Attest:

Kenneth H.

Commissioner

Plant Variety Protection Of

Agricultural Marketing Servi



No. 7500080

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Shallow Water Grain, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF 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 CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS ED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'III'

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* seventh *day of* September *in the year of our Lord one thousand nine hundred and* seventy-six

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

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 ~~Dual~~ III	2. KIND NAME Hard Red Winter Wheat	FOR OFFICIAL USE ONLY PV NUMBER 7500080
3. GENUS AND SPECIES NAME Triticum aestivum	4. FAMILY NAME *(Botanical)* Graminaeae	FILING DATE 4.14.75 TIME 2 ~~A.M.~~ P.M.
	5. DATE OF DETERMINATION August 1971	FEE RECEIVED $ 250 / $ 250 / $ 250 BALANCE DUE $ — / $ — / $ —
6. NAME OF APPLICANT(S) GOERTZEN SEED RESEARCH ~~Shallow Water Grain, Inc~~ Ecf 9/17/84	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* ROUTE 2, BOX 48 Ecf 9/17/84 ~~Box 71~~ ~~Shallow Water, Kansas~~ 67872 SCOTT CITY, KANSAS 67871	8. TELEPHONE AREA CODE AND NUMBER 872-2807 Ecf 9/17/84 ~~872-2675~~ AC 316
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Corporation	10. STATE OF INCORPORATION Kansas	11. DATE OF INCORPORATION April 1, 1973

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:
GOERTZEN SEED RESEARCH
~~Seed Research Associates~~ Kenneth L. Goertzen, Mngr.
Ecf 9/17/84
Route 2, BOX 48
Scott City, Kansas 67871

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? Ecf 9/17/84 [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.

2/9/76 (DATE) — Kenneth L. Goertzen for Shallow Water Grain Inc. (SIGNATURE OF APPLICANT)

(DATE) — (SIGNATURE OF APPLICANT)

00001

FORM GR-470 (REVERSE)

U.S. DEPARTMENT
FEB 17 1976

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.

EXHIBIT A: Dual III* - Origin & Breeding History

This line was from a cross of wheat variety Sturdy with a wheat of unknown ancestry. A series of single plant selections was made from this segregating outcross. The progeny from one of the single plant selections was increased and tested as Dual III. Purity was maintained by roguing and isolation from the time breeder's seed increase started.

The variety is as uniform as the variety Scout when grown under the same conditions. **

Breeders seed will be increased from selections made from this line that exhibit the varietal characteristics of Dual III.

* name changed to 'III' RHE

Ent as per letter dt'd 8/22/84

** THE FOLLOWING VARIANTS OCCUR: 1/1000 BROWN CHAFF HEADS AND 1/1000 SLIGHTLY TALLER PLANTS.

DESCRIPTION OF DUAL III*

Dual III is a semi dwarf, hard red winter wheat.

The seed is hard red, short elliptical with a midsize short brush. The crease is narrow with rounded cheeks. The germ is midsize.

Dual III has a green coleoptile. Leaf prior to jointing is 3 mm. wide and 11 cm. long compared to 4.5 mm. wide and 12½ cm. long for Sturdy.

Dual III spike is awned, oblong, medium dense, and non shattering.

Awns are straw and black; awn on 2nd and 3rd spikelet is 7-8 cm. long. Position of spike at maturity is inclined.

Glumes are straw colored, hard and leathery. The outer glume is long and wide. The shoulder shape is square and wide. The beak is acuminate. Beak measures from 2½ mm. to 07 mm.

Dual III is susceptible to soil borne mosaic and shows resistance to leaf rust.

* name changed to 'III' RHE

Qual III

FORM APPROVED. OMB NO. 60-R0712

FORM GR-470-6 (2-15-73)

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

EXHIBIT C (Wheat)

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

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S): Shallow Water Grain Inc.

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*): Shallow Water, Kansas 67872

FOR OFFICIAL USE ONLY

PVPO NUMBER: 7500080

VARIETY NAME OR TEMPORARY DESIGNATION: III

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:

[2] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____

[2] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____

[1] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM ~~EMERGENCE~~ Jan. 1 TO:

[1|3|0] FIRST FLOWERING [| |] LAST FLOWERING

4. MATURITY (50% Flowering): Irrigated - Scott County

[0|1] NO. OF DAYS *EARLIER* THAN ..... [2] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[0|4] NO. OF DAYS *LATER* THAN (Reno County) ..... [7] 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7 = Triumph

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

[0|7|8] CM. HIGH

[|] CM. TALLER THAN ..... [ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[2|5] CM. SHORTER THAN ..... [2] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (*See reverse*):

[ ] 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

10. LEAF:

[ ] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____

[ ] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[ ] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[0|6] MM. LEAF WIDTH (*First leaf below flag leaf*)

[2|3] CM. LEAF LENGTH (*First leaf below flag leaf*):

00004
40616

Exhibit D: Dual III* Novelty

The wheat now on the market which most closely resembles Dual III is 2148.

Dual III has straw chaff; 2148 has straw and brown chaff

Dual III is susceptible to soil born mosaic: 2148 has resistance

2148 has a shorter mixing time than Dual III

2148 is slightly earlier than Dual III

(Attached sheets demonstrate these differences)

* name changed to 'III' KHE

FORM GP-470-6 (REVERSE)

11. HEAD:

[2] Density: 1 = LAX 2 = Mid DENSE

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

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

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

[0 9] CM. LENGTH

[1 2] MM. WIDTH

12. GLUMES AT MATURITY:

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

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

[1] 1 Glabrous 2 Pubescent

[4] 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:

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

16. SEED:

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

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

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

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

[ ] 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 6] MM. LENGTH

[0 3] MM. WIDTH

[3 0] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] 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)

[ ] STEM RUST (Races) _____

[2] LEAF RUST (Races) _____

[0] STRIPE RUST (Races) _____

[0] LOOSE SMUT

[0] POWDERY MILDEW

[0] BUNT

[1] OTHER (Specify) Soil borne mosaic

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

[ ] SAWFLY

[ ] APHID (Bydv.)

[ ] GREEN BUG

[ ] CEREAL LEAF BEET

[ ] 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	2148	Seed size	2148
Leaf size	2148	Seed shape	—
Leaf color	2148	Coleoptile elongation	2148
Leaf carriage	2148	Seedling pigmentation	2148

INSTRUCTIONS

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

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

(b) W.F. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbo seed testing prepared by the Association of 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.

Exhibit E Ownership of Dual III*

Shallow Water Grain Inc. is the owner of Dual III through purchase from Seed Research Associates Inc. Plant breeders for Seed Research Associates Inc. are Kenneth & Betty Goertzen

* name changed to 'III' KHE

This is to verify the sale of ownership of the Plant Variety Protection certificate and the hard red winter wheat variety III PVP No. 7500080.

This ownership was transferred from Shallow Water Grain to Goertzen Seed Research as of March 21, 1984.

Jack Ludowese, Mgr. Pres.
Shallow Water Grain
Shallow Water, Ks.

7a

CEREAL TECHNOLOGISTS

1435 Clay Street • No. Kansas City, Mo. 64116 • P. O. Box 7498

Doty Laboratories
INCORPORATED
TELEPHONE—GRand 1-8580
James W. Doty — Director

Report for **Seed Research Associates**
Route 2, Box 48
Scott City, Kansas 67871

Date 12/8/71

Laboratory No. 3415

Sample: LB 793 [redacted] DSC 71-44-2 Dual III*

EXPERIMENTAL MILLING REPORT

WHEAT ANALYSIS

MOISTURE	10.80%
PROTEIN	14.05%
YIELD	72.1%

Milling Report: This wheat has very good milling properties.

* name changed to III KHE

00008

M Golden
CHEMIST

FORM 8

CEREAL TECHNOLOGISTS

1435 Clay Stree — Mo. 64116 — P. O. Box 7498

Doty Laboratories INCORPORATED
TELEPHONE 471-8580
James W. Doty — Director

Report for **Seed Research Associates**
Route 2, Box 48
Scott City, Kansas 67871

Date 12/8/71

Laboratory No. 3507

CHEMICAL ANALYSES AND BAKING REPORT

IDENTITY	STANDARD	LB 793 [redacted]	DSC 71-44-2	Dwa/III*
ASH		.503%		
PROTEIN (Nx5.7)		13.10%		
MOISTURE		13.00%		
FLOUR COLOR		96 C		
ABSORPTION		66.5%		
MIXING		Long		
FERMENTATION		Normal		
LOAF VOLUME		740cc (V. Good)		
CRUST CHARACTER		Sl. Rough		
CRUMB COLOR		96 C		
GRAIN AND TEXTURE		Cl. Even Silky		
GASSING POWER				
MALTOSE		Adjusted to proper level		

B—Bright, C—Creamy, CL—Close, D—Dull, G—Gray, O—Open, V—Very, Y—Yellow, SL—Slightly
Reported on a 14% Moisture Basis

Remarks— This flour has good strong gluten and requires a long dough mixing time. Properly mixed it produces good strong doughs and a very good loaf of bread. This wheat is very satisfactory for use in a bakers mix with wheat that has a shorter dough mixing requirement.

FARINOGRAPH CURVE

MIXING PEAK— 10 Mins.
MIXING TOLERANCE— 13 Mins.
ABSORPTION— 63.5%
M.T.I. 30

*Name changed to 'III' KHE

00009

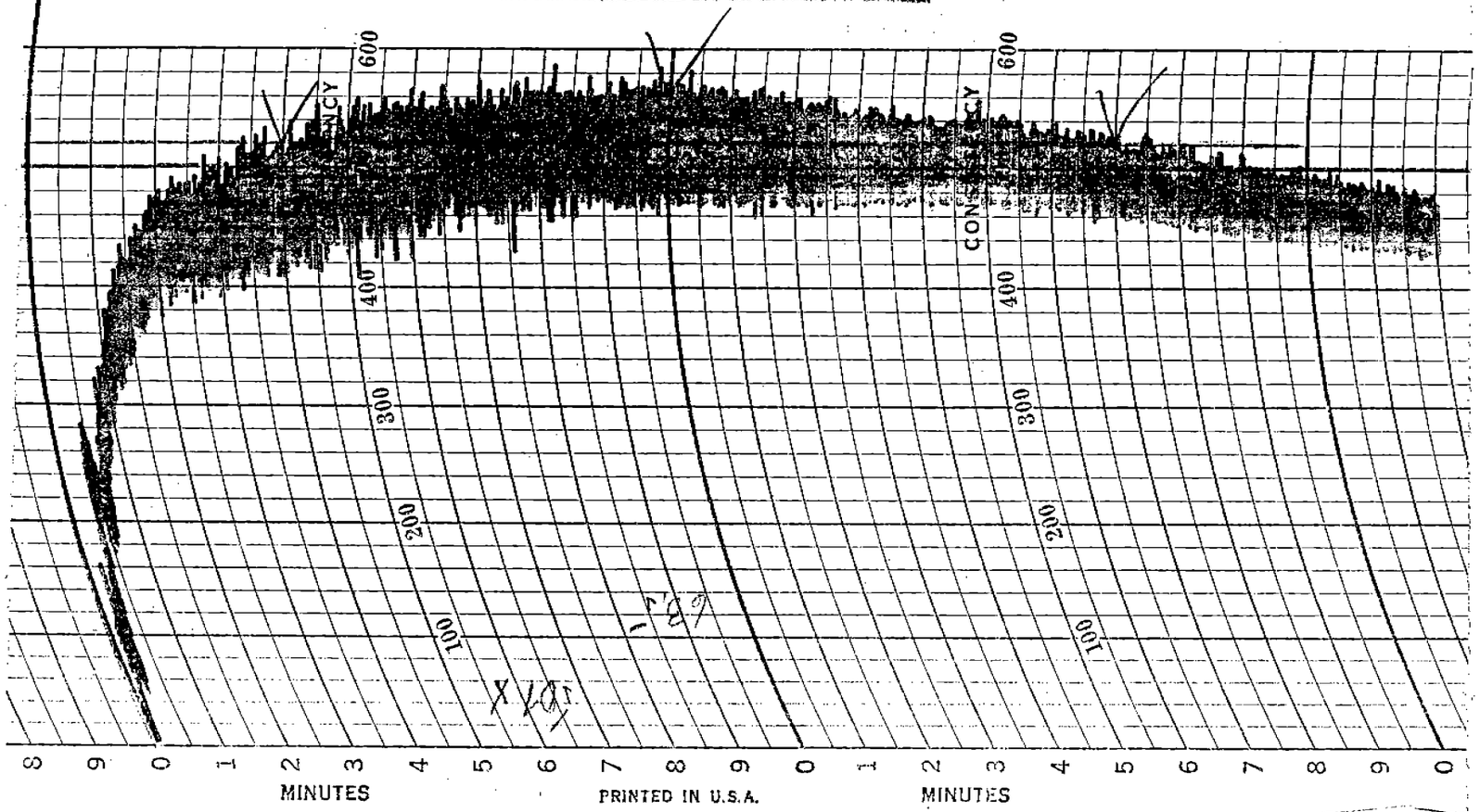
CHEMIST

FORM 4

Seed Research Associates
Route 2, Box 43
Scott City, Kansas 67871

~~Dough~~ III
RHE

Mixing Peak	10 MINS
Mixing Tolerance	13 "
Absorption	63.5%
MTI	30



00010

Irrigated yield plot
Scott City, Kansas - 1975
3 waterings

VARIETY	YIELD Bu./acre	Height cm.	Days to Heading Compared to Scout	Lodging%	Leaf Rust Rating 5 best	Protein
Scout	63	103	0	30%	3.5	—
Dual I	74.5	82	-1	0%	5	14.45
Dual III*	69	78	-1	0%	5	—
Dual V	67	82	-3	0%	5	15.68
Dual VIII	71	83	-1	0%	5	15.02
2148	66	69	+4	0%	5	—
Plainsman IV	69.8	85	-4	0%	5	18.12
Plainsman V	72.5	78	-5	0%	5	—
Plainsman IX	66.7	78	-4	0%	5	17.55
Plainsman VIII	74	84	-4	0%	5	16.92
4555	70.3	76	-4	0%	4.5	—
4543	63.5	74	-3	0%	3	15.78
Eagle	64	95	0	10%	4	—
Centurk	61	98	+2	10%	4	—

00011

* Name changed to III ~~xxx~~

WINTER WHEAT NOTES AND YIELD _ HUTCHINSON, KANSAS 1973-74

	% of Centurk & Scout 66	Days from Jan. 1 to heading	Height	1 to 9 with 1 bes SBM resitance
Centurk	98.6	131	36"	3
Scout 66	101.4	132	36"	5
2148	146.9	129	31"	2
Dual V	127.3	130	31"	5
Dual III*	123.2	130	30"	5
Plainsman V	151.9	129	33"	3
Plainsman IV	126.3	128	36"	4
Plainsman VIII	146.9	128	36"	3

Yield of average of Centurk and Scout 66 was 6.51 lbs/ plot or 27 bu./ acre.

* Name changed to 'III' xxx

Dryland Yield and Observation Plot
1975 Haven, Kansas
(Reno County)

Variety	Days to Heading compared to Triumph 64	Yield Bu/Acre	Test weight	Yield as % of Triumph 64	% Protein	# Protein/Acre	Protein per Acre as % of Triumph 64
Triumph 64	0	28	60	100	10.9	183	100
Dual I	+2	51	60	182	10.2	312	170
Dual III*	+4	57	61	204	12.0	410	224
Dual V	+4	53	60	189	11.9	378	207
Dual VIII	+2	47	60	168	10.9	307	168
2148	+2	47	62	168	11.9	336	184
Plainsman IV	0	51	61	182	13.4	410	224
Plainsman V	-1	64	62	229	12.9	495	270
Plainsman VIII	0	72	62	257	13.6	587	321
4555	-2	50	61	179	10.8	324	177

Continuous crop - low soil fertility

* name changed to 'III' RHE

00013

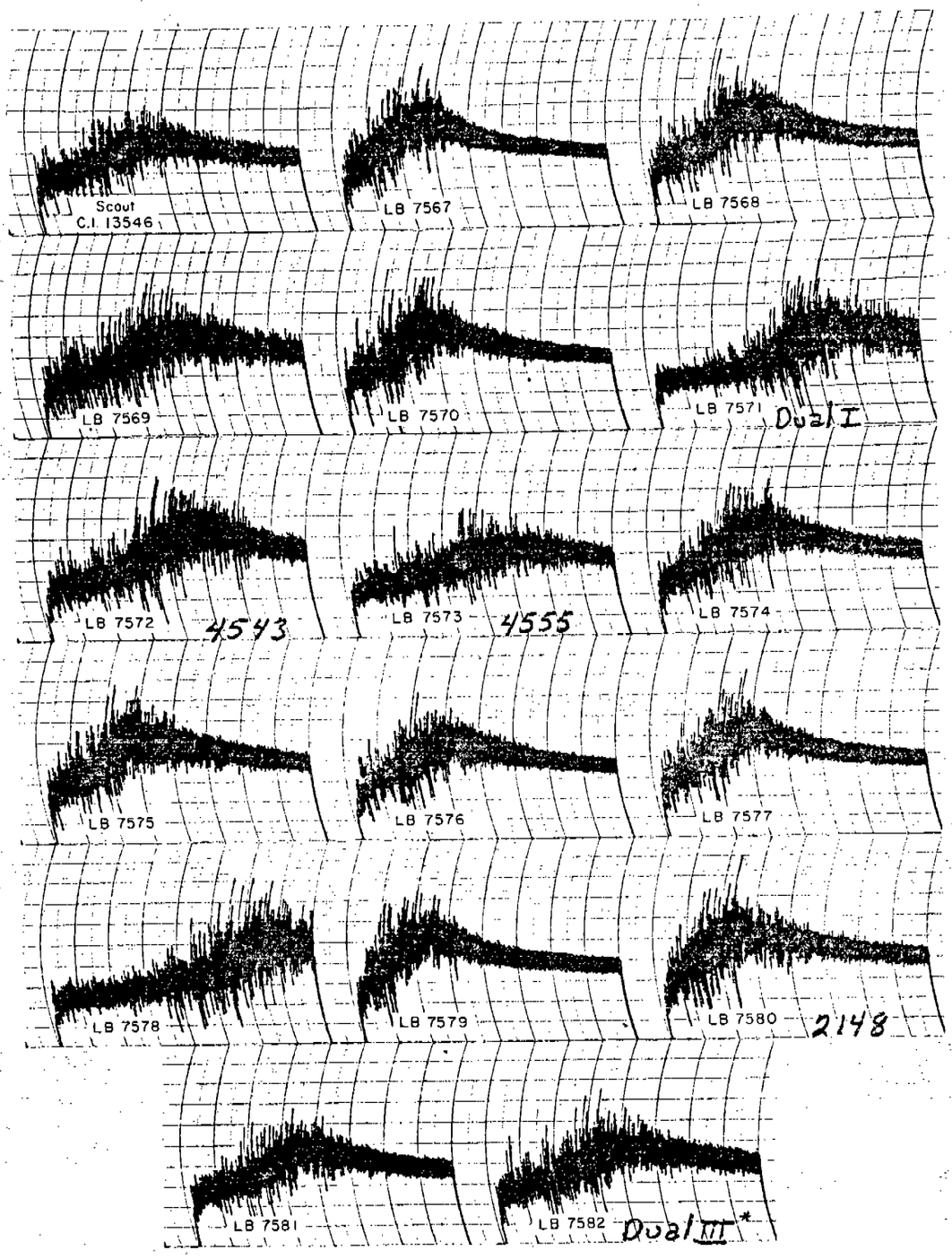


Fig. 2. Mixograms (10-g.) for genetically high-protein special plant breeders' samples of hard winter wheat progenies harvested in Scott County, Kansas in 1974.

* name changed to III RHE

Hard Winter Wheat Quality Research Unit US Grain Marketing Research Center Manhattan Kansas

Table 1. Chemical, Milling and Baking Data for Genetically High-Protein Special Plant Breeders' Samples of Hard Winter Wheat Progenies Harvested in Scott County, Kansas in 1974. 1/

Variety		C.I. or Sel. No.	Wheat 2/ Wt. Per Bu.	Wheat 2/ Ash	Wheat 2/ Protein	Wheat 2/ Flour Yield	Flour 2/ Ash	Flour 2/ Protein	Bread-baking Data 2/ Absorption	Bread-baking Data 2/ Mixing Time 3/	Bread-baking Data 2/ Crumb Grain	Bread-baking Data 2/ Loaf Volume As Rec'd	Bread-baking Data 2/ Loaf Volume Corrected To 14.5% P
			lbs.	%	%	%	%	%	%	min.		cc.	cc.
GROUP 1													
Scout		13546	63.4	1.61	12.6	73.7	.44	11.9	65.5	$3\frac{7}{8}$	S	913	1091
* LB 7514			57.1	1.75	15.9	71.2	.46	14.9	70.4	$4\frac{1}{8}$	S	1182	1152 5/
LB 7515			57.6	1.72	14.7	72.5	.47	13.8	65.2	$4\frac{1}{4}$	Q-S	979	1023
* LB 7516			60.6	1.81 Q	14.7	73.8	.53 Q	14.1	69.9	4	S	1072	1100 5/
LB 7517			62.0	1.60	16.3	76.0	.43	15.6	66.5	$3\frac{1}{4}$	S	1139	1066
LB 7518	Plainsman IX		61.9	1.61	17.9	76.3	.46	17.2	71.4	$10\frac{1}{2}$ U	S	1271	1086
LB 7519	Plainsman VIII		62.0	1.51	16.5	76.5	.43	16.0	70.7	$8\frac{3}{8}$ Q	S	1213	1108
LB 7520	Dual III		61.7	1.58	13.8	75.7	.51 Q	13.3	65.0	$6\frac{1}{4}$	S	1061	1150
LB 7528			62.6	1.58	14.5	75.8	.44	13.8	68.3	$5\frac{7}{8}$	S	1010	1056
GROUP 2													
Scout		13546	63.4	1.65	12.5	70.0	.43	11.4	66.4	$3\frac{3}{4}$	S	920	1146
LB 7567			61.5	1.64	15.9	73.0	.43	14.5	67.2	3	S	1102	1102
* LB 7568			61.0	1.60	15.8	73.9	.43	14.6	69.7	$3\frac{3}{4}$	S	1105	1098 5/
LB 7569			61.4	1.58	13.9	74.8 4/	.50 Q	12.8	61.7	$6\frac{1}{2}$	S	1020	1145
LB 7570			60.3	1.68	14.9	73.3	.48	13.8	64.2	$3\frac{3}{8}$	S	1058	1107
LB 7571	Dual I		59.6	1.83 Q	14.2	73.2 4/	.49 Q	13.0	62.2	$7\frac{3}{8}$ Q	S	1100	1220
* * LB 7572	4543		60.6	1.56	16.4	73.6	.43	15.2	69.4	$5\frac{3}{4}$	S	1170	1120 6/
LB 7573	4555		62.7	1.59	13.8	73.9	.43	12.6	65.4	$5\frac{5}{8}$	S	977	1111
* LB 7574			60.8	1.65	16.4	74.0	.44	15.1	70.6	$3\frac{5}{8}$	S	1125	1084 5/

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Table 1. (cont.), page 2

Variety	C.I. or Sel. No.	Wheat[2/] Wt. Per Bu. lbs.	Wheat[2/] Ash %	Wheat[2/] Protein %	Wheat[2/] Flour Yield %	Flour[2/] Ash %	Flour[2/] Protein %	Bread-baking Data[2/] Absorption %	Bread-baking Data[2/] Mixing Time[3/] min.	Bread-baking Data[2/] Crumb Grain	Bread-baking Data[2/] Loaf Volume As Rec'd cc.	Bread-baking Data[2/] Loaf Volume Corrected To 14.5% P cc.
GROUP 2 (cont.)												
LB 7575		58.9	1.68	15.8	74.0	.47	14.6	68.2	3½	S	1098	1091 5/
LB 7576		60.6	1.69	15.7	74.2	.50 Q	14.7	67.1	3 ¼	S	1120	1106
LB 7577		60.8	1.70	16.0	73.2	.48	15.0	71.2	3⅛	S	1176	1139
LB 7578		59.8	1.71	16.3	72.8	.47	15.3	69.9	10½ U	S	1198	1140
LB 7579		61.1	1.56	16.2	73.9	.44	15.2	68.1	2 ¾	S	1110	1064
LB 7580 2148		57.8	1.78	15.9	72.8	.44	15.2	72.2	2¾	S	1168	1118
LB 7581		60.7	1.57	13.8	74.6	.48	12.8	65.5	4¼	S	1005	1127
LB 7582 ~~[illegible]~~ III		61.6	1.81 Q	14.2	74.3 4/	.51 Q	12.9	62.1	5 ⅝	S	1098	1228

1/ Chemical data expressed on a 14% moisture basis.

2/ S, Q, and U - Satisfactory, questionable, and unsatisfactory quality with respect to properties in question. A satisfactory rating is inferred in the absence of a designated one. One unsatisfactory rating, in general, characterized a variety as undesirable for hard wheat milling and breadmaking purposes. Crumb colors were satisfactory for all entries.

3/ Mixing time used in baking is evaluated in conjunction with other mixing properties obtained from the 10-g. mixogram.

4/ Softer than average hard wheat milling properties but entirely satisfactory.

5/ Promising overall quality characteristics.

6/ Particularly promising overall quality characteristics.

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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 ~~Dural~~ III	2. KIND NAME Hard Red Winter Wheat	FOR OFFICIAL USE ONLY PV NUMBER 7500080
3. GENUS AND SPECIES NAME Triticum aestivum	4. FAMILY NAME *(Botanical)* Graminaeae	FILING DATE 4.14.75 / TIME 2 ~~A.M.~~ P.M.
	5. DATE OF DETERMINATION August 1971	FEE RECEIVED $ 250 / $ 250 / $ 250 — BALANCE DUE $ — / $ — / $ —
6. NAME OF APPLICANT(S) GOERTZEN SEED RESEARCH ~~Shallow Water Grain, Inc~~	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* ROUTE 2, BOX 48 ~~Box 71~~ ~~Shallow Water, Kansas~~ 67872 SCOTT CITY, KANSAS 67871	8. TELEPHONE AREA CODE AND NUMBER 872-2807 ~~872-2675~~ AC 316
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Corporation	10. STATE OF INCORPORATION Kansas	11. DATE OF INCORPORATION April 1, 1973

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:
GOERTZEN SEED RESEARCH
~~Seed Research Associates~~ Kenneth L. Goertzen, Mngr.
Route 2, BOX 48
Scott City, Kansas 67871

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.

2/9/76 (DATE) — Kenneth L. Goertzen, Pres. Shallow Water Grain Inc. (SIGNATURE OF APPLICANT)

(DATE) — (SIGNATURE OF APPLICANT)

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