No. 7300012

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Ring Around Products, 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 MULTIPLYING 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 (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SUDANGRASS

'Excel S235'

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* 29th *day of* September *in the year of our Lord one thousand nine hundred and* seventy-eight

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(2-12-71)

UNITED STATES DEPARTMENT OF AGRICULTURE
CONSUMER AND 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	2. KIND NAME	FOR OFFICIAL USE ONLY	
EXCEL S235	Sudangrass	PVPO NUMBER 73012	
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE	TIME
Sorghum bicolor	Gramineae	10/10/72	1:30 A.M. (P.M.)
	5. DATE OF DETERMINATION	FEE RECEIVED	CHARGES
	9/20/1972	$ 750.00	—

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
~~EXCEL HYBRID SEEDS, INC.~~ ECS 6/19/78 RING AROUND PRODUCTS, INC.	Dimmitt Highway P.O.Box 1629 Plainview, Texas 79072	806-293-2676

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Texas	12/9/70

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

Dr. Robert L. Ellsworth ECS 6/19/78
~~Excel Hybrids Seeds, Inc~~. RING AROUND PRODUCTS, INC.
Dimmitt Highway
P.O. Box 1629
Plainview, Texas 79072

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 12A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52, P.L. 91-577)*
- [X] 12B. Exhibit B, Botanical Description of the Variety
- [X] 12C. Exhibit C, Objective Description of the Variety
- [X] 12D. Exhibit D, Data Indicative of Novelty
- [X] 12E. Exhibit E, Statement of the Basis of Applicant's Ownership

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. *(See Section 52, P.L. 91-577).*

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), P.L. 91-577) (If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

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

14C. If "Yes," to 14B, how many generations of production beyond breeder seed?

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

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 (P.L. 91-577).

September 26, 1972
(DATE)

Robert L. Ellsworth for Excel Hybrid Seeds, Inc.
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

Ring Around
Research
P.O. Box 1629, Plainview, Texas 79072
(806) 293-2676

October 17, 1977

EXHIBIT 12A - Registration of S-235 Sudan for Ring Around Products, Inc.

ORIGIN AND STABILITY:

Greenleaf x (Greenleaf x Hegari) F_8 selection. Original cross made, F_2 and each subsequent generation selected to resemble Greenleaf. Only the latest blooming plants were selected in the F_2, F_3, F_4, and F_5 generations.

1% variants present recognized by blooming seven days prior to the variety. Reselection has not eliminated this variant. Reproduction through the F_{12} generation has been completed with no further variants occuring.

~~EXHIBIT 12D - Novelty~~

	S-235	Greenleaf
Maturity (Planting to Bloom)	72	60
Rachis Length	16 cm	22 cm
Rachis Branch Length (Mid Head)	6 cm	14 cm
Seed Per 10 Grams	653	867
Midrid	Cloudy Grey	Cloudy White

Ent 6/19/78
as per letter
dt'd 6/19/78

2

Display No. 1
Eldon E. Taylor
Plant Variety Protection Office
Examiner

Subject: Sudangrass Application #73012 "Excel S 235
Addendum to Exhibit

EXHIBIT B:

BOTANICAL DESCRIPTION:	S 235	Greenleaf
Plant Color	Tan	Tan
Pubesence	lacking	lacking
Habit	grassy	grassy
Leaf:		
Ligule (3rd leaf from top)	2.5-3.5 mm	1.5-2.5 mm
Blade width (3rd leaf from top 10 cm from base)	2-2.5 cm	2-2.5 cm
Midrib	cloudy, grey	white
Stem:		
Leaf bearing nodes	8	8
Length of primary stem (base of head to top of root)	190-200 cm	200-210 cm
Tillers	many	many
Head:		
Rachis length	14-16 cm	20-25 cm
Rachis branch length (Mid head)	5-7 cm	12-16 cm
Shape	Conical	Conical
Glume Color	Thrashed seed 50-60% glumeless Glume colors on glumed seed - Mahogany 32-38% Chocolate 4-8% Black 1-2%	Chocolate, high gloss
Glume length	3/4 cover the seed	5-6 mm fully cover the seed
Awns	3-4 mm	3-4 mm

FORM GR-470 (REVERSE)

U. S. DEPARTMENT OF AGRICULTURE
RECEIVED
OCT 10 1972
AMS-PVPO

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $50.00 fee to U.S. Dept. of Agriculture, Consumer and Marketing Service, Grain Division, Hyattsville, Maryland 20782. Retain one copy for your files. All items on the face of the form are self-explanatory unles noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety.

12a 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.

12b 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.

12c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

12d Provide complete data indicative of novelty. Seed and plant specimens may be submitted and seeds submitted may be sterile. Where possible, include photographs of plant comparisons, chemical tests, etc.

12e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

U.S. Department of Agriculture
Agricultural Marketing Service
Livestock, Poultry, Grain & Seed Division
Beltsville, Maryland 20705

SORGHUM SPP.

1. KIND:
   [5] 1=Sorghum bicolor 2=Sorghum almum 3=Sorghum X Sudangrass
   4=Sorgrass 5=Sorghum sudanense 6=Sorghum halepense

2. MATURITY:
   [0 7 2] Days from planting to mid-bloom
   [- -] No. days earlier than [-] } 1=Wheatland 2=OK8 3=Martin
   [0 2] No. days later than [4] } 4=Redlan 5=Blackhull

3. PLANT:
   [1] Coleoptile: 1=Green 2=Red
   Plant Pigment: [1] 1=Tan 2=Red 3=Purple
   [-] 1=Sunred present 2=Sunred absent

4. STALK:
   [3 1] mm Diameter at 3rd internode above ground
   [2 2 5] cm Length from soil level to top of panicle
   [1] 1=With bloom 2=Bloomless
   [2] 1=Uniculm 2=Tillering
   [1] 1=Sweet 2=Insipid
   [2] 1=Pithy 2=Juicy

5. LEAF (Below flag leaf):
   [1.5] cm Width [0 4 0] cm Length
   [1 2] No. per main stalk
   [3] Color: 1=Light green 2=Golden 3=Dark green
   [1] Color Pattern: 1=Solid 2=Spotted 3=Streaked 4=Zonated 5=Striped
   [1] Texture: 1=Smooth 2=Wavy 3=Wrinkled
   [1] Attitude: 1=Erect 2=Horizontal 3=Drooping
   [ ] Ligule: 1=Present 2=Absent
   [2] Midrib Color: 1=White 2=Cloudy 3=Yellow

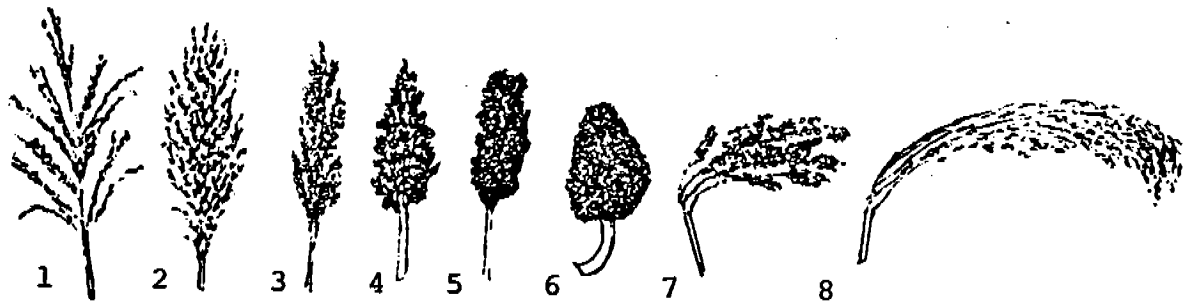
6. INFLORESCENCE:
   [1] Stigma: 1=White 2=Yellow
   [2] Anther: 1=White 2=Yellow
   [4] Heads: 1=Compact 2=Semi-compact 3=Semi-open 4=Open
   [4] Shape: 1=Round 2=Oval 3=Cylindrical 4=Conical 5=Obovate
   [-] Rachis (Percent of head): 1=100 2=75 3=50 4=25
   [3] Branches: 1=Erect 2=Horizontal 3=Drooping [ ] cm Length
   [3] Spikelets: 1=Neuter pedicels 2=Staminate 3=Fertile
   Glumes: [0 5] mm Length
   [3] 1=Veinated 2=Transverse wrinkle 3=Neither
   [2] 1=Papery 2=Tough
   [2] Color: 1=Black 2=Mahogany 3=Red 4=Sienna 5=Straw
   [1] 1=Smooth 2=Hairy
   [2] Awns: 1=Absent 2=Present [0 4] mm Length

7. ROOTS:
   [1] 1=Fibrous 2=Rhizomatous

8. SEEDS:
   [-] Testa: 1=Absent 2=Present
   [2] Subcoat: 1=Absent 2=Present
   [2] Pericarp: 1=Transparent 2=Opaque
   [4] Pericarp Color: 1=White 2=Yellow 3=Red 4=Brown 5=Buff

8. SEEDS (cont.):

[1] Endosperm Color: 1=White 2=Yellow
[1] Endosperm Type: 1=Starchy 2=Waxy 3=Sugary 4=Corneous
[1] Endosperm: 1=Plump, rounded 2=Wrinkled 3=Dented
[1] Head Type: (select number from diagram below)



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

[1] Helminthosporium Leaf Blight
[0] Periconia Root Rot
[1] Bacterial Stripe
[0] Charcoal Rot
[1] Maize Dwarf Mosaic Virus
[0] Kernel Smut
[ ] Other (specify) _____

[1] Puccinia (Rust)
[0] Bacterial Streak
[0] Bacterial Spot
[0] Anthracnose
[1] Head Smut
[ ] Other (specify) _____

[0] Sooty Stripe
[1] Downy Mildew
[0] Loose Smut
[ ] Other (specify) _____

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

[0] Chinchbug [1] Greenbug [1] Other (specify) Corn leaf Aphid

11. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity	Lahoma	Root Type	Greenleaf
Plant Type	Greenleaf	Seed Type	Lahoma
Inflorescence Type	Lahoma	Usage	Greenleaf

REFERENCES:

Doggett, H. 1976. Sorghum. (2nd ed.) Longman's Inc., N.Y.

Harlan, J.R. and J. M. J. de Wet. 1972. A simplified Classification of Cultivated Sorghum. Crop Science 12(2): 172-176.

Quinby, J.R., N.W. Kramer, J.C. Stephens, K.A. Lahr and R. E. Karper. 1958. Grain Sorghum Production In Texas. Texas Agric. Expt. Sta. Bull. No. 912.

Wall, J.S. and W. M. Ross, editors. 1970. Sorghum Production and Utilization. AVI Publishing Company, Westport, Conn.

Ring Around
Research
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PLANT VARIETY PROTECTION APPLICATION

SUDANGRASS APPLICATION NO. 73012 'EXCEL S235'

Exhibit 12D Novelty

'Excel S235' most closely resembles Greenleaf Sudangrass. It is unique from this cultivar in the following characteristics.

1. S235 is later than Greenleaf by 10-12 days.

2. The rachis of S235 is 4-6 cm. shorter than Greenleaf.

3. S235 has approximately 200 less seeds per 10 grams than Greenleaf.

4. S235 has 6-8 cm. shorter rachis branches at the mid-head than Greenleaf.

5. S235 has more grey in the leaf midrib where Greenleaf is whiter.

~~12D.~~ NOVELTY WHEN USED IN HYBRID:

	Days to Bloom	Height	Prussic Acid Read.
Redlan x S235	99	300 cm	0.01
Redlan x Greenleaf	81	270 cm	0.005

Ent 6/19/78 12~~C~~E. OWNERSHIP:

Plant Breeder was employed by and all research and development costs for this line were paid by Excel Hybrid Seeds, Inc.