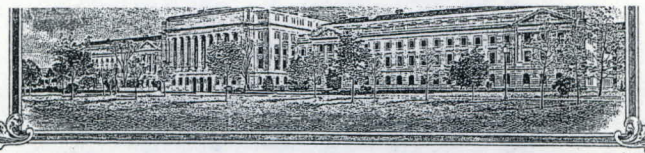
No. 9900332



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

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, CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN UCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY CTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SUNFLOWER

'C9607CM'

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 twelfth day of September, in the year two thousand one.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

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) *(as it is to appear on the Certificate)*
Pioneer Hi-Bred International, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
C9607CM

3. VARIETY NAME
C9607CM

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
700 Capital Square
400 Locust Street
Des Moines, Iowa 50309

5. TELEPHONE *(include area code)*
(515) 270-5988

6. FAX *(include area code)*
(515) 253-2288

FOR OFFICIAL USE ONLY

PVPO NUMBER 9900332

FILING DATE: June 15-1999

7. GENUS AND SPECIES NAME
Helianthus annuus

8. FAMILY NAME *(Botanical)*
Compositae (Asteraceae)

9. CROP KIND NAME *(Common name)*
Sunflower

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 2450.00
DATE: 6-9-99
CERTIFICATION FEE: $ 320-
DATE: July 23, 2001

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.) (Common name)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Iowa

12. DATE OF INCORPORATION
May 6, 1926

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. John F. Soper
7300 N.W. 62nd Avenue
PO Box 1004
Johnston, Iowa 50131

14. TELEPHONE *(include area code)*
(515) 270-5988

15. FAX *(include area code)*
(515) 253-2288

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

- a. ☑ Exhibit A. Origin and Breeding History of the Variety
- b. ☑ Exhibit B. Statement of Distinctness
- c. ☑ Exhibit C. Objective Description of the Variety
- d. ☑ Exhibit D. Additional Description of the Variety
- e. ☑ Exhibit E. Statement of the Basis of the Applicant's Ownership
- f. ☑ Voucher Sample *(2,600 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
- g. ☑ Filing and Examination Fee ($2450), made payable to "Treasurer of the United State *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED *(See Section 83(a) of the Plant Variety Protection Act)?*

☐ YES *(If "yes," answer items 18 and 19 below)* ☑ NO *If "no," go to item (20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☐ YES *(If "yes," give names of countries and dates)* ☑ NO

21. The applicant(s) 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 applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
NAME *(Please print or type)* John F. Soper		NAME *(Please print or type)*	
CAPACITY OR TITLE: Director, Sunflower Research	DATE: April 13, 1999	CAPACITY OR TITLE	DATE: 1

SD-470 (04-95) *(Previous editions are to be destroyed)* *(See reverse for instructions and information collection burden statement)*

Exhibit A. **Origin and Breeding History of the Variety**

Sunflower Variety Name C9607CM

'C9607CM' is a single headed confection restorer inbred developed by Pioneer Hi-Bred International, Inc. C9607CM is an F8-derived F9 bulk that was selected, using the pedigree selection method, from a proprietary recurrent selection population designated 'RRSCM1' (rust recurrent selection confection male, cycle 1). RRSCM1 was initiated from bulk pollen crosses between rust resistant restorer selections from a prior population designated 'RRSCM'. RRSCM was a proprietary population developed by Dahlgren Co. (acquired by Pioneer in 1993) using a wide range of rust-resistant confection type USDA Plant Introduction sunflower lines and rust resistant confection lines developed by the University of Minnesota. C9607CM is currently being used to create experimental hybrids, one of which may be commercialized in January, 2000. C9607CM is uniform and stable for the characteristics on Exhibit C. No variants have been observed. JA 6/12/01.

Exhibit B: Statement of Distinctness

Sunflower Variety Name: C9607CM

C9607CM is most similar to Pioneer proprietary restorer inbred 'RC103M' and USDA 'RHA295' in that all are single headed confection restorer inbreds. However, notable qualitative phenotypic differences exist between these restorer inbreds.

C9607CM, RC103M, and RHA295 differ by a number of qualitative traits as exhibited in the table below:

	C9607CM	RC103M	RHA295
Leaf Serration	Medium	Course	Course
Leaf Cross Section	Flat	Concave	Concave
Leaf Wings	Absent	Absent	Present
Leaf Vein Angle	Right	Right	Acute
Leaf Angle	Medium	High	Medium
Leaf Wrinkle	Weak	Medium	Strong
Hypocotyl Anthocyanin	Absent	Weak	Absent
Ray Flower Color	Orange/Yellow	Yellow	Orange/Yellow
Seed Stripes	White	Grey and White	White
Seed Shape	Narrowly Obovate	Obovate	Ovate
Branching	Basal branching	None	Basal branching

Comparing C9607CM to RC103M, C9607CM has leaves with medium serration, a flat cross section, a medium leaf angle and weak leaf wrinkle, while RC103M has a course leaf serration, concave leaf cross section, high leaf angle, and medium leaf wrinkle. C9607CM has no hypocotyl anthocyanin while RC103M has weak hypocotyl anthocyanin. C9607CM has orange-yellow ray flowers while RC103M has yellow ray flowers. C9607CM has narrowly obovate seed with white stripes while RC103M has obovate seed with white and grey stripes. C9607CM exhibits basal branching while RC103M exhibits no basal branching.

Comparing C9607CM to RHA295, C9607CM has leaves with medium leaf serration, flat cross section, no leaf wings, a right leaf vein angle and weak leaf wrinkle, while RHA295 has course leaf serration, concave leaf cross section, leaf wings, an acute leaf vein angle, and strong leaf wrinkle. Further, C9607CM has narrowly obovate seed while RHA295 has ovate seed shape.

FORM APPROVED OMB NO. 40-R 3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
COMMODITIES SCIENTIFIC SUPPORT DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(SUNFLOWER)

OBJECTIVE DESCRIPTION OF VARIETY
SUNFLOWER *(HELIANTHUS ANNUUS)*

NAME OF APPLICANT(S)	VARIETY NAME OR TEMPORARY DESIGNATION
Pioneer Hi-Bred International, In	C9607CM
ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code)*	FOR OFFICIAL USE ONLY
7300 N.W. 62nd Ave., P.O. 1004 Johnston, IA 50131-1004	PVPO NUMBER 9900332

Place numbers in the boxes (e.g. [0][8][9]) for the characters that best describe typical plants of this variety.

COMPARISON VARIETIES

NON-OIL: 1 = ARROWHEAD 2 = MINGREN 3 = SUNDAK 4 = PEREDOVIK
OIL: 5 = KRASNODARETS 6 = OTHER RHA295 7 = OTHER _____ 8 = OTHER _____

1. CLASS:

[2] 1 = OIL TYPE 2 = NON-OIL TYPE *(confectionery)*

2. MATURITY:

[63] NO. OF DAYS TO HEAD FIRST VISIBLE *(from emergence)*

[3] DAYS EARLIER THAN [6]
HEADING SAME AS [ ]
[ ] DAYS LATER THAN [ ]
} COMPARISON VARIETY

[103] NO. OF DAYS TO HARVEST RIPENESS *(from emergence)*

[ ] DAYS EARLIER THAN [ ]
MATURITY SAME AS [ ]
[8] DAYS LATER THAN [6]
} COMPARISON VARIETY

3. HEIGHT:

[152] cm TALL AT HARVEST RIPENESS

[ ] cm SHORTER THAN [ ]
SAME AS [ ]
[49] cm TALLER THAN [6]

4. STEM:

[4.8] (1 decimal place) LENGTH OF INTERNODE AT HARVEST RIPENESS

[0.80] (2 decimal places) cm SHORTER THAN [6]
SAME AS [ ]
[ ] (2 decimal places) cm LONGER THAN [ ]
} COMPARISON VARIETY

[32] NUMBER OF LEAVES

[ ] FEWER LEAVES THAN [ ]
SAME AS [ ]
[6] MORE LEAVES THAN [6]
} COMPARISON VARIETY

[2] BRANCHING: 1 = NO BRANCHING 2 = BASAL BRANCHING
3 = TOP BRANCHING *(with central head)* 4 = FULLY BRANCHED *(without central head)*
5 = OTHER _____

[1] COLOR OF GROWING POINT: 1 = GREEN 2 = YELLOW

5. LEAVES (Midstem at flowering):

28.0 (1 decimal place) CM. BLADE LENGTH

24.0 (1 decimal place) CM. BLADE WIDTH

[ ] (1 decimal place) CM. SHORTER THAN [ ]

LENGTH SAME AS [ ] COMPARISON VARIETY

9.0 (1 decimal place) CM. LONGER THAN [6]

[ ] (1 decimal place) CM. NARROWER THAN [ ]

WIDTH SAME AS [ ] COMPARISON VARIETY

4.0 (1 decimal place) CM. WIDER THAN [6]

[1] WIDTH: LENGTH RATIO: 1 = NARROWER THAN LONG 2 = EQUAL 3 = WIDER THAN LONG

9900332

[1] LEAF SHAPE: 1 = CORDATE 2 = OTHER _____

[1] LEAF APEX: 1 = ACUMINATE 2 = OTHER _____

[1] LEAF BASE: 1 = AURICULATE 2 = TRUNCATE

[3] LEAF MARGIN: 1 = ENTIRE 2 = FINELY CRENATE 3 = COARSELY CRENATE 4 = OTHER _____

[2] DEPTH OF MARGIN INDENTATION: 1 = SHALLOW 2 = INTERMEDIATE 3 = DEEP

[2] ATTITUDE: 1 = ERECT 2 = ASCENDING 3 = HORIZONTAL 4 = DESCENDING

[2] SURFACE: 1 = SMOOTH 2 = CRINKLED (ridged) 3 = OTHER _____

[2] COLOR: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = BROWN

[1] MARGIN COLOR: 1 = GREEN 2 = YELLOW

6. HEAD AT FLOWERING:

[2] RAY FLOWERS: 1 = ABSENT 2 = PRESENT

[3] RAY FLOWER COLOR: 1 = YELLOW 2 = SULFUR YELLOW 3 = ORANGE YELLOW 4 = OTHER _____

[1] DISK FLOWER COLOR: 1 = YELLOW 2 = RED 3 = PURPLE

[1] ANTHOCYANIN IN STIGMAS: 1 = ABSENT 2 = PRESENT

[2] POLLEN COLOR: 1 = WHITE (colorless) 2 = YELLOW

[1] PAPPI: 1 = GREEN 2 = RUST (red)

60.0 (1 decimal place) MM. RAY LENGTH

20.0 (1 decimal place) MM. RAY WIDTH

6.0 (1 decimal place) MM. SHORTER THAN [6]

SAME AS [ ] COMPARISON VARIETY

[ ] (1 decimal place) MM. LONGER THAN [ ]

4.0 (1 decimal place) MM. NARROWER THAN [1]

SAME AS [ ]

[ ] (1 decimal place) MM. WIDER THAN [ ]

5

Variety Name C9607CM

7. HEAD AT SEED MATURITY:

18.0 (1 decimal place) CM. DIAMETER

7.0 (1 decimal place) CM. NARROWER THAN [6]

SAME AS [ ]

COMPARISON VARIETY

[ ] (1 decimal place) CM. WIDER THAN [ ]

[1] RECEPTACLE SHAPE: 1 = FLAT 2 = CONVEX 3 = CONCAVE

9900332

[4] HEAD ATTITUDE: 1 = VERTICAL *(erect)* 2 = ASCENDING 3 = HORIZONTAL 4 = DESCENDING

525 NO. OF SEEDS PER HEAD

[ ] SEEDS/HEAD LESS THAN [ ]

SEEDS/HEAD SAME AS [ ]

COMPARISON VARIETY

350 SEEDS/HEAD MORE THAN [6]

8. SEEDS:

[4] OUTER PERICARP: 1 = CLEAR 2 = STRIPED BLACK 3 = NEARLY SOLID BLACK 4 = OTHER Gray (CBT: 9/20/2000)

[1] MIDDLE PERICARP: 1 = WHITE 2 = SOLID PURPLE

[1] INNER PERICARP *(seed coat)*: 1 = NO COLOR 2 = BROWNISH BLACK

[3] STRIPES: 1 = ABSENT 2 = EVEN BLACK_WHITE STRIPES 3 = BROAD BLACK NARROW WHITE

4 = BLACK WITH NARROW DARK-GREY STRIPING 5 = OTHER _____

[1] MOTTLING: 1 = ABSENT 2 = PRESENT

[3] SHAPE: 1 = OVATE 2 = OBOVATE *(shield)* 3 = NARROWLY OBOVATE 4 = OBLONG 5 = ELLIPTIC

[2] SHAPE *(cross-section)* : 1 = NOT CURVED 2 = CURVED

15.0 (1 decimal place) MM. LENGTH

12.4 (1 decimal place) GM./100 SEED

[ ] (1 decimal place) MM. SHORTER THAN [ ]

SAME AS [ ]

COMPARISON VARIETY

2.3 (1 decimal place) MM. LONGER THAN [6]

[ ] (1 decimal place) GM. LIGHTER THAN [ ]

SAME AS [ ]

COMPARISON VARIETY

0.8 (1 decimal place) GM. HEAVIER THAN [6]

14.7 (1 decimal place) % HELD ON 7.9 MM. (20/64) ROUND-HOLE SCREEN

4.1 (1 decimal place) % LESS THAN [6]

SAME AS [ ]

COMPARISON VARIETY

[ ] % MORE THAN (1 decimal place) [ ]

Variety Name C9607CM

9. DISEASE AND INSECTS (0 = Not tested, 1 = Susceptible, 2 = Resistant):

[0] RUST *(Puccinia helianthi)*

GIVE RACES: _____

[0] VERTICILLIUM WILT *(Verticillium dahliae)*

[0] DOWNY MILDEW *(Plasmorpara halstedii)*

GIVE RACES: _____

[0] WHITE BLISTER RUST *(Albugo tragopogi)*

[0] BROOM RAPE *(Orobanche cannis)*

GIVE RACES: _____

[0] EUROPEAN SUNFLOWER MOTH *(H. nebullela)*

[0] OTHER *(specify)* _____

[1] SCLEROTINIA WILT *(Sclerotinia sclerotiorum)*

9900332

[0] LEAF MOTTLE *(V. albo-atrum)*

[0] GRAY-MOLD BLIGHT, BUD ROT *(Botrytis cinerea)*

[0] CHARCOAL ROT, STEM ROT *(Macrophomina phaseolina)*

[0] SUNFLOWER MOTH, N. AMERICAN HEAD MOTH *(Homoeosoma electellum)*

[0] OTHER *(specify)* _____

[0] OTHER *(specify)* _____

10. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE SUBMITTED VARIETY. For the following characteristics indicate degree of resemblance by placing in the column marked, D.R., one of the following numbers:
1 = Submitted variety is less, lighter or inferior than comparison variety 2 = Same as 3 = More than, darker, or superior

CHARACTER	VARIETY	D.R.	CHARACTER	VARIETY	D.R.
Frost resistance			Leaf attitude	RHA295	2
Lodging resistance	RHA295	2	Head attitude	RHA295	2
Neck or stem strength	RHA295	2	Ray flower color	RHA295	2
Branching type	RHA295	2	Seed shape	RHA295	2
Petiole length	RHA295	2	Seed color	RHA295	2
Leaf shape	RHA295	2	Seed striping pattern	RHA295	2
Leaf color	RHA295	2	Seed yield	RHA295	2

11. GIVE THE FOLLOWING DATA FOR SUBMITTED AND A SIMILAR VARIETY*.

VARIETY	HULL (%)	PROTEIN (%)	OIL (%)	IODINE NO.	FATTY ACIDS	
					OLEIC (%)	LINOLEIC (%)
Submitted	59					
Similar	51					
Name of similar variety	RHA295					

* Hull, protein and oil percentages expressed for whole undecorticated seed; acids expressed as percentages of oil

12. COMMENTS:

Plant characteristic data were collected at Woodland, CA in 1997.

Exhibit D. Additional Description of the Variety

9900332

Sunflower Variety Name C9607CM

'C9607CM' is a single headed confection restorer lines that has shown promise as a parental line in the production of high yielding, moderately long seeded confection hybrids adapted to sunflower production areas of the Northern Great Plains in the United States and Canada.

Table 1. T-test comparison of sunflower 'C9607CM' versus 'RHA295' for days to 50% flowering (50PFLW).

YEAR	LOCATION ID	EXPID	RHA295 (X2)	9607CM (X1)	|X1-X2|	$(X1-X2)^2$
			---------- days ----------			
1998	Woodland, CA	PT-120	70.0	67.0	3.0	9.0
1998	Woodland, CA	PT-152	60.0	56.0	4.0	16.0
		SUM	130.0	123.0	7.0	25.00
		MEAN	65.00	61.50	3.50 = **d**	

$$\textbf{SE diff} = \sqrt{\frac{\Sigma (X1-X2)^2 - (\Sigma X1-X2)^2/n}{(n)(n-1)}}$$

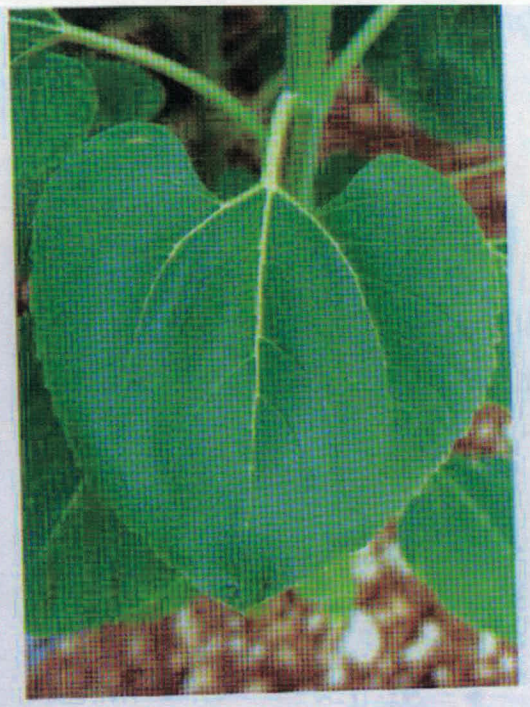
Ave X1 =	65.00
Ave X2 =	61.50
d = (Ave X1 - Ave X2) =	3.50
n =	2
SE diff = SQRT of	0.250
SE diff =	0.500
t = d/SE diff =	7.000
df =	1
Prob > **t** =	0.0903

PVP Application: C9607CM'
PVP No. 9900332

Seed of C9607CM: narrowly obovate with white marginal and lateral stripes

Seed of RC103M: obovate with prolific marginal and lateral white and grey stripes

Seed of RHA295: ovate with white marginal and lateral stripes



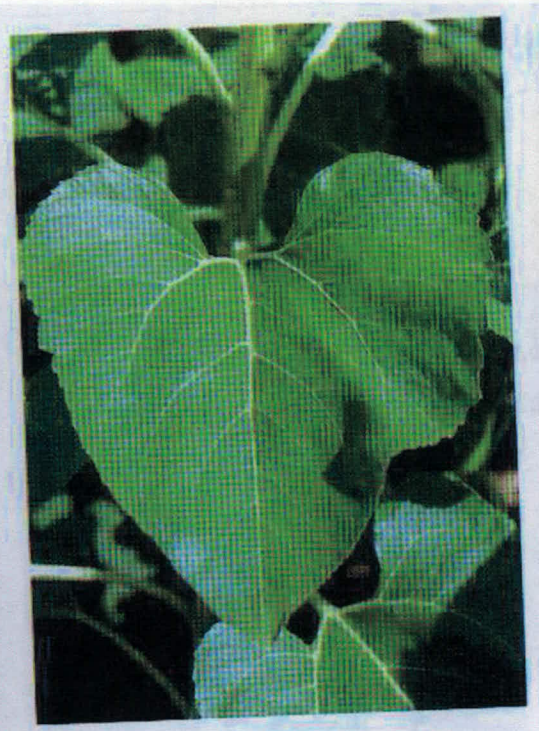
1. absentes
absent

2. légère présence
weakly present

3. présentes
present

LEAF WING TYPES

PVP Application: 'C9607CM'
PVP No. 9900332



1. nulle ou très faible
absent or very weak

5. moyenne
medium

9. très forte
very strong

LEAF WRINKLE TYPES

PVP Application: 199607EM
PVP No. 9900358

PVP Application 'C9607CM'
PVP No. 9900332

1. concave

concave

2. droite

flat

3. convexe

convex

LEAF CROSS SECTION TYPES

Exhibit E. Statement of the Basis of Applicant's Ownership

9900332

Sunflower Variety Name C9607CM

'C9607CM' is a single headed confection proprietary inbred restorer developed and maintained exclusively by plant breeders from whom, by agreement, Pioneer Hi-Bred International, Inc. has obtained exclusive rights and ownership of C9607CM. No rights to variety C9607CM are retained by the plant breeder or by any other party.