TO ALL TO WHOM THESE PRESENTS SHALL COME:

Louisiana Agricultural Experiment Station

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 herunto 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. (94 Stat. 1542, as amended, 7 U.S.C. 2321 et seq.)

COTTON

'PM 1244 BG/RR'

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 thirteenth day of December, in the year two thousand two.

[Signature]
Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service
REPRODUCE LOCALLY. Include form number and edition date on all reproductions.

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

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate)
   LOUISIANA AGRICULTURAL EXPERIMENT STATION

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
   Hx 6454
   PM 6454

3. VARIETY NAME
   PM 1244 BG/RR

4. ADDRESS (street and no. or R.F.D. no., city, state and ZIP)
   P.O. BOX 25055
   BATON ROUGE, LA 70894-5055

5. TELEPHONE (include area code)
   (504) 388-4181

6. FAX (include area code)
   (504) 388-6032

7. GENUS AND SPECIES NAME
   Gossypium hirsutum

8. FAMILY NAME (Botanical)
   MALVACEAE

9. CROP KIND NAME (Common Name)
   UPLAND COTTON

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.)
    PUBLIC AGRICULTURAL RESEARCH ORGANIZATION

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
    DR. R. LARRY ROGERS, DIRECTOR
    P.O. BOX 25055
    BATON ROUGE, LA 70894-5055

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, Novelty Statement
    c. Exhibit C, Objective Description of Variety
    d. Exhibit D, Additional Description of Variety
    e. Exhibit E, Statement of the Basis of Applicant's Ownership
    f. Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office
    g. Filing and Examination Fee ($2,325) made payable to "Treasurer of the United States"

17. 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) 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(S) SPECIFY THAT 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 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(s) that a viable sample of basic seed of this variety will be furnished with the 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 reproducing or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in section 32.42 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))

R. LARRY ROGERS

CAPACITY OR TITLE
DIRECTOR

DATE
2/14/97

(See reverse for instructions and information collection burden statement)
PLANT VARIETY PROTECTION APPLICATION  
EXHIBIT A  
ORIGIN AND BREEDING HISTORY  
PAYMASTER VARIETY PM 1244 BG/RR

PM 1244 BG/RR is a transgenic cotton variety developed by Paymaster Technology Corp., 2476 Hwy 130 East, Stuttgart, AR 72160 by transferring through the backcrossing breeding method the Monsanto developed gene from Bacillus thuringiensis (Bt) and the gene EPSPS that gives tolerance to the herbicide Roundup™. PM 1244 BG/RR was developed by crossing F₁ H 1244 (3) / Coker 312 BT x F₁ H 1244 (4) // DP5415 / Coker 312 RR. The initial cross of the Bt line, H 1244 by transformed Coker 312 Bt, and the RR line, DP 5415 by transformed Coker 312 RR, was made in the greenhouse at Monsanto, St. Louis, MO. Additional backcrosses, the cross to combine the two genes, and succeeding generations were by Paymaster.

The breeding line LA870222, later named H 1244, was selected by Dr. J.E. Jones of the Louisiana Agricultural Experiment Station from the cross MC-T8-27-8C (Crop Sci. 28:1035) x LA HG 063 (Crop Sci. 28:200). All screening for Roundup tolerance and for the presence of the Bt gene was done by Paymaster in the greenhouse and field.

The backcrossed F₂ generation was grown in Puerto Rico during the winter of 1994-95. F₃ progeny rows along with rows of the recurrent parent H 1244 were grown at Altheimer, AR during the summer of 1995. Each progeny row was screened for tolerance to Roundup and the presence of the Bt gene. Rows not homozygous for both genes were eliminated before flowering. Progeny rows homozygous for both genes were evaluated for fiber properties, morphological characters, homozygosity for the Bt gene and visual yield potential. Rows appearing similar to the recurrent parent were harvested. A winter increase was grown in Argentina, October - March 1995-96. Lines were grown separately in Argentina, screened for Bt and Roundup tolerance and observed for trueness to type before harvest. Four lines were bulked to constitute the variety. Seed production fields were grown in the United States in 1996. Every generation was screened for tolerance to glyphosate by spraying Roundup over-the-top and by analyzing plants by ELISA or Gene Check™ methods to detect the presence of the Bt protein.

Yield tests were conducted under farmer management at ten locations in 1996 by Paymaster. Gene equivalency tests for Roundup tolerance were conducted in 1996 at three locations by Paymaster and one location by Monsanto. Equivalency tests for Bollgard were conducted in 1996 by Monsanto at three locations and by Mississippi State University at Starkville.

The recurrent parent H 1244 (LA870222) was acquired from Louisiana State University (LAES) in 1992 in an agreement between LAES and Jacob Hartz Seed Company (Hartz, 901 N. Park Ave., Stuttgart, AR 72160) granting Hartz exclusive marketing and product development rights of H 1244 cotton. On February 2, 1996 Delta and Pine Land Company (P.O. Box 157, Scott, MS 38772) acquired all cotton rights of Jacob Hartz Seed Company. The organization is now referred to as Paymaster Technology Corp., a wholly owned subsidiary of Delta and Pine Land Company.
PLANT VARIETY PROTECTION APPLICATION
EXHIBIT B
NOVELTY STATEMENT

VARIETY: PM 1244 BG/RR

PM 1244 BG/RR is most similar to its recurrent parent H 1244, but PM 1244 BG/RR has both the Monsanto developed Bollgard™ gene and Roundup Ready™ gene while H 1244 is not transgenic. PM 1244 BG/RR has lower micronaire and is later maturing than PM 1220 BG/RR.
### OBJECTIVE DESCRIPTION OF VARIETY
COTTON (Gossypium spp.)

<table>
<thead>
<tr>
<th>NAME OF APPLICANT (S)</th>
<th>TEMPORARY DESIGNATION</th>
<th>VARIETY NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisiana Agricultural Experiment Station</td>
<td>Hx 6454</td>
<td>PM 1244 BG/RR</td>
</tr>
<tr>
<td></td>
<td>PM 6454</td>
<td></td>
</tr>
</tbody>
</table>

**ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)**
P.O. Box 25055
Baton Rouge, LA 70894-5055

<table>
<thead>
<tr>
<th>FOR OFFICIAL USE ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVPO NUMBER</td>
</tr>
<tr>
<td>9700128</td>
</tr>
</tbody>
</table>

Place the appropriate data that describes the varietal characteristic of this variety in the space provided. Characteristics described, including numerical measurements, should represent those that are typical for the variety. Royal Horticultural Society or any recognized color fan may be used to determine plant colors. Characters marked with an asterisk * indicate necessary characters to be measured.

### SPECIFIC VARIETIES USED FOR COMPARISON AS CHECK VARIETIES IN THIS APPLICATION:
Use standard regional check varieties which are adapted to your area. One of the comparison varieties must be the most similar variety used in Exhibit B.

1. **H1244**
2. **DP 50**
3. **__**

**1. SPECIES:**

- X G. hirsutum L.
- G. barbadense L.

**2. AREA(S) OR ADAPTATION:**

- (A = Adapted, NA = Not Adapted, NT = Not Tested)
  - NT Eastern
  - A Delta
  - NT Central
  - NT Blacklands
  - NT Plains
  - NT Western
  - NT Arizona
  - NT San Joaquin

**3. GENERAL:** Characteristics which are known to be variable but are still useful for a meaningful description of the variety.

<table>
<thead>
<tr>
<th>Application Variety</th>
<th>Comparison Variety 1</th>
<th>Comparison Variety 2</th>
<th>Comparison Variety 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Habit: Spreading, Intermediate, Compact</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Fruiting Branch: Clustered, Short, Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
</tr>
<tr>
<td>Leaf Color: Greenish yellow, Light green, Dark green</td>
<td>Light Green</td>
<td>Light Green</td>
<td>Medium Green</td>
</tr>
</tbody>
</table>

*Sparse foliage as plant reaches maturity
### 3. GENERAL: (continued)

| Boll Shape: Length less than width, | L=W | L=W | L=W |
| Length equal to width, | | | |
| Length more than width | | | |
| Boll Breadth: Broadest at base, | Middle | Middle | Middle |
| Broadest at middle | | | |

### 4. MATURITY: (50 % Open Bolls; Preferred Method; Describe Method If Different Method Was Used)

| % First Pick | Application Variety | Comparison Variety 1 | Comparison Variety 2 | Comparison Variety 3 |
| Date of 50 % open bolls | 83.3 a | 87.1 a | 84.3 a |

### 5. PLANT:

| Cm to 1st Fruiting Branch (from cotyledonary node) | 20.2 | 21.2 | 16.0 |
| No. of Nodes to 1st Fruiting Branch (excluding cotyledonary node) | 5.4 | 5.6 | 5.0 |
| Mature Plant Height cm (from cotyledonary node to terminal) | 91.6 | 93.3 | 85.7 |

### 6. LEAF: Upper most, fully expanded leaf.

| Type: Normal, Sub Okra, Okra, Super Okra | Normal | Normal | Normal |
| Pubescence: Absent, Sparse, Medium | | |
| Dense OR Trichomes/sp. cm | | |
| Bottom surface excluding veins | Sparse | Sparse | Very Sparse |
| Nectaries: Present or Absent | Present | Present | Present |

### 7. STEM PUBESCENCE: Glabrous, Intermediate, Hairy

| Application Variety | Comparison Variety 1 | Comparison Variety 2 | Comparison Variety 3 |
| Intermediate | Intermediate | Hairy |

### 8. GLANDS: (Gossypol) Absent, Sparse, Normal, More Than Normal

| Application Variety | Comparison Variety 1 | Comparison Variety 2 | Comparison Variety 3 |
| Leaf: Normal | Normal | Normal |
| Stem: Normal | Normal | Normal |
| Calyx Lobe: (normal is absent) | > Normal | > Normal | Normal |

### 9. FLOWER:

| Application Variety | Comparison Variety 1 | Comparison Variety 2 | Comparison Variety 3 |
| Petals: Cream, Yellow | Cream | Cream | Cream |
| Pollen: Cream, Yellow | Cream | Cream | Cream |
| Petal Spot: Present, Absent | Absent | Absent | Absent |
**10. SEED:**

<table>
<thead>
<tr>
<th></th>
<th>Application Variety</th>
<th>Comparison Variety 1</th>
<th>Comparison Variety 2</th>
<th>Comparison Variety 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Index (g/100 seed, fuzzy basis)</td>
<td>1.2.4a</td>
<td>1.2.1a</td>
<td>1.0.6b</td>
<td></td>
</tr>
<tr>
<td>Lint Index (g lint/100 seeds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**11. BOLL:**

<table>
<thead>
<tr>
<th></th>
<th>Application Variety</th>
<th>Comparison Variety 1</th>
<th>Comparison Variety 2</th>
<th>Comparison Variety 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lint Percent (Picked: Pulled)</td>
<td>3.8.8a</td>
<td>3.9.4a</td>
<td>3.5.9b</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gin Turnout (Picked: Stripped)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Seed per Boll</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grams Seed Cotton per Boll</td>
<td>5.7.9a</td>
<td>5.5.3ab</td>
<td>5.4.5b</td>
<td></td>
</tr>
<tr>
<td>Number of Locules per Boll</td>
<td>Mostly 4</td>
<td>Mostly 4</td>
<td>Mostly 4</td>
<td></td>
</tr>
<tr>
<td>Boll Type (Stormproof, Storm Resistant, Open)</td>
<td>Storm Res.</td>
<td>Storm Res.</td>
<td>Open</td>
<td></td>
</tr>
</tbody>
</table>

**12. FIBER PROPERTIES:**

Specify Method (HVI or other): **HVI**

<table>
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<tr>
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<th>Comparison Variety 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (inches, 2.5% SL)</td>
<td>1.1.4a</td>
<td>1.1.4a</td>
<td>1.1.5a</td>
<td></td>
</tr>
<tr>
<td>Uniformity ( % )</td>
<td>8.5</td>
<td>8.6</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Strength, T1 (g/tex)</td>
<td>2.9.4a</td>
<td>2.9.1a</td>
<td>2.7.5b</td>
<td></td>
</tr>
<tr>
<td>Elongation, E1 ( % )</td>
<td>7.3</td>
<td>7.6</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>Micronaire</td>
<td>4.5.6a</td>
<td>4.6.4a</td>
<td>4.6.1a</td>
<td></td>
</tr>
<tr>
<td>Fineness (Source______)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yarn Tenacity (cN/tex, 27 tex)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yarn Strength (lbs. 22's)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**13. DISEASES:** (NT = Not Tested, S = Susceptible, MS = Moderately Susceptible, MR = Moderately Resistant, R = Resistant)

- **NT** Alternaria macrospora
- **NT** Anthracnose
- **NT** Ascochyta Blight
- **NT** Bacterial Blight (Race 1)
- **NT** Bacterial Blight (Race 2)
- **NT** Bacterial Blight (Race ____________)
- **NT** Fusarium Wilt
- **NT** Phymatotrichium Root Rot
- **NT** Pythium (specify Species) ____________
- **NT** Rhizoctonia solani
- **NT** Southwestern Cotton Rust
- **NT** Thielaviopsis basicola
14. NEMATODES, INSECTS AND PESTS: (NT = Not Tested, S = Susceptible, MS = Moderately Susceptible, MR = Moderately Resistant, R = Resistant)

   _NT_ Root-Knot Nematode
   _NT_ Boll Weevil
   _MR_ Bollworm
   _NT_ Cotton Aphid
   _NT_ Cotton Fleahopper
   _NT_ Cotton Leafworm
   _NT_ Cutworm (specify species) 
   _NT_ Fall Armyworm
   ___ Other (specify) 
   _NT_ Reniform Nematode
   _NT_ Grasshopper (specify species) 
   _NT_ Lygus (specify species) 
   _R_ Pink Bollworm
   _NT_ Spider Mite (specify species) 
   _NT_ Stink Bug (specify species) 
   _NT_ Thrips (specify species) 
   _R_ Tobacco Bud Worm

15. COMMENTS: Present any additional information that cannot adequately be described in 1 through 13 which significantly distinguishes your variety.
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<tr>
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<td>4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)</td>
<td>P.O. Box 25055</td>
</tr>
<tr>
<td>5. TELEPHONE (include area code)</td>
<td>(504) 388-4181</td>
</tr>
<tr>
<td>6. FAX (include area code)</td>
<td>(504) 388-6032</td>
</tr>
<tr>
<td>7. PVPO NUMBER</td>
<td>9700128</td>
</tr>
</tbody>
</table>

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 breeder? If no, please answer the following:

   - [ ] YES
   - [ ] NO

   a. If original rights to variety were owned by individual(s):
      Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country ____________________________

   b. If original rights to variety were owned by a company:
      [ ] YES
      [ ] NO

11. Additional explanation on ownership (If needed, use reverse for extra space):

    Paymaster Technology Corp., 2476 Hwy 130 E, Stuttgart, AR 72160 has exclusive marketing and development rights to this variety. See Exhibit "A" Origin and Breeding History.

**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 breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a) (2) of the Plant Variety Protection Act for definition.

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STD-470-e (03-96)