

**DELTA AND PINE LAND COMPANY'S NEW
STRIPPER ROUNDUP READY VARIETIES:
PM 2156 RR AND PM 2379 RR
T. Speed, G. Rea, R. Sheetz and D. Keim
Delta and Pine Land Company
Lubbock, TX; Hale Center, TX; and Haskell, TX**

Abstract

Delta and Pine Land Company is releasing two new Paymaster stripper Roundup Ready (RR) varieties for the 2001 season; PM 2156 RR and PM 2379 RR. PM 2156 RR is an early season, determinant variety best suited for the Northern areas of the Texas High Plains or in re-planting scenarios. PM 2379 RR is a mid to full season variety showing wide adaptability in the stripper market. Both varieties were developed through the backcrossing program using their conventional recurrent parents, DP 2156 and DP 2379, respectively. DP 2156 was developed by Dr. Don Keim and released in 1993 for commercial sale. DP 2379 was developed jointly by Dr. Don Keim and Bo Downer, released for commercial sale in 1997. Fiber quality (fiber length, strength, and micronaire) characteristics are very similar to their recurrent parents. Extensive testing over the past two years shows better yield performance for PM 2156 RR and PM 2379 RR than the current commercial RR standards on the Texas High Plains.

Introduction

Since the first commercial release of RR cotton varieties on the Texas High Plains, D&PL Research has remained committed to bringing new and better cotton varieties to our customer, the farmer. The introduction of Roundup Ready varieties to the stripper market in 1997, surpassed initial expectations and has allowed for increased research and development of new varieties. The introduction of PM 2156 RR and PM 2379 RR is "raising the bar" to a new standard for early maturing and mid to full season maturing stripper varieties.

Discussion

PM 2156 RR

PM 2156 RR is an early season, high yielding, determinant variety with semi-smooth leaf pubescence. Seed supply for PM 2156 RR will be somewhat limited in 2001 due to the high demand for early season stripper RR varieties. PM 2156 RR was tested as DP 9815 RR in 1999 and as PM 2156 RR in 2000. Its recurrent parent, DP 2156 has been widely grown on the Texas High Plains since 1995 and has performed very well, especially in the Northern areas of the stripper market. PM 2156 RR is a potential replacement variety for producers who have been growing DP 2156, PM 145 or PM 2145 RR. Plant height is medium with seed size ranging from 4200 to 4600 seeds per pound. Fiber properties for PM 2156 RR have averaged: 4.14 micronaire, 25.8 g/tex fiber strength, and 32.4 staple (32's of an inch) over the last two years for all tests that included PM 2156 RR (Table 1). Storm resistance of open bolls is rated as fair. Gin turn out has averaged 31.3 percent.

PM 2156 RR has yielded an average 7.8% higher than its recurrent parent DP 2156 in 34 tests conducted in 1999 and 2000. These trials represent University variety trials, D&PL Research trials and D&PL Technical Services trials (Table 2). When compared to PM 2145 RR over 34 trials in 1999 and 2000, PM 2156 RR has averaged 7.0% more lint per acre. Table 3 shows PM 2156 RR performance relative to other commercially available early season RR varieties.

Good seedling vigor coupled with high early season fruit retention and large bolls have been key components for PM 2156 RR performance. In a shortened growing season, node of first fruiting branch and fruit retention are keys to an early maturing crop. On average, PM 2156 RR begins setting fruiting branches on node 5.0, based on plant mapping data (Table 4). This is more than one half node lower than other commercially available RR stripper varieties.

PM 2379 RR

PM 2379 RR is a medium to full season, indeterminant, stormproof stripper variety that has shown wide adaptation across the Texas High Plains. Seed supplies for 2001 growing season will be excellent for a first year commercial introduction. The experimental testing number for PM 2379 RR was DP 9818 RR in 1998 and 1999 trials and PM 2379 RR in 2000. PM 2379 RR has semi-smooth leaf pubescence with a medium to tall plant height. PM 2379 RR has good early season vigor compared with other commercially available stripper varieties and seed size ranges 4400 to 4800 seeds per pound. Fiber properties for PM 2379 RR have averaged: 4.29 micronaire, 28.9 g/tex fiber strength, and 33.7 staple (32's of an inch) over the last three years of testing. PM 2379 RR has very good storm resistance and very good tolerance of verticillium wilt (Table 1).

Excellent yield potential combined with good fiber qualities are the most distinctive features of PM 2379 RR. PM 2379 RR has an average yield within 1% of DP 2379 (Table 5). PM 2379 RR has out yielded PM 2326 RR by 3.5% and PM 2200 RR by 6.4% over 37 trials conducted since 1998 (Table 6).

Node of first fruiting branch for PM 2379 RR is 5.6 which is comparable to PM 2326 RR which averages 5.9 for node of first fruiting branch.

Table 1. General Characteristics, Fiber properties, and disease reaction of PM 2156 RR and PM 2379 RR.

| Characteristic | PM 2156 RR | PM 2379 RR |
|-------------------------|-------------|-------------|
| Maturity | Early | Mid-Full |
| Height | Medium | Med-Tall |
| Leaf Pubescence | Semi-smooth | Semi-smooth |
| Seedling Vigor | Excellent | Very Good |
| Seed Size (seed / lb.) | 4200 - 4600 | 4400 - 4800 |
| Storm Resistance | Fair | Very Good |
| Gin Turnout (%) | 31.3 | 31.0 |
| Micronaire | 4.14 | 4.29 |
| Staple (32's) | 32.4 | 33.7 |
| Fiber Strength (g/tex) | 25.8 | 28.9 |
| Uniformity | 81.4 | 82.0 |
| Verticillium Wilt* | Fair | Good |

*Data from D&PL trials.

Table 2. Yield Performance Comparing PM 2156 RR and DP 2156 in 1999 and 2000.

| Variety | Lint Yield | Turn-out | Staple | Micronaire | Strength | Uniformity |
|------------|------------|----------|--------|------------|----------|------------|
| PM 2156 RR | 959 | 33.9 | 31.8 | 4.5 | 25.4 | 81.4 |
| DP 2156 | 884 | 33.1 | 32.3 | 4.6 | 26.2 | 81.1 |
| n (locs) | 34 | 27 | 27 | 27 | 27 | |

27 D&PL trials and 7 University trials.

Table 3. Yield Performance of PM 2156 RR in 1999 and 2000.

| Variety | Lint Yield | Turn- out | Staple | Micro- naire | Strength | Uniform- ity |
|----------------|-----------------------|----------------------|---------------|-------------------------|-----------------|-------------------------|
| PM 2156 RR | 828 | 31.9 | 31.8 | 4.4 | 24.8 | 81.4 |
| PM 2200 RR | 776 | 29.6 | 33.6 | 4.2 | 27.8 | 81.6 |
| PM 2145 RR | 770 | 31.9 | 32.3 | 4.1 | 26.8 | 81.5 |
| n (locs) | 30 | 10 | 23 | 23 | 23 | |

25 D&PL trials and 5 University trials.

Table 4. Plant Map Summary of PM 2156 RR and PM 2379 R.

| Growth Parameter | PM 2156 RR | PM 2379 RR |
|-----------------------------------|-------------------|-------------------|
| Node First Fruiting Branch | 5.0 | 5.6 |
| Total Number of Fruiting Branches | 12.3 | 13.4 |
| Final HNR (inches / node) | 1.3 | 1.3 |

Table 5. Yield Performance of PM 2379 RR and DP 2379 from 1998 to 2000.

| Variety | Lint Yield | Turn- out | Staple | Micro- naire | Strength | Uniform- ity |
|----------------|-----------------------|----------------------|---------------|-------------------------|-----------------|-------------------------|
| PM 2379 RR | 892 | 34.2 | 33.0 | 4.6 | 28.0 | 82.0 |
| DP 2379 | 903 | 34.1 | 33.0 | 4.8 | 28.1 | 81.8 |
| n (locs) | 21 | 27 | 27 | 27 | 27 | |

21 D&PL Trials and 6 University Trials.

Table 6. Yield Performance of PM 2379 from 1998 - 2000.

| Variety | Lint Yield | Turn- out | Staple | Micro- naire | Strength | Uniform- ity |
|----------------|-----------------------|----------------------|---------------|-------------------------|-----------------|-------------------------|
| PM 2379 RR | 915 | 33.1 | 33.2 | 4.4 | 28.5 | 82.0 |
| PM 2326 RR | 883 | 33.0 | 33.4 | 4.3 | 28.4 | 82.5 |
| PM 2200 RR | 856 | 31.6 | 34.0 | 4.1 | 28.1 | 81.6 |
| n (locs) | 37 | 32 | 32 | 32 | 32 | |

33 D&PL Trials and 4 University Trials.