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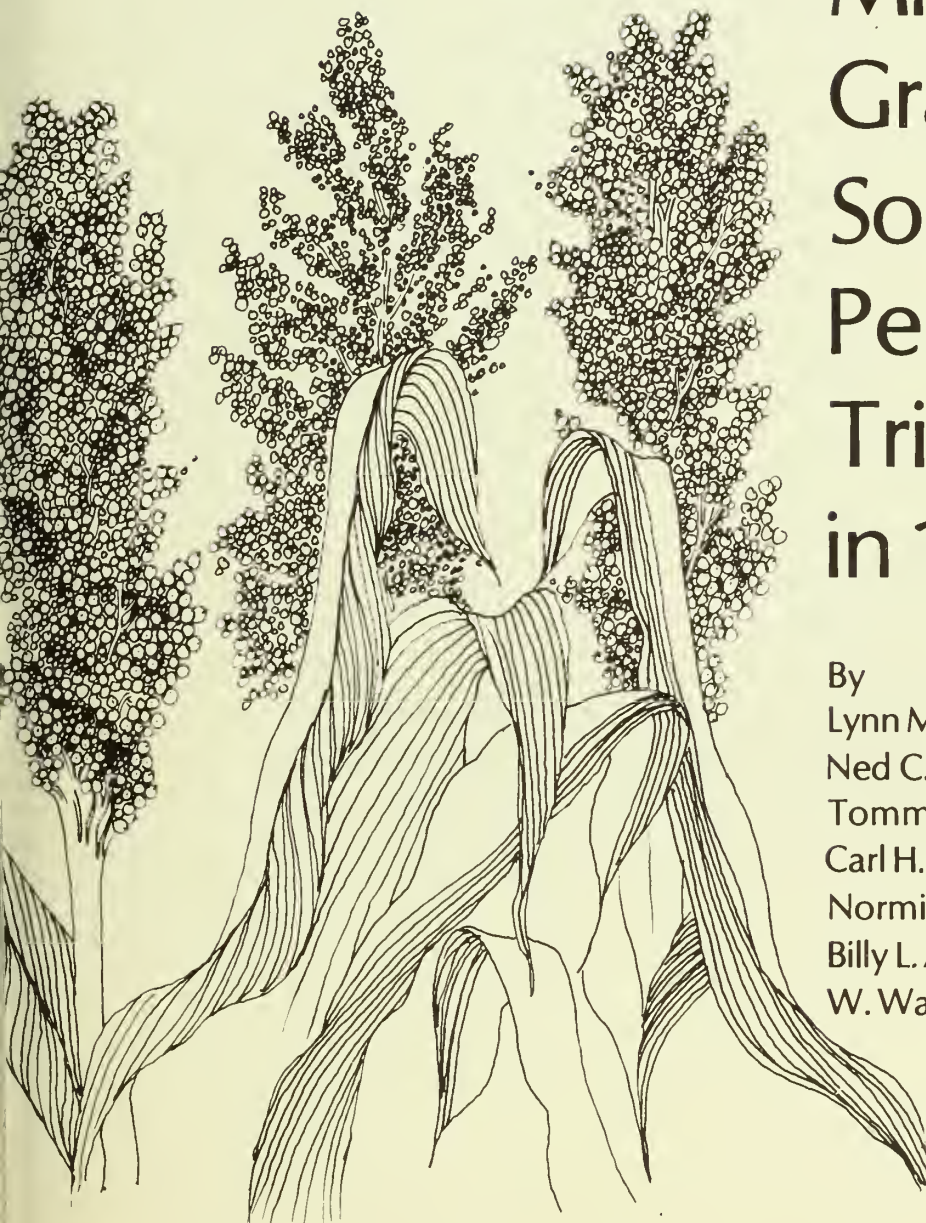
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Mississippi Grain Sorghum Performance Trials 1979

by

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Mississippi Grain Sorghum Performance Trials in 1979

Trials are conducted annually in Mississippi to provide farmers, seedsmen, county agents, and other interested persons with information on performance of commercially available grain sorghum hybrids. Results are particularly helpful to grain sorghum producers in selecting hybrids suited to their area.

We tested 44 commercial and experimental hybrids at six locations in Mississippi in 1979. A good test of performance cannot be made if damaging populations of insects are present; therefore, insecticides were applied as needed. See MAFES Bulletins 817 and 836 for methods of control of insects on grain sorghum.

Resistance to diseases is important in selecting a hybrid for areas where diseases are a problem. Also, planting at the recommended time helps reduce damage caused by diseases and insects.

Testing Procedures

A randomized complete block design with three replications was used at all locations. Each plot consisted of two rows 38 or 40 inches wide and 20 ft long. All trials were planted at the rate of 7

Table 1. Planting dates, fertilizer rates (lbs/A) and insecticides applied, Hybrid Grain Sorghum Performance Trials, by location of trials, Mississippi, 1979.

| Location | Planting date | Fertilizer rates ¹ | Insecticides applied ² |
|-------------------|---------------|-------------------------------|-----------------------------------|
| Mississippi State | May 8 | 25-25-85PP 100-0-0SD | 2-diazinon |
| Brooksville | June 18 | 40-40-40PP 150-0-0SD | None |
| Newton | May 21 | 65-65-65PP 100-0-0SD | None |
| McNeil | May 11 | 160-0-0PP | 2-diazinon |
| Holly Springs | June 12 | 60-70-70PP | 2-sevin |
| Raymond | May 18 | 0-60-60PP 100-0-0SD | None |

¹SD = Sidedressed, PP = Preplant.
²Insecticides applied as labeled.

lbs of seed per acre. Heads from 13 ft of each plot were hand-harvested, dried and threshed, and grain yield was adjusted to 14% moisture. Data reported have not been adjusted for bird damage, but

trials severely damaged by birds were not harvested. Location of tests, planting dates, fertilizer rates and insecticides applied are presented in Table 1.

Table 2. Performance of 36 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location, 1979

| Hybrid | Brand | 50% ¹ Bloom (days) | plant ² Height (in) | Disease ³ | | Bird Damage | | Test ² Weight (lbs/bu) | Miss. State | Newton | McNeil | Holly Springs | Mean |
|-------------|---------|-------------------------------------|--------------------------------------|----------------------|---------------------|-----------------------|-------------------------|---|----------------|--------|--------|------------------|------|
| | | | | Fusarium rating | Bacterial stripe | Miss. State (%) | Holly Springs (%) | | | | | | |
| 1. M565 | Pfizer | 67 | 47 | 2 | 3 | 4 | 13 | 59.4 | 4680 | 7744 | 5164 | 2938 | 5132 |
| 2. Dinero | T-E | 68 | 46 | 2 | 3 | 4 | 20 | 58.7 | 4731 | 7484 | 5028 | 2685 | 4982 |
| 3. R-1090 | Acco | 68 | 47 | 1 | 1 | 2 | 25 | 57.9 | 5023 | 6754 | 5233 | 2887 | 4974 |
| 4. 7737 | Coker | 68 | 47 | 2 | 2 | 5 | 17 | 59.0 | 5264 | 7355 | 4638 | 2127 | 4846 |
| 5. Two 70-D | T.T. | 68 | 50 | 2 | 2 | 5 | 23 | 60.4 | 4748 | 6380 | 6226 | 1798 | 4788 |
| 6. 1290 | G.S.A. | 67 | 42 | 2 | 3 | 6 | 32 | 59.1 | 4800 | 6486 | 5973 | 1849 | 4777 |
| 7. ML135 | G.S.A. | 66 | 44 | 0 | 4 | 3 | 20 | 58.3 | 4542 | 6863 | 4063 | 3368 | 4714 |
| 8. 7675 | Coker | 68 | 44 | 0 | 4 | 5 | 30 | 58.3 | 4877 | 6129 | 5340 | 2507 | 4713 |
| 9. W-839DR | Warner | 68 | 44 | 2 | 3 | 7 | 23 | 58.5 | 4937 | 5918 | 5691 | 2279 | 4707 |
| 10. Y101-D | T-E | 67 | 45 | 0 | 4 | 4 | 27 | 60.5 | 4723 | 6372 | 5164 | 2279 | 4635 |
| 11. G-522DR | Funk's | 67 | 44 | 2 | 3 | 3 | 27 | 58.4 | 4517 | 7655 | 4092 | 2127 | 4598 |
| 12. DR-1085 | Acco | 69 | 45 | 2 | 3 | 7 | 17 | 59.6 | 4465 | 6681 | 5340 | 1646 | 4533 |
| 13. 6658 | P-A-G | 66 | 48 | 3 | 2 | 2 | 23 | 60.1 | 4869 | 5520 | 5164 | 2482 | 4509 |
| 14. Y101-R | T-E | 68 | 42 | 2 | 3 | 3 | 23 | 58.0 | 4147 | 6380 | 5505 | 2001 | 4508 |
| 15. 1225 | Wilstar | 67 | 45 | 2 | 3 | 4 | 25 | 57.7 | 4534 | 5707 | 5047 | 2710 | 4500 |
| 16. 8311 | Pioneer | 69 | 44 | 2 | 2 | 5 | 20 | 58.4 | 3761 | 5804 | 5466 | 2685 | 4429 |
| 17. 5504 | P-A-G | 67 | 44 | 2 | 2 | 5 | 28 | 58.8 | 4602 | 5276 | 5505 | 2229 | 4403 |
| 18. DK-64 | DeKalb | 67 | 47 | 2 | 2 | 7 | 47 | 60.0 | 4800 | 5301 | 6051 | 1292 | 4361 |
| 19. G-522 | Funk's | 68 | 43 | 3 | 4 | 4 | 22 | 58.5 | 4371 | 7038 | 3635 | 2355 | 4350 |
| 20. 1425 | Wilstar | 69 | 47 | 2 | 4 | 4 | 23 | 56.5 | 4250 | 5439 | 4648 | 2836 | 4293 |
| 21. 5514 | P-A-G | 68 | 44 | 1 | 2 | 4 | 20 | 57.7 | 4173 | 5057 | 5408 | 2355 | 4248 |
| 22. 2778 | N.K. | 67 | 43 | 2 | 3 | 15 | 13 | 59.0 | 4001 | 5520 | 5525 | 1849 | 4424 |
| 23. W-851DR | Warner | 68 | 45 | 0 | 2 | 7 | 27 | 59.5 | 4645 | 5447 | 4930 | 1722 | 4186 |
| 24. G-622 | Funk's | 68 | 45 | 2 | 3 | 2 | 32 | 58.3 | 4250 | 6161 | 4278 | 2051 | 4185 |
| 25. M568G | Pfizer | 68 | 43 | 3 | 3 | 3 | 17 | 58.3 | 3529 | 5479 | 5310 | 2254 | 4143 |
| 26. 733GB | R.A. | 68 | 43 | 2 | 2 | 2 | 18 | 58.0 | 4027 | 4700 | 4930 | 2786 | 4111 |
| 27. 7638 | Coker | 67 | 42 | 2 | 3 | 2 | 15 | 58.1 | 3744 | 6167 | 4092 | 2406 | 4102 |
| 28. 2884 | N.K. | 69 | 47 | 0 | 2 | 15 | 45 | 59.0 | 4130 | 4895 | 5759 | 1418 | 4051 |
| 29. 2779 | N.K. | 69 | 43 | 0 | 4 | 6 | 20 | 58.1 | 3684 | 4984 | 5310 | 2077 | 4014 |
| 30. DR-1035 | Acco | 68 | 46 | 0 | 1 | 10 | 15 | 58.1 | 4414 | 5033 | 4258 | 2254 | 3990 |
| 31. 1330 | Wilstar | 68 | 49 | 1 | 3 | 18 | 52 | 57.8 | 3984 | 4927 | 4336 | 1596 | 3711 |
| 32. Exp3256 | McNair | 67 | 46 | 2 | 3 | 2 | 28 | 59.9 | 4577 | 4700 | 4356 | 1849 | 3871 |
| 33. E-57 | DeKalb | 68 | 47 | 1 | 4 | 1 | 67 | 56.2 | 5075 | 3470 | 5768 | 912 | 3806 |
| 34. M58G | Pfizer | 66 | 44 | 2 | 4 | 3 | 27 | 57.2 | 3701 | 4367 | 4550 | 1899 | 3629 |
| 35. 807 | R.A. | 68 | 46 | 2 | 2 | 1 | 27 | 58.2 | 3924 | 4043 | 4375 | 1545 | 3472 |
| 36. X9140 | T.T. | 68 | 43 | 3 | 2 | 25 | 38 | 57.9 | 3649 | 2809 | 3708 | 1596 | 2941 |
| Mean | | 66 | 45 | 1.6 | 2.8 | 6 | 27 | 58.5 | 4393 | 5724 | 4999 | 2157 | 4323 |
| L.S.D.(.05) | | | | | | | | | 573 | 1438 | 1386 | 862 | --- |
| C.V. | | | | | | | | | 8.1% | 15.5% | 17.2% | 24.7% | --- |

¹ Average of Mississippi State, Newton, and Holly Springs, MS.

² Average of Mississippi State and Newton, MS.

³ Rated at Meridian, MS. Rating of 0 = no disease symptoms, 4 = disease killed plants.

Table 3. Performance of eight bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location, 1979.

| Hybrid | Brand | 50% ¹ Bloom (days) | Plant ² Height (in) | Disease ³ | | Test ⁴ Weight (lbs/bu) | Miss. State | Yield | | | | | Mean |
|---------------|---------|-------------------------------------|--------------------------------------|----------------------|---------------------|---|----------------|---------|------------------|--------|------------------|--------|------|
| | | | | Fusarium rating | Bacterial Stripe | | | Raymond | Brooks- ville | McNeil | Holly Springs | Newton | |
| 1. Savanna 5 | N.K. | 67 | 57 | 0 | 2 | 56.5 | 4156 | 3029 | 3039 | 4112 | 3647 | 7874 | 4310 |
| 2. B815 | Pioneer | 67 | 53 | 1 | 3 | 57.4 | 3838 | 3219 | 2907 | 3069 | 2431 | 6186 | 3608 |
| 3. G-516 BR | Funk's | 68 | 48 | 1 | 3 | 56.1 | 3795 | 2869 | 2228 | 2660 | 3647 | 5723 | 3487 |
| 4. 7681 BR | Coker | 68 | 48 | 0 | 3 | 56.5 | 4207 | 2694 | 2854 | 3128 | 2381 | 5496 | 3460 |
| 5. W-744 DR | Warner | 67 | 50 | 1 | 4 | 56.9 | 4173 | 2316 | 2700 | 3089 | 2887 | 5074 | 3373 |
| 6. BR-45+ | DeKalb | 65 | 41 | 0 | 4 | 58.3 | 4199 | 2886 | 2201 | 2436 | 2760 | 4757 | 3207 |
| 7. 1334 BR | G.S.A. | 69 | 47 | 1 | 3 | 54.7 | 3589 | 2364 | 1825 | 2348 | 3064 | 5301 | 3082 |
| 8. Two 75 BRG | T.T. | 68 | 44 | 1 | 3 | 55.2 | 3134 | 1538 | 2435 | 2592 | 1671 | 3783 | 2526 |
| MEAN | | 67 | 48 | .6 | 3 | 56.4 | 3887 | 2614 | 2523 | 2929 | 2811 | 5524 | 3382 |
| L.S.D.(.05) | | | | | | | 630 | 855 | 768 | 675 | 517 | 1407 | --- |
| C.V. | | | | | | | 9.2% | 18.7% | 17.4% | 13.2% | 10.5% | 14.5% | --- |

¹ Average of Mississippi State, Brooksville, and Newton, MS.

² Average of Mississippi State, Brooksville, Holly Springs, and Newton, MS.

³ Rated at Meridian, MS. Rating of 0 = no disease symptoms - 4 = disease killed plants.

⁴ Average of Mississippi State and Newton, MS.

Results

Hybrids were separated into two trials at each location, 36 non-bird-resistant hybrids in one trial (Table 2) and eight bird-resistant hybrids in the other (Table 3). Bird damage to the non-bird-resistant hybrids was recorded only at Mississippi State and Holly Springs. Bird damage of the non-bird-resistant hybrids ranged from 1 to 25% at Mississippi State, from 13 to 67% at Holly Springs and averaged 6% at Mississippi State and 27% at Holly Springs.

Lodging was negligible at all

locations.

Grain yield of the 36 non-bird-resistant hybrids in the 1979 trials ranged from 912 lbs per acre for DeKalb E-57 in the Holly Springs trial to 7744 for Pfizer M565 in the Newton trial. Yields of the 36 hybrids averaged 4323 lbs per acre for the four test locations (Table 2).

Grain yield of the eight bird-resistant hybrids in the 1979 trials ranged from 1538 lbs per acre for Texas Triumph Two 75 BRG in the Raymond trial to 7874 lbs for N.K. Savanna 5 in the Newton trial.

Yield of the eight hybrids averaged 3382 lbs per acre for the six test locations (Table 3).

Quantity of harvested good-quality grain (or silage) is the best guide to the desirability of sorghum hybrids; however, performance data for any one year may be misleading. Therefore, the two- and three-year average yields of hybrids that have been evaluated for these periods of time also are presented (Tables 4-7).

Table 4. Yield of 20 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for two years, 1978-79.

| Hybrid | Brand | Yields | | | MEAN |
|-----------------|---------|-------------------|--------|---------------|------|
| | | Mississippi State | Newton | Holly Springs | |
| -----lbs/A----- | | | | | |
| 1. R-1090 | Acco | 5710 | 4593 | 3960 | 4754 |
| 2. Dinero | T-E | 5522 | 4535 | 4065 | 4707 |
| 3. 7675 | Coker | 5750 | 4126 | 4214 | 4697 |
| 4. G522DR | Funk's | 5359 | 4639 | 4040 | 4679 |
| 5. G522 | Funk's | 5266 | 4384 | 3947 | 4533 |
| 6. ML 135 | G.S.A. | 5320 | 4146 | 4090 | 4519 |
| 7. DR-1085 | Acco | 5349 | 4299 | 3830 | 4493 |
| 8. 7638 | Coker | 5196 | 4211 | 3973 | 4460 |
| 9. W-839DR | Warner | 5749 | 3759 | 3798 | 4436 |
| 10. Two 70-D | T.T. | 5395 | 4219 | 3432 | 4349 |
| 11. 1425 | Wilstar | 5404 | 3374 | 4267 | 4348 |
| 12. 8311 | Pioneer | 4593 | 3989 | 4445 | 4342 |
| 13. Y-101-D | T-E | 5185 | 4181 | 3308 | 4225 |
| 14. 1225 | Wilstar | 4854 | 3759 | 4046 | 4220 |
| 15. G622 | Funk's | 5050 | 4137 | 3258 | 4148 |
| 16. DR-1035 | Acco | 4887 | 3627 | 3755 | 4090 |
| 17. Y-101-R | T-E | 4520 | 4252 | 3407 | 4060 |
| 18. 2779 | N.K. | 4509 | 3652 | 3112 | 3758 |
| 19. 2884 | N.K. | 4696 | 3318 | 2830 | 3615 |
| 20. 1330 | Wilstar | 4121 | 3141 | 3457 | 3573 |
| | Mean | 5122 | 4017 | 3762 | 4300 |

Table 5. Yield of eight bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for two years, 1978-79.

| Hybrid | Brand | Yield | | | | | MEAN |
|-----------------|---------|-------------------|-------------|--------|---------------|---------|------|
| | | Mississippi State | Brooksville | Newton | Holly Springs | Raymond | |
| -----lbs/A----- | | | | | | | |
| 1. Savanna 5 | N.K. | 4171 | 3723 | 5113 | 3771 | 4663 | 4288 |
| 2. G516BR | Funk's | 3554 | 3117 | 4001 | 3866 | 4596 | 3827 |
| 3. B815 | Pioneer | 3494 | 3583 | 4317 | 3020 | 4558 | 3794 |
| 4. 7681BR | Coker | 4057 | 3380 | 3968 | 3121 | 4401 | 3785 |
| 5. BR-45+ | DeKalb | 3853 | 2915 | 3758 | 3754 | 4064 | 3669 |
| 6. W-744DR | Warner | 4058 | 3587 | 3508 | 2915 | 4068 | 3627 |
| 7. 1334BR | G.S.A. | 3620 | 3099 | 3710 | 3337 | 4012 | 3555 |
| 8. Two 75BRG | T.T. | 3445 | 3258 | 3024 | 2846 | 3903 | 3295 |
| Mean | | 3782 | 3333 | 3925 | 3329 | 4284 | 3730 |

Table 6. Yield of 12 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for three years, 1977-79.

| Hybrid | Brand | Yield | | | Mean |
|-----------------|---------|-------------------|--------|---------------|------|
| | | Mississippi State | Newton | Holly Springs | |
| -----lbs/A----- | | | | | |
| 1. R-1090 | Acco | 5439 | 4002 | 4418 | 4458 |
| 2. G522DR | Funk's | 5182 | 4037 | 3934 | 4384 |
| 3. ML135 | G.S.A. | 5152 | 3642 | 4301 | 4365 |
| 4. G522 | Funk's | 5101 | 3812 | 4093 | 4335 |
| 5. 1425 | Wilstar | 5161 | 3167 | 4267 | 4198 |
| 6. DR-1085 | Acco | 5141 | 3823 | 3600 | 4188 |
| 7. W-839DR | Warner | 5456 | 3360 | 3591 | 4135 |
| 8. 8311 | Pioneer | 4382 | 3486 | 4434 | 4100 |
| 9. 1225 | Wilstar | 4867 | 3358 | 4048 | 4091 |
| 10. Y-101-R | T-E | 4415 | 3760 | 3522 | 3890 |
| 11. 2779 | N.K. | 4411 | 3213 | 3181 | 3602 |
| 12. 1330 | Wilstar | 4211 | 2940 | 3354 | 3502 |
| Mean | | 4910 | 3550 | 3895 | 4118 |

Table 7. Yield of six bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for three years, 1977-79.

| Hybrid | Brand | Yield | | | | MEAN |
|--------------|---------|-------------------|--------|---------------|---------|------|
| | | Mississippi State | Newton | Holly Springs | Raymond | |
| 1. Savanna 5 | N.K. | 4235 | 4721 | 3792 | 4379 | 4282 |
| 2. G516BR | Funk's | 4065 | 3599 | 4039 | 3956 | 3915 |
| 3. B815 | Pioneer | 3715 | 3971 | 3523 | 4068 | 3819 |
| 4. 1334 BR | G.S.A. | 4092 | 3465 | 3824 | 3739 | 3780 |
| 5. Two 75BRG | T.T. | 3765 | 2797 | 3130 | 3390 | 3771 |
| 6. W-744DR | Warner | 4136 | 3249 | 3529 | 3763 | 3669 |
| | Mean | 4001 | 3633 | 3639 | 3883 | 3789 |

Hybrids Designated for Entry in the 1979 Mississippi Sorghum Performance Trials, by Sponsors.

| Hybrid | Brand | Company | Address |
|--------------------------------------|--------------------------------------|------------------------------|-----------------|
| DR 1035 DR 1085 R 1090 | ACCO ACCO ACCO | ACCO Seed Company | Plainview, TX |
| 7638 7675 7681BR 7737 | Coker Coker Coker Coker | Coker's Pedigreed Seed Co. | Lubbock, TX |
| BR-45+ DK-64 E-57 | DeKalb DeKalb DeKalb | DeKalb Ag. Research, Inc. | Lubbock, TX |
| ML 135 1290 1334BR | GSA GSA GSA | Growers Seed Assoc. | Lubbock, TX |
| 1225 1330 1425 | Wilstar Wilstar Wilstar | Helena Chemical Co. | Memphis, TN |
| G-516BR G-522 G-522DR G-662 | Funk's Funk's Funk's Funk's | Louisiana Seed Co. | Plainview, TX |
| Exp 3256 | McNair | McNair Seed Co. | Laurinburg, NC |
| Savanna 5 2778 2779 2884 | NK NK NK NK | Northrup King Co. | Richardson, TX |
| 5504 5514 6658 | P-A-G P-A-G P-A-G | P-A-G Seeds | Minneapolis, MN |
| M58G M565 M568G | Pfizer Pfizer Pfizer | Pfizer Genetics Inc. | Cleveland, MS |
| B815 8311 | Pioneer Pioneer | Pioneer Hi-Bred Inter., Inc. | Tipton, IN |
| 733GB 807 | RA RA | Ring Around Products, Inc. | Plainview, TX |
| Dinero Y101-D Y101-R | T-I T-I T-I | Taylor-Evans Seed Co. | Tulia, TX |
| Two 70-D Two 75BRG X9140 | TT TT TT | Texas Triumph Seed Co. | Ralls, TX |
| W-744DR W-839DR W-851DR | Warner Warner Warner | George Warner's Seed Co. | Berford, TX |