

Table 5. Calculated Defoliation Efficacy Index (Ave. of 6 reps.) with Thidiazuron and Adjuvant II Alone and in Binary Mixtures, Experiment 5, Yuma 1980.

| Treatment | Ave. Efficacy Index ^{1/} | Treatment | Ave. Efficacy Index ^{1/} |
|--|-----------------------------------|---|-----------------------------------|
| 4. 0.15 lb/ac Thidiazuron 1% (v/v) Adjuvant II | 0.92 a | 9. 0.15 lb/ac Thidiazuron 0.7% (v/v) Adjuvant II 0.3% (v/v) "Variquat B-200 (60%)" ^{5/} | 0.73 cd |
| 10. 0.15 lb/ac Thidiazuron 0.7% (v/v) Adjuvant II 0.3% (v/v) "Ethoduomeen T/20" ^{6/} | 0.82 b | 3. 0.15 lb/ac Thidiazuron 1% (v/v) "Sunspray 11E" | 0.72 cd |
| 7. 0.15 lb/ac Thidiazuron 0.7% (v/v) Adjuvant II 0.3% (v/v) "Ethomid 0/15" ^{3/} | 0.79 bc | 6. 0.15 lb/ac Thidiazuron 0.7% (v/v) Adjuvant II 0.3% (v/v) Cetyl dimethyl betaine | 0.71 d |
| 8. 0.15 lb/ac Thidiazuron 0.7% (v/v) Adjuvant II 0.3% (v/v) "Adogen 462 (75%)" ^{4/} | 0.77 bcd | 2. 0.15 lb/ac Thidiazuron | 0.54 e |
| 5. 0.15 lb/ac Thidiazuron 0.7% (v/v) Adjuvant II 0.3% (v/v) "Aerosol OT (75%)" ^{2/} | 0.73 cd | 1. Untreated Check | 0.00 f |

^{1/} Averages followed by a common letter are not significantly different at the 1% level, according to Duncan's Multiple Range Test.

^{2/} Sodium dioctyl sulfosuccinate

^{3/} Polyoxyethylene (5) oleyl amide

^{4/} Dimethyl di "coco" ammonium chloride

^{5/} Benzyl dimethyl ammonium chloride

^{6/} N,N'-Polyoxyethylene (10)-N-"tallow"-1,3-diaminopropane

L.S.D._{0.05} = 0.05 L.S.D._{0.01} = 0.07 C.V. = 6.6% Standard error = 0.018

Treatments applied on 30 September 1980 and evaluated on 15 October 1980.

COTTON HARVEST-AID CHEMICALS

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Harvest-aid chemicals prepare the plant for machine harvest and reduce leaves, trash and green stain in the lint. Since maturity of cotton fiber essentially stops after the leaves shed, timing is important. Remember, if you defoliate before the last boll you wish to harvest reaches maturity, expect some reduction in fiber strength, micronaire and yield.

In these tests, harvest-aid chemicals were applied to separate plots of the same field on October 1 when the temperature was a maximum of 106°F and minimum of 75°F. Temperatures remained continuously warm after application. The applications were made with a Hi-Boy sprayer using 5 nozzles per row at 1.5 mph. The total volume of spray was 29 gpa and the pressure was 40 psi. Plant height for the Upland cotton ranged from 44-46 inches in a population of 2-3 plants per foot or about 30,000 plants per acre.

Results of potential harvest-aid chemicals are presented in Table 1.

Table 1. Harvest-Aid Chemicals. Application Date: October 1, 1980

Plots were evaluated by two individuals on October 16, 1980. The results are an average of their ratings.

DROPP

| Percentage Leaf-drop | Chemicals | Rate per Acre |
|----------------------|---------------|---------------|
| 95 a ^{1/} | Dropp | .10# |
| 95 a | Dropp | .20# |
| 95 a | Dropp + DEF-6 | .10# + ½ pt. |
| 95 a | Dropp + DEF-6 | .10 + 1 pt. |
| 90 a | DEF-6 | 1½ pts. |
| 84 b | Check | |

C.V. Leaf-drop: 3.78%

^{1/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

METRIBUZIN

| Percentage Leaf-drop | Chemicals | Rate per Acre |
|----------------------|-----------------------------|---------------|
| 95 a ^{1/} | Metribuzin 50 WP | .3# |
| 95 a | Metribuzin Flowable | .3# |
| 95 a | Metribuzin Flowable | .4# |
| 95 a | Metribuzin Flowable + DEF-6 | .3# + ¾ pt. |
| 94 a | Metribuzin 50 WP | .4 |
| 94 a | Metribuzin 50 WP + DEF-6 | .3# + ¾ pt. |
| 94 a | DEF-6 | 1½ pts. |
| 84 b | Check | |

C.V. Leaf-drop: 1.78%

^{1/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

GAF-141 + DROPP

| Percentage Leaf-drop | Chemicals | Rate per Acre |
|----------------------|-----------------|---------------|
| 95 a ^{1/} | GAF 141 + Dropp | ¼ pt. + .10# |
| 95 a | GAF 141 + Dropp | ½ pt. + .10# |
| 95 a | GAF 141 + Dropp | ½ pt. + .20# |
| 95 a | GAF 141 + Dropp | 1 pt. + .20# |
| 95 a | Dropp | .20# |
| 94 a | GAF 141 + Dropp | ¼ pt. + .20# |
| 94 a | GAF 141 + Dropp | 1 pt. + .10# |
| 94 a | GAF 141 + Dropp | 2 pts. + .20# |
| 93 a | GAF 141 + Dropp | 2 pts. + .10# |
| 85 b | Check | |

C.V. Leaf-drop: 3.26%

^{1/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

GAF-141 + DEF-6

| Percentage Leaf-drop | Chemicals | Rate per Acre |
|----------------------|-----------------|----------------------|
| 83 a ^{1/} | GAF 141 + DEF-6 | 2 pts. + 3/4 pt. |
| 82 a | GAF 141 + DEF-6 | 1/2 pt. + 1 1/2 pts. |
| 80 a | GAF 141 + DEF-6 | 1/2 pt. + 3/4 pt. |
| 80 a | GAF 141 + DEF-6 | 1 pt. + 1 1/2 pts. |
| 80 a | GAF 141 + DEF-6 | 2 pts. + 1 1/2 pts. |
| 80 a | GAF 141 | 1 1/2 pts. |
| 79 a | GAF 141 + DEF-6 | 1/2 pt. + 3/4 pt. |
| 79 a | GAF 141 + DEF-6 | 1/2 pt. + 1 1/2 pts. |
| 79 a | GAF 141 + DEF-6 | 1 pt. + 3/4 pt. |
| 79 a | Check | |

C.V. Leaf-drop: 5.63%

^{1/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

Harvest-Aid Chemicals on Pima S-5. Application Date: Oct. 1, 1980

Plots were evaluated by two individuals on October 16, 1980. The results are an average of their ratings.

| Percentage Leaf-drop | Chemicals | Rate per Acre |
|----------------------|---------------|---------------|
| 83 a ^{1/} | Dropp + DEF-6 | .2# + 1/2 pt. |
| 76 ab | Dropp | .2# |
| 75 ab | Bollseye | 3 pts. |
| 74 ab | Bollseye | 4 pts. |
| 74 ab | DEF-6 | 1.5 pts. |
| 74 ab | Dropp | .1# |
| 73 ab | Check | |
| 70 b | Bollseye | 2 pts. |

C.V. Leaf-drop: 6.11%

^{1/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

An Ethrel application was made to cotton in early October as an aid in opening mature bolls. A count of unopened green bolls on 10 plants in each replication was made seven and sixteen days following application. Although data are not significant, trends suggest that within two weeks of application this compound may enhance the rate of boll opening.

Large plots were treated by air in four locations throughout the cotton producing areas of the state. Observations suggest that this compound enhanced the rate of boll opening resulting in a greater percent of cotton harvested during the first picking.

ETHREL

| Percentage Leaf-drop | Unopened Green Bolls | Chemicals | Rate per Acre |
|----------------------|----------------------|-----------|---------------|
| 84 a ^{1/} | 3 a ^{2/} | Ethrel | 4 qts. |
| 80 a | 5 a | Ethrel | 3 qts. |
| 78 a | 2 a | Bollseye | 3 pts. |
| 75 a | 5 a | Ethrel | 1 qt. |
| 75 a | 5 a | Ethrel | 2 qts. |
| 71 a | 7 a | Check | |

C.V.: Leaf drop = 8.14%; Unopened Green Bolls = 60.74%

^{1/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

^{2/}

Average number of bolls per plant = 20, with boll count on 10 plants per replication.