

**EVALUATION OF LEAFLESS FOR COTTON DEFOLIATION**  
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**Abstract**

Research was conducted in 2001 at the Northeast Research Station in St. Joseph, La and the Dean Lee Research Station in Alexandria, La to evaluate cotton defoliation and regrowth inhibition with Leafless (dimethipin + thidiazuron). Treatments evaluated at both locations included Leafless at 0.31 or 0.38 lb ai/A, Leafless applied as a sequential treatment of 0.31 followed by 0.19 lb ai/A, Leafless at 0.31 lb ai/A in combination with Prep (ethephon) at 0.98 lb ai/A or Finish (ethephon + cyclanilide) at 0.75 lb ai/A, and Harvade (dimethipin) at 0.31 lb ai/A plus Dropp (thidiazuron) at 0.05 lb ai/A applied alone or in combination with Prep at 0.98 lb ai/A or Finish at 0.75 lb ai/A. An additional treatment at St. Joseph included DEF (tribufos) at 0.6 lb ai/A in combination with Dropp at 0.05 lb ai/A. Additional treatments at Alexandria included Leafless at 0.31 lb ai/A in combination with Finish at 0.25 or 0.98 lb ai/A, Leafless as a sequential treatment of 0.25 followed by 0.19 lb ai/A, DEF at 0.38 lb ai/A in combination with Dropp at 0.05 lb ai/A and Prep at 0.98 lb ai/A, and Harvade at 0.31 lb ai/A in combination with Ginstar (thidiazuron + diuron) at 0.038 lb ai/A. Crop oil concentrate at 1 pt/A was included with all Leafless and Harvade treatments except when Ginstar was included, where the rate was 0.5 pt/A. A nontreated check was included for comparison at both locations. Experimental design was a randomized complete block replicated three times at St. Joseph and four times at Alexandria. Treatments were applied at 15 GPA to DP 458BR cotton at 70% open on September 11 and 19 at St. Joseph and at 14.5 GPA to Phytogen 355 cotton at 60% open on September 14 and 21 at Alexandria. Treatments were applied to all rows of each 4 x 12 m, four-row plot. Parameters measured included percent defoliation 14 DAT at St. Joseph and 7 and 14 DAT at Alexandria, and percent regrowth control 14 and 21 DAT at St. Joseph and percent regrowth at 22 DAT at Alexandria.

At St. Joseph 14 DAT, single application of Leafless at 0.38 lb ai/A resulted in 78% defoliation, which was greater than the 0.31 lb ai/A rate (68%) and equal to Harvade at 0.31 lb ai/A (75%) and DEF at 0.6 lb ai/A (77%), both in combination with Dropp at 0.05 lb ai/A. Leafless sequential treatment of 0.31 lb ai/A followed by 0.19 lb ai/A resulted in 95% defoliation, which was greater than all other treatments. Addition of Prep at 0.98 lb ai/A or Finish at 0.75 lb ai/A to Leafless at 0.31 lb ai/A or Harvade plus Dropp combination resulted in defoliation ranging from 85 to 87%, which was greater than defoliation for those respective treatments applied alone. Terminal regrowth control 14 DAT was excellent for all treatments and ranged from 88 to 95%. Basal regrowth control was 78% with the Leafless sequential treatment and greater than all other treatments (12 to 30%). At 21 DAT, greatest terminal regrowth control was observed for the sequential Leafless treatment (82%). Leafless at 0.31 lb ai/A in combination with Prep at 0.98 lb ai/A resulted in 68% terminal regrowth control, which was greater than remaining treatments (17 to 50%). Basal regrowth control was greatest for the Leafless sequential treatment (40%), with other treatments resulting in no greater than 13% control.

At Alexandria, 7 DAT all treatments resulted in excellent defoliation ranging from 85 to 93%. Leafless at 0.38 lb ai/A resulted in 93% defoliation, which was greater than the 0.31 lb ai/A rate (85%) and the DEF/Dropp/Prep combination (86%) and equal to Harvade at 0.31 lb ai/A plus Dropp at 0.05 lb ai/A (90%) and the sequential Leafless treatment of 0.31 followed by 0.19 lb ai/A (93%). Addition of Prep or Finish to Leafless at 0.31 lb ai/A did not increase defoliation (86 to 89%). At 14 DAT, defoliation ranged from 88 to 98%. Leafless at 0.38 lb ai/A resulted in 94% defoliation, which was greater than the 0.31 lb ai/A rate (89%) and the DEF/Dropp/Prep combination (88%) and equal to Harvade/Dropp/Prep (91%) and Harvade/Dropp/Finish (94%). Leafless sequential treatment of 0.31 followed by 0.19 lb ai/A resulted in 98% defoliation, which was equal to the 96% for the Leafless sequential of 0.25 followed by 0.19 lb ai/A, and greater than all other treatments. At 21 DAT, terminal and basal regrowth for all treatments was no greater than 10 and 11%, respectively.