DEFOLIATION PROGRAMS FOR COTTON

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Abstract

Field experiments were conducted in 1996 at the Southeast Research and Extension Center, near Rohwer, AR and at the Delta Research and Extension Center Stoneville, MS to evaluate cotton response using combinations of Prep (ethephon) and Finish (ethephon and cyclanilide). Deltapine 50 was planted at both locations. At both locations Prep at 1.0 and 1.5 lb ai/A and Finish at 1.0, 1.5, and 2.0 lb ai/A were evaluated alone and in tank mixtures at 1.0 lb ai/A with Dropp (thidiazuron) at 0.05 lb ai/A or Folex (tribufos) at 0.375 lb ai/A. Other tank mixtures included Dropp at 0.05 lb ai/A + CottonQuik (ethephon + AMADS) at 4.2 lb ai/A and Dropp at 0.05 + Harvade (dimethipin) at 0.31 lb ai/A + crop oil concentrate at 1.25% by volume.

Near Rohwer, treatments were applied at 81% open boll. At 7 days after treatment (DAT), percent open boll for all treatments ranged from 89 to 96%. At 14 DAT, visual percent open boll ranged from 91 to 97%.

At 7 DAT, Prep or Finish at 1.0 lb ai/A in combination with Folex at 0.375 lb ai/A provided better defoliation (81 and 88%, respectively) than Prep or Finish at 1.5 lb ai/A alone (65 and 69%, respectively). Finish at 1.0 lb ai/A or CottonQuik at 4.2 lb ai/A in combination with Dropp at 0.05 lb ai/A provided 76 and 75% defoliation, respectively. Finish at 2.0 lb ai/A alone provided 74% defoliation. At 14 DAT Prep or Finish tank mixed with Folex did not improve over that of the 7 DAT evaluation, indicating maximum response for these treatments to be 7 days. By 14 DAT, Finish at 1.5 and 2.0 lb ai/A alone and all tank mixtures except Dropp at 0.05 + Prep at 1.0 lb ai/A ranged from 78 to 84%. Desiccation at 7 and 14 DAT ranged from 10 to 14% and 9 to 15%, respectively.

Terminal and basal regrowth evaluations at 15 DAT indicated all treatments provided adequate regrowth control (20% or lower). By 22 DAT, terminal regrowth ranged from 10 to 18% and basal regrowth was 29 to 39% for all treatments.

At Stoneville, percent open boll at application date was 51%. At 14 DAT, percent open boll ranged from 79 to 93%. Prep at 1.5 lb ai/A alone and Dropp at 0.05 lb ai/A + Harvade at 0.31 lb ai/A + crop oil concentrate at 1.25% by volume provided 79% open boll. Finish at 2.0 lb ai/A alone and Dropp at 0.05 lb/A + CottonQuik at 4.2 lb ai/A provided 93 and 89% open boll, respectively.

At 7 DAT, defoliation for all tank mixtures ranged from 55 to 68%. Finish at 1.5 and 2.0 lb ai/A alone provided 55 and 70% defoliation, respectively. At 14 DAT, defoliation for all tank mixtures ranged from 58 to 80%. Dropp at 0.05 lb ai/A + CottonQuik at 4.2 lb ai/A and Dropp at 0.05 lb ai/A + Harvade at 0.31 lb ai/A + crop oil concentrate at 1.25% by volume provided 80 and 79% defoliation, respectively. Finish at 1.5 and 2.0 lb ai/A provided 61 and 78% defoliation, respectively.

Desiccation at 7 DAT was less than 10% for all treatments. Regrowth was evaluated as a single rating at 25 DAT. Treatments including Dropp ranged from 8 to 20%. Regrowth for Prep or Finish at 1.0 lb ai/A tank mixed with Folex at 0.375 lb ai/A was 36 and 43%, respectively.

In Summary, Finish at 2.0 lb ai/A alone provided better or comparable defoliation and boll opening to other tank mixtures in these studies. Dropp + CottonQuik provided comparable boll opening and defoliation to Dropp + Harvade. None of the treatments caused excessive desiccation.

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