

## WEED CONTROL PROGRAMS IN ROUNDUP READY FLEX COTTON

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### Abstract

Research was conducted in 2003 at the Northeast Research Station in St. Joseph, La, to evaluate weed control programs in Roundup Ready Flex cotton. Treatments evaluated included the following: Roundup Weathermax (glyphosate) at 0.75 lb ae/A applied to 1 to 2 or 3 to 4 leaf cotton followed by (fb) the same rate applied to 2 to 3 inch weeds; Roundup Weathermax at 1.125 or 1.5 lb ae/A applied to 3 to 4 leaf cotton fb the same rates applied to 3 to 5 inch weeds; Roundup Weathermax at 1.125 or 1.5 lb ae/A applied to 5 to 8 leaf cotton fb the same rates applied to 3 to 5 inch weeds; Roundup Weathermax at 0.75 lb ae/A applied to 1 to 2 leaf cotton fb the same rate co-applied with Envoke (trifloxysulfuron-sodium) at 0.007 lb ai/A or Staple (pyrithiobac-sodium) at 0.096 lb ai/A applied to 7 to 10 lf cotton as a salvage treatment; and a full season pest management program consisting of Roundup Weathermax at 0.75 lb ae/A co-applied with the following: Orthene (acephate) at 0.5 lb ai/A to 1 to 2 leaf cotton, Centric (thiamethoxam) at 0.05 lb ai/A to 5 to 8 leaf cotton, Orthene at 0.5 lb ai/A plus Pix (mepiquat chloride) at 0.016 lb ai/A to 7 to 10 leaf cotton, and Tracer (spinosad) at 0.064 lb ai/A to 12 to 14 leaf cotton. Plot size was 4 rows 13.33' x 30'. Cotton was a non-BT variety and all plots were intensively managed for insect pests season long. The Roundup Weathermax plus insecticide or insecticide plus Pix full season program application timings were based on simulated need for insecticide/Pix application at various growth stages (no insect counts or weed or crop size triggers) to assess co-application compatibility on crop tolerance and weed control with a season-long program. Weed species evaluated included pitted morningglory (*Ipomoea lacunosa*), barnyardgrass (*Echinochloa crus-galli*), and hemp sesbania (*Sesbania exaltata*). Parameters measured included visual weed control late-season and prior to harvest and seedcotton yield.

With the exception of the Roundup Weathermax/Staple salvage treatment (79%), all treatments resulted in 84 to 90% control of pitted morningglory late-season. All treatments resulted in equivalent barnyardgrass control ranging from 90 to 95%. With the exception of Roundup Weathermax only programs consisting of an initial application at 1 to 2 leaf cotton followed by application to 2 to 3 inch weeds (76%) or initial application at 5 to 8 leaf cotton followed by application to 3 to 5 inch weeds at rates of 1.125 lb ae/A (70%), all treatments resulted in similar hemp sesbania control of 80 to 90%. All treatments resulted in excellent season-long control of pitted morningglory (84 to 91%) and barnyardgrass (91 to 95%). Hemp sesbania control ranged from 74 to 95%. Seedcotton yield for the season long Roundup Weathermax/insecticide program averaged 2326 lb/A, which was equivalent to Roundup Weathermax only programs with an initial application timing to 1 to 2 or 3 to 4 leaf cotton (2071 to 2346 lb/A), and greater than Weathermax programs with initial applications to 5 to 8 leaf cotton (1867 and 1647 lb/A) and the salvage treatments (1773 to 1664 lb/A).

In conclusion, insecticides Orthene, Centric, Tracer and growth regulator Pix resulted in no negative effects on crop tolerance or weed control when co-applied with Roundup Weathermax. Roundup Weathermax programs consisting of an early-season application at 1 to 2 or 3 to 4 leaf cotton followed by a sequential application to 2 to 5 inch weeds maximized yield when compared to a multiple application, season-long Roundup Weathermax program. Delaying initial Roundup Weathermax application to 5 to 8 leaf cotton or allowing weed escapes in a salvage situation for the sequential application to become too large can limit maximum yield potential due to prolonged weed competition.