

**MINIMIZING COTTON STRESS FROM
HERBICIDE USE AND SEEDLING DISEASE IN
ROUNDUP READY COTTON**

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Abstract

This research was conducted during 1998 and 1999 to determine the effects of different weed control and disease control regimes on cotton (DPL5415RR) seedling stands, stress and seed cotton yields. Four different weed control programs were evaluated: 1. A traditional full season program consisting of Treflan 4E PPI, 0.75 lb ai/A, Zorial Rapid 80 PPI, 0.75 lb ai/A, Cotoran 4L PRE, 1.5 lb ai/A, Zorial Rapid 80, PRE, 0.75 lb ai/A, Cotoran 4L, POST, 1.0 lb ai/A, MSMA 6E, Post, 1.5 lb ai/A, Cy-Pro 4E, LATE POST, 0.6 lb ai/A, and MSMA 6E, LATE POST, 1.5 lb ai/A. 2. A combination of Cotoran 4L PRE, 1.5 lb/A, Zorial Rapid 80 PRE, 1.5 lb/A and Roundup Ultra 4E POST, 1.0 lb ai/A. 3. A combination of Prowl 3.3 EC PRE, 0.75 lb ai/A, Staple 75 SP PRE, 0.047 lb ai/A and Roundup Ultra 4E, POST, 1.0 lb ai/A. 4. A program with Roundup Ultra 4E POST, 1.0 lb ai/A only. 5. The non chemical check in which weeds were controlled by hoeing as needed. The disease control programs consisted of 1. Seed treatment only. 2. Seed treatment and a Hopper-box treatment of Delta-Coat AD, 11.75 oz per CWT. 3. Seed treatment and an In-furrow applied fungicide treatment of Ridomil Gold PC 11G, 7 lb/A. Two disease pressure levels were established by inoculating the plots in-furrow at planting with *Rhizoctonia solani* and *Pythium* infested oats or panicum.

Weather conditions were very favorable for seedling disease development in the 1998 trial and seedling survival on the two and four week counts were low. There were very few significant differences between the seedling counts and seed cotton yields of the different weed control programs in any of the different fungicide combinations. However, the use of Hopper-box and In-furrow treatments significantly increased stands and seed cotton yields in most cases irregardless of herbicide treatment.

Seedling stands were higher and disease pressure was lower in the trial in 1999. In this trial, there was a tendency for the plots receiving Roundup Ultra alone or the plots which were hoed to have significantly higher seedling survival on the two week and to a lesser extent on the four week counts. However this increased seedling survival usually did not result in a

significantly higher seed cotton yield. Differences between the fungicide treatments were not apparent in 1999 as they were in 1998.

In these trials, the use of PPI or PRE herbicides resulted in a tendency towards reduced seedling stands when disease pressure was low to medium(1999). When disease pressure was high (1998), there was little significant difference between the different herbicide programs. The use of a Hopper-box or an In-furrow treatment increased seedling stands significantly under high disease pressure and in some cases under medium disease pressure.