

## THE VALUE OF IN-FURROW FUNGICIDES

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### Abstract

Seedling diseases of cotton vary across the cotton belt depending on weather patterns, field histories, planting dates, and soil type. *Pythium spp.* and *Rhizoctonia solani* cause serious problems and impact seedling health, stand establishment, and replanting costs. In-furrow fungicides and seed treatments play a role in improving cotton seedling health and overall plant vigor. The use of products such as Ridomil® PC or Ridomil Gold™ PC, Ridomil tank mixtures with Rovral® or Terraclor®, and Apron® can help establish healthy stands and improve yields. Cotton seedling disease control begins with an overall disease management plan which includes: good seed bed preparation, optimum planting dates, high quality seed, good variety selection, seed treatment, good field drainage, and use of an in-furrow fungicide at planting.

### Discussion

The establishment of a good healthy stand of cotton is essential for good root development (lateral and tap roots) throughout the season and quality of the harvested crop. The value and consistency in performance of a seed treatment in combination with an in-furrow fungicide has been validated repeatedly in field trials and substantiated over many years of testing. In-furrow treatments of Ridomil PC, Ridomil Gold PC or Ridomil Gold mixtures will control seed and seedling diseases of cotton. These products effectively control seed rots as well as pre and post emergence damping-off caused by *Pythium spp.* and *Rhizoctonia solani*. *Pythium spp.* primarily cause a preemergence damping-off and is influenced by cool, wet soil conditions. *Rhizoctonia solani* causes both pre and post emergence (sore-shin) damping-off and is influenced by warm, moist soil conditions. Crop losses due to these seedling diseases range from 3%-9% from year to year across the major cotton production regions. In 1992, seedling diseases caused an 8% loss in Texas resulting in 400,276 bales lost. In Mississippi, a 4% loss was reported in 1992, with a corresponding 98,564 bales lost (Blasingame, 1993). In the same year in Alabama, Arkansas, Louisiana, and Tennessee, losses of 6%, 4%, 4%, and 7% occurred, respectively. In 1995, seedling diseases caused a 5% loss in Texas resulting in 282,353 bales lost. In Mississippi, a 6% loss was reported in 1995, resulting in 62,197 bales lost (Blasingame, 1996). In the same year in Alabama, Arkansas, Louisiana, South Carolina, and Tennessee, losses of 8%, 4%, 6%, 4%, and 6% occurred, respectively. Results of a 1994 grower

survey conducted by Ciba revealed that cotton growers were very much aware of seedling disease problems and ranked *Rhizoctonia* and *Pythium* at the top of the list.

In a five year summary of data collected in Arkansas and Southwest Missouri, an average 13.6% stand improvement was recorded with Ridomil in-furrow plus seed treatments over seed treatments alone. These studies showed a 10.1% yield increase with Ridomil in-furrow over the seed treatments alone. In a ten year summary of cotton trials conducted in the Mid-South region, a 13.7% yield increase with Ridomil PC was recorded over the untreated check. In the Southeast region, an average 10% yield increase with Ridomil PC was seen over the untreated check.

Replanting increases production costs and delays harvest. According to Supak, 1990, the planting date has an effect on the bloom period. In California, cotton planted on 4/15, 4/25, & 5/10, yielded 4%, 8%, & 17% less than cotton planted on 4/1. Also, late planting dates result in reduced fiber quality (Supak, 1990). In the Southeast USA, an April 20th planting date provides a good, long bloom period. Whereas, a May 20th planting date gives the grower a shorter bloom period and lower yield potential. The cotton plant basically shuts down late in the season and stops initiation of new branches, therefore, reducing flower bud initiation and often sheds flowers and bolls (Bernhardt, et. al., 1986). Seedling diseases can cause skips in the row which has a direct effect on yields. In fact, skips that decrease stands by 26 and 45%, may lower yields by 13 and 26%, respectively (Supak, 1990).

### Summary

The benefits of using Ridomil PC, Ridomil Gold PC or Ridomil Gold mixtures include: reduces likelihood of replanting costs, lower seed cost, diminishes labor costs, decreases energy costs, lessens machinery use, decreases additional costs for weed control due to replanting, gets cotton off to a quick, healthy start, allows growers to plant early to capitalize on soil moisture and early harvest, provides longer control over seed treatments and hopperbox treatments alone. The added value of in-furrow fungicides to the grower includes quicker emerging, healthier seedlings during cool, wet springs, a longer window of protection for young seedlings, improvement of yield and profit potential and an overall greater return on investment.

### References

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