

**PROTÉGÉ™ – A UNIQUE PRODUCT  
FOR COTTONSEED TREATMENTS  
OF THE FUTURE IN CONTROLLING  
RHIZOCTONIA DAMPING-OFF**

**K.S. Arthur**

**Technical Services Manager, Fungicides**

**Gustafson LLC**

**Plano, TX**

**Abstract**

Protégé, the seed treatment trade name assigned for Zeneca-formulated azoxystrobin-based products, is a unique fungicide for future cottonseed treatments. Azoxystrobin (methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate) is a member of the new fungicide class known as the strobilurins. Strobilurin chemistry is derived from the naturally occurring compound Strobilurin A, an anti-fungal component of various woodland basidiomycetes (mushrooms). Azoxystrobin, registered by Zeneca, Inc. with the Environmental Protection Agency (EPA) under the trade names Quadris™, Abound™, and Heritage™, is labeled for foliar application to specified labeled crops. A review of the toxicology profile reveals human safety and handling characters warranting EPA classification of azoxystrobin as a “reduced risk” compound under FQPA guidelines. Azoxystrobin provides systemic activity against plant pathogenic fungi from the oomycete, basidiomycete, deuteromycete and ascomycete classes of fungi. Fungicide mode of action is inhibition of mitochondrial respiration in fungal metabolism.

Gustafson LLC under agreement with Zeneca Ag Products, conducted research to examine azoxystrobin as a potential cottonseed treatment. Laboratory evaluations of seed-applied azoxystrobin at 1 g a.i./100 kg seed provided significant control of the soilborne fungal pathogen *Rhizoctonia solani* (AG-4) over the untreated control. Rates applied at 3 g a.i./100 kg. seed or higher provided protection equal to carboxin or PCNB compounds applied at 93.8 g a.i./100 kg seed. In addition, *Fusarium solani* activity was confirmed. Field evaluations for cotton seedling stand establishment combining azoxystrobin with the co-fungicide metalaxyl, as well as the broad spectrum contact fungicide, TCMTB, were conducted in 1997 and 1998. Field stand performance of a 4 g a.i./100 kg seed rate of azoxystrobin when combined with metalaxyl at 15.6 g a.i./100kgs. seed + TCMTB applied at 15.0 g a.i./100 kg seed, gave optimum cotton stand establishment comparable to commercial standard fungicide seed treatment combinations. The Protégé/Allegiance™-FL/TCMTB (4-15-15 g a.i./100 kg seed) treatment was entered in the 1998 National Cottonseed Treatment Program, providing stand

performance across the 19 test locations comparable to the commercially registered seed treatment combinations. Protégé seed treatment offers excellent protection to seed and seedlings against Rhizoctonia damping-off and Fusarium seedling blight when used as a co-fungicide cottonseed treatment. The low active ingredient application for seed and seedling protection, combined with “reduced risk” EPA classification positions this compound as a seed treatment product of merit for future use within the cottonseed industry.