

**ASCEND™ 30 – A BROAD SPECTRUM
FUNGICIDE SEED TREATMENT WITH
ACTIVITY AGAINST *FUSARIUM SOLANI***

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Abstract

Gustafson LLC has a new fungicide cottonseed treatment ASCEND 30, 2-(Thiocyanomethylthio) benzothiazol. Ascend 30 was registered with EPA by Gustafson in the third quarter of 1998. It is specially formulated for the treatment of cottonseed by commercial seed treaters and offers a seed treatment with broad-spectrum fungicidal activity. The unique activity of Ascend 30 can be contributed to its multi-site mechanism for fungal control. Activities against the majority of all soilborne and seedborne pathogens of cotton have been documented for Ascend 30.

A *Fusarium solani* inoculated field study was done in 1998 at the Gustafson Research and Development Farm in Pilot Point, TX. *Fusarium* spp. have long been associated with diseased cotton seedlings. Cotton seedlings under a physical or environmental stress are more susceptible to invasion by *Fusarium* fungi. The root tissue becomes discolored with brown to reddish brown lesions. In addition, *Fusarium* infected seedlings have smaller than normal root systems, with a lesser taproot and fewer secondary root tissue. Cottonseed treatments, which included Ascend 30 as a component, provided the best stands and had the lowest disease ratings when disease pressure from *F. solani* was present.

The three treatments that included Ascend had stand counts on day 11 of 83% or better. While, the untreated control had a stand of 53%. The commercial standards, Baytan + Thiram + Allegiance-FL and Nuflow-M + Maxim + Apron XL had emergence counts of 70 and 73, respectively.

Additionally, the untreated seedlings had a disease rating of 5.91 on day 44, which relates to almost 60% of the root area showing lesions. The two treatments with the lowest disease root ratings were the Ascend 30 combinations with Baytan 30 + Allegiance-FL. The combination treatment with 2.0 fl. oz./cwt Ascend 30 had a final root rating of 4.17, while the 1.5 fl. oz./cwt rate of Ascend 30 had a rating of 4.38. The Ascend 30 treatments had roots with nearly 20% less root symptoms than the untreated roots. The combination of Maxim + Nuflow-M + Apron XL had a disease rating of 5.35 – accounting for 10% more necrotic root tissue than the Ascend treatments. The same increase

in necrotic tissue was seen with the treatment of Baytan + Maxim + Allegiance-FL.

In addition to necrotic tissue, root development was severely affected by the introduction of the *Fusarium* inoculum to the seed zone. The best root development was observed with Ascend 30 @ 2.0 fl oz/cwt + Baytan FL @ 0.5 fl oz/cwt + Allegiance-FL @ 0.75 fl oz/cwt. Normal taproot and secondary roots were observed. Comparisons of the Ascend treated seedlings to other commercially available seed treatments reveal the benefits of Ascend 30. Longer taproots and abundant secondary roots were seen with the Ascend 30/Baytan FL/Allegiance-FL treatment. Roots of untreated seedlings had visual necrosis and stunted taproots and no secondary roots. The treatment of Baytan FL @ 0.5 fl oz/cwt + Maxim @ 0.08 fl oz/cwt + Allegiance-FL had better taproots than the untreated plants, however, no secondary roots were observed. The treatment of Maxim @ 0.08 fl oz/cwt + Nuflow-M @ 1.25 fl oz/cwt + Apron XL @ 0.32 fl oz/cwt had shorter taproots than the Maxim-Baytan FL combination and also very insignificant secondary root development. The treatment of RTU-Baytan-Thiram @ 3.0 fl oz/cwt + Allegiance-FL allowed for normal taproot size and length, but minimal secondary roots.