ATHENA[™]: FIELD PERFORMANCE AGAINST TWOSPOTTED SPIDER MITE AND TARNISHED PLANT BUG IN MID-SOUTH COTTON H.R. Mitchell FMC Corporation Louisville, MS D.J. Johnson FMC Corporation Madison, MS

<u>Abstract</u>

Athena® is a new broad spectrum insecticide/miticide now registered for control of numerous pests of cotton including twospotted spider mite (Tetranychus urticae Koch) and tarnished plant bug (Lygus lineolaris Palisot de Beavois). FMC has taken two powerful modes of action that have both insecticide and miticide activity and combined them together in a proprietary emulsifiable oil-in-water (EW) formulation. The EW formulation containing a total 0.87 lb ai/ gallon of bifenthrin (Group 3A insecticide) and avermeetin B1 (Group 6 insecticide) where the two products are dissolved as a true molecular solution in a unique ternary penetrating technology system. These are then pre-emulsified to a sub-micron droplet size distribution and stabilized in a water continuous phase at the time of production. When diluted with water prior to application, an enormous amount of extremely small and highly stabilized droplets of bifenthrin and avermectin are delivered offering outstanding performance in terms of coverage, uniformity, rain fastness, translaminor movement, consistency and overall efficacy. Bifenthrin with great contact activity and long residual on the plant and soil surface provides fast and long term knockdown. Avermectin rapidly penetrates the leaf with translaminar movement providing in-leaf residual protection. Field-test during the 2010 and 2011 seasons with Athena at rates of 0.05 to 0.09 lb ai/A confirmed earlier results demonstrating excellent activity against both twospotted spider mite and tarnished plant bugs comparable to the grower standards. Against both pests, Athena continues to exhibit excellent initial and extended residual activity generally equal or superior to the commercial standards. These results suggest that Athena will be a valuable tool for the management of spider mite and plant bug populations in Mid-South cotton. Research continues across the cotton belt to further define insect spectrum and best use recommendations.