

EVALUATION OF MESSENGER IN COTTON
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Abstract

Messenger is similar chemically to a protein that is produced by the bacterial plant pathogen causing fireblight in pears and apples. Scientists at Cornell University discovered this protein, called a harpin protein, about ten years ago. The protein is associated with a natural defense mechanism in plants known as a hypersensitive response, where host plant cells die rapidly in localized areas in response to an incompatible pathogen. When harpin is applied to plants, the protein activates several different natural plant genes that are involved in plant growth and pest resistance. The objective of this study was to evaluate the effect of Messenger on boll development with regard to hardlock and boll rot occurrence and on lint yield. Messenger was evaluated in 2000 and 2001 in replicated small plot studies at a rate of 2.23 oz pr/A per application with three to five sequential applications season long in a root-knot nematode field. Messenger was evaluated in 2002 in replicated small plot studies at a rate of 2.25 oz pr/A per application in various single application timings to three sequential applications season long in a non-nematode infested field. No significant yield differences were observed with sequential Messenger treatments while only one treatment resulted in numerical yield improvements over that of the untreated-check in the two-year study (2000-2001). Percent open bolls did not differ between treatments in boll samples in the 2002 study (sample size 300 – 400 bolls). Occurrence of the number of green, hardlock, or rotten bolls in the above mentioned sample did not differ statistically. The three sequential application treatment did not enhance lint yields. Each of the three treatments containing two sequential applications of Messenger yielded slightly less numerically than did the control. Although yields did not differ statistically, lint yields were improved numerically over that of the untreated-check with single applications made at the 2 leaf, PHS, and EB timings. Sequential applications did not appear to impact yield in a positive manner over that of the untreated control. However, single applications appear to have the greatest potential in improving yield and providing a return on investment. The single application at the 2-leaf stage yielded 134 pounds of lint over that of the untreated control.