Executive Summary

A total of 48 agronomist – cotton consultants have reported on the performance of both conventional and genetically modified cotton (INGARD®). From a total collection of 340 fields, 149 paired comparisons were made. The total area surveyed comprised 191,000Ha's of which 28% was Ingard. Fields were analysed for number of sprays by valley (growing district), pest and product. Yield, average cost and return per hectare was also analysed. The survey also included several qualitative questions to evaluate service and value of Ingard.

The average number of sprays (all pests) were reduced by 40% from 10.3 in conventional cotton to 6.2 in Ingard. For heliothis the reduction in sprays was 47%, from 9.7 sprays to 5.1 in Ingard. The greatest reduction in sprays was from squaring to open boll, with an average reduction in sprays of 40%. A small difference in maturity was recorded, with substantial variation between samples. Ingard produced an average advantage of 1.3 days earlier pick compared to conventional. Heliothis pressure in 1999/2000 season was lower than the previous season.

The general attitude of consultants to the value of Ingard remains moderate. Survey results suggest an important opportunity remains for the technology provider (Monsanto) to improve service to users of Ingard (about 40% classify service by Monsanto to be poor). More frequent and timely direct contact between Monsanto and those responsible for managing cotton pests could prove beneficial. Service provided by Ingard Technology Service Providers is considered better with 70% of respondents classifying service to be "satisfactory to excellent".

Environmental reasons continue to be the principal driving factor for Ingard use (55% mentioned). Performance related reasons are being mentioned 11% of times. The best performing variety (days of heliothis control) was Nu Pearl (44% of recorded users indicating between 101-120 days control). The worst performing variety was Sicot 189i with 43% of recorded users indicating between 41 – 60 days control.

This season a marginal difference between conventional and Ingard in average cost of applied sprays was recorded: $0.19/Ha higher for Ingard. To protect their crop from insects, Ingard growers spend $72/Ha less than conventional growers. Yields vary considerably between fields. An Independent Two-Sample T Test was conducted over the means. No significant differences were obtained through this method. Due to yield variation economic

benefit or cost seem equally divided between both extremes of the benefit – cost scale. Although calculated differences are large (between $<-1000.00/Ha and $>1000.00/Ha), no significance can be attributed to the findings. The data shows similar distribution between both extremes.

From the results from this survey it can be concluded that genetically modified cotton is an economically attractive tool in managing pests in cotton. The cost per hectare to manage insects pests in Ingard crops is, on average, $72/Ha less than conventional cotton. With environmental advantages such as reduced chemical loading and environmental disruption, Ingard remains an attractive and sound proposition.