

## SGS GRAVENA PROVIDES PEST RESISTANCE MONITORING SERVICES IN BRAZIL

Several genetically modified crops, like corn and cotton expressing Bt (*Bacillus thuringiensis*) proteins are commercially planted in Brazilian agriculture. These crops are attacked by several worms (Lepidoptera) that are controlled by the Bt proteins. However, the intensive use of these Bt crops without a successful Pest Resistance Management Programme could cause the target pests to become resistant to the proteins, and the control to fail.

Our laboratory, located in Jaboticabal, SP, Brazil, provides the service of Pest Resistance Monitoring of the Bt cry proteins for Pest Resistance Management purposes.



*Pest Resistance Monitoring Laboratory*

At the start of each season, we collect populations of worm species like *Helicoverpa zea*, *Spodoptera frugiperda*, *Diatraea saccharalis*, *Anticarsia gemmatalis*, *Pseudoplusia includens*, *Alabama argillacea*, *Heliothis virescens* and *Pectinophora gossypiella* from several cotton, corn and soybean fields commercially cultivated in important Brazilian States. In the SGS Gravena Pest Resistance Monitoring Laboratory, the insects are prepared and reared to obtain the neonate larvae that are used in the bioassays for baseline studies or diagnostic dosage tests.

Almost all the diets to feed the different species cited above are prepared in our laboratory. The proper diet for each species has incorporated the Bt cry protein used to control the species. The neonate larvae feed on this artificial diet with the Bt cry protein to determine if there is some degree of resistance from each Bt crop (cotton, corn or soybean). Therefore, the clients could establish a

plan to manage the resistance if it has occurred on the plantations. Other crops could also be added to the Resistance Monitoring Laboratory testing program.

Supporting our laboratory, we also have field researchers who are able to conduct complementary studies to support Pest Resistance Management. In Brazil, SGS has a network of five field trial stations (more than 200 ha) located in the main production states (São Paulo, Minas Gerais, Goiás and Paraná) and covers different climatic areas of Brazil.

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*The bioassay*



*The rearing of populations to test in the lab*