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Cornell entomologist releases book on sustainable pest control

By Marissa Fessenden

A recently released book, co-edited by Cornell University professor of entomology Anthony Shelton, follows the legacy of Rachel Carson's *Silent Spring*—the book credited with starting the environmental movement.

*Integration of Insect-Resistant Genetically Modified Crops within IPM Programs*, released in July, informs the debate surrounding the use of genetically modified (GM) or transgenic crops for pest management. The book explains how insect-resistant GM crops are an important component of the sustainable farming practices of integrated pest management (IPM).

"The positive impact of insect-resistant GM crops has been largely lost in the public discussion on biotechnology in agriculture," Shelton says. "For example, in the last 11 years, the deployment of insect-resistant GM cotton reduced the use of traditional insecticides by 23%, reduced environmental impact by 25% and provided an economic benefit to the agricultural community of $9.6 billion. This positive impact has been far reaching in developed and developing countries and is the reason the area planted to these crops continues to rise by double-digit growth rates annually."

IPM is a concept that developed in response to *Silent Spring*—published in 1962 to highlight the harmful effects of some pesticides. IPM involves using an integrated approach that controls pests using the most sustainable and environmentally friendly approaches. Tools of IPM include monitoring pest populations, breeding plants that are able to withstand a pest's attack, judiciously spraying less harmful pesticides, and using natural predators to control pests.

The book describes the development, adoption, and economic and environmental impact of insect-resistant GM crops worldwide. Insect-resistant GM crops were first commercialized in 1996 and, since that time, have been grown on over 200 million hectares (494 million acres). In 2007, insect-resistant GM corn and cotton plants were grown in 22 countries on 42.1 million hectares (104 million acres).

The book includes comprehensive reviews on cotton and corn, the only presently commercialized insect-resistant GM crops, as well as crops that are under development, including rice in China, and eggplant, cabbage, and cauliflower in India. Other chapters include recent research showing that GM crops resistant to insect pests do not harm the pests' natural enemies. The book also includes chapters on the economic and social analyses of how these biotechnology crops have influenced the lives of farmers worldwide, and the influence of regulatory systems and cultural and social pressures that affect the adoption of insect-resistant GM crops.

*Integration of Insect-Resistant Genetically Modified Crops within IPM Programs* is published by Springer. In addition to Shelton, the editors of the book are Jörg Romeis, a Swiss entomologist, and George Kennedy, who received his Ph.D. from Cornell and is a professor of entomology at North Carolina State University. The book received a strong endorsement by Norman Borlaug, the 1970 Nobel Peace Prize Laureate and the father of the Green Revolution.

The book's release coincided with the 23rd International Congress of Entomology in Durban, South Africa and formed the basis for a major symposium at the Congress.
Integration of Insect-Resistant Genetically Modified Crops within IPM Programs

Edited by Jörg Romeis, Anthony M. Shelton and George G. Kennedy