OPPORTUNITIES AND CHALLENGES CONNECTED WITH CROPS GENETICALLY ENGINEERED FOR RESISTANCE TOWARDS INSECT PESTS

Summary

Maize and cotton genetically engineered for insect resistance have been commercially available in the United States for more than a decade. These crops have revolutionized pest control as broad-spectrum insecticides have been replaced with environmentally friendly protein toxins that are produced by the plants. These crops have been popular with most growers in the U.S. because they provide economic advantages and reduce the reliance on chemical insecticides. Prior to commercialization these crops underwent a comprehensive and rigorous evaluation by three U.S. government agencies to demonstrate their safety to the environment and human and animal health. This article focuses on non-target risk assessment of genetically-engineered cotton and maize. By outlining the principles of risk assessment, exploring ecosystem effects of Bt cotton, presenting a case study of risk assessment using the monarch butterfly and Bt-maize pollen, and considering possible environmental impacts of current GE crops.