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Overview of low level presence of unapproved genetically engineered traits and their detection using DNA-based method

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Abstract

Low level presence (LLP) is the unintended presence of trace level of genetically engineered (GE) crop that has received regulatory approval for commercial use or sale in one or more countries, but has not been authorized in an importing country. Some countries have zero tolerance policy for unapproved GE events. There are a few cases of LLP of unapproved GE events that have affected international grain trade. The challenge of handling LLP of GE materials could even be greater as a result of the increase of biotech crop events in the future. Scenarios for minimizing LLP of GE events will be presented. Polymerase chain reaction (PCR) is the most commonly used method for detection of GE events. Event-specific PCR method has been widely used for detection and quantification of GE events. Reliable quantification of GE events below 0.1% (w/w) could pose a challenge. Available information on using DNA-based methods for detection of trace levels of GE events will be reviewed.

Biography

Tigst Demeke is a research scientist working at the Grain Research Laboratory of the Canadian Grain Commission. He has over 10 years of experience on PCR-based methods for the detection and quantification of genetically engineered events and has published research results in peer-reviewed journals.