GM MAIZE CULTIVARS WITH *BACILLUS THURINGENSIS* GENES AND THEIR EFFECT ON EUROPEAN CORN BORER (*OSTRINIA NUBILALIS* HBN.) IN THE LIGHT OF RESEARCH RESULTS IN POLAND

Summary

With the growth of land areas under maize cultivation in Poland, the pest hazard raises as well. Currently, the most dangerous pest species is the European corn borer (*Ostrinia nubilalis* Hbn.), which damages more than 50% of plants in the regions of intensive cultivation of maize, causing crop losses of up to 40%. Additional, mainly qualitative losses, are caused by fungi, bacteria and viruses attacking the damaged plants and causing diseases. Particularly harmful are these fungi species, which are responsible for producing and accumulation of very harmful mycotoxins in the plants. The applied methods of agrotechnical and biological control of corn borer are not always able to keep the pest population at low level that would not threaten the maize crops. In turn, chemical methods involve the need to possess specialized spraying machines, which are still used in Poland in insufficient numbers.

An alternative solution for many farmers may therefore be to grow cultivars resistant to corn borer feeding. Research carried out in Poland over 2005–2006 confirms high resistance of transgenic cultivars (containing Bt gene coding for Cry protein) to feeding by caterpillars of this species. In this period the corn borer damaged from 25.5 to 68.6% of the plants. As a result of using plants with the Bt gene, the percentage of damaged plants became reduced by 97.9–100%, in comparison to cultivars without the Bt gene (conventional varieties). The number of other types of damage determining the crop level and its quality also became reduced, because no caterpillars of that pest were found in the plants.