

[Home page](#)[Articles - biotech and pharmacy](#)[Economy of transgenic crops evaluated](#)

Economy of transgenic crops evaluated

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Transgenic crops - officially genetically modified (GMC) - when properly used can bring benefit to farmers and consumers. Unfortunately the benefit to consumers is reduced by European legislation that requests many measures - mostly useless but costly. However the benefit to farmers can be calculated. The detail calculation was performed at the Czech University of Agriculture, Department of Agroecology and Biometeorology. In the frame of PhD thesis M. Čeřovská calculated economy tables of growing Bt maize, herbicid tolerant (HT) rape seed and sugar beet. compared with standard crops.

The standard protection of maize from *Ostrinia nubilalis* is achieved by insecticides mostly Nurelle D, Decis Mega, Karate Zeon 5 CS and Vaztak 10 SC in the ratio 50:20:20:10. Calculating savings of their price (average over 550 Kč/ha) plus spraying (machinery, fuel, work) and adding the additional cost of the transgenic seed (about 1000 Kč/ha) the Bt maize economy can be expressed as the function of pest infestation, which causes the yield lost. Therefore it is expressed as the limit lost of yield in non protected maize culture. The use of Bt maize brings positive income to farmer when the yield lost caused by pest in non protected maize would be above the limit lost. The latter is 5.54 % , 3.86 % and 3.26 % with potential total yield 5.3, 7.6 and 9 t/ha. In areas with high infestation - many in CR - the additional income might be over 6000 Kč/ha.

Growing the glyphosate tolerant rape seed and sugar beet the economy is given by the set of herbicides used with non modified standard culture. Classical weed protection of rape seed costs 2412 - 3350 Kč/ha. The cheapest consists of Command 36 CS with Lassem MTX and graminicid Fusilade Forte 150 EC, the most expensive one of Butisan Star and Galant Super. The cost of Roundup Bioactive treatment is about half of the standard. Including the higher seed price (by 960 Kč/ha) the gross benefit of HT rape seed is 490 - 730 Kč/ha with recommended Roundup application.

Much more interesting is the use of HT sugar beet. Classical treatment with Betanal Expert, Goltix TOP, Safari 50 WG and Galant Super brings expenses of about 7800 Kč/ha. Mechanical weed removal ads 720 Kč/ha. The use of HT sugar beet treated by Roundup Bioactive when included the seed price the may provide the benefit to farmer about 4000 Kč/ha. This is particularly welcomed when using the harvest for bioethanol production.

