



Final Health and Environmental Risk Assessment of Genetically Modified Cotton GHB614

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Authors' contributions

This work was carried out in collaboration between all authors. The opinion has been assessed and approved by the Panel on Genetically Modified Organisms of VKM. All authors read and approved the final manuscript.

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ABSTRACT

Genetically modified cotton GHB614 from Bayer Crop Science expresses a modified epsps gene (2mepsps) gene from maize encoding the enzyme 5-enolpyruvylshikimate 3-phosphate synthase (2 mEPSPS), which confers tolerance to the herbicide glyphosate.

Updated bioinformatics analyses of the inserted DNA and flanking sequences in GHB614 have not indicated potential production of putatively harmful toxins or allergens caused by the genetic modification. Genomic stability of the functional insert and consistent expression of the 2mepsps gene has been shown over several generations of cotton GHB614.

Field trials indicate that with the exception of the introduced trait, cotton GHB614 is

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compositionally, phenotypically and agronomically equivalent to its conventional counterpart Coker 312 and other cotton cultivars.

A 42-day nutritional assessment trial with broilers did not reveal adverse effects of cottonseed meal from GHB614. The 2mEPSPS protein produced in GHB614 does not show amino acid sequence resemblance to known toxins or IgE-dependent allergens, nor has it been reported to cause IgE-mediated allergic reactions. It is therefore unlikely that the 2 mEPSPS protein will cause toxic or IgE-mediated allergic reactions to food or feed containing cotton GHB614 compared to conventional cotton cultivars.

Cotton is not cultivated in Norway, and there are no cross-compatible wild or weedy relatives of cotton in Europe.

Based on current knowledge and with the exception of the introduced trait, the VKM GMO Panel concludes that cotton GHB614 is nutritionally, compositionally, phenotypically and agronomically equivalent to and as safe as its conventional counterpart and other cotton cultivars.

Considering the intended uses, which exclude cultivation, the VKM GMO Panel concludes that GHB614 does not represent an environmental risk in Norway.

Keywords: VKM, (benefit and) risk assessment; Norwegian Scientific Committee for Food Safety; Norwegian Food Safety Authority/Norwegian Environment Agency; GMO; cotton (*Gossypium hirsutum* L.); EFSA/GMO/NL/2008/51; genetically modified cotton GHB14; unique identifier BCS-GHØØ2-5; herbicide glyphosate; glyphosate tolerant 2mEPSPS protein; 2mepsps gene; food/feed safety; human and animal health; import and processing; Regulation (EC) No 1829/2003.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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