

## Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-109196-1

[? Decisions on the LMO ? Risk Assessments](#)

LAST UPDATED: 05 NOV 2015

### Living Modified Organism identity


The image below identifies the LMO through its unique identifier, trade name and a link to this page of the BCH. Click on it to download a larger image on your computer. For help on how to use it go to the LMO quick-links page.



CBD

<https://bch.cbd.int/database/record?documentID=109196>

**BCS-GH002-5 X BCS-GH005-8 X SYN-IR102-7**  
Insect resistant herbicide tolerant cotton



Read barcode or type above URL into internet browser to access information on this LMO in the Biosafety Clearing-House © SCBD 2012

Name

Insect resistant herbicide tolerant cotton

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Transformation event

GHB614 x GHB119 x COT102

Unique identifier

BCS-GH002-5 x BCS-GH005-8 x SYN-IR102-7

Developer(s)

- [ORGANIZATION: BAYER CROPSCIENCE](#) | [BCH-CON-SCBD-7088-7](#)

#### ORGANIZATION

Bayer CropScience

Website: <http://www.bayercropscience.com>

- [ORGANIZATION: SYNGENTA SEEDS GMBH](#) | [BCH-CON-SCBD-101875-3](#)

#### ORGANIZATION

Syngenta Seeds GmbH

Private sector (business and industry)

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## Description

BCS-GHØØ2-5 x BCS-GHØØ5-8 x SYN-IR1Ø2-7 cotton is the product of the conventional breeding of each of the parental organisms to produce cotton that expresses each of Vip3a, Cry2Ae, PAT, EPSPS, and hpt. The expression of these genes are expected to confer resistance to Lepidoptera and tolerance to glufosinate herbicide and glyphosate herbicide as well as resistance to the antibiotic hygromycin B.

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## Recipient Organism or Parental Organisms

The term "Recipient organism" refers to an organism (either already modified or non-modified) that was subjected to genetic modification, whereas "Parental organisms" refers to those that were involved in cross breeding or cell fusion.

**BCH-ORGA-SCBD-12080-6** ORGANISM | GOSSYPIMUM HIRSUTUM (COTTON) |

Crops

**BCH-LMO-SCBD-46334-8** LIVING MODIFIED ORGANISM | BCS-GHØØ2-5 - GLYTOL™ COTTON GHB614 |

Bayer CropScience | Resistance to herbicides (Glyphosate)

**BCH-LMO-SCBD-14992-8** LIVING MODIFIED ORGANISM | SYN-IR1Ø2-7 - VIPCOT™ COTTON |

Resistance to antibiotics - Hygromycin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths)  
Selectable marker genes and reporter genes

**BCH-LMO-SCBD-101898-5** LIVING MODIFIED ORGANISM | BCS-GHØØ5-8 - HERBICIDE-TOLERANT AND LEPIDOPTERA-RESISTANT COTTON |

Bayer BioScience N.V. | Changes in quality and/or metabolite content (Pigmentation / Coloration), Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths), Cotton bollworm (Helicoverpa spp.), Fall armyworm (Spodoptera frugiperda)), Resistance to herbicides (Glufosinate)

## Characteristics of the modification process

### Vector

pTEM2, pCOT-1 and pTEM12

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### Techniques used for the modification

Cross breeding

### Genetic elements construct

P-ubiAt3 0.000 kb	CS-hpt-ECOLX 0.000 kb	T-nos-RHIRD 0.000 kb
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P-Act2 0.000 kb	CS-Vip3A-BACTU 0.000 kb	T-nos-RHIRD 0.000 kb
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P-35S-CaMV 0.480 kb	L-cab-PETHY 0.070 kb	TP-rbcS 0.160 kb	CS-Cry2Ae 1.900 kb	T-35S-CaMV 0.270 kb
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T-nos-RHIR 0.310 kb	CS-bar-ST 0.550 k	P-XYZ-CsVMV 0.540 kb
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P-h4a748-ARATH 1.010 kb	I-H3-ARATH 0.520 kb	TP-OPT 0.370 kb	CS-epsps-MAIZE 1.340 kb	T-H4-ARATH 0.740 kb
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Introduced or modified genetic element(s)

Some of these genetic elements may be present as fragments or truncated forms. Please see notes below, where applicable.

**BCH-GENE-SCBD-104647-3** HISTONE H4 GENE PROMOTER | (THALE CRESS) |

Promoter

**BCH-GENE-SCBD-104648-2** HISTONE H3 GENE II INTRON 1 | (THALE CRESS) |

Intron

**BCH-GENE-SCBD-101874-2** UBIQUITIN GENE 3 PROMOTER | (THALE CRESS) |

Promoter

**BCH-GENE-SCBD-14991-8** HYGROMYCIN B PHOSPHOTRANSFERASE GENE | (BACTERIA) |

Protein coding sequence | Resistance to antibiotics (Hygromycin), Selectable marker genes and reporter genes

**BCH-GENE-SCBD-100269-8** NOPALINE SYNTHASE GENE TERMINATOR |

Terminator

**BCH-GENE-SCBD-104517-1** ACTIN 2 GENE PROMOTER | (THALE CRESS) |

Promoter

**BCH-GENE-SCBD-14990-5** VEGETATIVE INSECTICIDAL PROTEIN 3A | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

**BCH-GENE-SCBD-100287-7** CAMV 35S PROMOTER |

Promoter

**BCH-GENE-SCBD-101901-3** 5' UNTRANSLATED LEADER OF CHLOROPHYLL A/B-BINDING PROTEIN | (PETUNIA) |

Leader

**BCH-GENE-SCBD-101902-4** RBCS TRANSIT PEPTIDE | (THALE CRESS) |

Transit signal

**BCH-GENE-SCBD-101895-8** CRY2AE |

Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths), Cotton bollworm (Helicoverpa spp.), Fall armyworm (Spodoptera frugiperda))

**BCH-GENE-SCBD-100290-6** CAMV 35S TERMINATOR |

Terminator

**BCH-GENE-SCBD-14972-12** PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE |

Protein coding sequence | Resistance to herbicides (Glufosinate)

**BCH-GENE-SCBD-101900-5** CSVMV PROMOTER |

Promoter

**BCH-GENE-SCBD-101419-4** OPTIMIZED TRANSIT PEPTIDE |

Transit signal

**BCH-GENE-SCBD-46333-8** 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE SYNTHASE | (MAIZE, CORN) |

Protein coding sequence | Resistance to herbicides (Glyphosate)

[BCH-GENE-SCBD-104646-4](#) HISTONE H4 GENE 3' UTR | (THALE CRESS) |

Terminator

Notes regarding the genetic elements present in this LMO

**DNA insert from COT102 vector pCOT-1:**

Cotton tolerant to lepidopteran pests through introduction of the vip3A(a) gene which codes for an insecticidal protein that targets lepidopteran insect species. The aph4 gene, coding for hygromycin-B phosphotransferase (APH4) was used as a selectable marker.

**DNA insert from GHB614 vector pTEM2**

Contains a single copy of the 2mepsps gene and regulatory elements which confers tolerance to the herbicide glyphosate

**DNA insert from GHB119 vector pTEM12**

Contains one full copy of the Cry2Ae gene which expressed an insecticidal crystal protein that protects against lepidopteran pests and the bar gene which confers tolerance to the herbicide glufosinate.

For additional information on this LMO, please refer to the records of the parental LMOs.

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## LMO characteristics

Modified traits

Resistance to diseases and pests

Insects

Lepidoptera (butterflies and moths)

Resistance to herbicides

Glufosinate

Glyphosate

Selectable marker genes and reporter genes

Common use(s) of the LMO

Food

Feed

Fiber/textile

[BCH-LMO-SCBD-109196-1](#)

## Further Information

Questions about the Cartagena Protocol on Biosafety or the operation of the Biosafety Clearing-House may be directed to the Secretariat of the Convention on Biological Diversity.

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on Biological Diversity**

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