LIVING MODIFIED ORGANISM (LMO)

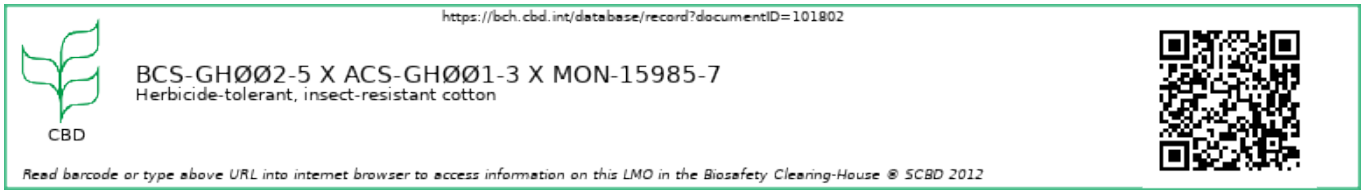
BCH-LMO-SCBD-101802-9

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 05 JUN 2017

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.



Name

Herbicide-tolerant, insect-resistant cotton | EN

Transformation event

GHB614 x LLCotton25 x 15985

Unique identifier

BCS-GHØØ2-5 x ACS-GHØØ1-3 x MON-15985-7

Developer(s)

- ORGANIZATION: BAYER CROP SCIENCE K.K | BCH-CON-JP-11695-3

ORGANIZATION

Bayer Crop Science K.K
Marunouchi Kitaguchi Building, 1-6-5, Marunouchi
Chiyoda-ku, Tokyo
Japan
Website:

Description

The stacked cotton line was generated through the traditional cross breeding of parental lines GHB614, LLCotton25 and 15985 to express the cry1A(c), cry2A(b), 2mepsps and the bar genes. The expression of these genes confers resistance against lepidoptera pests and tolerance to glyphosate and glufosinate herbicides. | EN

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 | GOSSYPIUM HIRSUTUM (COTTON) |
Crops

BCH-LMO-SCBD-14774-18 LIVING MODIFIED ORGANISM | MON-15985-7 - BOLLGARD II™ COTTON |
Resistance to antibiotics - Kanamycin, Streptomycin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Selectable marker genes and reporter genes

BCH-LMO-SCBD-46334-8 LIVING MODIFIED ORGANISM | BCS-GHØØ2-5 - GLYTOL™ COTTON GHB614 |
Bayer CropScience | Resistance to herbicides (Glyphosate)

BCH-LMO-SCBD-14851-7 LIVING MODIFIED ORGANISM | ACS-GHØØ1-3 - LIBERTY LINK™ COTTON |
Resistance to herbicides - Glufosinate

Related LMO(s)

BCH-LMO-SCBD-101250-8 | BCS-GHØØ2-5 x ACS-GHØØ1-3 - GlyTol™ Liberty Link™ cotton | Resistance to herbicides - Glufosinate, Glyphosate
Show detection method(s)

BCH-LMO-SCBD-30886-8 | ACS-GHØØ1-3 x MON-15985-7 - Liberty Link™ Bollgard II™ cotton | Resistance to antibiotics - Kanamycin, Streptomycin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glufosinate Selectable marker genes and reporter genes
Show detection method(s)

Characteristics of the modification process

Vector

PV-GHBK11, PV-GHBK04, pTEM2 and pGSV71 EN

Techniques used for the modification

Cross breeding

Genetic elements construct

P-e35S-CaMV 0.000 kb	L-HSP70 0.000 kb	TP-ctp2-ARATH 0.000 kb	CS-Cry2Ab2-BACTU 0.000 kb	T-nos-RHIRD 0.000 kb
P-e35S-CaMV 0.000 kb	CS-cry1Ac-BACTU 0.000 kb	T-7Salpha-SOYBN 0.000 kb		
P-e35S-CaMV 0.000 kb	CS-nptII-ECOLX 0.000 kb	T-nos-RHIRD 0.000 kb		
P-e35S-CaMV 0.000 kb	CS-uidA-ECOLX 0.000 kb	T-nos-RHIRD 0.000 kb		
P-h4a748-ARATH 1.011 kb	I-H3-ARATH 0.516 kb	TP-OPT 0.372 kb	CS-epsps-MAIZE 1.337 kb	T-H4-ARATH 0.742 kb

P-35S-CaMV	CS-bar-STRHY	T-nos-RHIRD
1.384 kb	0.551 kb	0.259 kb

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-46333-8 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE SYNTHASE | (MAIZE, CORN)
Protein coding sequence | Resistance to herbicides (Glyphosate)

BCH-GENE-SCBD-14972-12 PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE
Protein coding sequence | Resistance to herbicides (Glufosinate)

BCH-GENE-SCBD-14986-6 CRY1AC | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU
Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

BCH-GENE-SCBD-14988-7 CRY2AB2 | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU
Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

BCH-GENE-SCBD-100366-6 CAMV ENHANCED 35S PROMOTER
Promoter

BCH-GENE-SCBD-103901-2 HSP 70 5' UNTRANSLATED LEADER SEQUENCE | (PETUNIA)
Leader

BCH-GENE-SCBD-100365-6 CHLOROPLAST TRANSIT PEPTIDE 2 | (THALE CRESS)
Transit signal

BCH-GENE-SCBD-100269-8 NOPALINE SYNTHASE GENE TERMINATOR
Terminator

BCH-GENE-SCBD-103856-6 A' SUBUNIT OF B-CONGLYCININ GENE TERMINATOR | (SOYBEANS)
Terminator

BCH-GENE-SCBD-15001-5 NEOMYCIN PHOSPHOTRANSFERASE II | (BACTERIA)
Protein coding sequence | Resistance to antibiotics (Kanamycin)

BCH-GENE-SCBD-46004-7 BETA-GLUCURONIDASE CODING SEQUENCE | (BACTERIA)
Protein coding sequence | Selectable marker genes and reporter genes

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-101419-4 OPTIMIZED TRANSIT PEPTIDE
Transit signal

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

BCH-GENE-SCBD-100287-7 CAMV 35S PROMOTER
Promoter

BCH-GENE-SCBD-15033-8 3"(9)-O-AMINOGLYCOSIDE ADENYLTRANSFERASE | (BACTERIA)
Protein coding sequence | Resistance to antibiotics (Streptomycin)

Notes regarding the genetic elements present in this LMO

DNA insert from 15985 vector PV-GHBK11
The T-DNA from this vector contributed the coding sequences of the cry2A(b) and uidA genes. These allow for the expression of the insecticidal cry2A(b) crystal protein which protects against lepidoptera pests and the Beta-Glucuronidase selectable marker.

DNA insert from 15985 vector PV-GHBK04
Originally integrated into the MON531 line and persisted through to the 15985 line. The T-DNA from this vector contains the coding sequence of the cry1A(c) gene and the nptII resistance gene. The aadA gene was also integrated into the host genome however it is not expressed.

DNA insert from GHB614 vector pTEM2
Cotton event GHB614 contains a stably integrated 2mepsps gene. This modification confers to the protein a decreased binding affinity for the herbicide glyphosate, allowing it to maintain sufficient enzymatic activity and thus tolerance in its presence.

DNA insert from LLCotton25 vector pGSV71
Cotton tolerant to glufosinate ammonium herbicide produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene (bar) from the soil bacterium Streptomyces hygroscopicus.

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

EN

LMO characteristics

Modified traits

Resistance to diseases and pests
- Insects
  - Lepidoptera (butterflies and moths)

Resistance to herbicides
- Glufosinate
- Glyphosate

Resistance to antibiotics
- Streptomycin

Common use(s) of the LMO

Food
Feed
Fiber/textile

Detection method(s)

External link(s)

? BCS-GHØØ2-5 - EU Reference Laboratory for GM Food and Feed (EURL-GMFF) *(English)*

? ACS-GHØØ1-3 - EU Reference Laboratory for GM Food and Feed (EURL-GMFF) *(English)*

? MON-15985-7 - EU Reference Laboratory for GM Food and Feed (EURL-GMFF) *(English)*

Additional Information

Other relevant website addresses and/or attached documents

? BCS-GHØØ2-5 × ACS-GHØØ1-3 × MON-15985-7.pdf *(English)*

? GHB614 × LLCotton25 × 15985.pdf *(English)*

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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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