

Summary Notification Information Format

A. General information

A1. Details of notification

Notification Number

B/BE/14/V2

Member State

Belgium

Date of Acknowledgement

9/10/2014

Title of the Project

Scientific field evaluation of maize with modified growth characteristics

Proposed period of release:

01/04/2015 to 31/10/2017

A2. Notifier

Name of the Institute

VIB

A3. Is the same GMPt release planned elsewhere in the Community?

No.

A4. Has the same GMPt been notified elsewhere by the same notifier?

No

B. Information on the genetically modified plant

B1. Identity of the recipient or parental plant

- | | |
|----------------------------|---------------------------------|
| a) family: | <i>Poaceae</i> |
| b) genus: | <i>Zea</i> , section <i>Zea</i> |
| c) species: | <i>Zea mays</i> |
| d) subspecies: | <i>mays</i> |
| e) cultivar/breeding line: | inbred line B104 |
| f) common name: | maize |

The modified maize will be cultivated in the field trial as a hybrid with the non-modified inbred line CML91 as the second parent.

B2. Description of the traits and characteristics which have been introduced or modified, including marker genes and previous modifications

The genetically modified maize plants have modified growth characteristics resulting from the additional expression of the CYP78A1 gene (also called the 'KLUH' gene) under the control of the GA2oxidase promoter. The CYP78A1 gene codes for a cytochrome P450 mono-oxygenase enzyme that is involved in the production of factors that control cell proliferation. As a result of the modification the plants have a little more robust appearance, but above all significantly larger leaves. The modification also results in more branches being formed on the tassel and a shorter anthesis-silking interval.

The plants also contain the *bar* gene which produces the Phosphinotrycine acetyl transferase (PAT) protein as a selection marker gene.

B3. Type of genetic modification

Insertion of genetic material.

B4. In case of insertion of genetic material, give the source and intended function of each constituent fragment of the region to be inserted

The following elements have been inserted into the genome of the recipient maize plants:

Element	Function	Origin
Left T-DNA-border	T-DNA insert border	<i>Agrobacterium tumefaciens</i>
NOS-BAR (= <i>bar</i> -T _{NOS})	Phosphinotrycine acetyl transferase followed by the nopaline synthase terminator	<i>Streptomyces hygrosopicus</i> and <i>Agrobacterium tumefaciens</i>
P _{35S}	Transcription promoter	CaMV
AttB4	Recombination site*	Lysogenic <i>E.coli</i>
P _{GA2ox}	Promoter of the GA2oxidase gene	<i>Zea mays</i>
AttB1	Recombination site*	Lysogenic <i>E.coli</i>
CYP78A1 (KLUH)	Coding sequence of the CYP78A1 (KLUH) cytochrome P450 mono-oxygenase	<i>Zea mays</i>
AttB2	Recombination site*	Lysogenic <i>E.coli</i>
T _{35S}	Transcription terminator of the cauliflower mosaic virus 35S gene	CaMV
Right T-DNA-border	T-DNA insert border	<i>Agrobacterium tumefaciens</i>

*the AttB1, -2, and -4 recombination sites are synthetically altered versions of a recombination site originally isolated from *E.coli*.

B6. Brief description of the method used for the genetic modification

Immature maize embryos have been co-cultivated with genetically modified *Agrobacterium tumefaciens*. During this co-cultivation the genes of interest (see table above) are transferred to cells of the immature embryo generating transformed cells. The transformed cells have then been selected using a positive screen (based on herbicide tolerance) and induced to regenerate whole plants.

B7. If the recipient or parental plant is a forest tree species, describe ways and extent of dissemination and specific factors affecting dissemination

Not applicable.

C. Experimental Release

C1. Purpose of the release

The purpose of the release is to confirm the maize's modified growth characteristics under normal field conditions and to measure the effect of the modification on the cob formation and cob filling which is very difficult to measure in greenhouse conditions.

C2. Geographical location of the site

The field trial will take place on grounds belonging to the ILVO research institute in the municipality of Wetteren.

C3. Size of the site (m²)

The trial plot, including non-modified controls, non-modified fertilizer lines and non-modified buffer row is 735 m². There will be 108m² of GM plants in this plot.

C4. Relevant data regarding previous releases carried out with the same GM-plant, if any, specifically related to the potential environmental and human health impacts from the release

The genetically modified plants have not been released before.

D. Summary of the potential environmental impact from the release of the GMPts

The environmental impact from the release is expected to be zero. The modified characteristics are not expected to lead to greater weediness or the ability of the maize to establish in non-agricultural habitats. The modified characteristics are also not expected to change the interaction of the maize with herbivores or other non-target organisms and also not to change the toxicity and allergenicity of the maize. But we have not tested the latter, as this is not necessary and not required for such a small scale field trial of which the produced materials are not going to be consumed by humans or animals. Any concerns about a possible unexpected change in the allergenicity of the maize pollen is also not relevant as the male flowers (the tassels) of the modified maize will be removed before they will be able to shed any pollen. By doing this it is also prevented that any pollen would spread to the environment. The modified seeds that will be formed are well retained in the cobs and these cobs will be very carefully hand harvested, also the tiniest ones, to prevent any spread of seeds.

E. Brief description of any measures taken for the management of risks

The risk of spread of the modified properties to the environment is mitigated by removing the tassel, thus preventing the spread of modified pollen to non-modified maize plants in the surroundings. The formed modified seeds are, as already stated above, well retained in the cobs and these cobs will be very carefully hand harvested, thus preventing any spread of seeds to the environment. In case some seeds would be lost during the harvest, they are not expected to result in the establishment of the maize outside the field. There will be monitoring on volunteers in the year following the field trial and any volunteer maize plants will be removed and inactivated. The chances that maize generates volunteer plants in Belgium are extremely low, but not zero. The field trial plot is surrounded by a 1.80 m high wire fence to prevent accidental trespassing and accidental removal or spread of GM material.

F. Summary of foreseen field trial studies focused to gain new data on environmental and human health impact from the release

There are no specific studies foreseen to gain new data on the environmental and human health impact from the release other than the study of the phenotype and growth characteristics of the maize.

G. Final report

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H. European Commission administrative information

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I. Consent given by the Competent Authority:

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