

Deliberate release B/BE/14/V2

Final report

1. General information

1.1. European notification number

B/BE/14/V2.

1.2. Member state of notification

Belgium

1.3. Date of consent and consent number

20 February 2015, B/BE/14/V2

2. Report status

A post-release monitoring report, final.

3. Characteristics of the release

3.1. Scientific name of recipient organism

Zea mays (common name: maize)

The maize plants have modified growth characteristics resulting from the additional expression of the PLA1 gene (also known as CYP78A1 or KLUH) under the control of the GA2oxidase promoter.

3.2. Transformation event(s) (acronym(s)) or vectors used

Line n°	Parent line	Construct	Gene of interest	Marker gene
GA2ox_KLUH 139-01	B104	pBbm42GW7/GA20ox KLU	PLA1	bar
GA2ox_KLUH 140-01	B104	pBbm42GW7/GA20ox KLU	PLA1	bar

The GM lines in the field were a hybrid between the modified B104 inbred line and the inbred line CML91. The B104 x CML91 hybrid is known to grow well under Belgian climatic conditions.

3.3. Unique identifier

The line has not been given a unique identifier number.

3.4. Please provide the following information as well as the field(s) layout:

Geographical location(s)	Size of the release site(s) (m ²)	Identity and amount of GM plants per event released	Duration of the release
2015			
Municipality of Wetteren	Including non-GM borders and reference lines approximately 735 m ² (of which 108m ² GM plants)	Identity: See 3.2. Amount: approximately 10 plants/m ²	6 May to 7 October 2015
2016			
Municipality of Wetteren	Including non-GM borders and reference lines approximately 735 m ² (of which 108m ² GM plants)	Identity: See 3.2 Amount: approximately 10 plants/m ²	26 May to 11 October 2016
2017			
Municipality of Wetteren	Including non-GM borders and reference lines approximately 735 m ² (of which 108m ² GM plants)	Identity: See 3.2. Amount: approximately 10 plants/m ²	9 May to 3 October 2017

The field trial plot design is given in annex.

4. Any kind of product that the notifier intends to notify at a later stage

4.1. Does the notifier intend to notify the released transformation event(s) as product(s) for placing on the market under Community legislation(s) at a later stage?

No.

5. Type of deliberate release

This was a deliberate release for basic research purposes. The goal was to see whether certain phenotypical changes that had been observed in a greenhouse would also appear under normal agricultural conditions. Additionally, the release was intended to properly assess the cob/seed yield of the modified plants.

6. Method(s), result(s) of the release, management and monitoring measure(s) in respect of any risk to human health or the environment

6.1. Risk management measures

6.1.1. Before planting

Measures such as appropriate packing and clear labeling were taken to preserve the correct identity of the GM maize and to prevent the spread or admixture of GM maize.

6.1.2. During planting activities

Same measures as before planting. GM seeds were manually sown by personnel that received compliance training. Any left-over seeds were carefully packed and labeled and returned to the research facility.

6.1.3. During the period of release

The field trial location is surrounded by a fence to prevent any unwanted trespassing. The seeds were treated with a substance to prevent birds eating the seeds and the trial site was covered with bird netting until the plantlets had properly emerged. There was a border of 4 rows of non-GM maize plants surrounding the GM maize plots, which created an isolation distance between the GM maize plots and surrounding maize of 3 meters. Male flowers of the GM plants and the non-GM comparator were carefully removed manually before they could start shedding pollen.

6.1.4. At the end of the release

Maize plants were carefully harvested manually and all cobs (even the smallest ones) were carefully removed. Cobs were appropriately packed and correctly labeled and transported to the research facility for measurements and were destroyed afterwards. Roots were left on site for decomposition. Stalks and leaves were chopped on the plots and left for decomposition. Some samples were packed and labeled and transported to the research facility for measurements and destroyed afterwards.

6.1.5. Post-harvest measures

Field trial plots were left bare for one year to be able to spot any volunteer maize plants. Monitoring for volunteers took place from May until the end of August twice per month.

6.1.6. Other measures

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6.1.7. Emergency plan

The field trial took place according to plan. There were no disruptions of the trial.

6.2. Post-release monitoring measures

As required by the field trial permit, the field trial plots were left bare in the year following the trial and visually monitored for volunteer maize plants during the period May - August twice per month. No volunteer maize plants were detected.

6.3. Plan for observation(s)method(s) involved

During the first part of the season the field trial plot was visited weekly to check on the general situation of the trial and the health of the maize plants. From the moment the last leaf had emerged the monitoring on flowering started and from the moment the first male flower was detected the plot was checked every other day to monitor on male flowers and remove any male flowers found before they could shed any pollen. The monitoring on flowering was always stopped on the 15th of September.

6.4. Observed effects

There were no observations providing any indications of risks for human health or the environment.

6.4.1. Expected effects

As expected, the genetically modified maize plants had significantly larger leaves and a more robust appearance. The plants also had more biomass and a higher cob/seed yield, showing a 10-15% increase when compared to its non-GM counterpart. The field trial also confirmed that the GM plants start flowering approximately 1 week later than their non-GM counterpart, which confirms that the PLA1 gene affects the duration of the growth of the plant.

6.4.2. Unexpected effects

No unexpected effects were observed.

6.4.3. Other information

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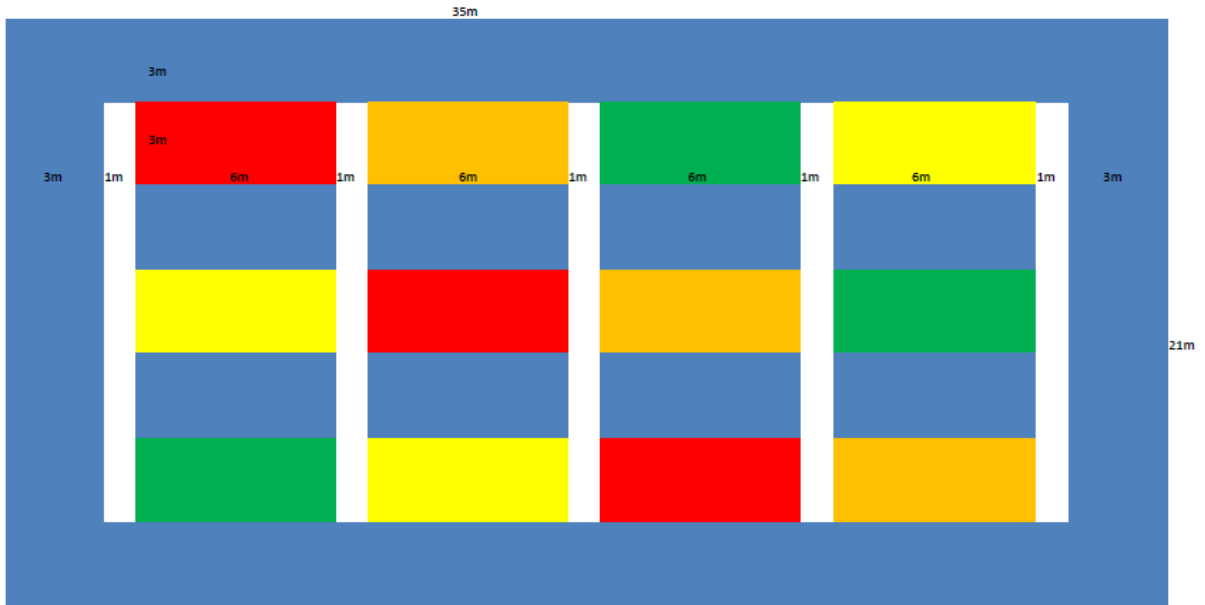
7. Conclusion

The field trial has confirmed that the additional expression of the PLA1 gene under control of the GA-ox2 promoter increases the duration of the growth of the plants, resulting in significantly larger leaves (30%), and a more robust appearance. The field trial has also enabled measuring the effects on cob/seed yield – a feature which cannot be properly measured in a greenhouse – and led to the conclusion that the modification also leads to a 10-15% higher cob/seed yield.

Date: 18 October 2018

Annex:

Field trial plot design:



	B104 x CML91	10 planten/m ²	
	139-01R x CML91 (GGO)	10 planten/m ²	3 x 180 planten
	140-01R x CML91 (GGO)	10 planten/m ²	3 x 180 planten
	139-01S x CML91	10 planten/m ²	3 x 180 planten
	140-01S x CML91	10 planten/m ²	3 x 180 planten