Public information sheet

AVENTIS CROPSCIENCE N.V.

Evaluation of new insect tolerant maize lines

European Notification number
B/BE/01/V4

Upon advice of the Biosafety Council and the Service of Biosafety and Biotechnology of the Scientific Institute of Public Health – Louis Pasteur, the Belgian Ministry of Agriculture has granted consent to Aventis CropScience N.V. to perform experiments in the year 2001 in accordance with their application B/BE/01/V4.

This program will be executed on a location in Flanders on the territory of the municipality of Afsnee (Gent) and will follow the normal growing period of oilseed rape (*Brassica napus*) that runs from May till October 2001.

Responsible person to contact for any additional information:

Dhr. Hein Desloovere
Aventis CropScience N.V.
Seed & Crop Improvement – Registration Benelux
Jozef Plateaustraat 22
B-9000 Gent
Telefoon (09) 235 84 09
Telefax (09) 224 06 94
Email: Hein.Desloovere@aventis.com

1. Table of Contents

2. Description of the genetically modified plants

Maize is cultivated for use as animal feed or silage and is processed to vegetable oil, sirop etc. for the human nutrition.

Maize is known under its cultivated form only. The region of origin is probably in Mexico. The dispersal to "the Old World" probably happened in the 16th and 17th century.
Maize is totally dependent on humans for its propagation.

The new characteristics to be evaluated in these plants are the following:

Tolerance for the European Maize borer
The maize plants have an integrated defence system to protect them from a specific class of insects. They produce a natural Bt-toxine, a characteristic that they borrow

from a soil bacterium (*Bacillus thuringiensis*). This feature offers an alternative for the use of conventional insecticides.

Herbicide tolerance

The plants are tolerant for agricultural applications of the herbicide glufosinate ammonium (Liberty™). As a result these plants can be identified and selected in an efficient manner.

3. Purpose of the experiment

The field trial intends to evaluate a number of new maize lines.

4. Advantages for the environment, the farmer and the consumer

A particular characteristic of the European Maize Borer is that it eats its way through the plant stem, the latter getting weak and folding or breaking off. Since the insect is located inside the plant, farmers are forced to give a preventive treatment, which is labour intensive, expensive and not very effective.

The protection mechanism in these new maize lines ensures that the plants produce their own insect toxin, which is harmful for the insect and allows the plant al the same to carry on growing.

The result is a reduction of output losses for the farmer and a restriction, possibly complete elimination of the use of insecticides. The ecological benefits are self-evident.

5. Biology and life cycle of the plant

5.1. Weediness of the plant

The cultivated form of maize has most probably originated from *teosint*, Zea mays, subspecies mexicana, more than 8000 years ago. During the transformation, the cultivated form of maize has lost its capability to survive outside the agricultural ecosystem.

5.2. Survival and dissemination of seeds

Maize is an annual plant propagating via seeds only. Under natural conditions, vegetative propagation is unknown. Seeds can to a certain extent go in dormancy but their liveability is generally very poor since they are quite susceptible for diseases. Mostly, no or very little volunteers are observed.

Seeds can be dispersed during transport, at seeding time and especially just before and during harvest. The seeds do not possess any special features or structures that would facilitate their transfer via animals.

6.	Potential environmental impact

6.1. Outcrossing capability and establishment in natural ecosystems

6.1.1. TRANSGENIC POLLEN DISPERSAL

6.1.2. SEED DISPERSAL

Since this trial will be conducted in a greenhouse, possible seed or pollen dispersal will be restricted to this confined infrastructure.

6.1.3. SELECTIVE ADVANTAGE

The transformed plants will only get a selective advantage when standing in a field treated with a herbicide containing glufosinate ammonium as active ingredient. In this trial any selective advantage is irrelevant, since no other plants will be present in the trial zone.

6.2. Interaction with target organisms

The introduced protection mechanism is focussed on a specific class of insects. The following are concerned : *Lepidoptera*: *Ostrinia nubilalis* (European Maize borer), *Diatraea grandiosella* et *D. saccharalis, Spodoptera exigua*.

6.3. Interaction with non-target organisms

The activity of the introduced protection mechanism is very specific.

6.4. Impact of large scale and long term use

The development of new products follows a carefully described procedure that is followed by a step by step introduction of the product.
Aventis CropScience has a large experience with the introduction of genetically improved crops.
This trial fits in the early phase of a research program and a possible commercial application is still very far ahead of us. The impact of large scale and long term use will be evaluated as the program progresses.

Bt-crops are an important element in a policy aiming at reducing the general use of pesticides and make agriculture more sustainable.

Note:
Since this trial will be carried out in a greenhouse, we do not expect any impact on the environment outside the greenhouse.

7. Measures taken for the management of risks

7.1. Control of pollen dispersal

7.2. Control of seed dispersal

Since this trial will be conducted in a greenhouse, possible seed or pollen dispersal will be restricted to this confined infrastructure.

7.3. Post-harvest treatment

After termination of the trial, all transgenic material will be taken away from the greenhouse. Subsequently, the greenhouse will be subjected to a thorough cleaning.

8. Follow-up

NA

9. Destruction method

After termination of the trial the remaining vegetative plants parts will be destroyed.

10. Emergency response

As soon as any contra-indication on the level of health and/or environment occurs - and this will in the first instance be observed by the people involved in the trial design and execution - the trial will be stopped. The proper authorities will be informed in order to carry out additional inspections.

11. Inspections

The Inspectorate General of Raw Materials and Processed Products of the Belgian Ministry of Agriculture is in charge of the supervision of field trials involving transgenic material. In order to plan their inspections, the notifier has to inform the competent body about the sowing and harvest dates. Inspectors will watch over the execution of sowing and harvesting activities in the field, being in accordance with the ministerial approval en the protocols. In addition the inspector will sample plant material for analysis in an official laboratory.

12. Socio-economic aspects

This project fits in with a more general concern for a highly performing and sustainable agriculture.
A good elaborated policy will lead to a ‘win-win’ situation with clear benefits for the producer and the farmer, as well as the consumer and the environment.

Growing these genetically improved plants does not require any specific knowledge or qualifications of the farmer. It does not involve any specific infrastructure and does not lead to additional costs in respect of the conventional culture.

***