Public information sheet

AVENTIS CROPSCIENCE N.V.

Field evaluation with genetically modified pod shatter resistant oilseed rape

European Notification number
B/BE/01/V5

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/V5.

This program will be executed on several locations in Flanders and Wallonia on the territory of the municipalities of Nazareth en Robechies (Salles-Chimay) and will follow the normal growing period of oilseed rape (*Brassica napus*) that runs from the month April 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

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2. Description of the genetically modified plants

Oilseed rape is among the most important sources of vegetable oil. The crop grows very well in cold and humid conditions and is extensively grown in China, the Indian Subcontinent, Canada and Europe.

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

Pod Shatter Resistance

The introduced characteristic aims at a higher resistance against the premature opening of the pods during crop ripening. This feature is intended to prevent seed loss just before and during harvest time.

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 purpose of the field trial is to evaluate the resistance against pod shattering during the ripening period.

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

We anticipate a decrease in seed loss which for the farmer will lead to a higher yield and as a consequence lower the demand for growing surface for the same harvest quantity.

This trial is part of a research program that still is in a preliminary phase. Possible additional benefits for the environment will be evaluated as the program follows its course.

5. Biology and life cycle of the plant

5.1. Weediness of the plant

Oilseed rape is known to be found in semi-managed areas such as hedgerows, waste-lands, industrial grounds. Volunteer plants can be found in subsequent crops. In all cases suitable methods for managing the "weed" are available. Based on the introduced functions and the unchanged behaviour of the transformed lines, no shift in niche or habitat is anticipated.

5.2. Survival and dissemination of seeds

Survival of oilseed rape is limited to the seed phase. Seeds can remain dormant for several years under optimal conditions. However, oilseed rape seeds also tend to be readily germinating when conditions are favourable, e.g. shallow cultivation, irrigation or rain fall, etc.. Seeds will come into the environment at two stages of the proposed trial: at the onset seeding of the trial and at harvest, when a minor quantity of seeds can be anticipated to escape from the harvesting machines. Leakage or shedding from overripe varieties is not anticipated, since it is crucial for the value of the trials to harvest at the right point in time.

Dissemination can occur at the seed stage. Oilseed rapeseeds are small and round, and although they have no special adaptations such as hairs for passive transport, loses may be anticipated when handling the material. Such handling is limited to the packaging of seeds, the seeding of the trial, harvesting and further handling of the seed. No important losses or dissemination are anticipated.

6. Potential environmental impact

6.1. Outcrossing capability and establishment in natural ecosystems

6.1.1. TRANSGENIC POLLEN DISPERSAL

Pollination in *Brassica napus* essentially occurs through wind and by insects. Although pollen can disperse over lager distances, the majority of successful pollination will occur at short distance.
Furthermore, the chances for a successful exchange of genetic material are in practice restricted to the closest relatives (*Brassica rapa e*n *Brassica juncea*).

6.1.2. SEED DISPERSAL

The staff in charge of the execution of the trial will make sure that all the seeds are harvested. The procedures for transport and seed treatment aim at reducing the seed loss to an absolute minimum.

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. Various field trials with glufosinate ammonium tolerant varieties and post-commercial monitoring in Canada (since 1995) have demonstrated that the LibertyLinkTM characteristic does not cause a selective advantage.

6.2. Interaction with target organisms

There are no target organisms

6.3. Interaction with non-target organisms

There are no non-target organisms

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.

This trial fits in a very early phase of a research program and any potential commercial application is still far ahead of us. The impact of a large scale and long term use will be evaluated as the program progresses.

Aventis CropScience has a large experience with the introduction of genetically improved crops and we do not anticipate that the introduction of this genetically modified crop will cause damage to the environment or lead to the disturbance of natural balances.

7. Measures taken for the management of risks

7.1. Control of pollen dispersal

Maintaining an isolation distance from commercial oilseed rape fields (at least 1000 m) will control pollen dispersal. The trial location will be checked on the presence of wild *Brassica* species, which will be destroyed.

7.2. Control of seed dispersal

The drill used to sow the experiment involving transformed seed will be clean of seeds when it goes to the trial area. Seed of the transformed rape will be put into the drill within the planting area.

7.3. Post-harvest treatment

After termination of the trial, de trial area will be checked on a regular basis. Volunteers and wild relatives will be eliminated using an appropriate treatment.

8. Follow-up

In subsequent years the field will be brought back into normal cultivation but will be monitored for the emergence of volunteer rape plants, which will be destroyed by cultivation or herbicide treatment as appropriate. Control of volunteers is part of normal farm practice anyway.

9. Destruction method

After termination of the trial the remaining vegetative plants parts will be destroyed. It is foreseeable that a small quantity of seeds is released and will fall in the field at harvest time. These seeds will be left on the field for a couple of weeks to encourage germination. The germinated plants will be destroyed by a herbicide treatment or light soil cultivation.

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 and the continuous breeding and selection activities involved.
Improving crop performance and yield can meet the growing demand for food and restrict a further extension of agriculture acreage or possibly make it unnecessary.

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.

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