

Document 4-1

Results of the study by the crop subcommittee

Name: Lepidoptera and Coleoptera pest resistance and herbicides glufosinate and glyphos
Sart resistant corn

(Modified Cry1Ab , modified Cry3Aa2 , Pat , MEPSPS , Zea Mays Subsp. Mays (L.) Itlis)
(Bt11 × MIR604 × GA21, OECD UI: SYN-BT011-1 × SYN-IR604-5 × MON-00021-9)

Contents of first-class use: Use, cultivation, processing, storage, transportation for food or feed

Disposal and related actions

Applicant: Syngenta Seed Co., Ltd.

(Note) Locations that differ from Bt11 × MIR604 are underlined.

The Agricultural Products Subcommittee is based on the biodiversity impact assessment submitted by the applicant and Biodiversity when using this stack maize in the 1st class according to the 1st class regulations

The contents of the assessment by the applicant regarding sexual effects were examined. The main confirmed items are It is as follows.

This stack maize is resistant to Lepidoptera and pesticide glufosinate.

Resistant maize (Bt11), Coleoptera pest resistant maize (MIR604) and weeding

The glyphosate-resistant maize (GA21)

Regarding the strains, this stack strain corn

It is determined that there is no risk of biodiversity impact if the same type 1 use is used ing.

1 Interaction related to the intended trait

Modified Cry1Ab encoded by the modified cry1Ab gene (Lepidoptera pest resistance gene) derived from Bt11

The protein is considered to have insecticidal activity against Lepidoptera but not enzyme activity. The

In addition, the PAT protein encoded by the Bt11-derived pat gene (glufosinate resistance gene)

Sufinotricine acetyltransferase) is an enzyme with high substrate specificity. Meanwhile, MIR604

Modified Cry3Aa2 encoded by the modified cry3Aa2 gene (Coleoptera pest resistance gene)

The protein is considered to have insecticidal activity against Coleoptera but not enzyme activity.

In addition, mEPSPS encoded by GA21-derived mEPSPS gene (glyphosate resistance gene)

Protein (5-enol-pyruvylshikimate 3-phosphate synthase) is an enzyme with high substrate specificity.

The In addition, the modified Cry1Ab protein and the modified Cry3Aa2 protein are respectively specific lepidopterous pests,

Or it exhibits insecticidal activity against Coleoptera pests and does not overlap the insecticidal spectrum.

Therefore, it is unlikely that interactions between these Cry proteins occur. Therefore, modification
The traits that the cry1Ab gene , pat gene , modified cry3Aa2 gene, and mEPSPS gene give
It is unlikely that they will affect each other.

In addition, Lepidoptera insect resistance and Coleoptera insect resistance of this stack line maize
For sex against European corn borers and western corn rootworms
The resistance test shows that glufosinate and glyphosate tolerance is a herbicide application test.
Thus, it has been confirmed that each has the same level of resistance and tolerance as the parent strain.

From the above, this stack line maize also has the traits of the parent line
There is no change in the character to be evaluated.

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2 Competitive advantage

Maize has long-term experience in Japan.

However, no examples of self-growth in the environment have been reported.

This stack maize has a modified cry1Ab gene derived from Bt11 and a modified corn derived from MIR604.
The modified Cry1Ab protein and the modified Cry3Aa2 protein encoded by the altered cry3Aa2 gene
It has resistance to Pestidae and Coleoptera, and pat gene derived from Bt11 and
The PAT protein and mEPSPS protein encoded by the mEPSPS gene derived from GA21
Has resistance to fosinate and glyphosate. However, Lepidoptera in the natural environment in Japan
Insect and insect damage caused by Coleoptera make it difficult for corn to grow in Japan
And that glufosinate and glyphosate are not sprayed
Because it is difficult to think, glufosinate and glyphosate are not considered to be selective pressure.
Be

Therefore, both of these properties are not properties that enhance competitive advantage.

The maize line maize is not expected to have a competitive advantage over the parent line.

Based on the above, there is no risk of biodiversity impact resulting from competitive advantage.

We concluded that the applicant's conclusion was valid.

3. Productivity of harmful substances

Maize, the host species, will affect wild animals and plants.

There are no reports of producing harmful substances.

This stack maize is composed of Bt11-derived modified Cry1Ab protein and PAT protein,
Combined productivity of modified Cry3Aa2 protein derived from MIR604 and mEPSPS protein derived from GA21
One. Modified Cry1Ab protein and modified Cry3Aa2 protein in Lepidoptera and Coleoptera insects
It has an insecticidal action against it. However, PAT protein and mEPSPS protein are resistant to glufosinate.
Although it imparts sex and glyphosate tolerance, it is confirmed that it is not harmful to animals and plants.
It has been certified. Modified Cry1Ab protein, modified Cry3Aa2 protein, PAT protein and mEPSPS
There seems to be no interaction between proteins. Therefore, this stack line maize
Even if these have both proteins, the productivity of the harmful substances is
It is thought that it does not increase more than the thing which combined.

Based on the above, it is said that there is no risk of biodiversity effects resulting from the productivity of harmful substances.
We concluded that the conclusion of the contractor was valid.

4 Crossability

Are there any wild plants that can be crossed with corn in the natural environment in Japan?

Thus, no wild plants that could be affected were identified, and biodiversity

The applicant's conclusion that there was no risk of reverberation was deemed appropriate.

Conclusion of 5 crop subcommittee

Based on the above, when this stack line maize is used according to the first class use regulations

Therefore, the conclusion of the biodiversity impact assessment report that there is no risk of biodiversity impact is reasonable.

Judged that there was.