

Document 2-1

## Results of the study by the crop subcommittee

- Five Name: Resistance to Lepidoptera and Coleoptera and herbicides glufosinate and glyphosate  
 Resistant corn  
 (Modified cry1Ab , modified vip3A , modified cry3Aa2 , pat , mEPSPS , Zea mays subsp.  
 mays (L.) Iltis) (Bt11 × MIR162 × MIR604 × GA21, OECD UI  
 SYN-BTØ11-1 × SYN-IR162-4 × SYN-IR6Ø4-5 × MON-ØØØ21-9) (Bt11,  
 Ten It has a combination of transgenes to MIR162, MIR604 and GA21.  
 Of the progeny line separated from the corn  
 Excluding those received. )including. )  
 Contents of first-class use, etc .: Use, cultivation, processing, storage, transportation and waste for food or feed  
 Abandonment and acts accompanying them  
 15 Applicant: Syngenta Seed Co., Ltd.

- The Crop Subcommittee is based on the biodiversity impact assessment document submitted by the applicant and the first  
 Biodiversity impacts when using this stack line maize in accordance with the species use regulations  
 The contents of evaluation by the applicant regarding Hibiki were examined. Mainly confirmed items are as follows  
 20 It is.  
 This stack maize is resistant to Lepidoptera and insecticide glufosinate.  
 Corn (Bt11), Lepidoptera resistant corn (MIR162), Coleoptera  
 Resistant corn (MIR604) and herbicide glyphosate resistant corn (GA21)  
 These parent lines are produced by the cross breeding method.  
 twenty five In the evaluation study meeting, when the same type 1 use as the stack maize is used individually  
 It is judged that there is no risk of biodiversity impact.

- 1 Interaction related to the intended trait  
 Modified Cry1Ab protein, modified Vip3A protein expressed in this stack line maize,  
 30 The modified Cry3Aa2 protein, PAT protein, mEPSPS protein and PMI protein are  
 It is not expected to affect metabolic pathways. These proteins are also  
 It is thought that it has a different mechanism of action and works independently. Therefore, this stack system  
 In maize, expressed proteins from each parental line have a new impact on the host metabolic pathway.  
 It is considered that there is a low possibility of having a reverberation.  
 35 When the bioassay was actually conducted, the Lepidoptera and Coleoptera of this stack line maize  
 Coleoptera pest resistance, herbicide glufosinate and glyphosate resistance depend on the parent strain  
 It is considered to be the same level. Therefore, the expressed protein from each parental line is

It is considered unlikely that they will interact with each other in the plant body.

Moreover, in this stack maize line, there is an interaction between the expressed proteins from each parent line.

40 As a result, the introduction of this stack maize to each parental line  
Progeny lines that have a combination of genes and are separated from this stack line maize

Similarly, in stack maize, there is no interaction between expressed proteins.

It is considered that each obtained property does not change.

From the above, for this stack maize, in addition to having the traits of the parent line

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There appears to be no change in traits to be evaluated.

## 2 Competitive advantage

Maize, the biological species to which the host belongs, has been cultivated in Japan for a long time.

Five However, no examples of spontaneous growth have been reported so far.

Competition between Bt11, MIR162, MIR604 and GA21, the parent lines of this stack maize

The traits related to the superiority of the

, Adult wintering, pollen fertility and size, seed production, shedding, dormancy and germination rate

A survey was conducted. As a result, for Bt11, MIR604 and GA21, the control non-recombinant

Ten Although there was no statistically significant difference from maize,

MIR162 was 191.5 cm, and control non-recombinant maize was 199.7 cm.

Because the difference in is small, this difference in chief does not increase competitive advantage

It was considered.

15 This stack maize is given resistance to Lepidoptera and Coleoptera pests.

There is. However, corn is the natural damage in Japan due to the insect damage caused by Lepidoptera and Coleoptera insects.

It is not the main factor that makes it difficult to grow in the environment.

Since no habitat of corn root worms has been reported, it is competitive by having this property.

It is thought that the superiority in the match will not increase.

20 This stack maize is resistant to the herbicides glufosinate and glyphosate.

Japan's natural environment, which is granted but difficult to apply glufosinate and glyphosate

Under the circumstances, this property will not increase competitive advantage.

In addition, mannose can be used as a carbon source for the stack maize.

Although PMI protein productivity has been conferred, in Japan's natural conditions, other than mannose

twenty five Since there is also a carbon source, the competitive advantage is enhanced by having this trait

I don't think it will happen.

From the above, this stack maize and the parent line of this stack maize

A progeny line stack system having a combination of transgenes and separated from the corn

30 Corn is unlikely to have biodiversity impacts due to competitive advantage

The conclusions by the applicants were judged to be valid.

## 3. Productivity of harmful substances

Maize, the species to which the host belongs, has the potential to affect wild animals and plants.

35 There are no reports of producing harmful substances.

Modified Cry1Ab protein, modified Vip3A protein expressed in this stack line maize,  
The modified Cry3Aa2 protein, PAT protein, mEPSPS protein and PMI protein are known.  
Has homology with known allergens based on structural homology search of amino acid sequences with allergens  
It has been confirmed that there is no.

40 Modified Cry1Ab protein, Modified Vip3A protein, Modified Cry3Aa2 protein, PAT protein, mEPSPS protein  
White matter and PMI proteins may affect the metabolic pathways of the host due to the properties of the proteins.  
It was not considered. Therefore, due to these proteins, the parent strains Bt11, MIR162,  
Hazardous substances were not produced in MIR604 and GA21.

In addition, harmful substances in the parental line of this stack maize (secreted from the roots and other plants and

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That affect soil microorganisms and that affect other plants after the plant has died)

As a result of the following crop test, plow test and soil microflora test,

There is no significant difference between the non-recombinant control corn in the test of the deviation. Therefore, this  
It is considered that there is no unintentional production of harmful substances in the tack line maize.

Five On the other hand, wildlife that may be affected by the modified Cry1Ab protein and the modified Vip3A protein.  
Lepidopterous insects as plants, etc., and fields that may be affected by the modified Cry3Aa2 protein  
We identified Coleoptera insects as live animals and plants. Identified Lepidoptera and Coleoptera  
The possibility that the insects gather some amount of pollen is more than 10 m away from the corn field.

Ten It was concluded that it was extremely low and could be neglected at 50 m or more. This stack line maize  
Pollen that could be fed or scattered from this stack maize

Lepidoptera and Coleoptera insects that may be fed into the  
It is unlikely that it grows locally within a 50m radius from the cultivation field. From this,

By insects and Coleoptera insects directly feeding the stack maize at the population level  
The possibility of being affected or the possibility of being affected by scattered pollen is considered extremely low

15 Ru.

From the above, this stack maize and the parent line of this stack maize

A progeny line stack system having a combination of transgenes and separated from the corn

Corn is not likely to cause biodiversity effects due to the production of harmful substances

20 We concluded that the applicant's conclusion was valid.

#### 4 Crossability

Since wild plants that can be crossed with corn are not growing in our natural environment,  
Wild plants that may be affected are not identified, and biodiversity effects due to crossability

The applicant's conclusion that there is no risk of swaying was judged to be appropriate.

twenty five

#### Conclusion of 5 crop subcommittee

Based on the above, each of the parent lines of this stack maize and this stack maize

A progeny strain that has a transgene combination of

Biodiversity in Japan when maize maize is used in accordance with the first class regulations

30 It was judged that the conclusion of the biodiversity impact assessment report that there was no risk of impact would be appropriate.