

Results of discussions at the Biodiversity Impact Assessment Committee

Name: Herbicide glufosinate, dicamba, allyloxyalkanoate and triketone resistant soybean (pat, modified dmo, ft\_t.1, tdo, Glycine max (L.) Merr.) (MON94313, OECD UI: MON-94313 -8))

Contents of Type 1 Use, etc.: Cultivation, storage, transportation, and disposal in isolated fields, and acts incidental to these.

Applicant: Bayer CropScience Co., Ltd. The Agricultural Crops Subcommittee has decided to apply for Type 1 use based on the biodiversity impact assessment report submitted by the applicant.

We examined the contents of the applicant's assessment regarding the impact on biodiversity when using Type 1 use of this recombinant soybean in accordance with the usage regulations. The main items confirmed are as follows.

1 Regarding the results of biodiversity impact assessment This recombinant soybean is a plasmid constructed based on pBR322 derived from *Escherichia coli*.

It was created by introducing the T-DNA region of PV-GMHT529103 using the *Agrobacterium* method.

This recombinant soybean is co-coated with PAT protein derived from *Streptomyces viridochromogenes*.

The modified dmo gene encodes the modified DMO protein derived from *Stenotrophomonas maltophilia*, the ft\_t.1 gene encodes the FT\_T.1 protein modified from the RdpA protein derived from *Sphingobium herbicidovorans*, and the TDO derived from *Oryza sativa* L. It has been confirmed by gene segregation<sup>25</sup> and next-generation sequence analysis that one copy of the expression cassette of the tdo gene, which encodes a protein, is integrated onto the chromosome and is stably transmitted over multiple generations. Additionally, Western blot analysis confirmed that the target protein is stably expressed over multiple generations.

#### (1) Competitive advantage

Soybean is not a weed, and in Japan, soybean is one of the most popular crops along with rice and wheat.

Although it has a long history of use, there have been no reports of soybean becoming a weed under natural conditions in Japan. This recombinant soybean is endowed with resistance traits to glufosinate, dicamba, allyloxyalkanoate, and triketone herbicides by expressing PAT, modified DMO, FT\_T.1, and TDO proteins; It is difficult to imagine that this trait would increase competitive advantage under natural conditions where it is difficult to imagine that pesticides would be sprayed. Based on the above, this recombinant soybean has a competitive advantage within the scope of cultivation, storage, transportation, disposal, and related activities in isolated fields with certain work procedures in a limited environment. to the applicant that there is no risk of biodiversity impacts resulting from

The conclusion was judged to be reasonable.

#### (2) Productivity of harmful substances

This recombinant soybean expresses PAT, modified DMO, FT\_T.1, and TDO proteins that confer resistance to the herbicides glufosinate, dicamba, allyloxyalkanoate, and triketone, respectively.

However, these proteins are not known to be harmful substances, and it was confirmed that they do not have sequences with structural similarity to known allergens. The substrate specificity of PAT, modified DMO, FT\_T.1, and TDO proteins is extremely high, and because they do not use structurally similar plant endogenous compounds as substrates, these proteins act on the metabolic system of the host. It is difficult to imagine that they produce harmful substances. Based on the above, this recombinant soybean can be grown in isolated environments with certain working procedures.

The applicant's conclusion that there is no risk of adverse effects on biodiversity due to the production of hazardous substances within the scope of cultivation, storage, transportation, disposal, and related activities in remote fields is considered to be appropriate. did.

### (3) Hybridity

Glimbing soybean has been identified as a wild animal or plant that may be affected due to hybridization, and the specific impact is that the pat, modified dmo, ft\_t.1, and tdo genes derived from this recombinant soybean are It was thought that after penetrating into a bean population, the competitive advantage of that population would increase.

When examining the likelihood of effects caused by hybridization, it was found that soybeans and wild soybeans are hybridized.

It is thought that the frequency of herbicide resistance is extremely low, and the herbicide resistance traits imparted are not traits that change reproductive characteristics such as pollen morphology, fertility, and seed productivity, and are not traits that change reproductive characteristics such as pollen morphology, fertility, and seed productivity. Since it is difficult to imagine that this recombinant soybean and wild soybean would interbreed, it was thought that the possibility of hybridization between this recombinant soybean and wild soybean was extremely low. Furthermore, even if this recombinant soybean and wild soybean were to cross, it is extremely unlikely that the hybrid would be adapted to the natural conditions of Japan, and we do not believe that the herbicide resistance trait would make the hybrid more competitive than wild soybean. It was done. Based on the above, this recombinant soybean cannot be grown within the scope of cultivation, storage, transportation, and disposal in an isolated field with certain work procedures in a limited environment, as well as acts incidental thereto.

The applicant's conclusion that there is no risk of biodiversity impacts resulting from hybridization was judged to be appropriate.

## 2 Conclusions of the Biodiversity Impact Assessment Committee

Based on the above, this recombinant soybean is suitable for isolation based on certain work procedures in a limited environment.

The biodiversity impact assessment report concluded that there is no risk of impact on biodiversity in Japan within the scope of on-site cultivation, storage, transportation, disposal, and related activities.

The conclusion was judged to be reasonable.