Advisory Committee on Releases to the Environment

Advice on a request to vary the consent conditions for the deliberate release of a GMO for research and development purposes

Applicant: Cambridge University Crop Science Centre

Application/request:

To undertake a field trial to investigate the impacts of arbuscular mycorrhizal fungi (AMF) inoculation on biomass and yield of both gene-edited and genetically modified symbiosis pathway genes in spring barley 'Hordeum vulgare', under altered conditions to those specified in the original consent issued to Cambridge University Crop Science Centre (CU-CSC) in 2021.

The changes to those conditions that are being requested include the addition of a number of gene-edited and transgenic lines along with the provision to enable overlapping of this and subsequent GM cereal trials.

Reference: 21/R54/01 (variation)

Date of advice: April 2024

Advice of the Advisory Committee on Releases to the Environment (ACRE) to the Secretary of State under section 124 of the Environmental Protection Act 1990

ACRE considers that the trial management measures it recommended in its advice on the original application ACRE advice: application for a field trial of genetically modified barley (21/R54/01) - GOV.UK (www.gov.uk) are appropriate for this variation. These measures are:

To minimise the likelihood that GM barley from this trial will enter the human food or animal feed chains, the applicant should:

1. Ensure that the 20m surrounding the trial site is planted with a non-cereal crop and that cereal volunteers are controlled (prior to flowering) in this area during the trial.

2. Plant a barley pollen barrier, of 3m width, to flower at the same time as the GM barley as an additional precautionary measure.

3. Control cereals and grass species using a glyphosate herbicide and hand weeding, if necessary, within the trial site and the surrounding 20m, before flowering and for the duration of the trial.

4. Ensure that any GM or non-GM barley plant material remaining in the area of release at the end of the trial is disposed of appropriately.

5. Ensure that following harvest, the area of release is lightly tilled twice (once after harvest and again in the following spring) to a depth of 5 cm to stimulate germination of any barley plant volunteers. The release areas should be left fallow and monitored for barley plant volunteers for 2 years following harvest.

6. Record the number of barley plant volunteers that germinate before destroying them with an application of glyphosate herbicide or hand pulling them prior to flowering.

7. Ensure that suitable measures (such as those described in the Cambridge University Crop Science Centre's application) are put in place to keep large birds out of the trial area and that the efficacy of these measures are kept under review.

8. Ensure that machinery used on the site is cleaned thoroughly onsite, including between using it with GM and non-GM material, and that clothing and equipment such as vehicles used by personnel on the site are also cleaned thoroughly before leaving the site.

Comment

ACRE notes that the main elements of the requested variation are the addition of two gene-edited lines (that were incorrectly characterised in the original consent application); three new lines, each with gene-edits in another AMF-associated gene (*RLK5*) not described in the original consent, and also three transgenic lines based on the latter gene-edited lines. ACRE did however request that the applicant provide genome identifier information on this new gene targeted in the gene editing. To this end CU-CSC provided the following Genome identifier information: *RLK5,* in the GPv1r1 genome is split annotated into 2 genes: chr6Hg0674691 + chr6Hg0674701.

CU-CSC have also requested a variation to consent condition 4 which set out the size and description of the trial sites. ACRE notes that CU-CSC wish to alter Condition 4(3)[1] so as to allow for other GM cereals covered by subsequent consents, including Qualifying Higher Plants (QHPs), to be grown within the same trial plot as those trialled under this consent. There would then be an isolation distance around the combined perimeter of the separate trials.

ACRE notes that Condition 4(2)[2] of the existing consent (which requires the presence of a pollen barrier) will still be met for all GMOs; around each of the GM trials will be a 3 metre wide strip of conventional cereals to function as a pollen barrier.

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[1] Condition4(3) requires that during the release period, cereals (other than those cultivated as part of this consent) are not grown in an area of at least 20 metres width surrounding the perimeter of the plot on which the GMOs are planted and that if this area is cropped, it is cropped with a non-cereal crop.

[2] Condition 4(2) a barley pollen barrier of at least 3 metres width surrounding the GMOs at a distance of up to 1 metre from the GMOs, is sown on the same day as the GMOs, at the same sowing density as the GMOs, with the variety Golden Promise within the perimeter of the plot.