Part B: Information about the release application to be included on the public register

B1 The name and address of the applicant

Wild Bioscience Ltd
Milton Park
Oxfordshire
OX14 4SA

B2 A general description of the genetically modified organisms in relation to which the application is being made

The genetically modified plant lines for this multisite trial are gene-edited wheat plants (cv. Cadenza):

Wild Solar 003 is described as a positive regulator of photosynthesis. The sequence edits are meant to modulate protein levels of this target gene, which is expected to enhance photosynthetic efficiency and agronomic performance (that is, increase yield).

Wild Solar 005 was identified from a bioinformatics screen looking for negative regulators of photosynthesis. This target gene is therefore considered a putative negative regulator of photosynthesis, and its modification is intended to enhance photosynthetic efficiency and agronomic performance.

Production of the edited plants involved the introduction of a binary plasmid containing a transgenic cassette required for CRISPR/Cas9-mediated genome editing and plant selection.

B3 The location at which the genetically modified organisms are proposed to be released

The locations applied for in the consent are as follows:
John Innes Centre
JIC Field Station, Church Farm, Bowburgh, Norwich NR93PY

Rothamsted Research Centre
Rothamsted Research, West Common, Harpenden, AL5 2JQ
National Institute of Agricultural Botany
NIAB, Park Farm Campus, Villa Road, Histon, Cambridge CB24 9AT

Grid references will be provided prior to any release.

The total area across all locations proposed to be released will be no more than 10,000m^2 in each calendar year for both Solar 003 and Solar 005.

B4 The purpose for which the genetically modified organisms are proposed to be released (including any future use to which they are intended to be put)

The purpose of this release is to conduct a research field trial to evaluate the agronomic performance of gene-edited wheat lines in which wheat regulators of photosynthesis have been modified. The study aims to generate data under field conditions to assess the effects of these edits on plant growth and yield-related characteristics.

Phenotypic observations under glasshouse conditions showed consistent growth, development, flowering time, and fertility among individuals within each line and when compared to non-GM controls, except for the expected phenotype associated with the edits.

The plants generated in this study are intended for research purposes only. The results will inform future research and breeding strategies, including the potential development of transgene-free edited lines for crop improvement. No commercial use is proposed as part of this release. Material from this trial will not enter the food or feed chain.

B5 The intended dates of the release

The field trial start date will be in Autumn 2026 and the plants will be harvested in August or September 2027. We have applied to conduct the experiment starting in 2026 and finishing in 2033, which would enable us to collect multiple years of replicated field trial data.

B6 The environmental risk assessment

The probability of seeds escaping from the trial site or the transfer of inserted

characteristics to sexually-compatible species outside the trial area is estimated as very low. Commercial wheat varieties do not establish easily or thrive in uncultivated environments and are naturally self-pollinating with out-crossing being a rare event. Wheat seeds are relatively large and not normally dispersed by wind. Management measures including the use of gas guns and hawk kites will be employed to mitigate the risk of seed removal by birds.

Management procedures to minimize the spread of seeds or pollen will further reduce the probability of these events occurring. There will be no sexually compatible cereals grown 20 meters from the boundary of the experimental plots and no sexually-compatible wild relatives of wheat exist in the vicinity.

Following the example of Consent 24/R57/01 and Variation of Consent 22/R55/01 (22/05/2024), other GM crops that are the subject of separate consents or notifications may be grown simultaneously within the trial sites as long as a wheat pollen barrier of at least 3 meters width surrounding the GMOs, is sown on the same day as the GMOs, at the same sowing density as the GMOs, with a variety of similar growing characteristics (height, flowering time) within the perimeter of the plot.

If out-crossing to plants outside the trial area were to somehow occur, selection pressure to maintain the genes in the environment would not exist where conventional herbicides such as glyphosate are used to control wheat or weed species. Even if the up-regulation photosynthesis genes do occur, the chances of successful establishment of these wheat plants in unmanaged ecosystems is extremely low (Driever et al., 2014).

The risk of non-sexual, horizontal gene transfer to other species is extremely low. In the event of horizontal gene transfer to bacteria, neither the trait genes nor the selectable marker genes would be expected to confer a selective advantage in the field environment under consideration (Philips et al., 2022).

The area proposed to be planted with GMOs or GMO-segregating azygous plants is small; total area is less than 1 hectare across all trial locations and traits, and temporary (trial seasons lasting between 11 and 12 months at maximum, running from 2026 to 2033 only).

B7 The methods and plans for monitoring the genetically modified organisms and for responding to an emergency

The trial sites will be monitored regularly (on a weekly basis) for volunteers and weeds during the growing period and for two years after the termination of the trial. At the end of each season, the plot will remain in stubble and monitored for

volunteers during the remainder of the year and the following season. Any volunteers identified will be destroyed by broad spectrum herbicide treatment (for example glyphosate) or removed by hand and destroyed.

After a year of stubble and volunteer control following the trial, a non-sexually compatible crop can be grown with the provision that any remaining wheat volunteers are able to be manually removed and/or chemically destroyed.

Any unexpected occurrences that could potentially result in adverse environmental effects or the possibility of adverse effects on human health will be notified to the Defra immediately. Should the need arise to terminate the release at any point the emergency plans detailed below will be followed.

Emergency procedures: In the unlikely event that the integrity of the site is seriously compromised or in other emergency situations, the trial will be terminated and all plants destroyed using a suitable herbicide or burning on site as deemed appropriate. Should the release site be subject to vandalism, care will be taken to ensure that all uprooted plant material within and outside of the trial site is identified and destroyed.