

Advisory Committee on Releases to the Environment Advice

Advice on the precision bred status of organisms described within a precision breeding marketing notice

Precision Breeding Marketing Notice Reference: PBM/26/TRAE/001

Date: February 2026

Notice summary: A precision breeding marketing notice describing a gene edited wheat plant (*Triticum aestivum*) where CRISPR-Cas9 has been used to create small indels and substitutions in the asparagine synthase (*TaASN2*) gene. The resulting phenotype is a wheat plant with lower levels of asparagine in the grain.

Advice of the Advisory Committee on Releases to the Environment (ACRE) under section 7 of the Genetic Technology (Precision Breeding) Act 2023 to the Secretary of State for Environment, Food and Rural Affairs.

ACRE considers the organisms described within the referenced marketing notice **to be precision bred**, based on the definition of a precision bred organism outlined in Section 1.2 of the Genetic Technology (Precision Breeding) Act 2023.

Overview

ACRE has assessed the information provided in this marketing notice against the definition of a precision bred organism outlined in Section 1.2 of the Genetic Technology (Precision Breeding) Act (the act). ACRE's advice is as follows:

'(a) Any feature of its genome results from the application of modern biotechnology'

The wheat plant has insertion-deletion mutations in the nuclear gene asparagine synthetase-2 (*TaASN2*) in all three genomes resulting from the application of a site-directed endonuclease (CRISPR-Cas9) and appropriate guide RNAs introduced *via*. microprojectile bombardment. This is a technique of modern biotechnology as defined by the act.

'(b) Every feature of its genome that results from the application of modern biotechnology is stable'

Genotyping of T₁ and T₂ plants by next generation sequencing showed all three edited alleles to be stably inherited

'(c) Every feature of its genome that results from the application of modern biotechnology could have resulted from traditional processes, whether or not in conjunction with selection techniques, alone'

The genetic changes are:

A two base pair deletion and two single base pair insertions in exon 1 of the *TaASN-A2* gene. The frameshift brought about by the first insertion results in a stop codon being brought into frame and a highly truncated protein being encoded.

A 173-base pair deletion in exon 1 of the *TaASN-B2* gene.

A single base pair insertion and a single base pair substitution in exon 1 of the *TaASN-D2* gene. As with the *TaASN-A2* gene, the frameshift brought about by the first edit results in a stop codon being brought into frame and a highly truncated protein being encoded.

The indels described are genetic changes that could have resulted from traditional processes as defined in the act.

‘(d) Its genome does not contain any feature that results from the application of any artificial modification technique other than modern biotechnology’

The wheat plant does not contain any feature within its genome made by artificial modification techniques, other than modern biotechnology. To confirm this, the notifier performed PCR analysis using primer pairs specific to gRNA, *Cas9* and *bar* gene sequences. The absence of foreign DNA elements was subsequently supported by whole genome sequencing.

Therefore, based on the information provided within the referenced marketing notice, ACRE considers this plant to be precision bred.