

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/SOLY/001

Date: April 2026

Notice summary: A precision breeding marketing notice describing a gene edited tomato plant (*Solanum lycopersicum*) where CRISPR-Cas9 has been used to create an indel in the *Solanum lycopersicum* 7-dehydrocholesterol reductase 2 (*SI7-DR2*) gene. The resulting phenotype is a tomato plant with increased accumulation of pro-Vitamin D₃ in plant tissues, especially leaves and fruits.

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 tomato plant has a 108-bp deletion within exon 2 of the nuclear gene *Solanum lycopersicum* 7-dehydrocholesterol reductase 2 (*SI7-DR2*) resulting from the application of a site-directed endonuclease (CRISPR-Cas9) and two specific guide RNA introduced *via* *Agrobacterium* mediated transformation. 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 5 subsequent selfing generations and outcrossing in elite tomato germplasm has demonstrated the stability of the genetic changes. The expressed phenotype can only be achieved when both *SI7-DR2* mutated alleles are present (i.e. homozygous) within a plant.

‘(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 transformation of the tomato plant with CRISPR-Cas9 and two specific guide RNAs is accepted to have resulted in a 108-bp deletion within exon 2 of the *Sl-DR2* gene resulting in gene knock-out and a protein loss-of-function. The 108-bp deletion in the targeted gene is a genetic change 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 tomato 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 NptII gene. All lines returned no amplification of genes demonstrating the presence of only genetic sequences that could occur through traditional processes.

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