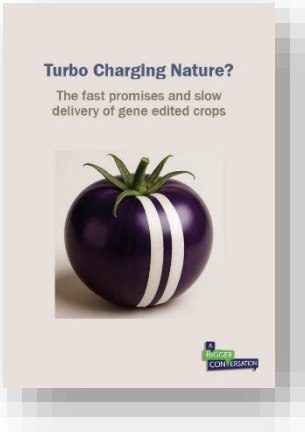
Executive Summary

Turbo Charging Nature?

The fast promises and slow delivery of gene-edited crops

A Bigger Conversation, October 2025

Turbo Charging Nature examines the political and scientific narrative that gene editing can "speed up" plant breeding and deliver rapid solutions to food security, climate change and sustainability challenges. Drawing on five detailed case studies, the report finds that the promise of speed — a central justification for deregulating gene-edited, or so-called "precision-bred", organisms — has not been realised in practice.



Key Findings

- **The "speed" narrative is political, not scientific**
  During the passage of the *Genetic Technology (Precision Breeding) Act 2023*, ministers and scientific advisers repeatedly claimed that gene editing could "turbo-charge" natural breeding. This framing positioned regulation as the main barrier to progress, rather than technical complexity or scientific uncertainty.

- **Progress has been slow across all flagship projects**
  Five major UK examples — low-asparagine wheat, blight-resistant potatoes, virus-resistant sugar beet, omega-3 camelina and the purple tomato — have taken between 15 and 25 years to reach field trials or niche release. None are commercially available in the UK, despite continuous and extensive public funding.

- **Conventional breeding has often been faster and more effective**
  In several cases, non-GM or conventionally bred varieties addressing the same problems have already reached the market, achieving similar or better outcomes with fewer technical or regulatory complications.

- **Technical limits and biological complexity persist**
  Traits such as disease resistance and nutrient enhancement involve multiple genes and environmental interactions. Removing foreign DNA from edited plants remains time-consuming and unreliable, undermining claims that gene editing is either precise or rapid.

- **A lack of transparency over public investment**
  Tens of millions of pounds of UK research funding have supported gene-editing

projects, yet there is no clear public accounting of spending, outcomes or value for money. The National Audit Office and Public Accounts Committee have both criticised this lack of oversight.

- **Speed as a distraction from need**
  The fixation on rapid technological solutions diverts resources and policy attention from systemic, agroecological and social approaches that deliver real, measurable improvements in resilience, soil health and food security.

Conclusions

The report concludes that “speed” has been used as a persuasive story to advance deregulation rather than as a proven characteristic of the technology itself. Gene editing remains slow, uncertain and largely unproven in delivering public benefits.

A more responsible innovation agenda would prioritise transparency, evaluation of public investment, and a balanced approach that recognises the value of ecological and conventional plant-breeding methods already providing results on the ground.

Download the full report here.