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Ethical and legal implications of gene editing in plant breeding: a systematic literature review

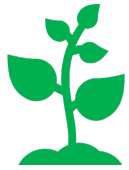
Key words: Systematic Literature Review; Gene-editing; Plant Breeding; Ethical and Legal Issues; Consequentialism; Virtue Ethics Principles

Research Summary

This review mainly focused on the ethical and legal discourses surrounding gene-editing for plant breeding, focusing on:



Sustainability



Biodiversity



Social justice



Moral responsibility of breeders and corporates



Regulation

JZUS-B

Innovation points



Sustainability

- Sustainability is about achieving a balance between the autonomy and wellbeing of both current and future generations, and the survival of planetary ecosystems
- Regulatory approaches of gene editing should consider all aspects related to sustainability

Biodiversity

- Gene editing as a tool to enhance genetic diversity and support conservation but the use of gene editing to produce high-yielding crop varieties may alter natural diversity.
- The naturalness of gene editing is opposed by organic farming communities

Social Justice

- Rise in patents related to gene editing has raised concerns over monopolization and associated potential social costs
- Amendment of the 1994 TRIPS agreement and establishment of an ethics advisory committee under WTO to improve legitimacy of the patenting system

Moral responsibility of breeders and corporates

- Breeders are morally responsible to be open about their breeding practices
- Labelling approaches should be viewed as an opportunity to link technological knowledge, societal objectives and individual consumption decisions

Regulation

- Several countries have outlines their regulatory stance on gene editing and other countries are anticipated to define their views in the future.
- Future-proofed regulatory approach is important