Genome editing in agricoltura: transizione agroecologica o intensificazione sostenibile? Due modelli a confronto

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Plant breeding paradox

“Thus, paradoxically, plant breeding has been undermining the very genetic basis on which it rests, leading to an overall phenomenon of de-diversification or genetic erosion. Plant breeders have become aware of this situation and have attempted to rectify it by broadening the genetic basis of their cultivar gene pool. However, it remains that the genetic diversity represented in the elite gene pools is only a small fraction of that present in the entire gene pool of crop plants. Hence, there is an enduring concern about the disappearance of genetic diversity over the long term.” (Gepts, 2006)
Il sistema di gestione delle risorse genetiche vegetali

Collect  Conserve  Use  Breeding

Ex-situ

Diversity

CWR

Il sistema di gestione delle risorse genetiche vegetali
Quale futuro?

Collect → Conserve → Use → Breeding for uniformity

What impact on diversity on farmers’ fields?
Biodiverse agricultural landscapes in which cultivated land is interspersed with uncultivated areas such as woodlands, pastures and wetlands have been, or are being, replaced by large areas of monoculture, farmed using large quantities of external inputs such as pesticides, mineral fertilizers and fossil fuels. (FAO, 2019)