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New Breeding Techniques: It is time for South Africa to reconsider our regulatory framework?

What are New Breeding Techniques?

According to the Academy of Science report of 2017[1], New Breeding Techniques (NBTs) are a non-specific collective name for a wide and evolving range of techniques aimed at modifying genomes and/or gene expression. These techniques hold great potential benefit in plant, animal and microbial breeding programmes, as they allow the relatively quick, efficient, accurate and cost-effective modification of valuable genetic traits. NBTs include methods such as such as CRISPR/Cas9, TALENs, and RNA interference that allow precise, targeted changes to plant or animal genomes without necessarily introducing foreign DNA. They differ from traditional GMOs by focusing on edits that could also occur naturally.

South Africa's regulation of NBTs is increasingly out of step with global practice, raising concerns about innovation, trade competitiveness, and food security. On 27 October 2021, the GMO Council issued a public notice declaring that the risk assessment framework prescribed under the GMO Act will apply to all products of NBTs. Agbiz launched an internal appeal to the Minister of Agriculture against this decision, arguing for a science-based, fit-for-purpose regulatory framework that would ensure legal certainty, innovation, and food security.

A recent report by BFAP, ARC, and IFPRI highlights the urgent need for regulatory reform, arguing that the country's current framework—treating all NBTs as GMOs under the 1997 Act—raises questions about proportionality, potential innovation impacts, and alignment with international regulatory developments.

Current regulatory framework

Under existing law, even genome edits that contain no foreign DNA and are indistinguishable from conventional breeding are subject to the full GMO approval process. The report argues that this approach is costly, complex, and time-consuming, particularly for lower-risk NBT applications. Less precise mutation breeding remains unregulated, while highly targeted NBTs face strict oversight.

Economic and food security risks

Scenario modelling in the report projects significant consequences if reforms are delayed. By 2035, maize and soybean export losses could reach R5 billion annually, while wheat import costs may rise by R6.5 billion. For consumers, the stakes are equally high: access to NBTs could lower maize meal prices by around 21%, directly benefiting low-income households and strengthening food security.

[1] The Regulatory Implications of New Breeding Techniques: ASSAF

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Global shifts

Internationally, regulatory frameworks are moving towards product-based, risk-proportionate systems. The United States, Brazil, Argentina, Canada, and several African countries—including Nigeria and Kenya—have exempted non-transgenic NBTs from GMO regulation. In Europe, the EU's 2026 Regulation exempts low-risk NGT1 plants from GMO rules, marking a significant policy shift. Without reform, South Africa risks regulatory isolation and diminished competitiveness in global markets.

Pathways for reform

The report puts forward a number of regulatory options for consideration, largely based on the Academy of Science of South Africa's 2017 report :

- Adopt a product-based and risk-proportionate approach, so that regulatory requirements are linked to the characteristics and risk profile of the final organism rather than the breeding technique alone.
- Formally distinguish between lower-risk NBT products, such as many SDN-1 and SDN-2 outcomes, and higher-risk products involving novel combinations of genetic material.
- Establish a simple public pre-assessment or notification system to determine, on a case-by-case basis, whether an NBT-derived product should fall within the GMO regulatory pathway or be treated similarly to a conventionally bred product.
- Update definitions, guidance documents and administrative procedures to reduce ambiguity, improve legal certainty and provide innovators with a clearer route to market.
- Ensure that any revised approach remains embedded within broader food safety, environmental, plant health and consumer protection systems, so that reform strengthens confidence in oversight rather than weakening it.
- Position NBT reform within South Africa's wider agricultural innovation and food security agenda, including support for locally relevant crop improvement, public-sector research and small and medium-sized breeders.

Crucially, reform need not compromise biosafety. Oversight can be embedded within the broader food safety, plant health, and environmental systems, ensuring proportionate regulation while enabling innovation. These changes do not necessarily require any immediate legislative amendments.

Strategic imperative

The report argues that modernising South Africa's NBT regulation is not merely a technical adjustment—it is a strategic imperative. Aligning with global standards would unlock domestic research and development, reduce costs, and safeguard export markets. More importantly, it would support national priorities of agricultural innovation, competitiveness, and food security.

Conclusion

The BFAP–ARC–IFPRI report makes a compelling case for South Africa to reconsider its regulatory stance on NBTs. A proportionate, product-focused framework would position the country to harness innovation, strengthen its agricultural sector, and ensure food security for its citizens. Delaying the necessary regulatory changes may lead to economic losses, regulatory isolation, and missed opportunities in global agricultural advancement.

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