

How biotechnology can protect indigenous ‘orphan crops’ from disease and boost economic growth

Despite their critical local importance, orphan, underutilized, and neglected crops tend to receive relatively limited attention in agricultural R&D initiatives ([Tadele, 2019](#)). While these crops play a key role in local diets and are uniquely adapted to the environment in which they are grown, they are characterized by underfunding for research and development, very little attention from agriculture extension services, weak and underdeveloped value chains, lack of awareness about their nutritional value, a perception that they are a “poor farmer’s crop” and low interest among farmers and industry due to lack of demand. Additionally, many orphan crops have large and complex genomes, which has limited the success of conventional research approaches.

However, in recent years, genetic modification (GM) has been successfully applied to address some key production constraints faced by orphan crops. This has increased interest in the potential of GM orphan crops to boost local food security and agri-business as evidenced by a growing R&D and field-testing pipeline as presented in this article.

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The case study analysis confirms the important, expected economic benefits to materialize from the adoption of GM crops in [sub-Saharan Africa]. Considering the substantial positive internal rates of return, investing in the development of GM orphan crops and their adoption is a worthwhile proposition for decision makers in the case-study countries and for SSA generally.

[This is an excerpt. Read the original post here](#)