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Locusts for Food, Feed and other Uses: A Potential Game-changing Approach in Managing Locust Plagues

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Abstract

Locusts comprise about twenty species of grasshoppers in fifteen genera in the Family Acrididae, Order Orthoptera. They breed in arid areas and can change from solitary to gregarious phases under high population pressure, forming massive swarms that migrate over very long distances. The locust plagues feed voraciously along their paths, massively destroying crops and pastures. For instance, an outbreak of the desert locust, *Schistocerca gregaria* in Africa in 2003–2005 covered 13 million ha in 22 countries. The locust plague caused 80–100% crop losses which affected over 8 million people. Almost half a billion US dollars was spent to control the plague and provide food aid to the affected people. The locusts were largely controlled by spraying with over 13 million litres of broad-spectrum neurotoxic insecticides. Though this chemical control approach was successful, the hazardous effects of insecticides on humans and the environment are too costly. In many countries across the globe, locusts are gathered for subsistent use as food and/or ingredients in livestock feeds during outbreaks. Literature indicates that locusts are highly nutritious, in some cases superseding conventional livestock and crop sources of food or feed. However, mainstreaming the use of locusts for food and feed, faces several research challenges. These include, technologies for mass trapping/mass-rearing of locusts, systematic assessment of nutritive and anti-nutritive factors of locust meal for use as food and feed, post-harvest processing and storage technologies, socio-economic, market and policy assessments, and value-chain analysis. Here we review the state-of-the-art techniques and practices of harvesting and processing locusts into food, feed and other valuable products globally. Key knowledge gaps to be addressed and potential interventions that are necessary to foster this strategy as a game-changing approach to the management of locust plagues as an alternative to massive application of insecticides are discussed.

Keywords: Harvesting, impacts of locusts, nutrition, processing, sustainable locust management