

Rethinking Food Markets Initiative

Innovative approaches and key findings in the design and formulation of processed maize and bean-based products in Honduras

By
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As part of the "Rethinking Food Markets" initiative, CIMMYT, in collaboration with national partners such as the Autonomous University of Honduras (UNAH), MATURE, and local SMEs involved in maize and bean processing, conducted a range of research activities focused on food processing from 2022 to 2024.

Scope of a pilot Study: An analysis was conducted on SMEs processing maize and bean products. A total of 30 SMEs were interviewed in the Francisco Morazán, Cortés, Yoro, Comayagua, and El Paraíso departments. The goal was to identify key innovations in five critical areas: raw material sourcing, product design, production processes, marketing, and inter-business relationships. The study also highlighted the main barriers and limitations that hinder innovation. Additionally, innovations with potential for testing were identified, including 1) the design and formulation of maize chips with alternative flours, including bean flour; and 2) the packaging of whole cooked beans in vertical bags.



Machine used by SME to produce maize-based bread



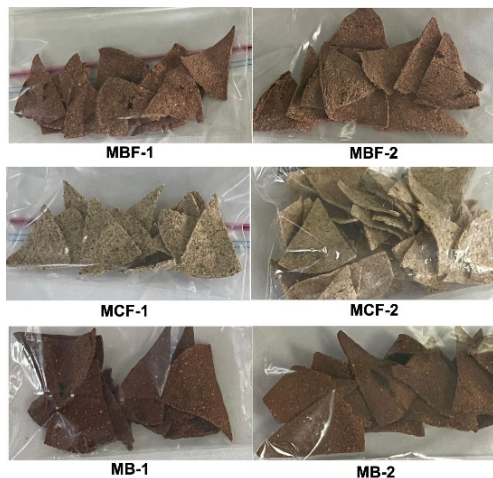
Making maize-based bread in ecological ovens

Implementation of Innovation Pilots:

Innovation 1 - Maize chips with alternative flours: This pilot focused on the design and acceptance of maize chips combined with alternative flours. Several blends were formulated, evaluating their nutritional properties and consumer acceptability. An expert panel selected two formulations of chips for each blend:

- Maize chips with beans
- Maize chips with chia-linseed
- Maize chips with beetroot

The selected formulations were evaluated by consumers in supermarkets in Tegucigalpa, Siguatepeque, and Comayagua. Results showed that these combinations are not only nutritious but were also well-received by consumers, with a notable preference for the chips with chia and linseed. However, scaling production remains a significant challenge. These chips represent a healthier option compared to conventional alternatives.



Chip Formulations Incorporating Bean (MBF), Beet (MB-1), and Chia-Flaxseed Flours (MCF)



Sensory evaluation by consumers

Innovation 2 - Vertical packaging for cooked beans: This pilot evaluated the acceptance of whole cooked beans packaged in vertical bags with a transparent side, allowing greater visibility of the product. A total of 130 bags were distributed to households in Comayagua and Tegucigalpa, with feedback requested after a week of use.

Results showed a good acceptance of both the packaging and the product, with 77% of participants expressing a willingness to pay an additional 10 to 20% compared to traditional bean options packaged in plastic bags. However, the packaging design, which prevents heat sterilization, limits shelf life and requires refrigeration. Additionally, the cost of the packaging may restrict sales in traditional markets. Despite these challenges, vertical packaging presents an attractive option for niche markets in the country's leading supermarkets.



Cooked whole beans packed in a vertical bag

Through collaboration with local partners, the CGIAR initiative "Rethinking Food Markets" has fostered significant innovations for SMEs, including maize chips made with alternative flours and vertical packaging for cooked beans. Both proposals have been well-received by consumers, although they face challenges in scalability and commercialization. This effort not only promotes healthier options but also strengthens local value chains, contributing to the sustainable development of the food sector in the country.



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