

Nixtamalization: A Process to Transform Maize in Africa

Alba Du Toit, Sisipho Rebe, Onele Mpemba, Carina Bothma

University of the Free State, Bloemfontein, South Africa

Abstract

Maize is regarded as one of the most crucial agricultural products globally, serving as a staple food in many African countries. It is estimated that by 2050, demand for maize in developing countries will have doubled and that by 2025, maize will become the crop with the highest global production. A major challenge in South Africa is to ensure household food security, enhance nutrition and improve well-being while enabling job creation through sustainable agricultural production and processing. Grain SA is working with the UFS, TIA and ABIPP to identify innovative strategies to promote agro-processing in low-income communities in South Africa.

The nixtamalization of maize is a process that could address some of the nutritional issues facing Africa. The plan is to implement this project in rural areas in South Africa. It is believed that through community training and product development, many socio-economic challenges and food insecurity in low-income communities can be addressed in South Africa. The aims of this project are to introduce agro-processing techniques to low-income communities and to empower women in these areas to start their own businesses.

Nixtamalization provides several benefits over unprocessed maize. It removes 100% of aflatoxins, and the nutritional value of maize is increased as Niacin, Tryptophan, calcium, iron, copper, and zinc become bioavailable, the starch granules are easier to digest, the maize is more easily ground and processed, and the flavor of the maize is improved.

A baseline study (200 participants) was done to determine the needs of women in Limpopo and Mpumalanga and to develop products which they could produce and sell. The results showed a lack of basic cooking equipment. Therefore, the products are developed only using the most basic equipment. After testing several products, dried putu pap (to be reconstituted in a flash) was selected as a viable product as it received "JAR" (Just-About-Right) score and a 6.76 (like slightly) ranking in the nine-point hedonic scaling task in the sensory tests conducted by the UFS sensory lab. If South Africans could accept and practice the process of nixtamalization, it could hold benefits beyond better nutrition and safer maize products.