

**APPENDIX V****DISCUSSION PAPER ON DEVELOPMENT OF A REGIONAL STANDARD FOR BREADFRUIT FLOUR  
(NORTH AMERICA AND SOUTH WEST PACIFIC)****1. Background**

At the 16th session, the FAO/WHO Coordinating Committee for North America and South West Pacific (CCNASWP) deliberated on new work proposals. Samoa's delegation suggested a Regional standard for breadfruit flour as a potential focus for standards development in the region. They emphasized the necessity of establishing a Codex Regional standard for breadfruit flour (North America and South West Pacific) to enhance food security, nutrition, and export trade for processed breadfruit products, tapping into the abundant regional crop resources.

Moreover, the delegation highlighted the increasing demand for gluten-free flour in export markets which can be met with breadfruit flour. They shared details on on-going research studies regarding the nutritional properties and potential health advantages of breadfruit flour emphasizing that this initiative would help safeguard consumer health and promote equitable food trade practices.

Samoa offered to take the lead in preparing a discussion paper and project document for the suggested regional standard, with support from other regional member countries.

**2. Rationale for the development of a standard for Breadfruit flour**

Breadfruit (*Artocarpus altilis*) is a traditional food, extensively grown in the Pacific island Countries, where it plays a significant role in traditional agroforestry systems. This fruit is edible at all stages of development and is a primary food source throughout the Pacific Island Countries.

Breadfruit flour is starchy and gluten-free rich in fiber, vitamins, and minerals. It has beneficial properties like water retention and high viscosity when heated, which make it a promising ingredient for baking, thickener in processed foods and paste. Very importantly for the region it is a healthy alternative to imported wheat flour enhancing food security and nutrition in the region and can cater to the gluten-free export market.

Despite its advantages, the production and trade of breadfruit flour in the region are hindered by the lack of a standard that set the quality parameters consumer safety and trade. To address this, there is a consensus in the region on the necessity of establishing a Codex Regional Standard to harmonize standards, protect against counterfeit or substandard products, and minimize health risks for consumers. This standard will encompass requirements for hygienic practices, consistent product quality, and accurate labelling to ensure consumer protection and reduce trade barriers.

**PROJECT DOCUMENT****PROPOSAL FOR NEW WORK ON A REGIONAL STANDARD FOR BREADFRUIT FLOUR  
(NORTH AMERICA AND THE SOUTH WEST PACIFIC)**

(for approval at CAC48)

**1. The purpose and the scope of the standard**

The scope of the work applies to breadfruit flour intended for direct human consumption which is obtained from the processing of edible breadfruit (*Artocarpus altilis*). This proposed regional standard applies to relevant products that are distributed commercially.

The purpose of the proposal is to establish a regional standard for breadfruit flour which is aimed at improving the safety and high quality of products and promoting international market potential consistent with Codex Alimentarius Commission's objectives of protecting consumer health and facilitating fair trade practices in the food trade. Specifically, the development of the proposed regional standard can facilitate trade for breadfruit flour through the harmonization of standards and regulations, increase market access and trade efficiency for breadfruit flour, and enhance competitiveness on the global market.

The proposed standard will promote food safety and compliance with good manufacturing practices, good hygiene practices, appropriate product labeling and packaging, and laboratory testing including relevant Codex texts. There is no known specific food safety microbiological and chemical hazards associated with breadfruit and breadfruit flour.

**2. Its relevance and timeliness**

Breadfruit in all forms is a staple food throughout the region and consumed in a variety of cooked methods and dishes. It is thought to be one of the most productive trees in the world, providing anywhere from 50 to 200 fruits per year. Fresh breadfruit is highly perishable as it has poor storage properties prone to chilling injury and is rapidly ripen at normal weather conditions and when taken out of cold storage. Therefore, in flour form it will contribute to year-round availability and regional food security, enhance trade, and address consumer safety concerns, promote consumption of indigenous, and sustainable food sources, including by improving resilience to the impacts of climate change (by providing a way to store and preserve the fruit that is subject to spoilage due to flooding etc), reduce food waste (90% of fresh fruit discarded due to the ripening characteristics) and support the achievement of SDG 2 (zero hunger) and 12 (responsible consumption and production).

The proposed standard will facilitate trade regionally of this gluten-free product.

Given the increasing demand for gluten-free products, it is timely to develop a regional standard for breadfruit flour to capitalize on this new growing market opportunity for gluten-free products, while simultaneously enhancing trade facilitation by focusing on improving production and storage practices to help reduce waste and ensure consistent supply, thus contributing to the reduction of food loss and advancing overall food security in our region.

The lack of a harmonized standard can lead to impediments in international fair trade with the production and distribution of low-quality products. Therefore, it is necessary to establish a regional standard for breadfruit flour to protect consumer health and ensure international fair trade.

**3. Main aspects to be covered**

The main aspects of the products addressed in the proposed regional standard are quality and safety requirements aimed at protecting consumer health and facilitating fair trade practices. Therefore, the proposed standard aims to cover aspects such as product definition, main ingredients and quality factors, food additives, impurities, hygiene, weights and measures and labelling, as well as methods of analysis and sampling.

**4. Assessment against the criteria for the establishment of work priorities****General Criterion**

Consumer protection from the point of view of health, food safety, ensuring fair practices in the food trade and taking into account the identified needs of developing countries.

**Criteria applied to the commodities**

- (a) Volume of production and consumption in individual countries and volume and pattern of trade between countries

*FAO reported the indicative current export demand for Fiji's breadfruit and breadfruit products*

estimated to be some 1,500 tonnes per annum, with free on board (fob) value of approximately FJD 6.5 million. This export market is shared with Samoa and Tonga. In the medium term this demand is expected to increase to some 2,500 tonnes doubling in value to approximately FJD 12.5 million". (Andrew McGregor & Kyle Stice-Feb 2018 Breadfruit market and marketing of Pacific Island Breadfruit with a focus on Fiji & Samoa)

The combined efforts of the Pacific Islands will see a further increase of breadfruit and breadfruit flour production and increased export markets.

In Samoa, the Scientific Research Organisation of Samoa (SROS) has led recent applied breadfruit processing research, focusing on the commercialisation of breadfruit flour and other breadfruit processed flours. While awaiting the start of commercial operations, SROS continues to produce breadfruit flour to meet orders from New Zealand customers; according to data from the 2021-2022 SROS Annual Report

#### **SROS Sales from Breadfruit Flour**

2017-2018	2018-2019
\$1,200SAT	\$19,133 SAT

- (b) Diversification of national legislation and apparent resultant or potential impediments to international trade

*There is no existing national legislation in the NASWP region covering breadfruit flour.*

- (c) Regional market potential

*The potential market for breadfruit flour is the gluten-free market in New Zealand and Australia. There has been much talk about the huge gluten-free market – estimates put the current global annual market at between \$3 billion and \$15 billion, and expected to grow to \$50 billion (Kirton 2016, Avegalio 2016). However, breadfruit flour is unlikely to capture a share of this vast gluten-free market, at least in the medium term. Not only is the supply of breadfruit negligible compared to demand, but there are also a large number of much cheaper alternatives on the market, such as rice, corn, cassava, etc. Over the next decade, as the effects of climate change on food crops become more apparent, the price ratio of breadfruit flour is likely to change.*

*In the foreseeable future, the prospects for exporting processed breadfruit products, excluding frozen and cooked varieties, appear to be promising, particularly within high-value niche markets. This is attributed to the potential for breadfruit to stand out based on factors other than price such as its overall improved nutrition, product origin, product image, and superior processing characteristics (Mcgregor & Stice, 2018).*

- (d) Amenability of the commodity to standardization

*Breadfruit is characterized by its high content of complex carbohydrates, substantial fiber levels, minimal fat and cholesterol, and its gluten-free nature. It possesses a moderate glycaemic index, which is lower than that of white potatoes, white rice, white bread, and cassava. Nonetheless, the composition of protein, fat, and crude fiber varies considerably among different varieties and stages of maturity, as evidenced by pioneering research on breadfruit processing conducted in Samoa during the early 1980s by Wooten and Tumaalii (1984). Notably, the popular Samoan variety Ma'afala, along with its equivalent Fijian variety Bale kana ni Samoa, demonstrates particularly favourable nutritional profiles in this regard. (Mcgregor & Stice, 2018).*

*The three (3) key positive nutritional features of breadfruit food products in contributing to an overall reduction in NCDs:*

- 1) *gluten free and low in FODMAP elements;*
- 2) *a moderate glycaemic index; and,*
- 3) *a high non-digestible carbohydrate context (high amylose content).*

- (e) Coverage of the main consumer protection and trade issues by existing or proposed general standards

*There are no existing standards for Breadfruit Flour products. This new work will reinforce consumer protection and promote regional trade through the establishment of regionally approved quality standard.*

- (f) Number of commodities which would need separate standards indicating whether raw, semi-processed or processed

*Currently there is no need of any other separate standard other than that proposed, since the proposed standard breadfruit flour is a singular processed food.*

- (g) Work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies)

*There is no work suggested or undertaken by other international organizations in this field. Meanwhile there are many studies on uses, dietary benefits and economic opportunities of breadfruit flour.*

#### **5. Relevance to the Codex strategic objectives**

This proposal meets Objective 1.1 (Establish new and review existing Codex standards, based on priorities of the CAC) of Strategic Goal 1 (Establish international food standards that address current and emerging food issues) under the Strategic Plan of the Codex Alimentarius Commission for 2020-2025.

#### **6. Information on the relation between the proposal and other existing Codex documents**

This proposal is an initiative of the Samoa National Codex Committee (SNCC) to promote safe production of Breadfruit flour as a regional standard, as there is currently no such existing standard within Codex. It will refer as much as possible to other general Codex standards (e.g. hygiene, labelling, food additive and contaminants, etc.).

#### **7. Identification of any requirement for and availability of expert scientific advice**

Provision of scientific advice from experts is not foreseen.

#### **8. Identification of any need for technical input to the standard from external bodies so that this can be planned for**

Technical assistance by WHO and/or FAO to substantiate the scientific advice in Section 7 above if required

#### **9. Proposed timeline for completion of the new work**

It is expected that the development of the proposed standard would be conducted in two CCNASWP sessions or less, depending on the agreement reached by CCNASWP.