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LETTER OF INTENT

Food is a nutritional support substance needed by the body to keep it alive for life and social functionalities. The state of man's health is a function of what he consumes. This, therefore, requires a call for caution to do away with food not hygienically produced that are dangerous to human health. Nigeria's ecological and climatic conditions put the country at an advantage for the production of a wide range of food products such as plantain if properly processed and packaged. The categories of foods most useful and healthy to the body are fruits and green vegetables. However, these are seasonal and perishable in nature as greater percentages are being wasted due to lack of storage facilities. Food losses to poor handling and low value-adding processing technologies have been of great concern and challenge to food production. These call for greater attention if food security is to be sustained. Value addition processes stand to be the sine-qua-non to the preservation of agricultural fruit wastages during the season of its abundance. Plantain, the fourth most important crop, is crucial to the food security and livelihoods of many people in Nigeria – the fifth leading plantain producer in the world. Plantain has become an important source of healthy food in the Nigerian market today, as it is used in managing diabetes. As a result, it is quickly becoming a sought-after fruit for everyone. The demand for plantain flour is rapidly increasing due to its health/nutritional benefits and industrial/commercial value. Plantain postharvest losses in Nigeria typically range from 5% to more than 50%. Because plantain is perishable, it is typically processed into flour to extend its shelf life, during which contamination or exposure to an unhealthy condition may occur.

Team of Researchers from different departments at the Federal University of Technology, Akure, comprising experts with a good track record from the field of Mechanical Engineering, Industrial and Production Engineering, Electrical and Control Engineering, Mechatronics Engineering, Food Science and Storage Technology, had been able to proffer solution to this problem by developing an indigenous process plant for processing unripe plantain fingers into bagged flour which consists of seven sections: washing, particulating, drying, milling, conveying-cooling, metering and packaging, so arranged to form C or U-shape in order to conserve floor space (Figure 1). This invention is a plant for processing unripe plantain fingers into bagged flour. It established procedures for developing a plant that can continuously produce flour from unripe plantain fingers

and other similar crops. The invention can be used as a model for a methodical approach to developing indigenous food processing plants. By this invention, the unit machine and manual processing of plantain have been eliminated resulting in the production of hygienically packaged plantain flour that retains the flavor, esteem, and nutritional values of fresh plantain in the flour produced. Other food supplements already developed at the Food Science Technology Department of the Federal University of Technology, Akure can be added to the plantain flour during production to fortify it for other health benefits. The plant has the capacity to produce 1000 kg of flour per day, it requires 12 m by 6 m (72 m^2) of floor space, and the cost of production as at year 2021 is Sixty million naira only (₦60,000,000). The plantain flour plant was indigenously designed and fabricated at the Federal University of Technology, Akure. It has already been patented. There are over fourteen (14) academic publications in standard journals and conferences from the work, and eight (8) postgraduate students have been produced during the course of the work.

A sum of **Fifteen Million, Two Hundred and Ninety Thousand Naira (₦15,290,000.00)** is estimated as the amount needed to startup the production of plantain flour from this plantain flour plant that was indigenously designed and fabricated at the Federal University of Technology, Akure partly through the Institutional Based Research (IBR) grant. The detail of the business case for the production of FUTA plantain flour comprising overview, startup budget, cost of goods and services, income, expenses, revenue, labour, and projection are as shown in Table 1 to Table 8.

This project will have a direct impact by delivering wholesome bagged flour to the citizenry; reduction in-post-harvest losses as agricultural produce can instantly be processed for future use thus, increasing food security; promote industrialization; create jobs; and promote small and medium enterprises (SMEs) in Nigeria.

Thank you and best regards.

Yours Faithfully,

Engr. Prof. Sesan Peter Ayodeji, FNSE