

FRI/EU CASSAVA SME's PROJECT

REPORT ON TECHNOLOGY TRANSFER FOR *FUFU*
FLOUR AT SOKODE IN THE VOLTA REGION OF GHANA

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TABLE OF CONTENTS

List of figures.....	2
1.0 Introduction.....	3
2.0 Technical staff.....	5
2.1 Technology transfer.....	5
3.0 Discussions.....	6
4.0 Technical staff.....	7
4.1 Technology transfer.....	7
5.0 Discussions.....	8
6.0 Lessons learnt during the technology transfer.....	11
7.0 Conclusion.....	11
8.0 Recommendation.....	11
Glossary.....	12

LIST OF FIGURES

Figure 1	Flow chart for the production of <i>fufu</i> flour.....	6
Figure 2	Flow chart for preparing <i>fufu</i>	8
Figure 3(a,b)	Trainees observing the preparation of <i>fufu</i> flour.....	9
Figure 4	Ms Constance of the FRI demonstrating the preparation of <i>fufu</i>	9
Figure 5	Ms Constance of the FRI mounding <i>fufu</i>	10
Figure 6(a,b)	Trainees preparing <i>fufu</i>	10

1.0 Introduction

A major component of the Food Research Institute/European Union Cassava Small Scale Enterprise Project (FRI/EU Cassava SME's Project) is the technology transfer for processing of value-added cassava products. In addition, the project among others seeks to empower cassava SME's to add value to raw cassava through appropriate processing technologies to meet the urban demands for value-added cassava products. The FRI/EU Cassava SME's Project has 8 specific and technological objectives as follows:

1. To develop and promote best practice guidelines for the commercialisation of traditional food products using cassava products as a model.
2. To develop and test specific technologies for the commercialisation of cassava based products.
3. To understand and optimise the impacts of commercialisation, specifically that based on SMEs, on the livelihoods of traditional processors.
4. To assess the potential of traditional processors to produce high quality products that meet urban demand.
5. Development of appropriate quality assurance (QA) systems for SMEs engaged in commercial processing of traditional foods products.
6. To develop more cost-effective and environmentally sensitive process that will make commercial manufactured cassava products more affordable
7. To establish "best practices" for the establishment, support and promotion of SME's producing traditional food products.
8. To examine and select marketing strategies and distribution systems which effectively target urban markets.

It is to address these specific and technological objects of the project that a technology transfer on the preparation and utilization of FRI *fufu* flour and other *fufu* flours such as Neat, Ghanafresh, Rosafric, Tropiway, Elsa, Limex and Selasie on the local Ghanaian markets was undertaken at Sokode in the Ho District of the Volta Region of Ghana as part of the FRI/EU Cassava SME's Project. It was anticipated that the technology transfer will enhance the assimilation of the *fufu* flours into the operations of the chop bars to improve income generation.

Fufu flours are prepared from either plantain or cocoyam or yam with addition of cassava. Plantain and yam *fufu* are often eaten with chicken light soup or pepper soup whereas cocoyam *fufu* is often eaten with *kantomire* soup (cocoyam leaves: *Xanthosoma mafaffa*) popularly called *abunabun* or *green green* in Ghana.

The technology transfer for *fufu* flours was held on 30th March and 5th July 2006 at Sokode, a farming community with approximately 300 inhabitants. Sokode is 10 km from Ho, the capital city of the Volta Region. The major cultivated crops are cassava and maize.

Two chop bar operators were selected based on their popularity in the town. These were Popular Chop Bar and Number One Chop Bar. On the first day of training, 8 and 12 employees from Popular Chop Bar and Number One Chop Bar, respectively, participated in the training. The second day training was held at Popular Chop Bar for 14 and 10 employees from Popular Chop Bar and Number One Chop Bar, respectively.

Day 1: 30th March, 2006

2.0 Technical staff

The technical staff that undertook the technology transfer for *fufu* flour was:

- Dr. P-N. T. Johnson Food Post-harvest Specialist FRI
- Dr. C. Tortoe Microbiologist/Food Scientist FRI
- Mr. B. A. Mensah Food Technologist FRI
- Mrs. C. Oduro- Yeboah Food Scientist FRI
- Mr. J. Anaglo Agriculture Economist UG

2.1 Technology transfer

The trainees were taught the processing method for *fufu* flour. Different *fufu* flour packages on the Ghanaian markets namely Neat, Ghanafresh, Rosafri, Tropiway, Elsa, Limex and Selasie were exhibited for the participants. Trainees were told of the immense benefits of adding *fufu* flour to their operations. The *fufu* flour is available on the market, reasonable priced, easy and quick to prepare between 5-10 minutes. These qualities of the *fufu* flour definitely improve the income base of the operator when successfully incorporated in the operations of the chop bar. The trainees were taught the various steps for preparing *fufu* flour are presented in figure 1.

Step 1: Purchase raw plantain/cocoyam/yam



Step 2: Sort by hand



Step 3: Peel by hand



Step 4: Wash in clean water and metabisulphate



Step 5: Mechanical Slicing



Step 6: Cook in boiling water

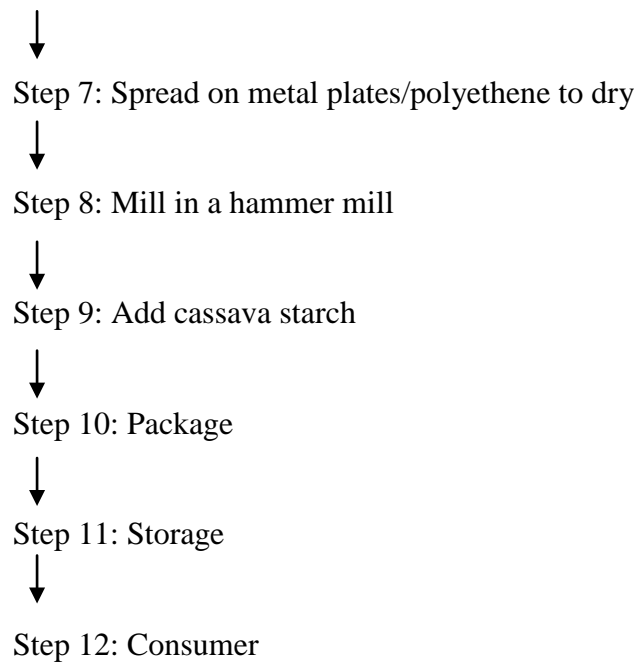


Figure 1. Flow chart for the production of *fufu* flour

3.0 Discussion

The trainees wanted to know if the *fufu* flour packages exhibited are available on the markets in the Ho municipality and how much they are sold. In response, the team told the trainees that the *fufu* flour packages are available on the markets in the municipality and ranges between ₺15,000 - ₺30,000. The trainees questioned the team on the taste, smoothness, hand-feel and mouth-feel of the *fufu* flour if it compares to the traditionally prepared *fufu*. The team assured the trainees of the excellent results on all the attributes mentioned, which will be witness during demonstration on the second training session.

Day 2: 5th July 2006

4.0 Technical staff

Mr. Felix Agbeyengah, an Agricultural Extension Officer for Ho district was on hand to offer assistance. The team was made up of the following:

1. Dr. C. Tortoe	Microbiologist/Food Scientist	FRI
2. Ms C. Boateng	Nutritionist	FRI
3. Mr. J. Anaglo	Agriculture Economist	UG
8. Mr. E. T. Quayson	Food Scientist	UG

4.1 Technology transfer

The technology transfer was a demonstration on the preparation of *fufu* from FRI *fufu* flour and other *fufu* flour namely, Ghanafresh, Rosafric, Tropiway, Elsa, Limex and Selasie. Although the demonstration was for the chop bar owner and the workers, it attracted a lot of people who had no business in chop bar so that 28 persons were present observing the demonstration. Ms Constance Boateng from the Nutrition and Socio-economic Division of FRI demonstrated a stepwise preparation of *fufu* from the *fufu* flours provided by the team. This she did with the help of an interpreter. The preparation was done by measuring two cups of water and a cup of *fufu* flour and mixed together completely in a cooking bowl. The mixture was cooked while stirring with a wooden ladle. The stirring continued on low heat into a thick smooth paste (5-10 minutes). Additional water was added when desired to soften the paste. The resulting thick smooth paste was moulded into balls. The steps for preparing *fufu* are presented in figure 2. The owner and the staff of the chop bar have the philosophy of “learning by doing”. They had turns to demonstrate what they had learnt, which they did successfully. It was a delightful sight as the owner brought her expertise in turning the paste to bear. The cocoyam *fufu* flour required more water than the plantain *fufu* flour during the cooking process. The prepared *fufu* was eaten by all with light soup (tomato and garden egg with goat meat) provided by the team.

The trainees ate the *fufu* prepared from flour and compared it with the traditional prepared *fufu*. Their collated views are as presented in subsequent sections.

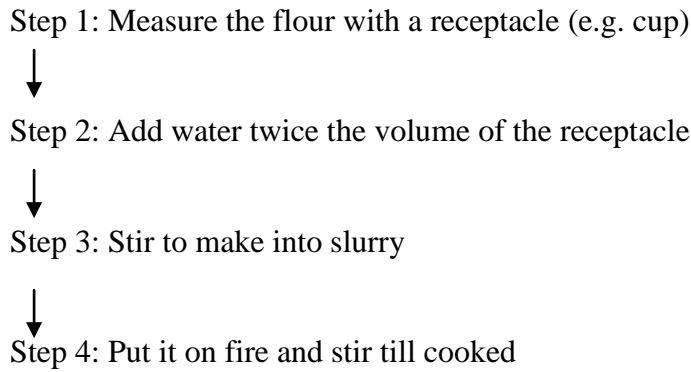


Figure 2. Flow chart for preparing *fufu*

5.0 Discussion

The trainees wanted to know where they could get the *fufu* flour packages . It was explained that it is available in super markets. Alternatively, it could be obtained from producer gates. When the trainees were asked about what appeals to them about the *fufu*, they mentioned such qualities as good consistency, smooth paste, taste, less laborious nature and less duration of preparation of the *fufu* flour as factors that makes the *fufu* better than the traditional *fufu*. The flavour was also appealing to the trainees. The trainees similarly wanted to know the quality with respect to time after preparation. The FRI staff explained that the same standards that are used in traditional *fufu* keeping could be applied.

They were also concerned about development of lumps during cooking. It was explained that ensuring smooth slurry preparation will reduce or remove any such occurrence. They also wanted to know if they could buy it at a discount rate as chop bar operators. On the question of getting customers to know they have such a product, the trainees said they would achieve that through the use of posters displaying the *fufu*. The trainees said the *fufu* flour is economical because sometimes they buy a whole sack of cassava and all would turn out to be unsuitable for *fufu*. But with the flour, one is assured of complete utilization.

The trainees were eager to get samples and asked that samples be brought to them as soon as possible so that they can get samples for the customers. On a question on cost

of a bowl of *fufu*, the trainees said that the price determination will be based on customers demand for the product. They were encouraged to stick to the 1: 2 ratio of flour to water to have a better consistency and a good product. Figure 3 to 6 shows the demonstration on preparing *fufu* and the trainees demonstrating the technology they have learnt.



a. Trainees



b. Trainees

Figure 3 (a,b). Trainees observing the preparation of *fufu*



Figure 4. Ms Constance of the FRI demonstrating the preparation of *fufu*



Figure 5. Ms Constance of the FRI moulding *fufu*



a. Trainee stirring *fufu*



b. Trainee moulding *fufu*

Figure 6 (a,b). Trainees preparing *fufu*

6.0 Lessons learnt during the technology transfer

- Trainees were unaware of the *fufu* flours on the markets.
- Trainees accepted the technology and are prepare to introduce *fufu* flour into their chop bar operations for which they envisage significant improvement in their income and resulting livelihood.
- They agreed that the quality of the *fufu* especially the taste was better that the traditional *fufu*.
- Trainees felt the price of the *fufu* flour was expensive.
- The source of regular supply of the *fufu* flour was of concern to the trainees.

7.0 Conclusion

Trainees embraced the ideal of introducing *fufu* flour into their chop bar operations. They however expressed reservations about the price, regular supply and package of the *fufu* flour and wanted the price reduced and the package size of 500g increased. The price of *fufu* flours, which is basically market drive ranges between ₦15,000 to ₦30,000 on the market. *Fufu* flours are available in markets, kiosks, shops and supermarkets all over the country.

The trainees agreed that the FRI *fufu* flour and other *fufu* flours are of best quality than locally prepared *fufu*. The trainees were particularly impressed about the quality of the taste of the *fufu*. The trainees accepted the preparation technology of the *fufu* flour. They further agreed that the *fufu* flour will significantly improve their income when successfully employed in their chop bar operations. The trainees accepted the technology transfer for *fufu* flours into their chop bar operations.

8.0 Recommendation

The team recommends follow-ups to evaluate the success of the training after the incorporation of the *fufu* flour in the activities of the chop bars and gather information on consumer utilization, acceptability, preference and perception of *fufu* flours.

GLOSSARY

FRI.....	Food Research Institute
EU.....	European Union
SMEs.....	Small and Medium Scale Enterprises