ACCEPTANCE OF YOGHURT PRODUCTION AS EMPOWERMENT BY WOMEN GROUPS IN RANO LOCAL GOVERNMENT AREA OF KANO STATE

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ABSTRACT

This Supervised Enterprise Project (SEP) was conducted in order to create awareness, empower and impart the skills and knowledge of sustainable techniques of milk processing by converting it to yoghurt. The project empowered thirty rural women leaders in Rano town, Rano LGA of Kano State on how to make yoghurt from fermented cows' milk (nono), thus helping them economically. One hundred questionnaires were distributed to one hundred households in order to assess socio-economic aspects of milk producers in Rano LGA. Chi-square and simple descriptive statistics were used to analyse and describe the data collected. Majority of the farmers had poor knowledge of improved yoghurt processing prior to this project. However, all the farmers reported to have improved their yoghurt processing skills after the project. Furthermore, majority of the farmers indicated willingness to adopt the technology acquired. Chi-square analysis showed that there was a significant ($p<0.05$) difference in willingness to adopt the yoghurt technology between owners of large and small herds, which indicates that, farmers with large number of animals in their herd were more willing to adopt yoghurt technologies than those with fewer animals.

Keywords: Yoghurt, women, empowerment

INTRODUCTION

Fresh Milk is highly perishable, as such, it should be immediately consumed in its fresh form (Yahuza, 2000). Fresh Milk can also be processed into fermented products which could improve the quality and nutritive value (Cashman, 2002).

The problem of low milk yield and of low quality in dairy cattle under tropical environment is held as one of the most important limiting factor to the rapid growth of the dairy industry in Nigeria, and the problem is attributed to a number of factors, which included climate, genetic potential of breeds, inadequate nutrition, diseases and poor management (National Livestock Project Division, 1992). In recent time under nutrition and low protein caloric intake has been recognized in developing countries of the world. The measures to be adopted to correct the nutritional deficiencies in both child and adult population in these countries are still subject to widely differing opinions.

On one hand, loss of milk quality largely due to lack of techniques for improving preservation and lifespan of fermented cow's milk (nono) was identified as a major challenge that requires intervention. Furthermore, improved milk processing techniques can increase output and quality of the milk and hence invariably increase sales and consumption. When there is an increase in sales, the women's income will increase, thus their livelihoods and that of their families will be improved. Milk processing into yoghurt may be of immense help to curb the problem of milk spoilage which leads to immeasurable losses to farmers. The project will also improve the storability of milk for the producers to target better markets and prices. More so, an increased consumption of milk and yoghurt by the people will increase their protein intake and thus increase their health (Barr *et al*., 2000).

Project Context

The project was conducted as a Supervised Enterprise Project which is an organizational component of Sasakawa Africa Fund for Extension Education (SAFE). The project empowered rural women on how to make yoghurt from fermented cows' milk (nono), thus helping them economically.

MATERIALS AND METHODS

The Study Area

The training was conducted in Rano town, Rano Local Government Area (LGA) of Kano State. Kano is located in the North-Western part of Nigeria at latitude 12°3'N and longitude 8°32'E with an average temperature of 26.2 °C with warmest temperature being 38 °C in April and the coolest temperature being 13 °C in January and December. The state also receives an average of 873 mm of precipitation annually. The months with the driest weather are January and December. Mean relative humidity was recorded as 31.1% (KNARDA, 2008). On the other hand, Rano has an area of 520Km^2 and a tropical climate. The temperature and rainfall averages are 25.8 °C and 865 mm respectively (Climate-Data.org, 2015). Inhabitants are mostly Fulani cattle rearers and, therefore milk production is one of the major economic activities in the area.

Preliminary Activities

A need assessment exercise was carried out at Unguwar Dam, Rano Local Government area, Kano State. The inhabitants were mostly farmers engaging in both crops and animal husbandry. They cultivate crops in both raining and dry seasons. A stakeholders meeting was conducted to identify the areas of priority which people of the study area will mostly benefit from. Both the first and the second stakeholders meetings employed the use of focus group discussion. The first community meeting was conducted on 20th May, 2016 including various stakeholders of the projects. The target farmers were women cooperative societies to assess their various needs.

The project began by introducing the research student to women groups in the LGA and a convenient location was selected for a one-day training. Thirty women leaders were selected after they have obtained proper recommendations from their district heads and Local Government supervisors. Materials required for the training were purchased in Singer market in Kano and a date was set and communicated to all the participants via short message service (SMS).

Sampling

One hundred questionnaires were distributed to one hundred households to assess socio-economic aspects of milk production in Rano LGA. The questionnaires were distributed in all the ten (10) wards of the LGA. Ten questionnaires were distributed in each of the wards and the ten households selected within each ward were randomly selected.

Inputs Used

The materials to use include water, Potassium sorbate powder ($C_6H_7KO_2$ _ preservative), Sodium Benzoate powder ($C_7H_5NaO_2$ _to hinder sourness), evaporated milk, powdered coconut flavour, sugar, cow milk (nono) and custard powder (predominantly made of starch). Equipment includes hand gloves, fine wire mesh sieve, 25 litres plastic containers, spatula, and spoon.

Yoghurt Preparation Methods

On the day of the training, the participants were seated and provided with sample materials that they will practice with. The participants were told the importance of the training and the objectives. The need to train them, so that they train their group members was then emphasized. The student trainer led the training and demonstrated the step-by-step procedures of making yoghurt from cow milk (nono) while each participant used the equipment and materials provided to practically do what the trainer did. Each participant wore hand gloves and was lectured on the importance of hygiene. Furthermore, the training was video recorded to the participants in case they wish to refer to the procedures later.

Participants were guided on how to make a sample of 20 litres of yoghurt from cow milk (nono) as a group. One kilogramme of custard powder was put in a 25 litre plastic container. Five litres of cold water were poured onto the custard and smoothly mixed into paste. Ten litres of previously boiled (100°C) water was then poured to form a thick liquid paste, which was continuously stirred to avoid lumps. Five litres of finely churned cow milk (nono) was then added to the mixture and then thoroughly mixed. After a fine mixture was obtained, a fine sieve was then used to pass the liquid and to ensure no lumps were left in the liquid. Thereafter, two tins of evaporated milk (410g, 380ml) were also added.

Ten grammes of Potassium sorbate powder (as a preservative), and ten grammes of Sodium benzoate powder (to hinder sourness) together with thirty grammes of coconut flavour were mixed with half

cup of cold water and added to the mixture. Three hundred grammes of sugar was then added to taste. The diagrammatic representation of the procedure is shown in figure 1 below:

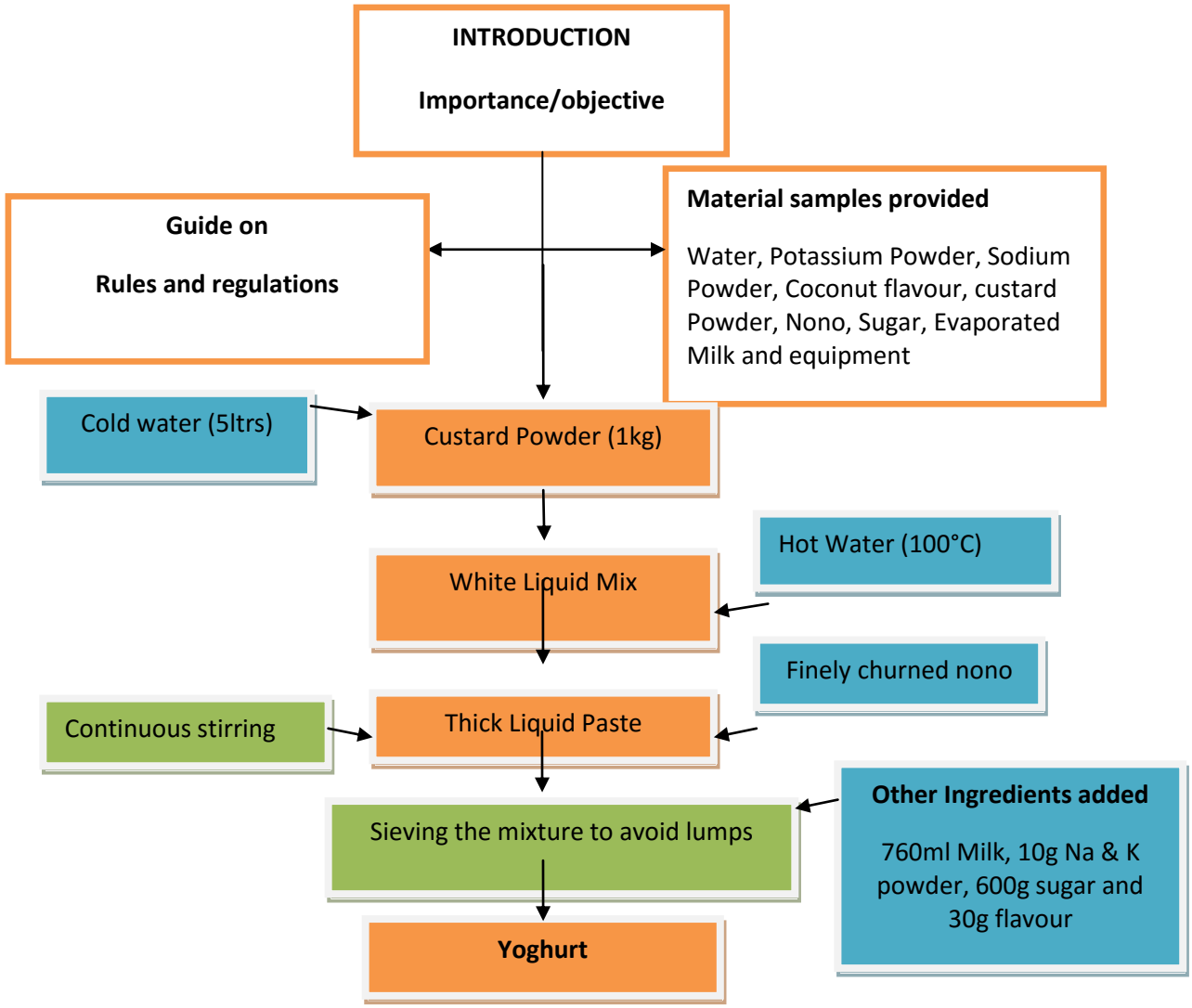

Figure 1: Diagrammatic representation of yoghurt making process

Packaging

An optional way of packaging and branding the yoghurt was taught to the participants. Participants were shown how to keep yoghurt by simply pouring it in used water bottles and then sold. A second option was to buy new empty bottles with sealing caps. Yoghurt should be filled up in the bottles and sold. Additionally, a trade name could be obtained and printed slips could then be attached to the bottles to further enhance the brand. However, license and approval must be sought for from relevant agencies.

Tools of Data Collection

Questionnaire/interview schedule were used to collect primary data from the respondents. Secondary data was also collected from journals, textbooks and relevant websites.

Data Analysis

Simple descriptive statistics were used to describe the socioeconomic data of the respondents. Chi-square analysis was used to establish relationship between herd size and willingness to adopt yoghurt processing technology by the farmers with the aid of MAXSTAT©, VERSION 3.06 Statistical Package. Cost benefit analysis was used to ascertain the profitability of yoghurt production.

RESULTS AND DISCUSSION

Attempt was made to measure the impact of the yoghurt processing project on the participant farmers' experience, interest and willingness to adopt the new skills taught.

From table 1 below, majority (61.4%) of the participant farmers had poor experience of improved yoghurt processing before this project. This was followed by those with good experience level that were around 22.8%, excellent level 10.5% and fair level with 5.3%.

Also, after the training, majority (54.4%) of the participants reported to have gained improvement in their yoghurt processing skills. The fact that majority of the participants' skills were improved could be attributed to the techniques involved which ensured learning by doing through participatory action research as opined by Attah-Krah and Francis (1987). However, 45.6% of them reported no improvement in their skills. This non-improvement in skills as reported by the minority might be connected with the fact that, some participants did not fully participate in the training or some were naturally laggards.

Table 1: Impact Assessment of Yoghurt processing amongst farmers in Rano town, Rano LGA, Kano State

Variable	Frequency	Percentage (%)
Experience before Training		
Excellent	6	10.5
Good	13	22.8
Fair	3	5.3
Poor	35	61.4
Total	57	100
Skills Improvement after the Training		
Yes	31	54.4
No	26	45.6
Total	57	100
Intention to Adopt the Technologies		
Yes	30	52.6
No	27	47.4
Total	57	100
Reasons for adoption		
Improve income	20	35.1
Reduce spoilage	24	42.1
Better Market	9	15.8
Others	4	7.0
Total	57	100

Source: Field Survey (2017)

From Table 1 above, 30 farmers (52.6%) showed willingness to adopt the new yoghurt technology they were taught during this project. This was probably due to simplicity of the procedures employed, availability and affordability of the ingredients and the practical and participatory approach used in the training sessions. Those who showed no interest to adopt the technology formed the minority (47.4%). Most of those willing to adopt the yoghurt technology mentioned that their reason was to improve income (35.1%) which was slightly lower than those who wanted to reduce spoilage (42.1%). A fraction of the farmers, i.e. 15.8% and 7.0% were willing to adopt the technology for a better market and other reasons respectively.

Table 2: Chi-Square Analysis of Willingness to adopt Yoghurt Technology between Small and Large Herd Owners amongst farmers in Rano town, Rano LGA, Kano State.

Response	Expected Frequencies	
	Small Herd Owners	Large Herd Owners
Yes	14.74	15.26
No	13.26	13.74

Chi square value = 14.75; Critical Chi square value= 3.84*; P value= 0.0001

The Chi-square analysis (Table 2) shows that, there was a significant ($p<0.05$) difference in the willingness to adopt the yoghurt technology between small herd and large herd owners in the study area. Thus, Number of cows owned by a farmer determines farmers' willingness to adopt milk processing technologies in the area. Those possessing large number of animals (above ten) were more willing to adopt the technology than those with fewer animals (below ten). It could be concluded that, farmers with large herd size were willing to put in their efforts to commercialize their venture as against the small herd owners who might be keeping the animals for subsistence and farm labour.

CONCLUSION

The thirty women trained were technically and economically empowered with the technical-know-how of yoghurt production that increased their potentials which resulted into more sources of household income and subsequent betterment of living standards. Furthermore, estimates of cost and return of yoghurt production indicated that the venture was profitable and worth adopting by farmers. Additionally, farmers who had larger herds were more willing to commercialize their yoghurt production venture as against the small herd owners who might be keeping the animals for subsistence and farm labour.

RECOMMENDATIONS

The following recommendations were made with regards to the project:

1) The accessibility of yoghurt production materials should be increased, such that the people living in rural communities can purchase the materials and get involved in the production.
2) Furthermore, government intervention is necessary in all aspects of production to provide support to yoghurt producers in terms of materials of production, storage and marketing.
3) The marketing chain needs to be organised such that cooperatives and associations will be created to regulate production and pricing.

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