LOCAL BEVERAGES INDUSTRY COMPETITIVENESS FACTS FROM *BURUKUTU* AND *KUNU* AGRIPRENUERSHIP IN DEKINA KOGI STATE, NIGERIA

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ABSTRACT
Local beverages are competitive enterprises. The study examined competitiveness of the processing and marketing of *Burukutu* and *Kunu* in Kogi State, Nigeria. Stratified, proportionate random sampling technique was used to ensure that the different groups of the population were represented. Data generated through primary survey were analysed using descriptive statistics and gross margin analysis. Results showed that female dominated the marketing of *Burukutu* and *Kunu* in Kogi State while the male dominated the processing. The female accounted for 71.6% marketers and 38.3% of processors. The proportion of male that engaged in marketing and processing accounted for 28.4% and 61.7%, respectively. About 66% of marketers and 61% of processors were married. Housewives constituted 55% of those who engage in marketing and processing of *Burukutu* and *Kunu*. About 44% of them were marketers while 11.5% were processors. The highest educational level of 48% and 38% of marketers and processors respectively was First School Leaving Certificate, while 25.7% and 25.5% of marketers and processors respectively possessed no educational qualification. Most of the processors realized up to ₦25,000.00 and ₦35,000.00 monthly, respectively. The gross margin and the net enterprise income showed that marketing of *Burukutu* and *Kunu* constitute a profitable business. It was recommended that processors should expand their businesses to include supplying to increase their profit margin and generate income.

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Keywords: Socioeconomics, Profitability, Processing, Marketing,

INTRODUCTION

Guinea corn (*Sorghum alum*) and Pearl millet (*Pennisetum glacum*) are staple foods in many African countries, where other cereals, which depend on low rainfall and high temperature, do not thrive well. They are of special importance in countries lying to the south of the Sahara where they account for half of all food consumption. Sorghum and Millet are major sources of calories, proteins and vitamins for the Nigerian population resident in the Sudan Savannah and the Sahel agro-ecological zones (Jain and Majmudar, 1995). In 2022, Niger, Nigeria, Sudan and Mali were the four major producers of Millet in Africa while Nigeria, Sudan, Ethiopia and Niger were the four major producers of Sorghum with Nigeria as the highest producer of Sorghum in the world in 2022 producing 6806370metric tonnes (FAOSTAT, 2024). Most of the sorghum and millet produced in Nigeria are used for human consumption (Rooney and Macdonough, 1987; Nkama, Abbo and Igene, 1994).

Sorghum originated in the Northeastern quadrant of Africa, where the greatest variability in wild and cultivated species are found. Currently, it is the leading cereal grain on the Africa continent, and Nigeria is the world's second largest producer of grain sorghum. The plant is drought resistant (Adegbola *et al., .,* 2023) and is, therefore, an extremely important commodity that provides necessary food and feed for millions of people living in semi-arid worldwide. Sorghum is mainly grown as one of the major crops (often besides millet) on community or private fields and mostly consumed locally.

Sorghum can be grown successfully on a wide range of soil types and environmental conditions. It is well

suited to heavy vertisols found commonly in the tropics, where its tolerance to water logging is often required, but is equally suited to light sandy soils. It tolerates a range of soil pH from 5.0-8.5 and is more tolerant to salinity than maize. It is adapted to poor soils and can produce grains on soils where many other crops would fail (Hubbard, Hall and Earle, 1990).

Worldwide, 40 million hectares are devoted to sorghum production. In the United States of America, Sorghum is used primarily as corn substitute for livestock feed because its nutritional value is almost the same. In arid regions, in less developed regions of the world, sorghum is an important food crop especially for subsistence farmers. It is used to make foods, such as couscous, sorghum flour and porridge. It can also be made into excellent wall board for building houses, as well as biodegradable packaging. It does not conduct static electricity, so it is also being used in packaging materials for sensitive electronic equipment (Subramanian Miracle and Jambunathan, 1980).

In Nigeria, Sorghum is used to produce beer. Beers are essentially alcoholic beverages made from cereal products. The cereals, barely in Europe and Sorghum in Africa, are malted to produce enzymes and to modify the major substrates-starch and protein in beer brewing. A major part of sorghum crop in South Africa and Nigeria is used in the malted form for the brewing of Sorghum beer that is *Bantu* beer, *Kaffir* beer, Pito or *Burukutu*. Sorghum is also used in manufacturing malt extract, baby foods and porridge.

Pearl Millet (*Pennisetum glacum*) is today the world's sixth most important cereal grain in the world, after rice, wheat, maize, barley and sorghum (Adegbola, *et al.,* ., 2023). It accounts for almost half of the global millet production and is the most important specie of millet both in terms of cropped area and in contribution to food security in regions of Africa and Asia. Pearl millet is the most widely cultivated millet in Africa and India (Pérez-Jordà *et al.,* ., 2024). Pearl millet is resistant to drought and is a crop that thrives on any soil (Adegbola, *et al.,* ., 2023). Generally, pearl millet is considered more efficient in utilization of soil moisture and has a higher level of heat tolerance than does sorghum and maize. These facts make millet an important food staple all over the African continent, especially in the semi-arid areas of the western Sahel where other crops tend to fail because of inadequate rainfall and poor soil conditions.

Sorghum and pearl millet may be prepared so that they ferment over-night and are cooked to make porridge. Such cereal preparations are always consumed as thick porridge but may be diluted and drunk as gruel. The nutritional value of these products depends very much on the degree of refinement of the cereals. In one case, for example, the protein digestibility was raised from 60% before to 80% after treatment (Dreyer and Cancannon, 1975).

Burukutu and *Kunu* are some of the indigenous alcoholic and non-alcoholic beverages respectively, taken as drinks by the locals in sub-Saharan Africa. They are cereal-based traditional beverages produced from sorghum and millet, which are rich in carbohydrate fermented agricultural products. They are usually brewed in different styles with different tastes depending on the area and are usually low in alcohol content. These beverages, apart from serving as inebriating drinks, are also important in fulfilling social obligations such as marriage, naming and burial ceremonies (Sanni and Lonner, 1993).

In Nigeria, the brewing of *Burukutu* and *Kunu* is traditionally associated with the people in the Northern part of the country, but migration has led to its production and consumption throughout the whole country. The industry is mostly controlled by women between the age range of 18-60 years. Therefore, production of *Burukutu* and *Kunu* not only provides psychological and social functions but has important implications for the food system and economy of the country (Sefa-Dedel and Asante, 1988).

Burukutu is a popular indigenous alcoholic beverage, golden yellow to dark brown in colour and of a vinegar-like flavour (Ire *et al.,* ., 2020), consumed in the Northern Guinea savannah region of Nigeria, Ghana and republic of Benin (Adegbola *et al.,* ., 2023) while *Kunu*, a non-alcoholic beverage, is of low viscosity and has a sweet-sour taste and milky cream appearance (Adeyemi and Umar, 1994). Both beverages contain lactic acid, sugar, amino acids, 2-3% alcohol and some vitamins and proteins (Bunsah, 1990). *Burukutu* and *Kunu* are popular drinks in Nigeria owing to their refreshing nature, thirst quenching and low price (Adeyemi and Umar, 1994).

The production of *Burukutu* is because of mixed, spontaneously generated fermentation with yeasts and lactic acid and bacteria as the predominating micro-organisms. However, the yeast flora is mainly responsible for the alcohol content of the beverage while *Kunu* does not involve all these. These drinks constitute a major source of energy and protein for people in Nigeria and most African countries (Ndukwe *et al., .,* 2020; Jocelyne *et al., .,* 2020). They serve as staple food for many of the world's poorest and least privileged people (Hulse, 1980). *Kunu* also serves as weaning food for infants in developing countries (Ndukwe *et al., .,* 2020). The beverage can be eaten fresh or bottled and preserved at refrigeration temperature (Kelechi *et al., .,* 2020).

There are myriads of challenges in the processing and marketing of *Burukutu* and *Kunu* drinks in Dekina Local Government Area of Kogi State and other parts of the country for over a decade now which has posed a lot of concern to the researchers. The production processes of *Burukutu* and *Kunu* drinks are largely traditional and crudely handled in homes and consequently, the production has not increased substantially more than a cottage industry. Many of them are gradually acquiring label of drink for the poor population that is associated with low income (Odunfa, 1985). Hence, subsequent quest through research and development, by various organizations and industries to seek complete improvement to address the challenges associated with the processing and marketing of *Burukutu* and *Kunu* through a more scientific method, is yet to be accomplished. This has hindered the increase and enhancement of the market value of the products.

The transformation of millet and sorghum to its by-products are known to be surrounded by various opposing factors which include the followings: inadequate raw material, grading and cleaning process, lack of modern processing technology, improper handling and processing techniques employed by the local producers, inadequate methods of preserving the drinks available to the producers, lack of homogeneity and unattractive presentation/packaging (Rasika *et al., .,* 2024; Nengparmoi, *et al., .,* 2024; Nout, 1985; Odunfa, 1985; Chausan & Kadem, 1989; Ojo, 1991; Idachaba, 1991; Ewell and Jones, 1991 and Majasan, 1995).

The above problems have greatly affected the quality, durability, marketability and profitability of the products. If these problems are allowed to persist for long, it will demoralize the producers and consequently the final consumers. From the foregoing, to maintain and sustain the profitability of the crops and their byproducts, the production and processing need to be moved from its subsistence to commercial level because of the value attachment to the two crops which form the thrust of the work.

The specific objectives are to: (i) describe the socio-economic characteristics of the processors and marketers; (ii) describe the processing systems used by *Burukutu* and *Kunu* processors in Dekina Local Government Area; (iii) estimate the profitability of processing and marketing *Burukutu* and *Kunu* and (iv) describe the marketing system of *Burukutu* and *Kunu*.

The null hypothesis that guided the study is: there is no statistical difference between revenue generated by *Burukutu* and *Kunu* enterprises.

Fermented foods play an important socio-economic role in developing countries, as well as making a major contribution to the protein requirement of natural population. These foods are made under primitive conditions which result to low yield and poor quality. This study is considering some indigenous fermented beverages which are alcoholic and non-alcoholic beverages (*Burukutu* and *Kunu*). Traditionally, women carry out fermented food processing activities, the production is craft-based despite the dawn of science and technology. In Nigeria, most of the rural women are gainfully self-employed and are contributing immensely to the development of agriculture in the economy, including women in Dekina Local Government Area of Kogi State who produce *Burukutu* and *Kunu* for consumption.

The findings of this study will help to highlight the activities of rural women in *Burukutu* and *Kunu* production and marketing. Moreover, the study will help the Nigerian government to appreciate the contributions of these women and hence seek ways of encouraging them in their processing and marketing activities thereby increasing productivity and income (FAO, 1994).

Agribusiness students will gain more knowledge about modernizing the processing and marketing technologies as there will be need to apply some materials and equipment for better quality control and faster production. In the industrial scale operations, a quantitative approach is desirable to

enable the optimum design of fermentative containers, incubation room and their heating, cooling and insulator capacities (Daengsubha and Suwana-adth, 1985).

To consumers, when the law of demand and supply is applied, may wish to go for the products (*Burukutu* and *Kunu*) based on the cost of local technology in their production as compared to other industrially produced agro-based drinks like beer, malt, can drinks etc. Daluba (2000) opined that industrial outputs whose production processes need higher technical know-how which leads to higher prices are not affordable by low-income consumers. For most production processes, profit maximization is always the key focus of the producers thus traders of *Burukutu* and *Kunu*, which are gotten from sorghum and millet, are fully engaged in the business because of the profit or gain margin accruing from it.

The results of this study will serve as a pointer to economists (planners) on the need to keep the government at various levels abreast of the economic value of the drinks (*Burukutu* and *Kunu*) and re-emphasize the production of these drinks on commercial level instead of its present state (subsistence level), (Ibitoye, 2006).

The findings from this study will be of immense benefit to the rural dwellers as the marketing and processing are sources of employment, as these (marketing and processing) have gone a long way to provide shelter and clothing for processors and marketers. The Ministry of Agriculture and Natural Resources will be assisted with the findings from this study as it will create room for more agricultural extension workers to be trained by the ministry and posted to rural areas to educate processors and marketers on the adoption of innovation (use of seeds with low tannin, packaging homogeneity etc.) as a way of improving production for maximum yield to meet the market demand (FAO, 1994).

Finally, researchers will be encouraged to research further into other areas like the agronomic practices including modern harvesting procedures and storage processes including control of pests and diseases affecting the production of the crops (sorghum and millet).

METHODOLOGY

The study area is Dekina Local Government Area of Kogi State which is one of the twenty-one Local Government Areas of the state. Dekina Local Government Area is situated between Latitudes 7° $15'$ and 8° $0'$ north and Longitudes 6° $45'$ and 7° $30'$ east. Agriculture in the Local Government Area is mainly practised on small-scale by farmers. Agricultural products include yams, cassava, maize, sorghum and millet and animals like goats, sheep, chickens and turkey in small holdings. The grains produced in the Local Government Area are for food such as *fufu* and *eko* but millet and sorghum are mainly processed into *Burukutu* and *Kunu* as local agro-based drinks. These drinks are served at festivals, burials, marriages and title taking ceremonies and even for household consumption.

Dekina Local Government Area has a total population of 1,033,456 million out of the total population of 8.52 million for Kogi State (National Population Census, 2006), with land area 2,461 km² with three districts comprising *Biraidu, Dekina* and *Okura*.

The researchers made use of multistage and stratified/proportionate random sampling technique. The reason for stratifying rather than taking a simple sample was to ensure that the different groups of which the population is composed were represented in the sample. The technique is the most robust sampling technique as it satisfies the conditions of the peculiarities of the populations and ensures that each condition is put into consideration (Awotunde and Ogudulunu, 2004).

Stratification was done since the population of the rural women in the study area was not the same. The population of processors and marketers of *Burukutu* and *Kunu* in the study area vary. There are more marketers than processors. The total number of respondents selected per district was at least 0.015 percent of the population of marketers and processors in the district by using simple random sampling technique as performed by Omede, (2008).

This selection is presented in Table 1. For this study, the number of marketers was higher than that of the processors, the total sample reflected 70% marketers and 30% processors. This is represented in the Table 2. Primary data were collected with two sets of questionnaires. The first set was administered on processors of sorghum and millet drinks into *Burukutu* and *Kunu*. The second set was administered on marketers.

Objectives i, ii and iv were achieved using descriptive statistics, while objective iii was achieved using Net Income (NI) Analysis and returns per naira of investment. Net Income is represented as: NI = TR – TC.

Where NI is net farm income = total revenue – total cost.

  TR = total revenue,

  TC = total cost made up of total variable cost (TVC) and total fixed costs (TFC)

which involved depreciation of fixed assets using straight line method with five-year useful life of the assets.

The null hypothesis was tested using Student's t-test. The formula is given as:

$$t = \frac{\overline{X}_i - \overline{X}_2}{\sqrt{\dfrac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{(n_1 + n_2) - 2}}}$$

where

$\overline{t}$ = calculated student t-test;

$\overline{X}_i$ = mean revenue of *Burukutu* enterprise;

$\overline{X}_2$ = mean revenue of *Kunu* enterprise

S_1^2 and S_2^2 are the variance of the number of entrepreneurs in *Burukutu* and *Kunu* enterprises, respectively; and n_1 and n_2 are the number of entrepreneurs in *Burukutu* and *Kunu* enterprises.

RESULTS AND DISCUSSION

Socio-economic Characteristics of Processors and Marketers: Results of the socio-economic characteristics of processors and marketers presented in Table 3a revealed that female dominated marketing of *Burukutu* and *Kunu* in Kogi State. Female marketers accounted 71.6 percent of the marketers while males accounted for about 28.4 percent. With respect to processing, males were more than females. Male processors accounted for 61.7 percent of the survey while female accounted for 38.3 percent. Processing activities involve starting the engine which if manually operated required some strong efforts. This may deter females from becoming processors (Table 3a).

About 66 percent of marketers and 61.7 of processors were married. Single individuals who were marketers accounted for less than one percent.

No single individual was a processor. Since none of the processors were single, it indicated that the business applied to married people. Generally, married people dominated the processing and marketing. Like other farm business, it is possible that the family provided labour to support this business. Based on marital status, divorced, single and separated individuals had poor representation in the sample (Table 3a).

Household position can be a means of categorizing responsibilities in families. It may indicate flow of resources into and out of households. Housewives constituted 62.5 percent of those who engaged in marketing and 38.3 percent of processors of *Burukutu* and *Kunu*. Housewives dominate marketing and processing of the drinks (Table 3a). The result indicated that most women were marketers while there was no major difference among the males (husbands) in marketing and processing of *Burukutu* and *Kunu*. It could be inferred that since more men engage in processing than women, processing requires more energy.

Marketers had a greater number of children who were less than 15 years than processors. Table 3a showed that there were more females in the households of marketers and processors. The numbers of households having four or five females were more than the number of households having males of the same number. This may not be an indication that female children assist more in marketing and processing of the drinks because of their tender ages. Age can be an indication of physical strength for working. Age group of 31 to 40 and 41-50 dominated the marketers and processors of *Burukutu* and *Kunu*. This indicated that adults were engaged in the business (Table 3b).

The engagement of adults in farm activities is preferable than that of old people because of the dictates of life cycle hypothesis. In a similar vein, Agbugba and Nwagbo (2006) reported that the mean age of producers and marketers of vegetables in Abia was 35 years. Years of experience can indicate level of managerial expertise. Interestingly, a good proportion of the respondents had about 12 years' experience in processing and marketing of *Burukutu* and *Kunu* (Table 3b). It is possible that they had developed capacity to manage the enterprise with their wealth of experiences.

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The highest educational level of 48 and 38 percent of marketers and processors was first School Leaving Certificate, while 25.7 and 25.5 percent of marketers and processors possessed no educational qualification (Table 3b).

However, most of the processors and marketers had at least primary school certificate, while 25.7 percent of the processors and 36.2 percent of marketers had tertiary educational qualification. The result is in consonance with Aihonsu, Balogun and Shittu, (2005) who reported that majority of swamp rice farmers in Ogun Water Side L.G.A possessed First School Leaving Certificate. Similarly, Tokula, Asomugha and Okwusi (2006) reported that in Abia State, the literacy level of rural farmers consisted of primary, secondary and tertiary certificates in the following percentages, 56, 24 and 8 respectively. Most of the processors realized up to ₦25,000.00 while majority of marketers realized up to ₦45, 000.00. The proportion of marketers who realized up to ₦30,000 was more than those of processors. The Table 3b illustrated that marketers made more money than processors.

The result is in line with Echebiri (2001) who classified annual rural household income in southern Nigeria into low (less than ₦100,000), medium (less than ₦200,000) and high (above ₦200,000). That study found that majority (54%) had low income while 27% and 19% had medium and high income respectively. A Gini index of 0.45 was reported for income variation/inequality. It was reported that income varied with occupation, gender and age, with farmers earning more income than artisans while traders, on the average, had the highest income and artisans had more income than fishermen. With reference to gender, Echebiri (2001) noted that 55 percent were males whose average income was higher than that of females were among low income households, while 87% of males and 13% of females belonged to the medium income level. Also, 92% of males and just 3% of females belonged to the high-income group. In terms of age, 40-49, dominated the low- and medium-income levels while 50-59 dominated the high-income levels. The result suggests that income increases with age among the working class.

Processing Systems Used by *Burukutu* and *Kunu* Processors:

Clean and winnow the grains

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Steep in water for 24 hours

↓

Drain the grains by spreading on a basket or on mats

↓

Cover with banana leaves

↓

Allow to germinate for 5-6 days

↓

Grinding to a paste and mix with cold water

↓

Add boiled water and sieve

↓

Boil for three hours and allow to cool

↓

Add yeast and allow for 24 hours to ferment

↓

Burukutu is ready
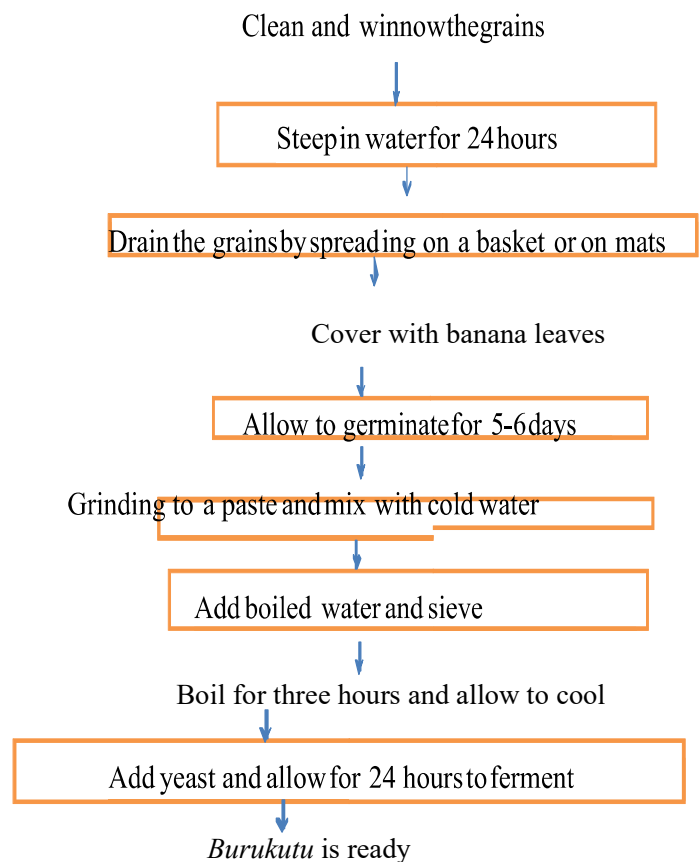
Figure 1: Steps for Processing *Burukutu*; Source: Field survey

The use of simple and traditional methods characterized the processing of these drinks. The process of preparation of *Burukutu* involved cleaning the grains and soaking in water to activate the enzymes. This allows for easy application of biotechnology (covering with leaves and sprouting). This is followed by milling, sieving and fermentation. All the respondents were of the view that the preparation steps were meticulously followed without any alteration.

The process of preparation of *Kunu* was like that of *Burukutu* (Figure 1). It involved cleaning the grains and soaking in water to activate the enzymes. This allows for easy application of biotechnology (covering with leaves and sprouting). This is followed by milling and sieving. Fermentation is not allowed. Thus, one of the major differences between *Burukutu* and *Kunu* is that the former is a fermented/alcoholic beverage, while the latter is not.

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Again, all the respondents were of the view that the preparation steps were meticulously followed without any alteration.
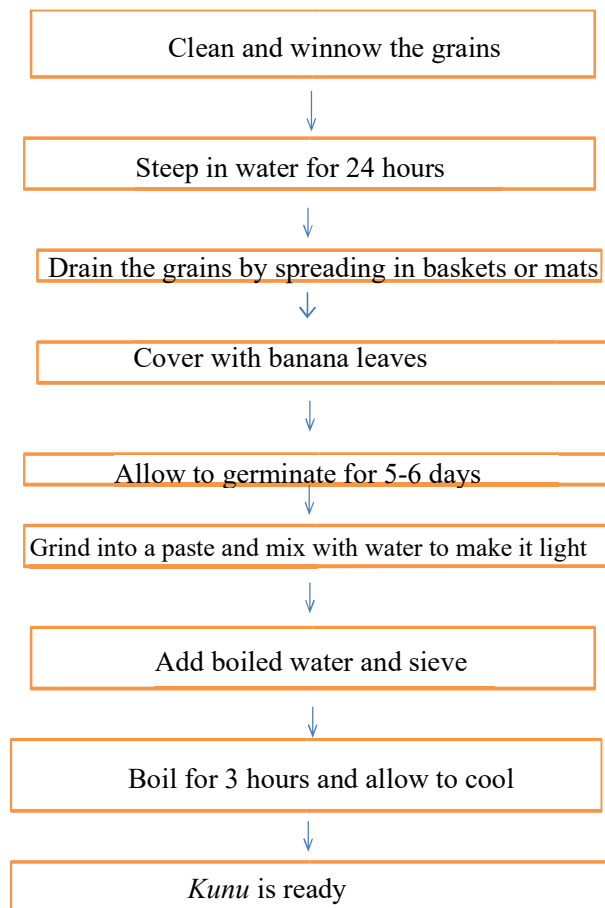
Figure 2: Steps for processing of *Kunu*
Source: Field survey

Marketing System of *Burukutu* and *Kunu:* A simple marketing channel characterizes the distribution of *Burukutu* and *Kunu*. Processors sold directly to consumers while retailers also sold to consumers (Figure 3). This distribution channel could facilitate easy access of the products by consumers since the shelf live is very limited.
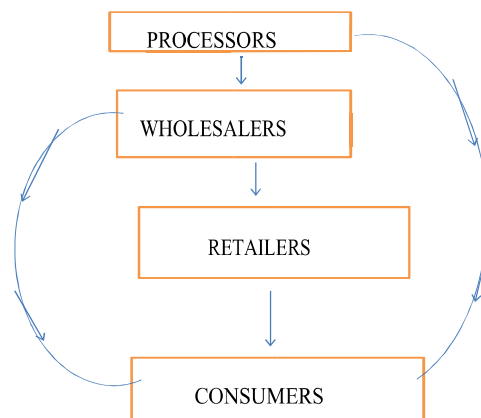
Figure 3: Marketing channels of *Burukutu* and *Kunu* **Source:** Field survey

In addition, the sale of *Burukutu* and *Kunu* was by hawking or in a shop. The survey indicated that 64.7 percent have a shop for selling *Burukutu* while 42.3 percent of *Kunu* sellers also had a shop. On the other hand, 35.3 and 57.7 percent of *Burukutu* and *Kunu* sellers did not have any shop for their business. This indicated that hawking was one of the ways used to sell these products (Table 4).

Profitability of Processing and Marketing of *Burukutu* and *Kunu*: The gross margin and net enterprise income of processing *Burukutu* and *Kunu* were ₦24836.94 and ₦19615.00 respectively (Table 5). This is an indication that processing of agro-based drinks can be a lucrative business that will lead to wealth creation and poverty alleviation.

Profitability of Marketing of *Burukutu* and *Kunu*:
Burukutu and *Kunu* are stored in gallons hence their measurement is in litres. The gross margin analysis showed that marketing of *Burukutu* and *Kunu* constitute a profitable business. The average marketer makes a gross margin of ₦71889.0 and ₦18720.6 from *Burukutu* and *Kunu* respectively, while the net enterprise income of the enterprises respectively was ₦39690.00 and ₦3110.6 per month. The revenue generated from *Burukutu* was more than *Kunu* because *Burukutu* sales for about ₦40 per litre while *Kunu* was 30, also the quantity of *Burukutu* sold was more than that of *Kunu* (Table 6).

Hypothesis Result: Test of differences in gross margin between the processors and marketers of *Burukutu* and *Kunu*: The t-test statistic was used to test the hypothesis differences between the gross margin made from marketing of *Burukutu* and *Kunu* as well as processors of Kurukutu and *Kunu*. It may

be informative to note that all marketers surveyed sell both *Burukutu* and *Kunu* using the same facilities. Quantities of *Burukutu* and *Kunu* sold, given out and consumed differed.

The t-test showed that differences in income from *Burukutu* and *Kunu* were significant. It indicated that marketing of *Burukutu* was more profitable than *Kunu*. Thus, marketers make more money than processors (Table 7).

CONCLUSION AND RECOMMENDATIONS

Conclusion:
It has been insightful to conduct an economic analysis of the processing and marketing of local agro-based drinks, *Burukutu* and *Kunu* in Dekina Local Government Area of Kogi State. Both male and female participated in this lucrative business though the female dominated. Majority of the processors and marketers were married. The mean age of the marketers and processors of *Burukutu* and *Kunu* was 40 years. This indicates that adults are engaged in the business. A good proportion of the respondents possess about 12 years of experience in processing and marketing of *Burukutu* and *Kunu*. The highest educational level of 34 and 11 percent of marketers and processors was First School Leaving Certificate. One of the major differences between *Burukutu* and *Kunu* was that the former is a fermented/alcoholic beverage, while the latter is not. The gross margin and the net enterprise income showed that marketing of *Burukutu* and *Kunu* constitute a profitable business. The enterprise can be a means of processing millet and sorghum into other useful forms. The study has revealed that the local processing methods were used till date. There is need to improve on it by mechanizing the process.

Recommendation:
Processors of *Burukutu* and *Kunu* can integrate marketing of the products since the mean gross margin and net enterprise income of marketers were more than those of processors. This can be applicable for households that have large size.

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Table 1: Distribution of population and sample based on districts

Location	Biraidu	Dekina	Okura	Total
Total of People	365414	344486	323556	1033456
Sample	55	52	49	156

Table 2: Distribution of processors and marketers of *burukutu* and *kunu* based on sample from the three districts that make up Dekina L.G.A.

Location	Biraidu	Dekina	Okura	Total
Sample	55	52	49	156
Marketers	39	36	34	109
Processors	16	16	15	47

Source: Derived from Table 1

Table 3a: Distribution of respondents according to their socio-economic characteristics
Sex of processors and marketers

Items	Marketers		Processors	
	Male	Female	Male	Female
Total	31(28.4)	78(71.6)	29(61.7)	18(38.3)

Cross tabulation of marital status of processors and marketers

Items	Marketers	Processors	Total
Single	7(0.06)	0(0.0)	7(4.7)
Married	72(66.1)	29(61.7)	101(64.8)
Widowed	15(13.8)	14(29.8)	29(18.6)
Divorced	5(0.05)	1(0.02)	6(3.8)
Separated	10(0.09)	3(0.06)	13(8.3)
Total	109(100)	47(100)	156(100)

Position in household of marketers and processors

Items	Marketers	Processors	Total
Housewife	68(62.5)	18(38.3)	86(55.1)
Husband	30(27.5)	29(61.7)	59(37.8)
Others	11(10.1)	0(0.0)	11(7.1)
Total	109(100)	47(100)	156(100)

Family size, children less than 15 years

No. of children in Household	Marketers		Processors	
	Male	Female	Male	Female
0	21(19.3)	22(20.2)	0.0(0.0)	1(2.1)
1	20(18.3)	28(25.7)	1(2.1)	1(2.1)
2	36(33.0)	11(10.1)	18(38.3)	3(6.4)
3	27(24.8)	8(7.3)	26(55.3)	0.0(0.0)
4	2(1.8)	5(4.6)	2(4.2)	7(14.9)
5	2(1.8)	15(13.8)	0.0(.0)	19(40.4)
More than 5	1(0.9)	20(18.3)	0.0(.0)	16(34.0)
Total	109(100)	109(100)	47(100	47(100.0

Source: Field survey

Table 3b: Distribution of respondents according to their socio-economic characteristics
Age of marketers and processors

Age category	Marketers	Processors	Total
20-30 years	13(11.9)	9(8.3)	22(14.1)
31-40 years	49(45.0)	14(29.8)	63(40.4)
41-50 years	46(42.2)	17(36.2)	63(40.4)
More than 50	1(0.9)	7(14.9)	8(5.1)
Total	109(70)	47(30)	156(100)

Years of experience of marketers and processors

Experience in years	Marketers	Processors	Total
1-10	36(33.0)	4(8.5)	40(25.6)
11-20	45(41.3)	13(27.7)	58(37.2)
21-30	24(22.0)	7(14.9)	31(19.9)
31-40	2(1.8)	8(17.0)	10(6.4)
41-50	2(1.8)	13(27.7)	15(9.6)
More than 50	0(0.0	2(4.3)	2(1.3)
Total	109(100)	47(100)	156(100)

Educational level of respondents

Education level	Marketers	Processors	Total
no primary education	28(25.7)	12(25.5)	40(25.6)
primary education	53(48.6)	18(38.3)	71(45.5)
tertiary education	28(25.7)	17(36.2)	45(28.8)
Total	109 (100)	47 (30)	156(100)

Income level of Processors and Marketers

Income levels	Marketers	Processors	Total
15,000-20,000	1(0.9)	11(23.4)	12(7.7)
20,000-25,000	7(6.4)	27(57.5)	34(21.8)
25,000-30,000	6(5.5)	8(17.0)	14(9.0)
30,000-35000	22(20.2)	1(4.3)	23(14.7)
35,000-40,000	21(19.3)	0(0.0)	21(13.5)
40,000-45,000	52(47.7)	0(0.0)	52(33.3)
Total	109 (100)	47(100)	156 (100)

Source: Field survey

Table 4: Sale of *Burukutu* and *Kunu* in a shop or by hawking

Item	*Burukutu*	*Kunu*
Have shop for selling	101(64.7)	66(42.3)
Don't have shop for selling	55(35.3)	90(57.7)
Total	156 (100)	156(100)

Source: Field survey

Table 5: Gross margin of processing of *burukutu* and *kunu*

Items	₦	₦	₦	₦
Revenue	*Burukutu*	*Burukutu*	*Kunu*	*Kunu*
Sales of *Burukutu*	83,414		51395.3	
Consumption	8,342		3139.5	
Gifts	2,085		784.8	
Total revenue (TR)		93,841.00		55,891.52
Variable cost				
Transportation	1041.06		1000.0	
Grinding raw materials	1200.00		1200.00	
Labour	2700.00		2000.00	
Cost of raw materials	24836.94		21,778	
Total Variable cost (TVC)		29778.00		25,978.00
Gross margin (TR-TVC)		64063.00		29913.52
Fixed cost				
Basin	1,707.00		1,200.00	
Drums	4241.49		2240.00	
Sieve	202.13		202.13	
Calabash	196.81		196.81	
Jerry can	337.02		337.02	
Cups	38.09		38.09	
Depreciation of small tools with zero salvage value for three years Actual cost used 1/12 of 6,723		2240.85		4,214.05
Fixed cost e.g. machine 55,500, 8.4% depreciation for 10 years with zero salvage value		4,662.00		4,662.00
Net enterprise income (GM- Total Fixed Cost)		57160.15		21037.47

Source: Field survey

Table 6: Profit and loss account of marketers of *Burukutu* and *Kunu*

Items	₦	₦	₦	₦
Revenue	*Burukutu*	*Burukutu*	*Kunu*	*Kunu*
Sales of *Burukutu*	98,520		50500	
Consumption	10,000		5,000	
Gifts	2,000		2,500	
Total revenue (TR)		110520.00		58000.00
Variable cost				
Transportation	5000		25000.00	
Labour	4000.00		2500.00	
Cost of *Burukutu*	30500.00		2000.00	
Total variable cost (TVC)		39500.00		29500
Gross margin (TR-TVC)		71020.00		28500
Fixed cost				
Gross margin				
Fixed cost				
Basin	2000.00		2000.00	
Drums	500.00		500.00	

	1500	1500
Calabash	1500	1500
Jerry can	1000	1000
Cups	500	500
Depreciation of small tools with zero salvage value for three years	1833.33	1833.33
Net enterprise income	**69186.67**	**26666.67**

Computed from field data

Table 7: Test for difference between gross margin of *burukutu* and *kunu* enterprises

Enterprises			Mean	mean difference	Std deviation	t-value
Marketing of	*Burukutu*		71020	42520	31447.87	12.01***
Marketing of	*Kunu*		28500			
						1
Processing of	*Burukutu*		64063	34150	2234.11	0.21***
Processing of	*Kunu*	29913				

***=Significant at 1% probability level; Source: Computed from field survey