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Women in dairying in the African savanna: their contribution to agro-pastoral household income in the dry northwest of Nigeria

D.J. Shehu and W.A. Hassan

Introduction

The Fulbe are cattle pastoralists of the savanna grasslands of West Africa. This paper draws attention to the contribution of the Fulbe women dairy processors of northwestern Nigeria. Even though the social organization of the Fulbe is patriarchal and roles are gender specific, it appears that the bread winning roles are intertwined. Women, through the processing and the daily sale of their products in the urban markets contribute the cash for the day to day expenses of the family unit. The daily trips to the urban markets also make them important channels of information for their small rural community. Modernization of the Fulbe women's dairying activities could thus form a basis for the development of a sustainable dairy industry in this area.

The last two decades have witnessed global and rather unprecedented attention paid to women and the issues they grapple with in today's world. So far, the general consensus is that the time has come for self-respecting governments to address the structural, if not the ideological imbalances that exist between the sexes and which give men greater access to material resources and the wherewithal for the sustenance of life. While

there is no disputing the existence of differential and unequal access to the material, and in some cases even the spiritual, bases of life which have led to charting out the broad outlines of women's subordination, it has been difficult for governments to sustain interest in designing and implementing schemes that would correct centuries of neglect. Recent literature on Africa indicates the dwindling fortunes of many African women, especially with the relentless monetization, commoditization and privatization of the economy (Etienne and Leacock 1980, Talle 1987). Not in the least helpful is the diversity of structural conditions under which women find themselves. The substance of the variants of experience can hardly be captured by the broad global strokes of declarations and resolutions. Real beneficial changes can begin to occur only when the specifics of women's lives under different social, economic, religious, political and cultural conditions are closely focused on and examined with that view in mind. For this purpose we consider some aspects of the productive work of Fulbe women in Nigeria, West Africa and examine the ways in which their contribution to the household income through the sale of dairy produce has over the centuries sustained Fulbe communities.

The Fulbe pastoral people can be found all over the Savanna grasslands of West Africa, from southern Mauritania and Senegal all the way down to Cameroon and even the Central African Republic – an area covering some 3600 km. (Stenning 1959). This pastoral group, variously known as Fula, Fellata, Fulani, Peul but who prefer to refer to themselves as Fulbe, use Fulfulde as their main language and speak Hausa – a lingua franca of northern Nigeria – as their second language (Hopen 1958). The spread of Fulbe people over West Africa may be the result of westward movements from the Senegambian regions in search of pasture lands (Azarya 1973).

There is a difference in productivity amongst the Fulbe between those who are semi-sedentary and those who are predominantly pastoralist groups (Muhammed Baba 1987). The Fulbe pastoral groups keep large herds of cattle, have a social organisation that is patriarchal under the leadership of an *ardo* who acts as an emissary of his people in negotiations with sedentary communities over grazing rights (Muhammed-Baba 1987). The communities are made up of individual households, each having a head who is invariably the father or brother or any other surviving adult male relative. He maintains control over the household, provides its members with the essential staples, and takes decisions about the disposal or purchase of cattle, their transfer to children as well as the allocation of milking rights to the women in the household. Ideologically also, there seems to be some measure of subordination. For example, it appears acceptable to all that boys could attend schools and perhaps stay for as long as they choose. Girls on the other hand are expected to marry early and raise children; schooling takes time and therefore could be overlooked. Indeed an interview with children aged 8-16 years

showed that girls were aware of the difference in access to schools and felt frustrated by it. Even in later years men have quickly made use of the adult education system, an institution which seems completely beyond the world view of women. Having said this, we need to note that the strictly nomadic lifestyles do not permit the use of such time-consuming institutions as schools even for boys, except for Koranic instruction.

Even though there appears to be both structural and ideological subordination among the pastoral Fulbe this has not deterred their women from pushing ahead economically in the ambit they have carved for themselves. Fulbe pastoral women have been able to make inroads into today's monetarised, commoditised and privatised economy. There are some leeways which women have exploited to achieve small successes for themselves. They seem satisfied with what they have achieved. Thus subordination, in practical economic terms, is veiled rather than overt. Indeed there is evidence to suggest that there are some counterbalancing forces which prevail to balance any power or authority between the sexes in the pastoral Fulbe culture. For example, Fulbe men believe that the preparation and sale of food is strictly a female role. The socio-economic organisation, especially the clear division of labour along gender lines, thus appears to work towards achieving this counterbalance. We shall consider the socio-economic organisation of the pastoral Fulbe by focusing on the lives of those in area of study – two North western States in Nigeria, Kebbi and Sokoto – where the pastoral Fulbe, who are predominantly Muslim, live in small communities across the two States. We consider some groups in some selected local government areas (this is the smallest administrative unit in the country).

The area and methods of study

Much of northern Nigeria falls within the widespread Savanna belt of West Africa. The study area is located in the southern fringes of the Sahel zone. Here the environment which is semi arid, displays two clear seasons: – a short rainy season from May to September followed by a long dry period, part of which is cold – from November to the end of January – with temperatures often falling below 12° C, and part of which is very hot with temperatures rising to 40°C by May. Within this area, both rainfed and irrigated agriculture constitute the major productive activity during the dry season. The grassland vegetation is at its best during the rainy season when the rainfall averages 1250mm, and livestock raising becomes easier. The pastoral Fulbe along with many other ethnic groups keep large herds of livestock – cattle, sheep, goats, donkeys, and camels. In the dry season, non Fulbe pastoralists rely on farm-produced hay and other kinds of fodder. The high expenses involved in the dry season feeding of the animals, makes this an impracticable venture for the nomadic pastoralists who prefer to move their animals on hoof to wetter lands in the southern parts of the country. Traditionally, the nomads range over a wide area with their animals in search of water and pasture, though over the last fifty years some have become semi-sedentary. Some also keep two camps for seasonal occupation, the selection of these depending on the availability of surface drinking water for the animals.

The methods adopted for this study included participant observation and an interview survey. We concentrated on the dairy industry – the quantities of dairy products, their processing techniques, seasonality in production, marketing and incomes generated. Household visits were undertaken, interviews carried out,

and permission sought for estimating quantities. The participant observation method also helped in obtaining a clearer picture of women's daily involvement in the dairy industry. Altogether some 345 households were visited, though only about 10% of these constituted our data collection points. Information from these households was recorded throughout the two seasons – rainy and dry seasons of 1986. To complete the picture the marketing points in the nearest towns were surveyed to estimate the size of demand and pace of trade. The sections which follow present our findings.

The dairy industry and pastoral Fulbe women

As noted earlier, livestock keeping is a traditional activity which in northwestern Nigeria and elsewhere takes place in both urban and rural areas. In the study area, as elsewhere in the region the cattle which flourish are of the Zebu type; the commonly kept breeds are the Sokoto Gudali, Adamawa Gudali, the Bororo and the Red and White Fulani (also known as Ranaji and Bunaji respectively). The Sokoto Gudali was kept in all the households surveyed. In addition a few small ruminants were kept; we did not come across any camels. As is usual among nomads in Africa, cattle form the main source of wealth and provide the wherewithal for the family's sustenance. Cattle still remain the main avenue for investment and savings. As among other Fulbe groups, here too cattle represent the primary source of livelihood and prestige (Dupire 1971, Waters-Bayer 1988). Hence, cattle are infrequently sold, though a few old animals and male calves may be disposed of every now and again. Thus, there is some seasonal variation in the numbers of cattle per house-

hold. During the beginning of the long dry season most households dispose of between 1.8%-2.3% of their old and/or ailing animals, since these may not be able to withstand either the lean period or the annual southward migration. The cows are kept strictly for their milk which provides cash for the day to day requirements of the Fulbe family. Cows are therefore held for as long as possible, and when a family disposes of an old one, efforts are made to replace it as soon as possible. Each family ensures that it has at least two or three milking cows at any one time. During the survey it was found that milk yields dropped by about 2.8% in the hot period of the dry season when many of the watering points dry up; but this picked up again after the rains. Where there are no milking cows at all, women have learnt to accept the situation with equanimity until such times when they get replacement. Where the quantities are inadequate, imported powdered milk may be added to make the sour milk (*nono*).

The socio-economic organisation of Fulbe pastoralists

As a group, the pastoral Fulbe have stayed outside the ambit of the wider external political system and guarded their freedom very closely. They avail themselves of services offered them, for example wells and water reserves as well as veterinary services, but maintain minimum contact with the system. In fact in our study area, Yarlabé is one of the few predominantly Fulbe settlements to be provided with electricity during 1992-93. The national government's efforts at providing schooling for the nomads has not enjoyed full popularity, not because they are not interested but because their immediate lifestyles prevent their unre-

stricted participation in activities that would take them away from their animals for too long.

Fulbe women hardly wish to participate in politics (Cobern 1983). Traditionally, each community has an emissary (*ardo*) and his assistants, whose main role is to negotiate with sedentary communities with farmlands to grant grazing rights to the pastoralists. The clans are patriarchal in nature and the families are headed by males (Awogbade 1981). Female-headed families are as a rule, very few. In our study area only two were encountered out of a total of 345 families both were widows who did not remarry after their husbands' death and did not wish to move to the compounds of their nearest male kin. The male head of household, with the assistance of a herd boy or boys, takes complete care of the animals – their feeding, tending, visits to veterinary clinics and all other transactions involving the cattle. Boys aged six and above accompany their fathers routinely to help with cattle herding. This differentiation of tasks based on gender allows a measure of efficiency in the discharge of duties. In the case of a female-headed household, a male relation is put in charge of any cattle she may have inherited or even purchased herself by way of investment.

The men organise most purchases and sales for which the weekly markets are used. During visits to such markets, herding is left to the boys, while the older men make the trip. Apart from the transactions involving cattle, Fulbe men may also combine business with shopping for such consumer items as radios, blankets, plastic sheets for roof lining and perhaps foam mattresses, plastic mats and some clothes. Such trips may take place three or four times during the two seasons; these are important events which call for change of attire and often take on a festive appearance giving the men a chance

to meet their friends and relations from other clans and groups and exchange ideas, news etc. The economic or productive role of the female also centres on cattle – in this case the cows which produce milk. Females are given milking rights by the male head of household, especially in polygynous homes. Each child receives a gift of cattle from the father; girls receive theirs on marriage usually between the ages of twelve and fifteen years. Hand milking and processing of milk are usually done by females, before the animals leave for grazing in the morning and when they return in the evening. Boys and even adult men can, however, assist with milking. The milk is sold as sour milk (*nono*) and butter (*maishanu*) in markets located within fifteen to twenty kilometres from a settlement. On these market trips Fulbe mothers invariably leave their infants at home either with older women who no longer make such trips or with older siblings, especially girls; babies who are being breast fed accompany their mothers. These trips, arranged on a two or three-day rotational basis, give Fulbe women both a chance to get essential supplies from the market as well as a flexibility of operation and time to see to other activities on other days at home. In addition, the direct sales of these products enables them to participate in the monetarized system. These women as a rule have much greater mobility and are less restricted than women of other ethnic groups in northern Nigeria. This latitude of freedom of movement has continued for centuries despite its disapproval by the Islamic Jihadists.

Through these trips, Fulbe women have slowly fashioned another important role for themselves. They have become vital channels of information between the urban centres and their small communities. Events, news about cattle sales, current prices, any disease outbreaks in man or animals, or new information from

the veterinary centres are all carried back to their communities. For many of the isolated Fulbe communities this source of information on daily happenings is crucial, helping them to organise appropriately. Thus, even though men and women have different spheres of operations, some of these are sufficiently interdependent and women do contribute to the definition of social issues by the way of information they carry. Of course women cannot aspire to the position of an *ardo*; nor do they have ready access to the modern system of politics (except perhaps as voters) – but then even the men hardly involve themselves in this sphere. Fulbe social organisation therefore shows a certain flexibility in which women have room to manoeuvre and generate income through the daily sale of dairy produce.

The organisation of production by Fulbe women

The starting capital and the products

As noted earlier, the economic activities of the Fulbe household are organised entirely around cattle. Apart from the occasional purchase of cattle, no major capital outlay is required for the start of the dairy industry, especially since cattle ownership by females is mostly by inheritance or marriage. Items regularly purchased include a couple of large calabashes, gourds and small (15cm diameter) round raffia mats known as *feifei*. Credit facilities are hardly used. Milk is rarely sold fresh, mainly because of its perishability in the absence of refrigeration and the long walking distances between the villages of production and the markets. Souring the milk extends its life by about five days.

The dairy products made by Fulbe women from fresh milk include the sour skimmed milk product (*nono*) which is often left to develop solids and tastes like yoghurt; these milk solids can be whisked back to liquid, according to consumer preference. *Nono* is rarely consumed on its own; instead it is used in blending with boiled, floured grain balls (*dawo*) to form a nutritious drink (*fura*), which is widely consumed and constitutes the main midday meal especially for the labouring class and farm workers. Another product made is the local butter or *maishanu*, which is sold in pats of about 120gms – this can be converted into oil or ghee by heating. No other product is made by any of the women in the study area. Some have heard about other products made by a few other communities, such as *warra*, boiled solid milk which can be fried, but did not know how to make it. Drying milk to form powder has never been attempted, though they were aware of the imported variety which they buy during periods of shortage in fresh cow milk, as happens during the excessively dry months of March and April or during drought years (especially in 1983). This measure is resorted to in order to sustain the supply and maintain the market.

Production methods

In making the two products simple processes are employed. The sour milk is obtained by adding about a quarter of a litre of sour milk from a previous supply to fresh milk; this is left for a day to allow the development of tartness as well as the formation of solids. In cases where quicker souring is required, some of our survey respondents informed us that they used the fruit of the *baobab* plant which looks milky when mixed with

water and has a sweet and sour or tart taste. Generally, they were unaware of the beneficial presence of *Lactobacillus bulgaricus* which helps to clot the protein, hence preserving the milk.

In the case of butter or *maishanu* making, the fresh milk is kept in a cool place usually in the corner of the women's thatched hut, which stays cool particularly in the mornings. This allows the cream to collect on top of the milk; this is then gently scooped up and kept aside in a cool place. This is done over two to four days, by which time sufficient quantities have been obtained; the whole lot is then poured into a long necked or bottlegourd (*gendama*) ready for butter making. The process involves gentle, regular and steady rotation of the gourd from side to side to produce a churning effect on the cream, causing it to form granules which then leads to fat coagulation and then the formation of butter. The process takes about an hour, though for the uninitiated it is a tedious process that may take a longer time. In some cases where granules do not form easily a few grains of millet may be dropped into the cream to quicken the formation of the butter. Neither salt nor colour is added; in fact none of the respondents knew about additives.

Levels of production

Quantities produced

The quantities produced daily varied from household to household depending on the number of lactating cows. On the average each household had 12 milk cows at any one time, though some had up to 40 (Table I.). It was also found that a cow produced between 2.1-3kgs when milked in the morning. About 50% of the households visited obtained less than 10kg of milk after the morning milking, 33% obtained between 14.5kg and 17kg,

Table I. Mean herd size of lactating (lac.) cows and levels of production (1986) in wet and dry seasons in three areas

Area	Milk (kg)		Butter (kg)		No. of lac. cows	
	Wet	Dry	Wet	Dry	Wet	Dry
Aire	142	102	13.8	9.5	57	49
Kammata	60	60	6.8	5.8	33	28
Yarlabe	47	84	6.2	12.1	29	43

and the rest obtained over 20kg. This compares with the estimates of white Fulani yields of about 535kg for 6 months (Nicholson 1984). The bulk of this milk is processed for the market but the family requirements are met first. The sour milk obtained after creaming is thicker in constitution, and sometimes before reaching the market water may be added to thin it out. The butter produced also varied in quantity, from under 500g to over 1500g per household.

Table I. shows quantities of dairy produce in the wet and dry seasons of 1986 in three areas. It indicates a total daily production of just over 300kg of fresh milk and 28kg of butter in the selected area of study. The survey considered only 1/3 of all the households within the villages; if all households were included it is possible that the total daily production would be three or four times as high.

Product packaging

Like the methods of production, the packaging too is simple. Calabashes remain the sole receptacle used for bulk packaging. The gourds from which these are made are widely cultivated in the savanna grassland. The *nono* is kept in a calabash that holds up to 6 litres of liquid and over this is placed a small round mat (*feifei*) which acts as a cover. The butter is kept in a smaller calabash which may be placed on top of the *feifei* covering the milk. Even though this looks simple, a more appropriate method cannot have been designed to serve the packaging need. For it is known for example, that

riboflavin in milk is slowly destroyed by light at the rate of 10% every hour (Fisher and Bender 1985). In the semi arid environment, heat and strong sunlight are natural factors to reckon with. The calabash has excellent properties of insulation against both heat and light. Most Fulbe milk sellers settle under trees and in shady areas to sell. The milk is dispensed directly into individual buyers' containers using a small calabash or the spoon shaped half gourd. It is only in recent times that small polythene bags are occasionally used for those buyers who do not bring along containers.

Marketing

This is a predominantly female task and women have organised the marketing in three ways. A few of them (20%) hawk the product from place to place. A second arrangement is for individual sellers to select fixed locations at which they sell; these may be along a busy street, in front of government offices, hospitals or schools, or under shady trees along access routes. By far the most frequently employed arrangement, however, is the congregation of several processors in the same area, normally a market, to form a depot from where bulk purchases can be made. 70% of all the dairy sales undertaken by the Fulbe women take place from such depots where as many as 30 or more sellers gather daily.

All towns located near villages in the savannah lands of northern Nigeria pro-

vide the three types of channels for disposal of the dairy products. Women from pastoral communities organise themselves on a rotational basis for the week. A group of 6 or 8 women go to market on the same day, two or three times in a week. This helps to avoid flooding the market with excess supplies. It is a system that works well, since it enables the women to participate in other activities such as dancing during certain ceremonies and also see to activities such as hair dressing, mat weaving and even calabash decoration at home. For transportation, the majority of Fulbe women opt to walk to the market, though for distances exceeding 10-12km they rely on small buses or pick-ups that ply their routes. If transport costs exceed about 20% of the maximum daily takings, the women prefer to walk.

Indeed the locations of the selling points within the town make it easy for the dairy products to be paired with items such as *dawo*, the boiled millet or sorghum flour balls used for making the nutritious drink *fura*. Butter is also a regular food item which is converted into ghee for cooking soups and vegetables, or added to rice and beans and other foods. It is rarely spread on bread. Fulbe women who sell in the market depend on the larger numbers of buyers to dispose of their produce. The other marketing strategy of hawking the product from house to house within the nearest residential areas of the towns is also to prevent flooding the main market. The same situation is avoided by the group that chooses to locate along busy routes and other places such as hospitals and schools, office blocks, factories or construction yards. At these locations Fulbe women ensure that the produce are easily available to people who may require snacks that are satisfying and filling. In their selection of different marketing points for the sale of milk, the Fulbe

dairy producers display a complete understanding of consumer spatial behaviour, bringing the products as near to the consumers as possible. They thus synchronise their locations more effectively than the retailers of the factory produced yoghurt who move about on bicycles.

In addition the regularity of the Fulbe supply system over the centuries is an indication of the viability of the industry; since in the absence of any external financial assistance or support, the industry has sustained itself without difficulty, except during periods of drought when surviving cattle may be taken further south. Not only are the products readily available to the consumer, they are easily affordable to a large majority of people, and the prices are highly competitive. Both the *nono* and the *maishanu* remain much cheaper than the factory produced or imported varieties (a 250ml can/satchet of yoghurt costs four times as much as the same quantity of *nono*.) As for butter, the imported and only available kind is out of reach of the majority of people. Consumer preference of these products is high, and the current high inflation of prices being experienced in the country is paradoxically helping to boost their consumption. The potential of the industry in meeting an appreciable proportion of local dairy needs is considerably high. At present Nigeria imports over 164 metric tonnes of milk powder per annum at a cost which is in excess of N63 million (1986 figures quoted by Nigeria Livestock Project Division).

The dairy industry and women's participation in the cash economy

In the past, Fulbe women's participation in the economy was on a subsistence scale, where dairy produce were ex-

changed with produce from the crop producing communities. Even though some of these exchanges still exist, especially during the post-harvest months of October to December, dairy processing is no longer carried out on a purely subsistence basis. The women have made inroads into the cash economy especially through the urban markets. The daily trips to the urban markets to sell their products give Fulbe women a unique opportunity. They are keenly aware of current prices; they study with keen interest the changes that occur in the value of the currency and consequently make appropriate adjustments in the pricing of their products. The current cost of a 10g. pat of butter for example is four times what it cost twelve months ago.

On an average the annual earnings of a Fulbe dairy processor are estimated to be comparable to those of a junior level secretary in government service before tax dues are paid. The income so generated provides ready cash for use by the family. Items purchased include food, mats, matches, salt and other small household requirements, clothing for herself and the children, cosmetics and jewellery. The husband may also get certain items including his cigarettes if he smokes, batteries for his torch, kolanuts etc. The rest of the money is invested in more cows and other livestock, in addition to the purchase of aluminium and enamel pots and pans. The latter serve as objects of investment and are resold for cash whenever the need arises; they are also used for decorative purposes and the women's rooms are adorned with different kinds of pots and pans of various colours, designs and sizes. The more well-to do buy chinaware and other breakable dishes. In addition, some of this money can be used to cover the costs of unplanned trips, for example the emergency transport of a sick family member to hospital which can be very

expensive.

On the whole, this industry provides access to cash which is critical for the Fulbe family. Also their specialization in the industry makes it possible for women to obtain an important leverage that manifests itself in three crucial ways. First, it counterbalances their not having as much control in the household as the men do. In other words the power relations between husband and wife get relatively balanced. The fact that their productive activities are so crucial to their daily lives means that the labour of men, women and even children must sometimes be patterned in a way that allows some of the necessary casual tasks to be accomplished regardless of age or sex of the performer. In a situation where the household is still the production unit each member of the family contributes his own quota. Secondly, the woman's more regular and frequent trips to the urban market bring her into regular contact with current events in the larger community and bring in information and news - this is critical in an area where mass media are limited to the radio, even this being afforded by only a few. Newspapers and televisions are generally not available in these communities and then only a few can read. Thus the Fulbe woman becomes an invaluable contributor to the life of the community in terms of the information she helps to disseminate in the isolated rural communities. The men are careful to acknowledge this role as well as her financial contributions. The third way in which Fulbe women have managed to produce a leverage for themselves is through their attempts to integrate the livestock and dairy economies of the rural areas with the urban markets. Of course the men sell their animals to cattle merchants from the main meat consuming centres but these sales are infrequent. So the women's daily efforts are essential in forging these inte-

grative links. The sense of purpose and commitment displayed contributes to the sustainability of this dairy processing industry, which to date remains the main dairy industry in Nigeria. Most government-established dairy facilities quickly stop functioning and eventually fold. Not unexpectedly therefore, Fulbe pastoral women maintain dignity and poise not readily observable among women from other groups.

The potentials of this household production of dairy products cannot be over-emphasised considering first the fact that the products are supplied daily to the market. Secondly the industry is labour intensive, no machinery is at yet employed, except for the simple gourd (of course simple milking machines or butter churning equipment can reduce time and drudgery). This organisation which has evolved over a long period of time cannot be easily matched by the modern factory-based dairy industry with its reliance on imported raw materials, expensive packaging and cumbersome distribution system such as obtains at present in the country. Any effort to establish a dairy industry to meet the demands of the population ought not to bypass the Fulbe whose tried and tested methods have been documented in this paper. At any rate, the Fulbe women's dairy industry requires modernisation if only to increase the size of the supply while attracting greater demand for the products so that a larger populace can benefit. Simple and appropriate mechanization and refrigeration are necessary. Improved milk processing techniques that would lead to the production and supply of fresh milk need to be introduced. The Fulbe women could be incorporated into any such scheme.

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Résumé

Cette étude porte sur le rôle important des femmes Fulbe du Nord-Ouest du Nigéria dans la production et le commerce des produits laitiers. Les auteurs estiment que la modernisation des activités féminines dans ce domaine pourrait constituer la base du développement d'une industrie laitière dans cette région.

Resumen

Este estudio trata del rol importante de las mujeres Fulbe en el noroeste de Nigeria en la producción y la venta de productos lácteos. Los autores estiman que la modernización de las actividades femeninas en este ámbito podrían constituir una base de desarrollo de una industria láctea en esta región.

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