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THE SOCIO-ECONOMIC SIGNIFICANCE OF HOME BREWING IN RURAL BOTSWANA: A DESCRIPTIVE PROFILE

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THE SOCIO-ECONOMIC SIGNIFICANCE OF HOME BREWING IN RURAL BOTSWANA: A DESCRIPTIVE PROFILE

BY

Bonnake Tsimako

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirement for the degree of

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MASTER OF ARTS

Department of Sociology

ABSTRACT THE SOCIO-ECONOMIC SIGNIFICANCE OF HOME BREWING IN RURAL BOTSWANA: A DESCRIPTIVE PROFILE

ΒY

Bonnake Tsimako

This thesis concerns beer brewing and retailing in rural Botswana and its socio-economic significance.

Rich, medium, and poor households brew or retail commercial beers. Many sorghum-brewing households owned cattle, although they were not the richest cattle owners. The relative proportion of household income derived from brewing income increased with decrease in total household wealth or income.

Brewing and retailing sorghum beer was more important to female-headed households, who had few cattle, low agricultural yields, and little off-farm income. Households selling homebrew (Khadi) alone were among the poorest and had neither secure agricultural options nor the skills and education readily sold on the Botswanan or South African labor market.

For the poorer rural households, beer income is used to purchase food, pay school fees, pay taxes, buy clothes, and, occasionally, to finance farming inputs such as seeds, hired draft power, and implements without having to sell livestock.

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This thesis is dedicated to Kabe.

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Introduction

The study is based on information obtained from 1980/81 Farm Management Survey conducted by the Farm Management Unit of the Ministry of Agriculture (Botswana) and from a questionnaire administered between June and August 1982 to 129 of the 135 randomly selected participating farmers in nine Farm Management Survey collecting sites established since 1970. The objective of the study is to investigate and describe the different types of home beer and alcohol related activities and their sociosignificance well the socio-economic economic as as characteristics of households that brew and depend on brewing income.

All types of income and cattle owning households were likely to be involved in home beer brewing and/or retailing of commercial sorghum beer called chibuku as well as commercial (clear) beer, wines and stronger hard liquor, but since grain is critical in sorghum beer brewing, households that brew homemade sorghum beer were found to have greater access to sorghum grain resources than households that either brewed other homemade beers such as khadi or retailed commercial beers. Most were found to be holding cattle; however, they were not found to be the richest of cattle owners. Most were found to be poor and medium households, and they derived a higher percentage of their total household income from brewing than the wealthier households. It was also found that since female headed households were mostly poor, home brewing and retailing of sorghum beer was more important to them and was found to constitute a higher percentage of their total household income than male headed households. These are households with few options for earning both agricultural and off-farm income. Many households that sold khadi by itself were among the poorest rural households. Generally, these had not secure agricultural options from cattle

and/or arable production, nor did they have the skills and education which could be readily sold on the labor market either in Botswana or in South African mines. Such households were predominantly female headed.

The first chapter provides a review of the literature on the topic and a definition of the goals of the study. A general description of the background in Botswana for the study is provided in Appendix A. In order to understand the various aspects of home brewing, including factors that motivate different households to brew and/or sell alcohol, it is necessary to understand the socio-economic setting of both the country as a whole and the rural areas in which the different households are an integral part. The background starts with a brief overview of agriculture and characteristic problems associated with agriculture. The migrant labor system is also reviewed. Chapter 3 presents data and methodology while in chapter 3 a description of the study areas will be provided in order to provide background on the basic social structure of the communities under study. In this chapter an outline is provided of the features of rural society and economy which force many households to engage in income sources other than agricultural and to increased dependence on cash beer brewing and retailing. In chapter 4, the results of the study are presented. The first part of the chapter presents different types of home brewed beers and liquor and their socio-economic importance. This is followed by a discussion of the socio-economic characteristics of households engaged in home beer brewing and retailing. This section is based on the question who brews and/or retails home brewed and commercial beer in rural Botswana. Finally the summary and conclusions as well as implications drawn from the results will be presented.

CHAPTER 1

Defining the study: Brewing in Rural Botswana

This chapter reviews the existing literature on the extent and importance of home beer brewing and retailing of commercial beers and liquor in rural Botswana and other parts of Africa, and then provides a definition of the study topic.

1.1. Social and Economic Aspects of Brewing

Local beer brewing occurs throughout Africa including Chad (O'Laughlin, 1973, Upper Volta (Saul, 1980), Mali, Northern Ivory Coast, Ghana, Togo, Benin, Southern Niger (Bismuth and Menage, 1961-quoted from Saul, 1980), etc. In Botswana, the most dominant type of local or home brewing involves the making of traditional sorghum beer called <u>bojalwa ja setswana</u>. It is named sorghum beer because sorghum malt is important in its brewing process; however, while sorghum has been primary in sorghum beer, maize/corn, sweet reed and millet have also become common and are often mixed with sorghum. This sorghum beer is produced under different names throughout Africa. In Southern Africa sorghum beer has been called different names such as 'kaffir' beer, 'bantu' beer, and 'opaque' beer.

Various ethnographies of African social life and culture have suggested the pervasiveness of beer drinking, while few studies have focused on African beer as a significant element of both the household and local economy. In Southern African, sorghum beer has been brewed for centuries and has historically played an important role in both the economic and sociocultural life of the brewers, agricultural producers, and consumers. It has been found to have low alcohol content and a considerable nutritive value and has been viewed by many as 'a food' besides being a beverage (Bryant, 1967; Wolcott, 1974, pp. 34-35; Novellie, 1963). Doggett estimates that whole grain sorghum contains 9.5% protein and writes that

"it would seem that ordinary sorghum beer is a drink of low alcohol content but with enhanced levels of vitamin B and is a useful dietary supplement when taken in moderate amounts" (Doggett, 1970, pp. 231-237).

It is estimated that sorghum beer is only 2 to 3 percent alcohol (CSO, 1976, p. 48; Finlay, 1982).

Many ethographies indicate the importance of beer in conducting rituals and festivals including religious and funeral ceremonies, weddings, births, initiations, and festivals at the end of the agricultural season (Wolcott, 1974, pp. 68-79). In addition, beer is often offered as 'payment' to cooperative labor parties organized for both agricultural (i.e., land clearing, plowing, wedding/hoeing, harvesting, and threshing) or nonagricultural tasks such as digging wells and building or repairing a house (Saul, 1980, p. 1; Curtis, 1973, p. 7); however, while these uses for beer may still be practiced today, the most common forms of beer brewing involve cash and the resulting income generation by the brewing household (Curtis, 1973, p. 17; Sutherlnd, 1976, pp. 12-13). It is the need for cash to pay school fees, to pay taxes, to buy clothes and food for subsistence that most often motivates women to brew sorghum beer and/or to brew khadi made with crushed berries and wild fruit) as well as to retail commercial beers and liquors. Currently at least 90 percent of all brews in Botswana are produced for cash sale (Hamilton, 1975, p. 122; Kjaer-Olsen, 1980).

Beer brewing is the most widespready manufacturing activity in rural Botswana and is the most important source of female employment in the rural economy (Bond, 1974; Syson, 1972). The majority of the women brew traditional sorghum beer (<u>bojalwa</u>). Few sell regularly while most of the households sell at one time or another. It is unfortunate that in many previous references to beer brewing, it is unclear whether beer making included only sorghum beer alone or combination of sorghum beer, khadi and other homemade beers such as watermelon beer, morula beer, etc. In this study a clear discrimination is made between the different types of beer available in rural Botswana including homemade brews and other commercial brews retailed in rural Botswana.

Homemade brews may be divided into two main types, namely sorghum beer (bojalwa) and all others made from wild fruits and berries. The most wide-spread kind of homemade beers is sorghum beer followed by khadi (made with crushed berries, sugar and wild fruits). Other kinds of homemade beers include <u>morula</u> beer (made from <u>morula</u> fruit), <u>setopoti</u> or watermelon beer (made from watermelons), etc. These tend to be not so widespread, restricted to a particular season, and cannot be made any other time except when the fruit is ripe or available. Further, these tend not to play the part that sorghum beer plays in the lives of the rural people, such as they do not have any religious significance.

Haggblade estimates that in 1981 sorghum beer accounted for about 70 percent of the volume of alcoholic beverages consumed in Botswana and 69 percent of this was home brewed sorghum beer (bojalwa) while 31 percent was factory brewed (chibuku). Other homemade liquors like khadi and other wild fruit beer accounted for some 19 percent while commercial (clear) beers, wines, and spirits accounted for 10, 0.6, and 0.4 percent, respectively. The Rural Income Distribution Survey of 1974-75 estimated that sorghum beer directly generated about 2 percent of total rural income and accounted for 79 percent of the total monthly household income from rural manufacturing (CSO, 1976, pp. 52 and 78). Recent estimates by Haggblade indicate that total rural sorghum related income probably contributes close to 6 percent of rural income.

Rural sorghum beer is important both in terms of the aggregate gross income it generates for the rural economy and the absolute numbers of households involved and earning beer related income. A 1980 SAREC survey of 160 households found that in four Ngamiland villages beer selling was one of the top three cash producing activities both in terms of the numbers of households involved and the gross revenue produced (Pilane, 1981, Table 2). A study of 140 households in some selected villages of South

Eastern Kweneng done in 1975 found that 79.3 percent of the households made bojalwa at some time during the year (Hamilton, 1975, pp. 186-187. The same study found that 43.2 percent of all the brewers sold beer on a regular basis (ibid). Kjaer-Olsen found that about 70 percent of Mosolotshane households brewed in 1978 and approximately 40 percent of these brewed regularly (Kjaer-Olsen, 1978; 5-6). A 1982 Social Impact Assessment Study comprising a 10 percent random sample of Mogorosi and Thabala found approximately 40 percent of the households engaged in beer brewing (Alexander, 1982, p. 21). Opschoor found beer brewing for local sale to be frequent in Oodi and Mochudi where 41 and 34 percent of the households brewed beer for sale (Opschoor, 1980, p. 34). Vierich also found 48.5 percent of her 1979 sample of 136 Kweneng households brewing beer. Thirty-five percent of them brewed only bojalwa while 33 percent brewed only khadi and the other 32 percent made bojalwa, khadi and/or some other unspecified brews (Vierich, 1979, pp. 90-91).

There is evidence that those brewing sorghum beer have access to sorghum grain supply. Vierich and Sheppard showed that the proportion of households brewing beer in the sandveld was less than those brewing sorghum beer in the hardveld where sorghum supply is typically more plentiful (Vierich and Sheppard, 1980). Sheppard has also shown that the figures for beer making tended to be highest for the locations where production of sorghum is the greatest (Sheppard, 1979, p. 29). Vierich and Sheppard also found that there was a strong positive correlation between the number of cattle held and the percentage of sorghum beer brewing households. In this way, just as sorghum production and sorghum beer brewing go hand in hand, so does cattle access and sorghum production. Several studies have shown that there is strong evidence that larger crop producers are also large cattle owners. Hence the more crops a household produces, the more head of cattle that the household owns or holds (Gulbrandson, 1980); however, larger cattle owners are not necessarily large crop producers (Litschauer-Kelly, 1981) because they may specialize on cattle production.

No universal conclusion exists about who brews beer in rural Botswana. Vierich (1979, p. 95) Vierich and Sheppard (1980 p. 112) Turner undated p. 9) and Kjaer-Olsen (1980, p. 45) all indicate that the wealthier households are more likely to brew sorghum beer than are poor and medium households. For instance Vierich and Sheppard (1980) indicate that in 1979, only 29% of the sorghum beer brewing households held no cattle compared to 67% of the brewing households holding 100 or more cattle. In addition to that Vierich and Sheppard found that in 1979, 27% of these households holding no cattle compared to 62% of those holding 40 cattle brewed for sale (ibid., p. 52).

A survey of 107 households in Thabala and Moiyabana in 1978/79 found that beer parties were organized mainly by families with cattle (Otzen, 1979, p. 50). A 1980 survey by Kjaer-Olsen, which examined 69 small producers and 38 cash brews found that the majority of beer brewers came from households that were active in agriculture. She writes:

". . . 88 percent of these households that brewed for sale ploughed their own arable lands, and of these, two thirds did so with their own draftpower. 50 percent of the cash brewers had their own cattle posts away from the village and lands areas . . ." (Kjaer-Olsen, 1980, p. 45)

This finding could suggest that the large beer brewers may, in fact, be members of the wealthier rather than poor households. Kjaer-Olsen's findings also indicated that some 25 percent of the brewers apparently lived entirely from a combination of brewing and plowing.

Curtis (1973, p. 20), Modimakwane (1978 p. 41) and Lipton (1978, Vol. II, p. 178) all indicate that the poor are more likely to brew sorghum beer for sale. The Rural Income Distribution Survey, Dahl, 1980, Syson, 1972 p. 29-30) and Haggblade (Forth coming) both suggest that all categories of rural households are equally likely to brew sorghum beer for sale.

1.2 Hypotheses for The Study

From the above studies, I hypothesize that varying types of rural groups are involved in beer brewing. Based on these studies, the following relationships were expected between the characteristics of home brewers and retailers: 1. It was hypothesized that since grain is critical in sorghum beer brewing, households that brew homemade sorghum beer would have greater access to sorghum grain resources than households that either brewed other homemade beers such as khadi or retailed commercial beers. Since access to draft power is critical in one's ability to plow, it was expected that home sorghum beer brewing households were likely to own or have access to cattle, donkeys, or both for plowing; yet it was also expected that most such households would not be the richest of cattle owners since they were expected to be predominantly poorer and medium income households with limited agricultural options from cattle and/or arable production and limited skills and education which can be readily sold on the labor market either in South Africa or in a Botswana town.

2. Second, it was hypothesized that although women from all income groups would engage in beer retailing, wealthier or large cattle owning households would be less likely to depend on beer income as a large part of their household income. Home brewing and retailing of sorghum beer was expected to be more important to poor and medium income groups than to the rich, and,

therefore, poor and medium income households were expected to derive a higher percentage of their total household income from brewing than the wealthier households.

3. Third, it was expected that since female headed households were mostly poor, home brewing and retailing of sorghum beer would be more important to them, and brewing income was expected to constitute a higher percentage of their total household income than for male headed households.

In this way the particular mix and involvement in agriculture and non-agricultural activities depends among other things on the wealth or economic class of the household. In rural Botswana, cattle ownership is usually used as a standard measure of wealth, income levels and class. Levels of cattle ownership in the rural areas closely correlate with income levels. It is realized that a more complete stratification includes dimensions such as dependency on relatives and friends as well as incomes from non-agricultural jobs or activities since class orientations depend on a mix of all the above. A high proportion of rural household is supported by a wage earner or earners either in the towns of Botswana or in the South African mines. This is not to deny the existence of a disadvantaged group of the very poor households that have neither a wage earner in Botswana towns nor in South Africa.

In discussing the beer brewers the following questions will be asked: In which group of rural households are brewers found, and what are their respective linkages with farming, i.e., lands and cattle? The objectives of the study are, therefore stated as follows:

- To investigate and describe the different types of home beer brewing and alcohol related activities in rural Botswana and to describe the socio-economic importance of the different home beer and alcohol related activities to both the farming and non-farming households.
- 2. To analyze the socio-economic sources of home beer brewing in order to compare their different resources such as livestock ownership, cropping patterns, access to cash employment, and other non-farm income generating activities. Here specific hypotheses about characteristics of different groups of home beer brewing households were developed for testing.

1.3 The Context for the Research in Botswana.

A brief review of the socio-economic factors that gave rise to home beer brewing is presented in this section. These factors include the nature of agriculture and the characteristic problems associated with it and the nature of the migrant labor system as it operated in Botswana to force many women to resort to beer brewing as a source of income.

1.3.1 The Nature of Agriculture and Constraints on Agriculture

An overview of the nature of agriculture and the characteristic problems associated with agriculture show that

even though the agriculture sector has been the mainstay of the economy, most households face low levels of livestock and crop production and hence low incomes because of the physical environment (see Appendix A) as well as other socio-economic constraints which will be discussed later in the paper.

Low levels of livestock production are associated with low levels of arable production because of the major constraint of draft power. The FAO Agriculture Constraints Study showed that at the time of the study, the lack of draft power was a major constraint. Its scarcity or nonavailability when required are serious constraints to agricultural production, and the control of livestock, especially cattle, is the key (Botswana Govt., 1974 p. 43). A large segment of the rural population does not own any draft power and those that do own an insufficient number to constitute a plowing team because of the extremely skewed pattern of cattle ownership.

Botswana farmers plow with teams of four to eight animals, depending on soil type and the strength of the animals. Ideally, oxen are used although bulls, cows, and heifers will be employed if enough oxen are not available. A team of six is usual. Many poor households with a herd of ten are not in a good position to have a full team of oxen for plowing (Cooper, 1980, p. 45). These can barely make up a team even when cows are used for draft power. Hence the Farm Management Survey classifies these as farmers with inadequate draft power. Cooper writes,

". . . So, one can take, say, <u>20</u> as a rough point at which a 'poor peasant' (in cattle terms only) begins to merge into the 'middle peasantary.' Between 21-40, the household is gradually moving into the position of having a full team of oxen for plowing, of being able to sell or exchange one or two for specific purposes as the need arises without seriously jeopardizing the long term use value plus reproductive capacity of the herd, . . . at 40 head the owner is generally achieving self-sufficiency . . . i.e., 'solid' middle peasant level has been reached . . . (ibid)."

The poor peasantry own between one and 20 cattle, and in crop terms the poor peasantry on average produces less than ten bags of crops. These poor households engage in arable agriculture despite its obvious risks, low yields, and low return. As shown, these households also face draft power constraints because poor farmers are often under greater pressure to sell animals to meet routine household expenses such as food as well as to meet immediate cash expenses such as school fees, the cost of a funeral or illness, or other emergencies.

Though farmers in the poor class take advantage of and survive through elaborate arrangements of sharing with kin or neighbors, such as "putting in hands" (labor exchanged for subsequent use of draft power, "plowing together" (pooling implements, draft power, labor), plowing for close relatives with no immediate reciprocity, or hiring a team and owner, many such households do not have access to such draft animals when they need them (Curtis, 1972). The FAO Agriculture Constraints Study found that one guarter of all plowing households could not obtain animals when they needed them (Botswana Govt., 1974, p. 74). Households without ready access to draft power plow fewer hectares and plow later than those with their own draft power (Odell, 1980; Opschoor, 1980). Farmers who own their draft power with first rights to its use are able to take advantage of the early rains by planting early in the season which gives them a better chance of harvesting better yields than those who plowed The FAO Agriculture Constraints Study found that at the late. time of study, households that used their own draft power were the first to plow and plowed and average of 70 percent more per household than those who borrowed, exchanged, or hired draft power (ALDEP Working Paper on Draft Power, 1979, p. 2).

It should be noted that draft power is not the only factor affecting greater levels of crop production, however, households which lack cattle in general also lack the resources that would permit them to purchase other inputs such as labor, seeds, equipment, which aid in profitable farming (Purcell and Webster, 1977). The risk of poor harvest is also high owing to the considerable fluctuation in rainfall.

For many middle income or middle peasantry (owning 21-40 cattle and producing 11-15 bags of grain), cattle provide cash, and cattle sales can be used to cover short falls in crop production during bad years. These engage in mixed farming. Since they also lack cash they may engage in other cash earning activities such as wage employment or beer brewing as a means of providing for their needs without having to sell livestock. For these household arable production is used for home consumption or for food because of the high risks and low yields involved. The aim of livestock production is one of long term herd growth. Alongside building their herds, these middle income households try to build up their draft animals within the herd for plowing. In this way arable production reduces cash expenses on food and hence the need to sell livestock. Though they are also often forced to sell livestock to meet their immediate needs for cash, they tend to sell less (Behenke, undated).

Litschauer and Kelly summarized the position of the large cattle owners or rich and very rich peasantry in Coopers' classification. For the rich (those with 41-70/100 cattle), and the very rich (those with over 100 cattle), the general trend is toward the commercialization of traditional livestock raising because of the market incentives for beef production. In crop terms the rich (producing over 15 bags of grain) who regularly hire labor and sell grain, tend toward commercialization of crops as in the Barolong area where arable agriculture tends to be highly mechanized and highly capitalized with equipment such as tractors used together with improved practices such as row planting and fertilizing. These tend to plow larger tracts of land and achieve higher yields than farmers producing for subsistence production. After dividing the rural farming households into three groups according to cattle holding, Litschauer and Kelly concluded:

 For the smallest farmers (ie., those with 10 or fewer cattle) the primary emphasis is on crop production. However, as a result of input constraints . . . whether draft power, capital, or other . . . the average hectarage considerable fluctuation in rainfall.

For many middle income or middle peasantry (owning 21-40 cattle and producing 11-15 bags of grain), cattle provide cash, and cattle sales can be used to cover short falls in crop production during bad years. These engage in mixed farming. Since they also lack cash they may engage in other cash earning activities such as wage employment or beer brewing as a means of providing for their needs without having to sell livestock. For these household arable production is used for home consumption or for food because of the high risks and low yields involved. The aim of livestock production is one of long term herd growth. Alongside building their herds, these middle income households try to build up their draft animals within the herd for plowing. In this way arable production reduces cash expenses on food and Though they are also often hence the need to sell livestock. forced to sell livestock to meet their immediate needs for cash, they tend to sell less (Behenke, undated).

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 For the smallest farmers (ie., those with 10 or fewer cattle) the primary emphasis is on crop production. However, as a result of input constraints . . . whether draft power, capital, or other . . . the average hectarage planted averages from one to two hectares.

- 2. For medium sized cattle farmers (with 10 to 40 cattle) there seems to be definite indication of mixed productive activities. Hetarage planted may range from two to seven hectares . . .
- 3. For large traditional cattle farmers (with more than 40 cattle), the production picture may be either specialized or mixed. A significant number of farmers in this size range plant little or not crop land. However, when crops are planted, the area planted tends to be larger than in the previous two farm size groupings. At least a portion of this increase may be due to increased capital holdings (ie., tractors, implements, etc.) and/or management skills (Litschauer/Kelly, 1981: 25).

In 1980 the average traditional farmers plowed little over four hectares and their yield per harvested hectare averaged less than 200 kilograms (Litschauer and Kelly, 1981, p. 19). The Farm Management data also showed that over half of all farms had mean yields of less than 200 kilograms per hectare (Boykin, 1982). On the other hand almost 42 percent of all farms had sorghum yields of 250 kilograms or more (op. cit: 6). But only 5 percent produced an average of 830 kilograms per hectare. Opschoor (1981) has compiled statistics on average area plowed and yields per hectare over a number of years, and these showed productivity ranging from 167 to 508 kilograms per hectare for maize and 65 to 455 kilograms per hectare for sorghum. Average yields rarely exceeded 400 to 500 kilograms per hectare.

Alverson (1978) has suggested that a rural household of six persons requires around 1600 kilograms (about 18-90 kg bags) of sorghum to meet a caloric minimum whereas Kerven's analysis (1979: 24) suggested about 1252 kilograms of a mixture of crops including sorghum, maize, millet, and beans. Gulbrandsen estimated about 1350 kilograms (15 90 kg bags) were required to meet the average family subsistence needs. The Arable Lands Development Program (ALDEP) gives an estimate of between 1,000 and 1,500 kilograms. As has been shown, few households approach

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these levels, while the vast majority fall below the caloric minimum suggested above. The degree of lacking productivity and thus insufficiency of arable agriculture is further indicated by the FAO Agriculture Constraints Study which covered a sample of 1,000 households throughout eastern Botswana. The study found that the average rural household harvested 7.7 bags and only 21 percent 1974). It also found that less than a tenth of the households stated that they produced enough food to feed their families in most years (ibid, p. 49). Ninety-one percent of households said they infrequently or never produced enough food to feed themselves. This is further confirmed by the 1978-1979 ALDEP study covering a national sample of over 1500 households which found a mean production of 10 bags (900 kg) and a median of four bags per household (Botswana Government, 1979, p. 2). All these underline the fact that agriculture production is insufficient to meet the subsistence needs of many rural households. Consequently, Botswana still imports 30 to 50 percent of its food not only for its urban population but also to a large extent to feed its farming population (NDP, 1979-85). The insufficiencies and constraints in agriculture necessitate the involvement of the rural population in other income generally activities involving various kinds off-farm and non-farm employment to supplement agriculture. Such off farm activities include wage earnings away from the farm, while non-farm include all income generating activities by the household members taking place on the farm premises but not including crop or livestock

beer brewing, building, etc. In aggregate terms home beer brewing and selling is by far the most significant form of selfemployment in the rural areas of Botswana. Wage employment possibilities in the rural areas are limited and very often low paying. Chuta and Liedholm (1979) provide empirical evidence of the importance of per form activities in many developing countries.

carpentering, selling firewood, blacksmithing, weaving, trading,

include tailoring,

Such non-farm activities

activities.

importance of non-farm activities in many developing countries such as Korea, Sierra Leone, Taiwan, and Japan, where non-farm activities are a source of both primary and secondary or parttime employment in rural areas. Non-farm activities are a source of employment for 30 to 50 percent of the rural labor force when primary and secondary occupations are included. Chuta and Liedholm demonstrate that non-farm activities are particularly important to these rural households with little or no land. In six selected countries Chuta and Liedholm showed that non-farm activities accounted for 22 to 70 percent of total rural household incomes (See Table below).

Table 1.1Share of Non-Farm Incomes in Total RuralHousehold Income

		Percentage of
		Income from
		Non-Farm
Country	Year	<u>Activities</u>
Korea	1974	22%
Pakistan (5 villages)	1968	23
Northern Nigeria (3 villages)	1974	28
Sierra Leon	1974	36
Taiwan	1975	43
Japan	1975	70

Source: Chuta and Liedholm, 1979:7 Table 2.2

Chuta and Liedholm also showed that as farm sizes decrease, the total share which non-farm income constitutes of total household income tends to become large. This is an important finding and will be investigated in detail later in this study when looking at the characteristics of beer brewers.

Tables 1.2 and 1.3 compiled from Botswana's Rural Income Distribution Survey (RIDS) of 1973/1974 shows the major sources of income of rural households in different income levels. The survey covered a population of 93,000 involving a sample size of just over 1,800 households (Botswana Government, 1976, vi). the two tables show that most households in rural Botswana do not rely primarily on agriculture for their income. Table 1.2 below demonstrates the significant sources of income for each sample group by rank with the most important source given rank = 1, etc.

		Income Group		
Rank	0.5%-10%	15%-50%	60%-95%	978-99.78
1				
(most				
important	Transfers	Employment	Employment	Livestock
2	Gathering	Farming	Farming	Trading
3	Employment	Transfers	Property	Employment
4	Farming	Gathering	Transfers	Housing
5				
(least				
<pre>important)</pre>	Housing	Manufacturing	Housing	Hunting
Proportion				
of income				
which is				
in kind	718	498	428	328

Table 1.2 Sources of Income for Each Sample Group by Rank

Source: Botswana Government, 1976, 101

Table 1.3 shows that the households in particular depend on a variety of income sources of which agriculture is the least important contributing only 12 percent of the household income. On the other hand, agriculture provides 16 percent of the total income of "lower middle income" households, 37 percent for the "upper middle income" households, and 64 percent for the richest households; however, arable agriculture contributes very little to the incomes of the poorest households, a little more to medium income households, and a lesser amount to wealthy households.

From the above evidence, it is suggested that for small and medium sized cattle owners and/or arable producers, beer brewing tends to be a response to the low income obtained in farming due to various constraints such as the lack of or shortage of draft power and labor. It is hypothesized that small farmers will tend to engage in beer brewing and other non-farm activities to Economic Class and Sources of Income in Rural Botswana Percentage of Income Obtained From Different Sources of Income, 1973/1974 Table 1.3

Level of Income (Percentiles)

.

Source of Income		The Poorest 0.5-10 Percentile 113 to 233 Pula	Lower Middle Income 15-50 Percentile 285 to 630 Pula	Upper Middle Income 60-95 Percentile 785 to 3165 Pula	Richest <u>99-99.7 Percuntile</u> 3959 to 16520
Manuf acturing	-	5%	8%	1%	0%
Trade	.7	22	×	22	22%
Services	c	3%	1%	1%.	1%
llunting	4	2()	20%	2.0	2%
llousing Benefits		10%	7%	3%	2%
Property Income	S	20	20	102	20
Additional Income		17%	10%	7%	6%
Finployment		15%	36%	36%	26
Transfers in	9	21%	142	27	0%
Gather ing	7	18%	8%	2%	0%
Crops		20	26	4%	0%
Livestock		5%	2%	32%	64%
Tuxes	\$	20	-12	-2%	-7%
Total		100%	100%	100%	100%
Proportion of Income					
in Kind		71%	264	42%	32%
Number in Sample		15%	15%	15%	12%
Value of Available					•
llouschold					
Income (Rands)	6	161,5	430	1669	9143
Source: Botswana C	0 veri	ment, 1976, pages 9	14-103		
1. includes some hand	licral	ft but mainly compri	ses making traditional l	ຄວດ	
2. includes profit fi 3 includes tradition	on a	private trading com	ipany Cothore and merry divine		
4. includes fishing	1 11	autoine, prowing toi	OCHELS AND DALLY BEATH	-0	
5. includes interest	and c	lividends received			•
6. includes remittanc	es [1	rom mine workers and	l gifts and free meals to	o old people	
1. Includes gathering	or l	Trewood, building a	naterials and wild food s social income tay	such as green leaves, roo	ots, fruits and nuts
9. includes after tax	and	net transfers and j	actual income car includes value of subsist	tence consumption	

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			Level of Income (Perc	centiles)		
Source of Income		he Poorest <u>5-10 Percentile</u> 13 to 233 Pula	Lower Middle Income 15-50 Percentile -285 to 630 Pula	Upper Middle Income 60-95 Percentile 785 to 3165 Pula	Richest <u>99-99.7 Percentile</u> 3959 to 16520	
Manuf ac tur ing	-	5%	8%	1%	20	
Trade	.2	22	*	2%	22%	
Services	c	3%	1%	1%.	1%	
llunting	4	20	0%	20	2%	
llousing Benefits		10%	7%	3%	2%	
Property Income	5	20	20	10%	0%	
Additional Income		17%	10%	7%	6%	
Employment		15%	36%	36%	26	
Transfers in	6	21%	14%	212	0%	
Gather ing	7	18%	8%	2%	0%	
Grops		20	2%	4%	0%	
Livestock		5%	7%	32%	64%	
Taxes	8	2()	-12	-2%	- 7%	
Total		100%	100%	100%	100%	
Proportion of Income						
in Kind		71%	264	42%	32%	
Number in Sample		15%	15%	15%	12%	
Value of Available						
Household						
Income (Rands)	6	161,5	430	1669	9143	
Source: Botswana Go	VETIM	ient, 1976, pages 9	4-103			
1. includes some handi	craft	but mainly compri	ses making traditional l	bee		
2. includes profit fro	n a p	orivate trading com	ipany			
 Includes traditiona includes fishing 	L med	itcine, plowing for	others and party grant	3		
5. includes interest a	nd di	vidends received			•	
6. includes remittance	s fro	m mine workers and	gifts and free meals to	o ald people		
 Includes gathering include only local 	11 10	rewood, bulldlug m	acertals and wild rood (const income ray	such as green leaves, rou	ous, trutus and nucs	
9. includes after tax	and n	et transfers and i	ncludes value of subsist	tence consumption		
9. includes after tax	and n	et transfers and i	ncludes value of subsist	tence consur	nption	nption

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supplement and amplify the low income they receive from farming activities. The same trend may be observed for medium size cattle farmers. For this group beer income, in addition to being used for food, school fees, taxes, etc., occasionally is used to finance farming either directly or indirectly by providing for the household needs without having to sell livestock. For most of the poor households beer earnings act as a major source of cash income and are used for basic subsistence. Gulbrandsen (1977) has pointed out that many women in the rural areas depend on the profits from beer brewing which tend to provide a larger proportion of their income than does traditional participation in agriculture. These female headed households continue to grow crops on a smaller scale than male headed households.

In addition to the general insufficiencies in rural agriculture, other factors have been responsible for the rise in cash beer brewing; however, it is important to understand that the predominance of beer brewing and selling is also directly related to the labor reserve structural position of Botswana.

1.3.2 Labor Migration and the Emergence of Increased Dependence on cash Beer Brewing

A brief summary of the historical processes of labor migration from rural Botswana to South Africa is outlined in Appendix A. This section is meant to show the social and economic disruptions which may have lead to the emergence of beer brewing as a means of income generation.

Although mine employment is significant in terms of the numbers of people involved and the average cash earnings and foreign exchange benefits, the domestic opportunity costs to production as well as to family life have been even greater. Since the mine recruitment process selects only able bodied men, particularly those below 45 years of age, migration created a major age/sex distortion in the rural areas. This in turn seriously affected the availability of labor and still continues to make agricultural production difficult for many rural households. Those who remain behind in the rural areas are forced to reorganize their work allocation in an attempt to

replace the labor effort previously provided by the migrants. With adult men absent from the household, the women and children are left to perform all the household activities including herding, cropping, and domestic tasks, and this reduces the ability of the remaining population to maintain their productivity capacity. This has tended to have a detrimental impact in the agricultural sector and has contributed to increased general impoverishment in the rural areas. Thus, a vicious cycle has been generated. Rural labor migrates to the mines, labor shortages slow down the growth of the agricultural sector; and this in turn induces more productive males to leave agricultural areas to seek wages in an attempt to increase their incomes and compensate for the insufficient arable production.

The outflow of the able-bodied men has not only reinforced the unproductiveness of the rural areas, but has also had a negative impact on the country's general development. It would appear that migrant earnings have not been sufficient to stimulate investment and job creation. Rural employment opportunities are scarce and those that exist tend to be low paying. The probability of getting a job is higher in towns than it is in the rural areas. The trend is even biased against women.

In addition, the tremendous amounts of labor migration have been responsible for a growth in female headed households. It is presently estimated that 30 to 35 percent of the households in Botswana are headed by females. A great deal of recent research on these households has shown that female headed households are likely to suffer reduced agricultural yields and that the majority of these households do not own or hold cattle (Kerven, 1979). This lack of cattle affects the income received from crops since households without cattle experience considerable difficulty in having their lands plowed on a timely basis. As a result, many female headed households were forced to turn to self-employment through one marketable skill they possess - beer brewing to raise cash for school fees, clothes, taxes, hire labor, as well as for the basic subsistence support. The returning mine workers brought cash from the mines and provided a major market for sorghum beer. This led to the rise of drinking, and this further accelerated home beer brewing activity in rural Botswana.

Various researchers have shown how the returning laborers promoted the rise of cash brewing by providing a ready cash market (Curtis, 1973; Afriyie, 1976; Modimakwane, 1978; Sutherland, 1976; Gulbrandsen, 1977; Kooijman, 1978; Dixey, 1979; etc.). This is also important in the distribution of the mining income to households that would otherwise have no access to mining income because they do not have males to go to the mines. Curtis writes:

"brewing should be regarded economically as a means of making money circulate within the rural economy when needs are many but other forms of production are poor and undiversified" (Curtis, 1973, p. 25).

Kooijman also indicates that beer brewing "is the most important means for the circulation of the money earned by migrants to other villagers" (Kooijman, 1978, p. 92). In this way the system which not only reinforced migrant labor the unproductiveness of the rural areas but also led to the underdevelopment of Botswana and resulted in men turning to migrant labor because of lack of productive local cash earning outlets also forced women to turn to beer brewing as the only means available of extracting cash from returning migrants.
CHAPTER 2

Data and Methodology

The data analyzed here were primarily obtained

a) from the 1980/1981 Farm Management Survey results conducted by the Farm Management Unit of the Ministry of Agriculture and

b) from a questionnaire administered to the same participants in the same areas of the Farm Management Survey between June and August of 1982. Informal interviews were also conducted with a purposely selected number of non-farming households in the same area.

The Farm Management Survey covers a sample of farmers in nine data collecting sites established since 1970. Originally three data collecting stations were established which were later increased to four. In 1977, the number of data collecting sites was increased from four to six and the number of participants at each site increased from twelve to fifteen. The number of sites subsequently was expanded to nine and the participants increased to one hundred and thirty-five. These sites are located in the communal areas of the country, primarily in places where arable lands are found (see Map C, Location of Farm Management Data Collecting Sites). See also Table 2.1, showing the distribution of the sites by district.

Table 2.1 location of Farm Management Survey Sites

<u>District</u>	<u>Site</u>
Southern	Makokwe
Southern	Polokwe
Kweneng	Gakgatla
Central	Mookane
Central	Maunatlala
Central	Matobo
North East	Masunga
North West	Gorokhu
North West	Tubu

2.1 The Farm Management Survey Areas and Method of Selection: The original survey which preceded the current beer survey covers numerous questions concerning crop and livestock operations. The objectives of the survey were stated as follows (Fox, 1981:1):

- a. to describe farm enterprise organization in various areas of Botswana by determining average assets, cultural practices, and the types of crops grown and livestock kept;
- b. to identify physical and financial returns in the form of input-output and cost returns data for individual crop and livestock enterprises as well as for the total farm business;
- c to establish standards for planning and decision-making purposes; and
- d. to identify changes in agricultural production practices adopted by farmers over time.

Since the specific interest concerns crop and livestock operations, the data collecting stations were chosen non-randomly in the major arable areas. These were chosen in consultation with the Regional and District officials who have a good working knowledge of the agricultural areas and activities. The criteria for selecting the area was that it should be as representative as possible of the rest of the region in terms of soils, rainfall, cropping patterns, and livestock holdings.

2.2 The Sample and Sampling Procedure

To select the sample preliminary surveys were first carried out on all households in the selected areas covering several items of interest such as name of the head of household, sex, and some farming activities such as access to draft power, approximate number of cattle and crops grown. Then, the households with different levels of resources were stratified into four groups: male and female headed households and with adequate and inadequate draft power.

Since cattle are the most important source of draft power in most regions of the country, access to draft power was defined in terms of the number of cattle to which the household had access either in terms of ownership and/or 'mafisa'.l However, in Ngamiland a number of farmers employed donkey draft power.

Access to draft power was, therefore, based on minimum herd size necessary to provided a plowing team.

Different numbers have been arrived at as the minimum number necessary to provide a normal plowing team. The Integrated Farming Pilot Project (IFPP) at Pelotshetlha uses 10 cattle (or 14 donkeys) as the minimum herd to qualify as having adequate draft power (Rees-Jones, 1980, p. 1). Odell, however, puts the minimum herd size at 22 (Odell, 1980, p. 28). For the Farm Management Survey, adequate draft households included those with access to a herd of ten or more cattle while inadequate draft households included those with less than ten cattle. It should be mentioned here that at the time of sample selection, households which neither owned cattle nor plowed were excluded.

Within each of the four strata, a specified number of households were randomly selected to assure representation of various groups such as adequate and inadequate draft and male and female headed households. A total of fifteen households was finally selected from each station. The number was limited by a previous decision to station one enumerator in each selected area and the fact that one enumerator could survey approximately fifteen households due to the distance between farms and the need to ensure adequate supervision of the enumerator. Each enumerator visited all the participating farms in his area twice a week to record all agricultural activities performed and income which the farmer received since the last visit. The enumerators generally established a good rapport with respondents.

Since the areas varied in size, the percentage of household sampled varied from twelve to twenty-three percent of households interviewed for sample selection and these numbers represent approximately a fifteen percent random sample of all the nine areas combined. An adequate number of replacement households which could be used if it was impossible to work with one of the original sample household was selected; however, not many replacements have been required since 1977.

2.3 Field Work Methods

The Farm Management Survey described above contained information relating to crop and livestock operations used in this study for the 1980/1981 crop year. Though the survey

reported information relating to income from non-farm sources such as basketry, sewing, beer brewing, the data was found to be inadequate for purposes of providing the detailed information relating to the questions outlined under objectives. As a result, the data was obtained by interviewing the same households using the interview schedule. The interview schedule was designed to provide the following:

- household composition and basic demographic data including age, sex, education, marital status of household members. distinctions between the different types of home beer and alcohol related activities and the importance of these for the households involved, especially the amount of cash derived and the use.

- the extent and frequency of beer activities
- beer ingredients and their sources
- the timing of beer activities and how they fit with the agriculture calendar.
- the kind of off-farm opportunities such as wage or formal employment.
- other non-farm income earning activities in the area.
- absentees and remittances sent into the household.

The schedule was translated into Setswana (the national language) by the researcher through the help of an assistance and a number of officials at the Ministry of Agriculture. It was later pretested on some households in Gabane village just outside Gaborone. After the pretest a few changes were made, and the final questionnaire printed (see Appendix B Interview Schedule).

From June to August households were interviewed with the help of the Farm Management Survey enumerators, one of their field supervisors, and the assistant who had just joined the Ministry at the end of his diploma studies at the local university. The interview language was Setswana except for a few cases in the northeast where Kalanga was used. In this area information was collected through the Farm Managment enumerator as an interpreter.

Interview varied in length, often depending on whether the household had different types of beer/alcohol activities. The majority of the interviews took about 45 minutes and usually a little over an hour with households that had different beer activities. In the few cases where an interpreter was used, the interviews took about one and a half hours.

Call backs were often required when no suitable respondent was available on the first visit. A total of 129 of the 135 household were interviewed. Six households were not found after repeated visits. They were temporarily elsewhere in Botswana.

In addition to interviews through the schedule, informal interviews were held with some brewing households which neither plowed nor owned any livestock (non-farming households). Information was collected by the researcher and the assistant on the life histories including frequency of and income from brewing and its use as well as other income generating activities by the household members. Such households were purposively selected. To have randomly sample such households in all the nine areas would have been beyond our time and resources. Though these included both male and female headed households, the majority of the non-farming households identified as brewing were female headed.

Informal interviews were also held with a variety of local officials including the headman, nurse, teachers and other villagers on the importance of brewing in their village. The village headman usually works with the village Development Committee to keep records of the name and number of people who hold beer parties and are very knowledgeable about the village and it dwellers. In addition, interviews and observations were carried out in such places as bottle-stores, (liquor stores), compounds of individuals, and at beer parties. Notes were taken throughout the informal interviews except when the respondents became hesitant and uncomfortable. In this instance the notebook would be put away and the notes would be written later on the basis of recall. On the whole the respondents were cooperative. In Mookane some respondents were hesitant to provide information

about other beer activities except sorghum beer because of interventions by village authorities to curb the brewing of illegal brews which were alleged to be too strong and associated with both crime and ill health.

2.4 Secondary Sources of information

Additional information was obtained from different secondary sources including research publications from the national archives and libraries Extensive information came from Steve Haggblade's studies of home brewing and commercial beer in Botswana.

2.5 Limitations of the Data

Difficulties usually begin when respondents are forced to respond to questions in a specified manner, especially questions relating to income and remittances. Often the respondent may not be used to thinking in the terms in which the question was posed,

for instance utilizing annual or quarterly time periods. Recall may be a problem. In order to avoid the problem of recall, the researcher used the agricultural calendar and the past three months as the time frame for remittances sent and income received from other non-farm activities. Most of these activities were either seasonal or irregularly performed and it has become difficult to estimate the annual income derived from these since information on how often these activities were performed in a normal year was unfortunately omitted. This is the primary limitation of the data since it is difficult to estimate the annual household income in order to evaluate the relative importance of different farm activities performed by household members in terms of the income they earned.

2.6 Procedure for Analyzing the Data

After the survey the data were coded, transferred to punch cards cleaned to remove obvious contradictions, and analyzed by computer using Statistical Package for the Social Sciences (SPSS) manual. Correlations were performed with different variables for all the groups (male and female head households) and with adequate and inadequate draft power in order to test the different hypotheses advanced about the characteristics of home beer brewers. A descriptive analysis was also done using basic statistical techniques such as cross tabulations, simple averages, frequencies, and percentages for the different variables.

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Agriculture, Brewing, and Non-agricultural Incomes in the Sample

A brief description of agriculture, brewing and nonagricultural incomes in the study areas is presented in this section. This will be helpful in understanding the socioeconomic role of beer brewing in rural Botswana. There are some more or less common characteristics among the areas surveyed. 3.1 Population and Demographic Features

Botswana is sparsely populated with an estimated 1981 population of 941,027. According to the estimated 1981 population census, this is an increase of about 61% since 1971. Although the population is small in relation to land area, it is growing very rapidly with the annual growth rate estimated at 4.9%. An estimated 80% of the population is concentrated in the corridor that runs along the south eastern boundary of the country. The population is predominantly rural with over 80% of the people living in villages and small rural settlements; however, Botswana has witnessed a high degree of urbanization in the rapid movement of people from rural to urban areas. This rural urban migration is expected to continue because of the existing differential living standards resulting from the growth of industrial and mining developments in the urban areas and the relatively low productivity of the rural areas.

The rural households average six persons and the urban areas, 4.5, while the national average is 5.7 persons per household. The average for the areas under study ranged from 5.1 to 8.0 persons per household. The overall average for all areas is 6.4 present persons per household with 55% of households having 2-6 members.

A total of 129 households were interviewed in nine village and lands areas. Some 37% of the households in the sample were female headed. Sixty percent of these female headed household were widowed while 29% and 6% were single and divorced, respectively.

The sample de facto (resident) population was about 830 and was more concentrated in the lower and higher age groups with more women than men. The total number of present males of all ages was 389 while the number of females was 441. Half of the resident population was 14 years and under and most of the household heads were over 45 years. 38% of the population over the age of 5 had either none or unknown education level. Some 13% had gone as far as Standard 7. About 45% of the household heads had never been to school and these were dominated by male heads of households who comprised 63% of the heads with no education. This could be attributed to the involvement of males as livestock herders from a very early age.

About 242 household members were absent from 91 households (67% of households). An absentee was defined as any member of the household who was absent from the village-lands on a semipermanent basis but who would, under normal circumstances, be considered an integral part of the household. Of the 242 absentees, 144 (60%) were males, while 98 (40%) were females. Forty-six percent of all the absentees were in urban Botswana followed by 27% in rural Botswana, 6% in South African mines while the rest were in the towns and farms of South Africa or elsewhere outside Botswana and South Africa. Over half (56%) of these were employed while others were either attending school away from home, or looking for a job. Hence, despite the cutbacks in labor migration to the mines, labor migration to the urban areas of Botswana continues to deprive the rural areas of its able-bodied people. Most of the absent females were either attending school or employed in the lower paying jobs such as domestic work.

3.2 Income Generating Activities

Most households in these areas do not depend on one source of income for their livelihood 320 t combine several different activities to spread the risks involved in each activity. The following table indicates the different combination of activities. This is based on the 126 households for which all the information was available and excludes the no response and/or refusal. Table 3.1 Patterns of Income Generating Activities (Number and Percentage of Households)

Households

Activities	Number	Percentage
Plowing only	2	2
Plowing and Cattle	1	1
Plowing and Non-farm Activity/ties	11	9
Cattle and Job	1	1
Cattle and Non-farm	3	2
Job and Non-farm	2	2
Plowing, Cattle, Job and Non-farm	59	47
Plowing, Cattle, and Job	13	10
Plowing, Cattle and Non-farm	13	10
Plowing, Job and Non-farm	9	7
Cattle, Job and Non-farm	12	10
TOTATLS	126	101

Only 2% (n=2) of the households, had only one activity compared to 84% (n=106) whose household members engaged in more than two activities. The main activities were livestock, arable or crop farming where a form of mixed production was practiced with cattle and smallstock holding as well as arable agriculture. Other sources of income involved formal or regular paid employment either in or outside the areas as well as informal/self employment activities, outside cropping, and

livestock. Beer brewing was the dominant of all the non-farm activities.

3.2.1 Crop Production

Arable agriculture was seemingly oriented to subsistence in comparison with livestock because the great bulk of the arable agricultural produce was directly consumed by the household.

Average Area Planted

The average area planted for all crops was about 4.58 hectares; however, 58% of all the households planted less than 4 hectares while 11% planted 10 hectares and more. Ready access to draft power is critical in crop production, and the more cattle one owns the better one's access to draft power. Although 68% (n=92) of the households indicated cattle especially oxen as their main method of draft power, donkeys and tractors were also used. Households without access to draft power which they own or hold for others through mafisa either borrow draft, hire it from other members of the community, or exchange it for their own labor, implements, etc.

There is a significant correlation between access to draft power and amount of crops planted. Whatever the form of draft used, households without ready access to draft power, animal or mechanized, may be forced to plow either too late in the growing seasons or cultivate fewer hectares of land than those with ready access, or may even be unable to plow and plant at all. Female headed households with adequate draft power planted an average of 6.23 hectares while male headed households with adequate draft power planted an average of 5.57 hectares. On the other hand males and females with inadequate draft planted an average of only 2.58 and 2.14 hectares, respectively. The average for all households in the sample was 4.58 hectares. About 31% of all the households planted less than 2.0 hectares, averaging 0.89 hectares. On the other extreme almost 5% of all households planted 16 hectares or more. Mookane area had an average of 10.92 hectares planted and also had the largest average area of 6.9 hectares planted in sorghum. It also had the largest average area of 3.91 hectares planted in maize.

Crop Yields

Crop yields were variable in all survey farms for some crops more than others. Sorghum had mean yields of less than 200 kgs per hectare while about 5% produced an average of about 830 kgs per hectare for maize. The average yield per hectare was about 361 kgs, and almost 75% of all the farmers produced less than 400 kgs per hectare; however, about 9% of all farms produced an average of 1937 kgs per hectare. The highest sorghum yields were obtained at Gakgatla while Tubu had the highest maize yields, and Gorokhu had the highest millet yields.

Crop Sales

Generally, farmers produce crops for their own household consumption. Very little of the crop is sold because for most this is insufficient to feed the household. Long distances to the markets also tends to make transportation uneconomical. For all farms only 11% of the 1980/81 sorghum produced was sold. This compares with 30% for maize, 45% for beans, and 2% for millet. The next table shows comparisons for different groups involved. The top one-third of all farms sold a larger proportion of their sorghum than did farmers in the lower two categories. On the other hand, they sold a lesser proportion of their total maize, millet, and beans than the other two categories and sold a larger proportion of their produce of minor crops like sweetreed and watermelons which can provide considerable income.

Table 3.2Average Proportions of Total Production Soldfor Selected Crops by Sample Stratum, 1981

Percent of Total Production Marketed

	A11	Top 1/3	Middle 1/3	Bottom 1/3
	<u>Farms</u>	<u>Crop Farms</u>	<u>Crop Farms</u>	<u>Crop Farms</u>
Sorghum	11%	24%	08	38
Maize	30	9	61	6
Beans	45	40	33	66
Millet	2	0	6	0
Watermelon	5	11	0	3
Sweet Reed	19	34	0	0
Groundnuts	0	0	0	0

Source: Boykin, 1982, p. 11

Farmers in Makokwe and Mookane sold a larger proportion of their produce than farmers in all other areas. These had better access to marketing facilities and were more inclined to be commercial. Further, except for beans, male headed households with adequate draft sold larger proportions of their major crops than did female farmers with adequate draft (idid, p. 10). Also, female headed households generally sold a smaller proportion of their total produce than male headed household. For these crops were sold indirectly through beer brewing, especially sorghum. Intra-village selling and exchange for crops also took place. 3.2.2. Livestock Production

The following table shows the average number of cattle per herd of all households.

Table 3.3 Average Number of Cattle Per Herd of all Households Surveyed 1980/81

Number of	Number of	Percent of	Mean Number of
<u>Cattle</u>	<u>Households</u>	<u>Households</u>	<u>Cattle for Stratum</u>
0	30	23	0
1-10	27	20	6
11-20	26	19	16
21-30	18	14	25
31-60	16	12	43
61-100	9	7	81
100+	7	5	396
TOTALS	133	100	

In the sample the mean herd size for households with cattle was 51 animals while it was 44 for all households with livestock.

- The seven farmers with more than 100 cattle had an average herd size of 396 animals. The largest herd was 1290 animals.
- 12% (16) of all households had no livestock, and 75% (12) of these were female headed.
- 33% (44) of all households had no small stock (goats, sheep). 86% (114) had no sheep while only 29% (38) had no goats.
- 71% (94) of the households did not own either horses or donkeys.
- 23% (30) of all households did not own any cattle

and 73% (22) of these were female headed. Of the 88% (117) with livestock 12% (14) did not own any cattle and 71% (10) of these non-cattle owning livestock households were female headed.

- 26% (27) of the cattle-owning households (103) had 1-10 cattle.
- 51% (53) had 1-20 cattle.
- 84% had less than 61 cattle.

The figures above are based on the number of animals per herd. The figures to be used in the remainder of this thesis will be based on livestock units (LSU) for ease of comparison (see Appendix C for conversions of animals to livestock units). These conversions figures generally are smaller than the total number of animals in the household.

There were differences in herd sizes with average herd sizes and average livestock units larger for male headed households. The sample mean for all livestock households (117) was 35 cattle livestock units. For male-headed households the mean for livestock households was 45 while it was only 16 for female headed households. For all cattle households it was 41 while for male headed households its was 47 and higher than the sample mean. Female headed households had 22, lower than the sample mean. Only 9% of males had no cattle compared to 46% of females.

3.2.3 Farm Income

Net farm income was defined as the gross value of farm production (Livestock and crops) less variable and fixed costs. Income from livestock accounted for about 85% of the total farm income. This trend was observed for all groups except female with inadequate draft where crop income contributed more to farm income than livestock. Livestock income accounted for 89%, 69% and 63% for males with adequate draft, females with adequate draft, and males with inadequate draft, respectively.

Both the absolute amount and the relative proportion of household income derived from agriculture increases with increases in total household wealth or income (Botswana Government, 1976: 97-100; Boykin, 1982:116-135). The above observations have also been confirmed by the annual agricultural statistics.

The table below shows farm income composition and is based on 133 sample households interviewed by the Farm Management Survey Unit.

Table 3.4	Farm Income Composition for Male and Female
I	Households
	Average Average Other Farm Average Farm
	Crop Livestock Income Income
	Income Income
	Pula % Pula % Pula %
Male with	
Adequate	
Draft	163.15 10% 1404.10 89% 2.91 0.2% 1570.16 99.2%
Females	
With	
Adequate	
Draft	186.52 31% 406.28 69% 2.57 0.4% 595.37 99.4%
Male wit	
Inadequate	
Draft	118.15 37% 201.56 63% 2.34 1.0% 322.05 101.0%
Females	
With	
Adequate	
Draft	63.79 55% 50.64 44% 0.78 1.0% 115.21 100.0%
All	
Households	139.22 15% 772.87 85% 2.33 0.3% 914.42 100.0%
Percentages	do not add to 100 because of rounding.
Male headed	household with adequate draft had a larger average

-

income from livestock. Female headed households with inadequate draft had the lowest average livestock income and the lowest farm income.

Table 3.5 shows the net farm income distribution by sex of household head. It shows that most households have low farm earnings. Over half (53%) had farm income of less than P400 while 10% more than P1400. More of the female-headed households fell in the lower income category than male headed households. Fifty-two percent of the female headed households received less than P200 from their farming activities compared to only 29% of the male headed households in the same income group.

	No. Male Headed	No. Female Headed	Total
	Farms	Farms	<u>Households</u>
Lowest - 0	9 (7%)	6 (5%)	15 (11%)
1-99	6 (5)	12 (9)	18 (13)
100-199	10 (8)	7 (5)	17 (13)
200-299	4 (3)	5 (4)	9 (7)
300-399	6 (5)	6 (5)	12 (9)
400-499	2 (2)	1 (1)	3 (2)
500-599	5 (4)	0 (0)	5 (4)
600-799	16 (12)	6 (5)	22 (16)
800-99	3 (2)	2 (2)	5 (4)
1000-1199	8 (6)	1 (1)	9 (7)
1200-1399	4 (3)	1 (1)	5 (4)
1400+	12 (9)	1 (1)	13 (10)
TOTALS	85 (64%)	48 (36%)	133 (100%)

Table 3.5 Net Farm Income of Sample Households by Sex

Percentages appear in parentheses

On the other hand, the high income group was dominated by male headed households with 28% of the male headed households receiving between P1000 and P1400 compared to only 2% of the female headed households. Consequently the low levels and deficiencies in income from both livestock and crop production must be compensated by income sources other than farming. These include income sources from off-farm and non-farm work.

Off-farm income includes wages earned by household members working as paid laborers in construction, farm work, salary from various jobs provided by central government district council tribal administration as well as other private organizations. Non-farm income sources include activities by household members taking place on the farm premises but not including crop or livestock activities. The earlier discussion revealed the importance of off-farm and non-farm activities in providing a significant amount of income to many households in the rural economy, especially the poor and medium income households.

3.2.4. Non Agricultural Income Source

As shown above, Botswana's agriculture as well as that in the study areas is characterized by the insufficiency of crop production, creating considerable dependence on other income sources such as formal or regular employment, remittances, or transfers from one or more household members, self-employment or non-farm activities such as beer brewing, building houses for others, selling firewood, or crafts.

Off-farm Employment

Off-farm employment possibilities are very small in rural Botswana. Only 23% (31) of the households in the study reported

one or more members of their households employed locally. Such off-farm employments can be classified into two main categories according to whether employment is in non-farming jobs or whether it in farming employment activities.

In the areas studied, jobs were provided by the central government and district councils mainly through the local primary school, the extension services in agriculture, health (clinic), and community development; however, the employees of these were usually from outside the area. Five locals were employed as primary school teachers while only one was an agriculture supervisor. Apart from these, the local shops, bottle store and restaurant also provided limited employment. Eight (14%) were shopkeepers and assistants. Temporary jobs were provided for unskilled labor workers through intensive construction projects for community development such as local schools, clinic, water pipes, or road construction. These were usually dominated by men. The opportunities for wage employment were more limited for women than for men.

Off-farm employment activities in agricultural work were also more common for males than for women. Young boys and men were often employed to herd cattle in return for cash, a cow, or a few goats. Crop farmers with insufficient family labor to accomplish all of their crop activities, especially during critical periods such as weeding, harvesting, and winnowing, hired labor through cash and/or payment in kind, exchange for draft power, or the like. Women from the lower socio-economic groups who often had no crops, assisted those with more crops through <u>majako</u>, a system where the work is provided and the

worker came to work in return for a share of the harvest.

In general, the local unskilled jobs were not very secure. One could easily be fired. In addition to this, the wages paid to unskilled workers as well as various farm related jobs such as herding were low and were barely sufficient to replace agriculture. However, employment opportunities outside the study areas were relatively better, providing an important source of income for most households in the sample.

About 59% (76) of the households in the sample had members with a job outside the village. Of these, 51% (39) had one member of their household working away from their village while 22% (17) had at least two members working away from their village. Another 24% (18) had 2-3, and 3% had 4-6 members working away from their village. Table 3.6 shows the employment pattern.

Male headed households were more likely to have one or more absentee workers than female headed households. Fifty-two percent (15) of the female headed households had no members working away from home compared to 35%.

Table 3.6 Employment Pattern of Male and Female Absentee Workers from the 76 Households with one or more members away.

<u>Typ</u>	e of Occupation	<u>Male</u>	<u>Female</u>	<u>Total</u>
1.	Professional and Technical Occup	ations		
	Nurse/health assistant	11 (1%)	1 (1%)	2 (1%)
	Pharmacist/assistant pharmacist	0	1 (1%)	1 (1%)
	Primary school teacher	5 (3%)	2 (2%)	7 (5%)
	Veterinary assistant	1 (1%)	0	1 (1%
	Technician	1 (1%)	1 (1%)	2 (18)
	Sub-Total	8 (6%)	5 (3%)	13 (9%)
2.	Clerical Occupations			
	Typist	0	1 (1%)	1 (1%)
	Clerical including enumerators,	court		
	Clerk	7 (5%)	4 (3%)	11 (8%)
	Messenger	0	1 (1%)	1 (1%)
	Administrative assistant	<u>5 (3%)</u>	1 (1%)	6 (4%)
	Sub-Total	12 (8%)	7 (5%)	19(13%)
3.	Service Occupations			
	Domestic worker	0	24(17%)	24(17%)
	Police/army and prison officer	8 (6%)	0	8 (6%)
	Security guard	1 (1%)	0	1 (1%)
	Cook	0	1 (1%)	1 (1%)
	Waiter	<u>1 (1%)</u>	0	<u>1 (1%)</u>
	Sub-Total	10 (7%)	25 (17%)	35(24%)

•

4. Sales Office Occupations

Salesman	2	0	2 (1%)
Shop assistant	2 (1%)	3 (2%)	5 (3%)
Petrol Attendant	<u>1 (1%)</u>	<u>1 (1%)</u>	2 (1%)
Sub-Total	5 (3%)	4 (3%)	9 (6%)

5. Production/Transport and Related Occupation

Miner	18(12%)	0	18(12%)
Motor mechanic	5 (3%)	0	5 (3%)
Electrician	1 (1%)	0	1 (1%)
Welder	1 (1%)	0	1 (1%)
Driver	3 (2%)	0	3 (2%)
Machine/crane operator	2 (1%)	0	2 (1%)
Builder	3 (2%)	0	3 (2%)
Laborer; road, building, fencing			
construction, etc.	16 (11%)	0	16(11%)
Carpenters	4 (3%)		4(3%)
Sub-Total	53 (37%)	0	53(37%)

6.	Agriculture and Animal Husbandry			
	Agriculture Supervisor	1 (1%)	0	1 (1%)
	Agriculture Demonstrator	1 (1%)	0	1 (1%)
	Arable Laborer, herder	2 (1%)	_0_	2 (1%)
	Sub-Total	4 (3%)	0	4 (3%)

 7. Don't know
 9 (6%)
 3 (2%)
 12(8%)

 TOTAL MEMBERS AWAY
 101 (70%)
 44 (30%)
 145(100%)

-

(28) of the male headed households. On the other hand, 26% (14) of the male headed households with absentee workers had 3-4 members compared to 17% (4) of the female headed households. Hence male headed households had relatively more members working away from their village than female headed households.

Seventy-seven percent (112) of the employed members of the household were reported to have sent money to support other household members and/or to undertake a project or projects in the village. Respondents were asked to report amounts received from both household and family members and friends working away from the village. The amount ranged from none to P500 in the three months prior to the survey. Only 16% of the household members who were reported to have sent money before did not remit any money in the three months prior to the survey. Twenty-four percent (16) sent P1-20, 25% (28) sent P21-50, 22% (24) P51-100, and 12% (13) sent more than P100.

In general the number of females sending money was small and absent male workers sent more money than females. This is because the majority of the females were unskilled and dominated the low paying jobs such as domestic service. In addition to the low wages received, the high cost of living further makes it difficult for both males and females (but more for females) who are residents in the urban areas of Botswana to save and send more money to their rural homes. mine workers in South Africa tended to send more money to their households than those working in Botswana because they had less opportunity to spend their wages while at the mines. This observation was also made by Gulbrandsen (1980) and Kerven (1979). Van de Wees (1981),

however, observed that despite the low wages received by females, they are often forced to send money since they often leave their children in the rural areas to be taken care of by their parents and family members.

The lack of better paying opportunities in the rural and urban areas leaves many with the option of engaging in one or more non-farm self-employment activities either to supplement the low income from agriculture or as the only means available for subsistence. The variety and nature of various non-farm activities available in the rural areas is discussed in the section that follows.

Non-farm Activities

These have been classified into four main categories and include hunting and fishing, gathering, as well as manufacturing and service activities. A large majority of the households, 91% (117), were involved in one or more non-farm activities in the area. Only 9% (12) households did not have any non-farm activity, however, in general the number of households involved in some of these activities as well as the total income received from most of the activities were low because of the limited market and their part-time and seasonal nature.

The table that follows shows a distribution of the various activities undertaken by households in the sample (see Table 3.7).

					FREQUE	ENCY	AND P	ERCENTAGE
	Ranked	as	Largest	М	ale		Fema	le
	Source	of	Income	Н	leaded		Head	led
	by res	por	ndent					
Source of Income					Farms		Farms	Total
Cash beer brewing	a			5	9(63%)	35 (37%)	94(100%)
Basket and mat ma	aking	13(11%)	1	1(58%)	8	428)	19(100%)
Gathering building	ng	1			()	-		
materials and	2							
related activit:	ies	13(11%)	1	1(69%)	5 ((31%)	16(100%)
Traditional								
medicine		5	(4%)		4(80%)	1 ((20%)	5(100%)
Hawking and trad:	ing	4	(3%)		4(57%)	3 ((43%)	7(100%)
Sewing and knitt:	ing	3	(3%)		6(86%)	1((14%)	7(100%)
Working for othe:	rs –					_		
piece jobs		2	(2%)		4(57%)	3 ((43%)	7(100%)
Sell firewood		2	(2%)		7(100)	0 ((0)	7(100%)
Rent out donkey/		-						
ox-drawn cart		2	(2%)		3(100%)	0	(0)	3(100%)
Rent out record		•						
player		2	(2*)		1(50%)	1((50%)	2(100%)
Own well and								
collect livesto	ck							
watering fees		2	(2%)		1(33%)	2	(67%)	3(100%)
Fishing and hunt:	ing	2	(2%)		1(50%)	1((50%)	2(100%)
Carpentry		1	(1%)		3(75%)	1	(25%)	4(100%)
Sell wild fruits		1	(1%)		1(33%)	2	(67%)	3(100%)
Rent out grinding	g			•				
mill		0	(0)		1(33%)	2	(67%)	3(100%)
Leather works		1	(1%)		1(100%)	0	(O)	1(100%)
Repair bicycles,					. ,			
radios, watches		0	(0)		2(100%)	0	(0)	2(100%)
Repair shoes		0	(0)		1(100%)	0	(0)	1(100%)

Table 3.7 Sources of Non-farm Income of 117 Households with one or more non-farm income sources

Calculations based on 117 households with one or more non-farm activities.

Households with non-farm activities were predominantly from maleheaded households. Most were also from households with adequate draft power. Even though many non-farm households came from household with adequate draft, few households own large herds and this creates greater dependence on non-farm activities to complement their farm income. This is also a risk aversion strategy. Except for traditional beer, which is brewed and sold everywhere, handicrafts tend to be produced and restricted geographically, depending on the availability of essential materials and the market for the products. The most important area for production of handicrafts, especially baskets, is Ngamiland, where regular purchases by the Botswana Craft Marketing Organization as well as individual tourists and visitors to the area provide better organized marketing services. This makes crafts the more important source of cash income than other areas . In some of these other areas, though there is a great incidence of handicraft production; most were not sold but made for domestic use because of the lack of market for the products.

Hunting and Fishing

Hunting was reported by very few households; however, the figures could be low because of the suspicion and reluctance to provide the information resulting from the new restrictive hunting regulations which inhibit hunting of certain protected animals, hunting either without a license or during certain times of the year. Hunting was done for the meat for both home consumption and for cash sale.

The skins of various animals were also used to produce a variety of articles such as shoes, coats, hats, trousers, and bags for personal use as well as for sale to both the villagers and tourists. Fishing occurred only in the northwest where the river provided many households with opportunities. Though some engaged in fishing for sale, most of the people interviewed reported fishing for home consumption. Gathering

Different households were engaged in the gathering of wild foods, firewood, and building materials. It has been shown that gathering in rural Botswana is dominated by the poorest members of the rural population who have limited access to the main economic resources such as cattle, arable production as well as employment opportunities. These gather a variety of wild foods such as borokhu (a sweet gum), green leaves (morogo), roots and tubers, fruits, moretlwa (berries), and beverage plants (motlopi), for their own consumption. In this sample only 2% (2) people reported deriving income from selling berries and roots which were used for brewing khadi. Those who were observed selling these were women and girls and small boys from the poorest households, especially the Basarwa. The income derived was extremely low because of the low prices though the products were often in high demand because of their seasonability.

The gathering of firewood for sale tends to be confined mainly to the more populated villages and towns where firewood is scarce and the distance to the available firewood is often considerable. This activity has become a male activity because of the cash involved. Bicycles, donkey carts, ox drawn sledges, as well as trucks and tractors are used to transport firewood. Since they trend to be owned by men, the cash received went to men. The prices of firewood varied by size and distance of the village from firewood; for instance, in larger villages where the distance to firewood was far and the demand high, the prices were relatively high, depending on the volume. Almost all households

in the survey were found to gather their own firewood. Consequently only seven households reported selling firewood.

The gathering of traditional building materials such as poles and thatching grass was also observed as a source of income for the poor. The majority of the dwellings in the rural areas are still built traditionally using a mixture of cowdung, clay/mud, and water for construction of the walls and oles and grass for roofing and thatching (see Odell, M., and Van Voorthuizen, E.G., 1976, for technical discussion). In some parts of the country, like Ngamiland and Chobe, bamboo is available along the rivers and is used for roofing; however, in recent years, modern styled tinned and cement brick houses have become popular, especially in the larger villages and among households with cash incomes. As a result, local brick making and commercial building is increasingly becoming an important cash enterprise for small rural construction companies and individuals.

The thatchers of traditional houses were also found to come from the poorer section of the community. Their income was also highly seasonal and was restricted mainly to the dry season which is the peak period when most people are in the village for various festivities like weddings and building activities as well as repair work to existing buildings. During this period women from poorer households were sometimes hired for building activities such as building and repairing walls in exchange for some cash, a little harvest, food or the like. Apart from these, much of traditional building activity derives from family labor

and often through friends and neighbors by way of cooperative labor effort through traditional sorghum beer.

Service Activities

These included traditional healing, hawking and trading of cooked food, commercial beer, alcoholic drinks, groceries, etc.; renting of small grinding hammer mills for milling grain, especially for beer brewing, as well as renting record player music for attracting customers to the beer party. Most of the traditional doctors interviewed were not specialized and hence provide different services such as curing of various illnesses, personal as well as family protection, and various blessings of new homes, huts or houses; weeding, etc. They all performed these services on a part-time basis and often combined these with cattle-keeping. In addition to cash they also accepted in-kind payments such as cattle, goats, crops. The majority of the traditional healers were male. These received different incomes depending on their reputation; however, all the traditional healers interviewed as well as others involved in the other services mentioned above indicated that they would not be able to support their households exclusively from income received from such activities.

The fees for renting grinding mills were low, ranging from one small basin of grain to about 50 thebe for a 20 litre bucket of grain. Most of the households in the study areas either stamped their grain or used a traditional stone for milling. Others bought ready make commercial malt for their brewing activity. The rent for the record player for beer parties varied from P6 to P15, depending on demand. This money accrued to males as owners of the record players. All the owners of record players bought them through migrant labor wages. These record players were also rented for village and school concerts and beer parties. Music usually started towards midday when the beer was ready and was served until 8:00 at night for areas where beer parties were restricted because of noise. For some areas the playing of music for both beer parties and concerts was restricted to weekends only; however, in some areas, especially lands areas, these rules were not strictly obeyed, and some beer parties continued until late in the night.

Manufacturing Activities

These include the production and sale of traditional beer (the chief manufacturing business in the rural areas), and a variety of handicrafts such as baskets, mats, traditional wooden chairs, door, pestles, yokes and household utensils such as bowls, spoons, leather work, dress making and knitted jerseys. These were produced by individuals within their homes. The majority of these were predominantly older people who mostly acquired their skill informally from the older members of their families. However, most dressmakers and knitters indicated that they learned their skills in school and in women's organizations. One learned her knitting in South Africa.

There was also variation in the income received. Generally the price received depended on the complexity, quality, and size of the product. For dress makers and knitters, the prices varied from one producer to the next depending on the source of materials used and the quality of the products. In most cases, the customer provided the materials needed. Where the producer provided the materials, products were generally produced to The producers in this category complained that they order. received few orders and hence low return from their work. One producer who made knitted bed covers, jerseys, and dresses, received relatively high income by selling her products through her husband in South Africa and working children in Botswana towns. She also bought her materials in bulk from South Africa. For her household, this was the single most important source of non-farm income. Her problem was lack of local market for her products. Like all other producers in the sample, the activities were conducted outside domestic work and farming, although for her, knitting was almost a full time activity.

CHAPTER 4

RESULTS

In this chapter the results of the study are presented. The first part of the chapter provides the basic descriptive information about the different types of home brewed and home retailed commercial or factory brewed beers and liquor and their socio-economic importance. Different uses of different types of beers will be briefly outline. This includes their roles in religious, ritual, and ceremonial activities. It will be shown that while these uses were important in the past, and may still be practiced, the most common and dominant role is that of income generation and income distribution. This will be followed by a discussion of the socio-economic characteristics of households involved in brewing for sale (cash brewing) and the importance of brewing income for the different groups. Results will be presented for the total sample rather than by the village or area because of the small sample taken in each area.

4.1 Types of Beer and Their Socio-Economic Importance

In order to understand the socio-economic importance of home brewing and commercial beers, it is necessary to examine the different types of homemade beer and home retailed commercial beers. Previous studies generally discussed brewing without making a clear distinction between the different types.

Home Brewing

Nearly all households brew one or more of the homemade beers although with varying frequency at different times of the year. 98% (127) of the 129 FMS households interviewed have brewed or retailed beer and/or alcohol in their lives. 81% (105) of all these were engaged in home beer brewing in 1981. 95% (100) brewed sorghum beer (bojalwa). This represents 78% (100) of the 129 households in the sample. Although sorghum beer dominates home brewing, many home brewers sell other types of homemade brews, especially khadi. 23% (30) of the households in the sample brewed khadi. Few, about 2% (3) sold other homemade beers such as 'morula' beer, 'setopoti' Watermelon beer), hop and Other homemade beers such as'sekhokho,' 'mokokoopower. ntshebile,' and 'sethulaphoko' were also brewed by some households outside the sample. At least 15 households were found to produce 'sekhokho' in one village. These are illicit brews, most of which are of urban origin. Their alcoholic content is said to be higher and harmful to the drinker. As a result, very few indicated that they sold such brews. These were declared illegal in all but one community studied and nationally people are discouraged from brewing and drinking them.

Sorghum Beer

Sorghum beer is important as a food (see Appendix D). It has played an important role in both the economic and sociocultural life of the brewers, consumers and the community as a whole. It is important in conducting rituals and ceremonies to marriage, birth, initiation, death and religion. The most important religious ceremonies were related to the agricultural

year and included ceremonies held principally to ask the ancestors for rain. Beer was offered to the ancestors and gods by being poured on the graves of the chiefs, important elders, or in the forest or on a hill. Beer was also offered to the ancestors and gods by being poured on the ground in prayer to ask for their blessing of the crops before they are planted and thanksgiving after harvest. Though most of the ceremonies were no longer held r celebrated collectively, individual family thanksgiving beer offering was often observed when a little beer was poured on the ground from a calabash in prayer.

Sorghum beer was also brewed after funerals and at the end of the mourning period when the widow or the widower undergoes the purification process to get rid of the "defilement" of death. Beer also played an important part during and after wedding celebration. Different members of the family and friends brew beer for the ceremony and during this time there is great joy and merry making. After the ceremony, beer is made for the two families being united through marriage for a pleasant gathering, to become acquainted with each other and to keep friendly relations between them. At the birth of a child, many families brew beer for celebrations at the end of the period of confinement.

In 1981, 36% (47) of all the households in the sample brewed sorghum beer for family consumption and ceremonial use. About 43% (37) of the households that brewed sorghum beer for sale also brewed at least one batch for ceremonial use. Most of these were held at the end of the harvest when they have grain supplies. The most common ceremonies observed in the study areas were those related to marriage and birth. These have become commercialized, and many women were found to raise a lot of money for such activities, especially birth celebrations. These were originally a method of gift exchange, and anyone could give what they can. If nothing was given at the celebration, the people involved would still be welcome at the celebrations. It was observed during the survey that giving out a gift at birth celebration served the purpose of putting those concerned under obligation, and these were bound to give the same or more in return. Most of the households that took advantage of this custom were frequently members of the middle and rich groups who often had cash and were able to afford different types of food and drink and were often households with small stock who could afford to slaughter one for the ceremony. This use was not merely an economic one but had wider social significance. It was often a means to enhance one's position and status in the community.

In addition to the above uses, beer was also offered as a means of exchange or payment for various services rendered, such as medical services by traditional doctors and healers or in exchange for a specific type of grain. In Gomare, where there were few households growing sorghum, beer was often exchanged for sorghum from farmers growing the crop. Most of the transactions were, however, conducted by means of cash.

Beer was also offered as payment for cooperative labor parties organized for both agricultural (land/field clearing, plowing/planting, weeding/hoeing, harvesting and threshing and non-agricultural tasks (building or repairing houses, huts, fencing, etc.). Although this is a dying practice and nationally
people no longer have many work parties, about 40% (28) of the 70 households that reported ever brewing beer for cooperative labor used beer for cooperative labor during the 1980/81 crop year. Respondents were asked about activities performed at the last cooperative labor event. These included field clearing (43%), weeding (41%), roofing house/hut (10%), harvesting (9%), threshing (9%), fencing compounds or fields (9%), plowing and planting (7%), fixing or repairing house/hut (4%). (Respondents could indicate multiple activities at the last event, thereby allowing percentage to total more than 100%).

When anyone wishes to obtain any of this assistance, he/she holds a letsema (work party). Neighbors and family members are invited to come and help on the appointed day. The number of workers varies by type of activity and ability to attract or mobilize the neighbors and friends. Weeding work parties attracted more workers, especially women and girls. Harvesting and threshing were also predominantly by women.

The use of cooperative labor in harvesting and threshing depended on how much there was to harvest and thresh. Another consideration was how much time there was to complete the activity. Though many women worked alone, weeding was considered a heavy task, time consuming, and generally carried out when it was hot, demanding collective action. A little beer was often served to give the workers strength while the work continued and so that the workers are able to complete whatever they are doing instead of spending more time drinking.

The use of work parties (letsema) was viewed as the means of compensating for the loss of labor (male or female) that would otherwise be available for the activity at that time. Very often household where the husband and/or male members were absent held letsema to obtain work that they would otherwise be unable to do. The ratio of beer given in payment for labor was found to vary by activity with those of men receiving relatively more beer than activities such as weeding which involved women. The amount was not closely tied to the amount of work, but mostly a matter of obligation, and was done to help each other. This was due to the fact that if very little beer was served, the matter was never taken to the village or ward court. Richer households with adequate draft and access to grain supplies, however, attracted more people by offering more beer and food. This put the poorer households at a disadvantage. These rich households were also able to hire labor using cash, hence attracting labor from the poorer households.

The activities described above in which beer plays an important part serve to show how varied is the importance and function of traditional sorghum beer in the life of the rural people. While these uses for sorghum beer are still being practiced today, they are no longer as dominant as they used to be. Prior to 1981, of all the households that ever brewed and/or retailed beer about 75% (95) brewed for family consumption or ceremonial use in addition to income purposes, compared to 44% (47) of those who brewed in 1981. The most common form or use of beer involves cash and the resulting income generation and distribution. About 90% (114) of those who brewed prior to 1981 brewed traditional sorghum beer for sale. It is the need for cash for basic subsistence, paying school fees, paying taxes, buying food and clothes, as well as investment in agriculture, housing, etc., which often motivates women to brew sorghum beer.

Other Homemade Beers

These did not have religious, ritual, or ceremonial importance, and were brewed for purposes of raising cash. (see Appendix D for a description of the different types of other homemade beers). They were also used for family consumption. Morula beer and watermelon beer which are sweet in taste were drunk mostly by women and children. These were restricted to a particular season, and could not be made any other time like sorghum beer.

4.1.2. Home Retailed Commercial Beers and Alcohol

A commercially produced sorghum beer called chibuku is manufactured and distributed by a local private company called Botswana Breweries. Chibuku is sold to home retailers and licensed sorghum beer bars. Most of the licensed sorghum beer outlets are privately owned by influential and rich members of the community such as local traders, councilors, and wives and relatives of prominent civil servants. Few beer halls are owned by District Councils. Factory brewed sorghum beer is delivered to the retail outlets by company trucks. In addition to chibuku, another imported factory brewed sorghum beer from South Africa called <u>tlokwe</u> is sold to the above retailers. This is so because the local company cannot satisfy the local market. Factory brewed sorghum has an alcoholic content of about three percent. Very few households reported using factory brewed sorghum beer for their work parties, mainly because most did not have access to it. Others felt that it would cost more to use factory brewed

beer for labor parties since it retails at a higher price than traditional home brewed sorghum; however, the few who used it considered it convenient because they do not have to spend time and labor preparing the beer. Some used factory brewed sorghum beer, clear beer, and hard liquor in wedding and birth celebrations. These were often the richer households.

Any of the homemade beers and commercial beers may be sold by themselves or in the compound of the brewer or retailer. This may be a regular or sporadic activity. Regular brewers are often referred to as 'shabeen queens.' In addition to selling their own beer (sorghum beer, khadi, etc.), they generally sell commercial sorghum beers (chibuku, tlokwe) and clear beer manufactured in the country and imported hard liquor such as whisky. A few high class shabeens specialize in retailing clear beer and hard liquor. These are usually based in the urban areas and large villages. Some shabeens in the rural areas retail clear beer along with their homemade and factory brewed sorghum These attract customers by providing better facilities beer. such as outdoor shade and benches. Customers for expensive drinks such as whisky are often served in a furnished living room. Such customers are usually the local government extension workers, council employees, and some miners who have recently arrived from the mines and can afford prestigious drinks.

Most of the households in the sample did not retail commercial beer and liquor as is shown in tables 4.1 and 4.2. Only 3% (4) of the households in the sample sold chibuku or tlokwe in 1981, while 7% (9) sold clear beer, however, 56% (59) of the 106 households brewing and/or retailing commercial beer

and liquor sold homemade sorghum beer only. Five percent (5) sold khadi only, while one sold clear beer only. Twenty percent (21) of the brewing households, combined home brewed sorghum and khadi. Table 4.2 summarizes the different combinations by the 106 households that brewed homemade beer and/or retailed any of the commercial beer in 1981. Percentages are higher because of rounding in Table 4.2.

Table 4.1 Number of Households Using and/or Selling One or a Combination of Beer Types*

Use	of Alcohol Beverage by Type	No.	8
А. В	everage/Alcohol Used Only for Sale		
	1. Home Made Sorghum Beer	90	70%
	2. Khadi	31	24%
	3. Factory made Sorghum (Chibuku)	4	38
	4. Commercial (Clear Beer)/Hard Liquor	9	7 %
в.	Beverage Used For Sale, Consumption or Ceremonies		
	1. Homemade Sorghum Beer for Home		
	Consumption	2	28
	2. Other Homemade Beers	1	1%
	3. Factory made Sorghum (Chibuku)	1	18
	4. Commercial (Clear)/Hard Liquor for		
	Sale	1	18
c.	Beverage Used Only For Consumption/ Ceremony/Coopretative Labor		
	1. Homemade Sorghum Beer	7	5%
	2. Other Homemade Beers	, n	08
	3 Factorymade Sorghum (Chibuku)	ñ	08
	A Commorgial (gloar) Hard Liquor	Õ	0.6
	4. Commercial (creat) nata promot	U	00
D.	No Brewing or Retailing of Beer/ Alcohol	23	18%

*Percentages are based on all 129 households.

Table 4.2 Number of Households Using and c Combination of Beer Types*	or	Selling One
Use of Alcohol Beverage by Type	No.	. S
 A. Beverage/Alcohol Used Only for Sale Homemade sorghum beer only Khadi only Commercial (clear)/hard liquor Homemade + factory made sorghum beer Homemade sorghum + khadi Homemade sorghum beer + other home beer Homemade sorghum beer + commercial clear beer/hard liquor Factory made sorghum beer + khadi Homemade sorghum beer + clear beer/ hard liquor, + khadi 	59 5 1 21 1 3 1 4	56% 5% 1% 1% 20% 1% 3% 1% 4%
made sorghum beer + clear beer/hard liquor]	18
 B. Beverage Used For Sale, Consuption, or Ceremonies 1. Homemade sorghum beer for home consumption + factory made sorghum beer + clear beer for sale 2. Homemade sorghum beer for home consumption + other home brews for sale 	1	1 18
C. Beverage Used Only For Consumption/ Cooperative Labor 1. Homemade sorghum beer only for home consuption/ceremony/cooperative labor		7 7%
TOTALS	10)6 102%

*Percentages are based on all 106 households with one or more combinations of beer activities. 23(18%) of all the households did not brew or retail any beer or alcohol.

The retailing of commercial sorghum beers and liquor was affected by a number of factors. First, the company trucks distributing factory brewed sorghum beer do not serve every area in the country. Remote areas such as Ngamiland are excluded

of

because of the high transport costs. In some areas the home brewers found it unprofitable to buy factory brewed sorghum beer from privately owned sorghum beer bars at retail price. These bars have the advantage of buying at wholesale prices. Retailing of clear beer and hard liquor was done in bottle stores. Holders of licenses for bottle stores were often opposed to the home retailers. The law requires a license for retailing factory brewed sorghum beer or clear beer outside the home. The home retailing of factory brewed sorghum beer and clear beer/hard liquor was more prevalent in the urban areas and large villages than smaller remote areas because of the market. Most customers in the smaller villages preferred sorghum beer, and most of them cannot afford the more expensive drinks because of limited cash. 4.2 Socio-economic Characteristics of Households engaged in Home

Beer Brewing and Retailing.

In this section the question addressed is who is involved in home beer brewing and or retailing.

Beer brewing is clearly the most important source of female employment in rural Botswana. It is almost exclusively a woman's activity. Bond found that only 3% of the tatal time spent on beer brewing was done by men (Bond, 1974, p. 14).

Botswana laws allow women to brew and/or retail commercial sorghum beer in their home for purposes of subsistence without paying any license fee, however, not all women are able to brew and/or retail beer for a variety of reasons that will be discussed later in this chapter. A large number of women brew beer with varying frequency, and many brew when they have an urgent need for cash. Since many brewers are involved in agriculture and since these brew irregularly and abandon brewing for their agricultural activities, it often becomes difficult to define such households as brewing or non-brewing.

In this study, brewing households were defined to include a variety of brewing households which have a varying dependence on brewing income. Brewing households were defined to include all those households whose members brewed regularly throughout the year as well as those that brewed either regularly or irregularly after harvest during the dry season. This included households whose members brewed prior to the survey i.e., in 1981 and/or before and intended to continue brewing at the time of the survey or thereafter. Households that indicate that they stopped brewing at the time of the survey together with those that never brewed will be compared with the brewing households to understand the constraints to brewing as well as the different motivations and characteristics of brewing households.

A total of 129 households in the FMS sample were interviewed about their beer brewing activities. Only two households never brewed and/or retailed any home brewed beer, commercial beer, or alcohol in their lifetime; however, in 1981 23 (18%) of the 129 households did not brew or retail any type of beer or alcohol. Seventeen (17) of the 23 households indicated that they stopped brewing or retailing beer. Another household brewed in 1981 for family consumption only but indicated they stopped brewing beer for religious reasons. Among brewing households, only two households brewed and retailed beer year round. For many other involved in agriculture, the frequency of brewing was tied to the agricultural cycle. Many (63%) brewed irregularly after harvest

while 25% were regular brewers after harvest and either abandoned brewing completely for their agricultural activities or brewed occasionally during the year or brewed when they have an unavoidable need for cash. Reasons for not brewing all year round included:

- lack of own grain (66%)
- demand of agricultural activities (31%)
- lack of labor (18%)
- lack of money to buy inputs such as grain (17%)
- low demand (13)
- competition, i.e., too many brewing resulting in lower profits (6%)
- religious reasons (3%)

Households that were not involved in agriculture also mentioned the above problems except that of attending to agricultural activities.

Informal interviews and observation were done with about ten non-farming households representing different types of brewers to be used as case studies to support and strenghthen the statistical data from the 129 households interviewed through a questionnaire. These were found in bigger villages like Moshupa, Kanye and Molepolole. This sample will be useful to eventually draw comparisons between results acquired through a questionnaire research approach and intensive informal interviewing.

No one activity is usually enough to support the household and as a result multiple income generating strategies will be pursued by different households. These different income sources were considered critical because it was hypothesized that the particular involvement in beer brewing depended among other things on the wealth or economic class of the household which, as already shown, should be defined in relation to a mix of cattle ownership, livestock, crop production, as well as income from non-agricultural activities. Since in rural Botswana, the basis of wealth is cattle and because there are often very few good and more reliable income generating opportunities and alternatives to cattle, cattle ownership and crop yield were expected to be the more important determinant factors to brewing.

Brewers in the sample were involved in a wide range of income generating activities. Table 43 shows a slightly higher percentage of households deriving income from non-farm acivities to be brewing or or retailing beer for sale than those that derived income from jobs, cattle or plowing. They were also less likely to brew for other purposes other than for sale.

Since the areas under study were selected in agricultural areas and since arable agricultural production was practiced more often than livestock production, it was often difficult to identify brewers who admitted that they were non-farming or dependent solely on beer brewing. More often brewers considered themselves crop producers even when they have not been plowing for sometime. Such brewers were often interested in making money from selling beer in order to hire someone to plow for them or to buy implements for arable agricultural investments. These were often older and either widowed or divorced women; however, there were some who considered themselves full-time brewers and who were often less interested in farming either because they lacked cattle and other agricultural related assests or

Table 4.3 Ass	ociation of Brewi	ing and Retai	ling Alcoh	olic
Bev	erages with Sourc	ces of Income	•	
Sources of	Brewed/Retailed	Brewed Bu	nt Did No	t
		Not	Brew/R	8-
Income 1	Beer for Sale	For Sale	tail A	ny
			Beer	Total
Grows own				
crop	81 (75%)	7 (6ቄ)	20 (19%)	108(100%)
Cattle	78 (76%)	7 (7ቄ)	17 (17%)	102(100%)
Job 2	75 (78%)	6 (6%)	15 (16%)	96(100%)
Non Farm 3	56 (80%)	2 (3%)	12 (17%)	70(100%)
No Response	2 (67%)	-	1 (33%)	3(100%)
	99 (76%)	7 (5%)	23 (18%)	129(100%)

 Note: Households may have multiple sources of income.
 Job includes wage labor by any member of household in or outside area under study.

3. Non-farm here includes basket making, carpentry, sewing and knitting (see Table 3.7 for more examples) and does not incluse beer brewing.

because they face other problems such as lack of male family members, or hired labor to manage their agricultural activities such as cattle-herding. If a female headed household can earn enough profits from bear and other sources to invest in cattle, she must often rely on a male relative to manage cattle on their behalf. Such households were often female headed and the head

was often younger. Most of the regular and larger non-farming brewers were often found in medium and larger central villages such as Moshupa and Maun which were outside the sample.

The frequency of beer brewing was found to be related to the agricultural calendar. This pattern was also observed by Syson in her study of 239 families in the Shoshong area. This is summarized in Figure 2.

The peak immediately after harvest results from the relatively abundant supply of grain and the relatively low grain price for households which purchase grain either because they do not plow or because they do not have enough of their own grain for both household consumption and beer brewing. This is also the time when demand for beer is high because farmers are returning to the villages from their lands for various social festivities such as weddings, for repair work on their village compound huts, etc. The decline in brewing just preceding harvest between May and July is due to the low supply and high cost of grain while that in January and early February is due to the fact that most of the brewers leave the villages to the lands to plow. This also reduces the demand for beer.

This seasonality and compatibility with agriculture and agricultural activities seems to be a key element in the profitability of beer brewing and many other non-farm activities undertaken by farming households. It allows households to engage in both activities to supplement the low income received from agriculture and to maximize their household resources and employment for survival. As it will be seen later in the chapter, beer brewing is an important strategy used by many rural





ho. of Times Beer Brewed

households especially those at the lower end of the income scale whose agricultural chances are constrained by lack of cattle, cash and other related capital assets such as implements. It also allows the wider distribution of income to households that would otherwise have no access to such income. For many households, beer income is an indirect mechanism for agricultural investment and improvement since brewing income is spent on household needs such as food and clothing; therefore, the need to sell livestock is reduced and allows the household to build the herd to a reasonable size for adequate draft power and possible future regular sale for cash income. But not all rural households are able to brew beer and to benefit from beer income. Not many brewing households are able to accumulate cattle or improve their agriculture that way. There exists a stratum of poorest households which have no grain and no resources to engage in arable agriculture or in beer brewing for a number of reasons discussed below.

Poorest Households and Beer Brewing

As shown in the review of the literature, there is evidence to suggest that women from different types of rural groups engage in various types of beer activities and beer retailing at one time or another in order to earn cash income. Some researchers indicate that beer brewing and retailing households originate from the low end of the income scale while others have suggested that beer brewing households in fact are from wealthier households. Curtis (1973, p.20), Modimakwane (1978, p.41) and Lipton (Vol. 2, 1978, p.178) indicate that the poor are more likely to brew sorghum beer for sale while Gulbrandsen and KjaerOlsen indicate that the poor are more likely to sell beer though they do not state what kind of beer they refer to. On the other hand Turner (undated, p.9), Kjaer-Olsen (1980, p.45), Vierich (1979, p.90, table 13 p.95), Vierich and Sheppard (1980, p.112), Opschoor (quoted in Roe, 1982, p.5), all indicate that the wealthier households are more likely to brew sorghum beer than are poor and medium households. Roe using data from the Water Points Survey indicates that middle income households are more likely to sell beer than either the poorer or richer households.

In this research it was also found that all types of rural households were involved in beer brewing and were seemingly equally likely to brew on retail beer for sale; however, the poorest groups identified were not engaged in home brewed sorghum beer sale or retailing of other commercial beers. A distinction is made here between the poorest and the poor households. The poorest comprise a small but growing minority of households holding no cattle and seldom owning land for plowing. Such households do not usually have a wage earner, and they lack the capital or cash that would permit them to hire someone to plow for them or to purchase inputs such as grain or sugar for beer brewing. Only two women reported using part of the grain they received through labor exchange to brew beer. Income from non-farm activities such as gathering of building materials and wild foods, off-farm jobs, working for others and gifts from friends and relatives were used for food and were a means of obtaining a livelihood. Occasionally, some of the income received was used to venture into some beer brewing, especially khadi. In other words the poorest households

were less involved in selling home brewed sorghum beer than all other households.

	Apri	l – Jun	e 1982		-		
Types of House- holds	Average No Cattle	Average No Live-	e Average Sorghum	Average Farm Income*	Average Wages*	Average Remit- tances*	Average NonFarm Income*
Sorghum Brewing	36	40	589.9kg	P1082.36	P29.18	P58.93	P19.91
Brew But Not For Sale	24	32	1305.0kg	998.66	52.14	103.57	4.14
Did Not Brew Or Sell Beer	30	32	367.8kg	647.77	78.57	88.41	. 20.00
Sold Combi- nation	14	15	148.8kg	306.75	160.67	50.00	3.67
Sold Khadi Alone	6	8	93.3kg	338.33	21.67	19.33	22.20

Table 4.4 Average Household Wealth and Crop Production April - June 1982

*in Botswana Pula
1 Pula = \$.8675, 1983 Exchange rate

It was found that many of the households that sold Khadi alone were among the poorest rural households. (see Table 4.4). When compared with sorghum brewing and households that did not brew or retail any beer or liquor, they were found to have the next lowest average farm income after households that brewed or retailed one or a combination of chibuku, clear beer, and other homemade beers, the lowest cash income from off-farm jobs and remittances; however, they had the highest average income from non-farm activities. They also had the lowest average number of cattle as well as the lowest average number of livestock owned. A high proportion did not own or hold any cattle. They also produced the lowest amount of sorghum and of crops, indicating that they had no grain or money with which to buy grain for brewing sorghum beer.

Since female headed households are mostly poor, a high proportion of households that brewed Khadi alone were female headed, though some poor male headed households were also found in this category. Others found in this category were Basarwa groups. Without a doubt, households in this category were disadvantaged in their brewing activity. Since for them brewing was an occasional activity only when they have grain or some cash to buy sugar, they found it difficult to attract customers, therefore, received the lowest income from their brewing. Very often they were put out of business by progressive and regular brewers who have been able to develop a regular clientele and generally have some cash reserves to be able to continue brewing even when they have run out of their own grain supply.

Other important factors that limit the poorest households from successful home beer brewing and retailing relate to the physical location of the compound and the available seating arrangements. In general a brewer whose compound is located in the center of the village or along main pedestrian walk routes or within main traffic roads for travellers or government and council employees attracts more customers than one on the outskirts of the village. The poorest households are often situated on the outskirts of the village and this limits the number of customers likely to visit them (Kjaer-Olsen, 1980). In addition to their physical location, it has been shown that availability of comfortable seating such as benches or chairs as well as shade where customers can drink and enjoy themselves for extended period of time is essential for successful beer retailing. The poorest households cannot provide most of these services and customers tend to prefer to go to "Shebeen Queens" who enjoy relatively high social status and are able to provide such facilities. For higher class "Shebeen Queens" who specialize in retailing prestigious commercial drinks such as clear beer and hard liquor, a furnished living room where customers were served together with various decorations were essential to their reputation and success (Kjaer-Osen 1980, Haggblade-forthcoming).

Though these physical and housing related factors are important in successful home beer retailing, Haggblade correctly emphasizes that other factors and in particular the quality of a home brew is of greater importance than the physical location or the housing or the attributes of the home in which it is brewed. Hence a home brewer known for her high quality brews will attract customers wherever she is located and whatever are the housing and sitting arrangements. Haggblade further demonstrates that the quality of a home brew is not only related to these housing attributes but several other factors such as the type of malt used (in the case of sorghum beer) and the frequency of brewing, which is related to the degree of dependence on brewing income. Brewers who brew frequently have a greater chance to refine their recipes and to learn to improve the quality of their brews. The poorest brewers who brew occasionally when they have grain or some cash to buy inputs have

a lower chance to refine and improve their brews like the regular more experienced brewers and cannot easily attract and develop a clientele. As a result, these often sold most of their beer on credit and found it difficult to recover such debts.

About 86% of all the home retailers of beer gave their beer on credit. Of these 82% had problems recovering the money. Customers either refused to pay what they owed or continually delayed payment. Only one percent resorted to using the village authorities to regain the money owed. Twenty-six percent demanded payment until the debt was paid. Those customers who still refused to pay were often refused further credit until they paid. About 13% reported using this method were unable to recover the money. In general such complaints were discouraged by local authorities, and cases were only taken to the Kgotla if they involved assault or abusive language.

Poor and Medium Households as Brewers

Though women from all income groups engage in beer retailing at one time or another in order to raise cash, most home brewing and retailing of sorghum and other types of home and commercial beers as described in the previous section is done by poor and medium households. This is not surprising since most (50-60%) of Botswana's rural households are poor and medium households. Many of these practice mixed livestock and crop agriculture as well as some formal employment and informal or non-farm activities at varying degrees to spread the risks involved in each activity and to meet subsistence needs as well as to maximize their incomes. Basic frequencies, percentages, and cross-tabulations will be used to describe the different characteristics of households involved in beer brewing and retailing. Correlations were also performed between the following variables considered important in explaining the types of households that brew or depend on beer income. These included:

- Hectares of sorghum planted
- Hectares of all crops planted
- The number of kilograms of sorghum grain production harvested by household
- Total kilograms of grain used in sorghum brewing (i.e. sorghum, maize/corn, millet and rapoko)
- Number of cattle and donkeys owned by the household
- Net farm income from crops and/or livestock
- Total cash received for jobs, remittances as well as non-farm activities for a 3 months period prior to survey.

A Pearson correlation was used as specified in the Statistical Package for the Social Sciences (SPSS) to test for correlation between the variables specified and to test the hypotheses specified in Chapter 1. Correlations were calculated between variables for the entire sample and for the four groups including male and female headed households with adequate (more than 10 cattle) and inadequate draft power (0-10 cattle). Correlations were considered significant at the 0.05 level. Therefore, whenever the word significant is used without reference to the number it implies statistical significance at the 0.05 level. These correlations have been complemented by the use of purposively selected case studies to support the statistics reported.

The hypotheses are discussed below: Access to Grain

Since sorghum is critical in sorghum beer brewing, home brewers of sorghum beer were expected to have access to their own sorghum grain or sweet reed for brewing. Sweet reed was often used in place of sorghum grain in the north west, especially in Tubu which had the highest proportion of households planting sweet reed. Sorghum was dominant in all survey areas except at Tubu. The highest proportion of households planting sorghum were those using donkey draft, and these were mainly females with inadequate draft power. They had a slightly higher average frequency of sorghum beer brewing of 3.9 per year. The lowest proportion of households planting sorghum was among males with less than ten cattle or with inadequate draft power, and these had the lowest average frequency of brewing of 3.3 per year. These average frequencies are however not significantly different.

Correlations were calculated between the number of cattle and donkeys owned (as a measure of access to draft power) and hectares of sorghum planted since as shown in chapter 3, ready access to draft power is critical in crop and hence sorghum production. Donkeys owned were added to cattle owned because even though most households use cattle, especially oxen, as their main method of draft power, donkeys were also used. Tractors were also used for draft power; however, access to tractor power was not considered since the information about tractor ownership was not readily available.

A positive correlation of 0.118 with a significance of 0.099 was observed between cattle and donkeys owned and hectares of sorghum planted for all households; however, when correlations were calculated between the same variables for different groups of households of different amounts of draft power, a strong (0.584) and highly significant (0.002) correlation was recorded for female-headed households with inadequate draft. These also had a highly significant strong positive correlation of 0.547 between amount of draft power and hectares of all crops planted. Low and less significant correlations were observed between amount of draft power and hectares of all crops used for brewing for all other groups except females with inadequate draft. This may be explained by the fact that not all households in the sample planted sorghum. In addition, though cattle access and grain production generally go hand in hand, it does not necessarily follow that the more cattle a household owns (or has access to) the more sorghum or grain it will produce. A number of large cattle owners produced relatively little or no grain. Evidence from other studies has also shown that a number of large owners produce relatively little or no grain (Gulbrandsen, 1980, pp. 100 - 101, Curtis, 1973, p. 23, Litschauer and Kelly, 1981, p.25).

The table below summarizes the characteristics of sorghum brewing households by amount of crops produced and ownership of draft power. Crops used for sorghum beer brewing included sorghum, maize, millet and rapoko. Generally, households with relatively lower crop production had fewer or no cattle.

Kilograms of

Crops

Harvested

for

Average

Table 4.5

Categories of Cattle and Donkey Ownership							
No. of Donkeys Amount of Crops Harversted (kG)							
and Cattle	0	1-399	400 - 999	1000+	Total	N=	
0	0	196.2	513.0	2933.0	627.5	15	
1 - 20	0	201.5	649.9	1436.1	768.8	46	
20+	0	230.0	597.7	2190.6	1451.3	26	
Total	0	205.2	637.4	1897.7	948.4	87	
N=	8	16	32	31	87		

Most sorghum brewers have greater access to their own grain than those who did not brew or retail any beer or those who sold one or a combination of clear beer, chibuku, or other homemade beers like khadi. About 18% had 1-399 kg of grain, while 37% had access to 400-999 kg, and 36% had over 1, 000 kg. When sorghum brewing households were compared to households that neither brew or retailed any commercial beers it was found that about 18% of households that did not brew sorghum beer did not have access to their own grain. At least 45% of such households had less than 399 kilograms of grain. About 67% of households brewing khadi alone either had less than 399 kilograms of grain or had no crops planted. They also had the lowest average amount of crops used in sorghum brewing including sorghum and the lowest average number of cattle and livestock owned. Sorghum brewers had the next highest average sorghum produced to these households that brewed but not for sale.

When correlations were calculated between the frequency of sorghum beer brewing for sale and total grain produced by the household for the entire sample, an insignificant negative correlation of -0.026 was observed; however, correlations between the same variables for male headed households with adequate draft recorded a negative and non significant correlation of -0.165 while females with adequate draft power had a positive and non significant correlation (0.194). The correlation between total grain produced and frequency of brewing for sale for males with inadequate draft was moderately high (0.327) but statistically non significant. Females with inadequate draft had a correlation of 0.395 which was significant only at 0.081. In other words it suggested that for households brewing with their own grain, sorghum beer brewing takes place more frequently in households with relatively more grain. Households with no crops planted, together with those which planted some crops but no harvest all had an average of 1.5 batches of sorghum beer per year while those with 1-399, 400-999 and 1,000 kilograms of grain had an average of 1.8, 3.0 and 2.7 batches of sorghum beer, Above 400 kg of grain most households brewed respectively. relatively more often. Adequate draft households had slightly higher frequency of 2.6 compared to 2.2 for inadequate households. There was no variation between male and female headed households with male headed households brewing an average of 2.5 batches of sorghum beer per year. A slight variation was observed between male and female headed households with inadequate draft. Male headed households brewed an average of

1.9 batches of sorghum beer per year while female headed households brewed on the average 2.5. This is probably because males can obtain wage labor for additional cash income but females have fewer options for such employment.

The brewing of beer from ones own grain is not to be interpreted as implying a surplus. As shown in Chapters 3, and 4, many households have lower yields frequently below the suggested minimum requirement of 1000-1500 kilograms for subsistence for a family of six. Though 99% of the sorghum brewing households reported using their own grain, many reported that they bought sorghum grain for their brewing because they did not have enough of their own sorghum grain. About 62% of these households reported buying either grain (sorghum and corn) or corn meal for part of their brewing. Thirty-three percent reported buying commercial malt for their brewing. This explains why households without their own grain continue to brew. Further female headed households generally sold a lesser proportion of their total crops than males. These are households with a slightly higher average frequency of sorghum brewing and which beer brewing income was found to be proportionately more important. A large proportion of these are not the richest households but are households with fewer cattle and lower net household incomes which is found to be closely related to cattle ownership.

Cattle Owning Households and Brewing

Table 4.6 summarizes the cattle owning characteristics of the different households in the survey by their brewing activities. This is based on 126 households and does not include

3 households where there was no information about cattle ownership. The table is further presented in Figure 3 for easier interpretation.

Table 4.6 Beer Activities and Cattle Ownership in 126 Households Beer Activities

	Sold Home Sorghum Beer	Brewed Sorghum Beer for Ceremo- nial use only	Sold Khadi alone	Sold Clear Beer alone	Sold Combina- tion of Khadi, Chibuku, Hop, clear Beer	Did not Brew Or Retail Any Beer	
Cattle Owned							
0 1-20 21-60 61+	16(67%) 50(72%) 15(68%) 6(55%)	0 4(6%) 3(14%) 0	2(8%) 4(6%) 0 0	1(4%) 0 0 0	0 2(3%) 1(5%) 0	5(21%) 9(13%) 3(14%) 5(45%)	24(100%) 69(100%) 22(101%) 11(100%)
Totals	87(69%)	7(6%)	6(5%)	1(1%)	3(2%)	22(17%)	126(100%)

All types of groups -rich, medium and poor in the sample were involved in beer brewing and retailing and since the majority of the households in the sample are poor and medium households, most home brewing and retailing of sorghum beer is organized by poor and medium households. Even though all groups were found to sell homemade sorghum beer, there is evidence to suggest that proportionately more households with fewer cattle produced sorghum beer for sale than did not (see Figure 3). Seventy-one percent of households owning 0-20 cattle sold sorghum beer compared to 68% of those with 21-60 cattle and 55% of those with over 60 cattle. The slight difference is largely due to two cases in the 61-100 cattle owning group.



Figure 3: Beer Activities by Cattle Ownership

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A higher proportion (24%) of the cattle owning households with more than 20 cattle compared to 15% of households with less than 20 cattle did not brew or retail any beer or alcohol. About nine percent of the 33 with more than 20 cattle brewed only for ceremonial use compared to four percent of the 93 with less than 20 cattle.

Correlations were computed between the frequency of sorghum beer brewed for sale and number of cattle owned. A statistically significant (0.020) but low (0.227) correlation was observed for all households; however, for male headed households with adequate draft power (i.e with more than 10 cattle), a significant (0.014) and slightly stronger (0.344) correlation between cattle and frequency of brewing was observed for female headed households in the same category. The correlation was less significant (0.250) and low (0.182). In this way the correlation calculated suggest that among all brewers, sorghum beer brewing takes place more often in households with slightly more cattle. These are households with greater access to grain. On the other hand when correlations were calculated for households with inadequate draft (ten or less cattle), the correlations were negative but were stronger (-0.468) and more significant (0.046) for female headed households than for male headed households. Many of these female headed households either did not own any cattle or owned fewer than 20 cattle.

Households with more than 20 cattle had a slightly higher annual average frequency of 3.2 batches of sorghum beer for sale while those with less than 20 had a lower average of 2.2 batches per year. Male headed households with more than 20 cattle had

an average of 3.3 batches while those with less than 20 cattle recorded an average of 1.9 batches; however, female households with fewer cattle were found to brew 2.6 batches when those with more than 20 brewed on the average 2.5 batches per year. In this way female headed households with fewer cattle brewed slightly more batches per year than male headed households in the same category while male headed households with slightly more cattle brewed slightly more than female headed households in the same category. The overall calculations do not, however, reveal major variations in the frequency of brewing between male and female headed households. For instance, the overall calculations indicate an average of 2.4 for male headed households and 2.5 batches for female headed households. In this way it seems like female headed households do not necessarily produce sorghum beer more frequently than male headed households, however, there is evidence to suggest that among all brewing households, brewing takes place more often in households with slightly more cattle, but among all households owning cattle beer brewing decreases with increase in the number of cattle. Further there is evidence that female headed households are more dependent on beer brewing as a major part of their household income than male headed households.

Female Headed Households

Even though correlations for adequate draft households suggest that beer brewings take place more often in households with relatively more cattle, correlations for poorer (inadequate) households suggest that beer brewing also takes place more often in households with fewer cattle. Most of these households were poor female headed households. These have fewer options for earning income both within and outside agriculture. For most of the female headed households beer brewing was often related to specific life situations such as divorce, the death of a husband or a main household supporter or bad marital relationship. Since many women lack education or training which makes it extremely difficult for them to enter the job market, many were found to engage in beer brewing and other non-farm income generating activities such as sewing or knitting, basket making, to survive and to send their children to school. As a result, a significant (0.035) and moderately high (0.368) correlation was calculated between net farm income and income from non-farm activities other When beer income is added the relationship is than beer. negative.

Households brewing beer regularly were found to retail one or more types of other beers or liquor such as commercial or factory brewed sorghum and clear beer compared to non-regular brewers who brewed only during the dry season. These were usually households that bought brewing grain and used commercial malt. They were found to engage in various forms of cash beer brewing and retailing. The principal forms of cash beer brewing included brewing for sale, <u>setonkofel</u> or "party" and motshelo. When brewing for setonkofel, or party, the holder sells sorghum beer or khadi together with food including meat, samp (polished corn). Amplified music of the variety known as "gumba-gumba" is essential and is used to attract customers. Commercially produced sorghum beer and other imported beers may also be sold.

With motshelo, several people get together, with each agreeing to contribute an equal sum of money. At each meeting, a member of the group brews beer and prepares food as for a <u>setonkofel</u>. Each member of the group is allowed to keep the entire proceeds from the party in succession. A series of parties is given until each member has received the proceeds. In this form beer sales are guaranteed; however, the main purpose "... is to enable people to get their hands on larger sums of money than can usually be obtained through brewing" (Curtis, 1973, p.18). Samples of motshelo groups were observed in the areas under study.

The size of a motshelo group ranged from three to ten members. Most averaged five members and were often relatives or close friends. The groups were mainly women of all ages; however, some groups included male members, primarily involving couples (husband and wife). One group was made of males only and three of the members were teachers at the local primary school while the other two members were from rich families. This was rare. Most members of such motshelo groups were not from rich groups. The size of contributions varied but ranged from Pl.00 to P50.00 at each meeting. Most groups contributed P1.00 -P5.00. Only two groups contributed 50.00 each and their groups met monthly. Other groups held motshelo one to three times a month depending on the number in the group and the time of the They were less frequent during the agricultural calendar vear. and were often stopped and restarted immediately after harvest.

In addition to contributions made by members, food was also sold to members and other villagers. Usually a small amount of

each member's contribution was spent on food and beer. For instance, if each person contributed P5.00, a small amount, about P1.00, will be spent on food by each member. The amount received from members' contributions and money received from selling food and beer was often a larger sum than if the beer and food were sold to villagers.

The money earned from selling beer was used for a variety of projects. Most of the female headed households reported using beer for paying school fees for their children. The majority (55%) of the households, however, used the money for food and clothes. Few used beer income to invest in agriculture by buying equipment or hiring draft power. The majority of these were female headed without cattle or donkeys to use in plowing. For many households beer brewing reduces "unnecessary" cash expenses and allows a family to conserve money for investment in agriculture. Hence beer brewing can be seen as an indirect way of investing in agriculture by directing beer income to meet immediate cash expenses such as school fees, purchase of food to avoid selling cattle.

Income Generation and Uses of Brewing Income

for Different Types of Beer Brewers

Farm budgets were constructed using data collected by the Farm Management Survey about beer brewing income. Calculations showed that beer income comprised four percent of total household income of beer brewing households. When calculations were done for different categories of cattle owning households brewing beer, it was found that sorghum beer income provided about 14% of total household income for poor households owning no cattle, and four percent for those owning 1-10 and fell even lower for wealthier households. Calculations for the entire sample including brewing and non-brewing households also support the conclusion that beer income is more important to poor and medium income households than it is to the wealthier households and that sorghum beer income constituted a higher percentage of total household income for the poorer than it does for the rich. For the poorer households with no cattle, sorghum beer income accounted for six percent of household income. For those with 0-20 cattle, it constituted nearly 3 percent of household income while households with more than 20 cattle derived only 0.3% of their total household income from beer. In this way higher income households earn a small proportion of their total income from brewing beer than do the poor.

The contribution of brewing income was even higher for less well off female headed than for male headed households in each cattle category. For instances, female headed households owning no cattle derived eight percent of their total household income from brewing while male headed households in the same category earned only three percent. For households with more than 20 cattle, the percentages were one percent and 0.3 percent for female and male headed households, respectively. The overall sample indicate brewing income to constitute 4% of the total household income for female headed households while male headed households earned only 0.6% of their total household income from There is, therefore, little doubt that poorer beer brewing. households earn a higher proportion of their total household income from brewing and that this income is more important to

female headed than it is for male headed households.

Case studies of households outside the Farm Management Survey sample were selected non-randomly and such households reported an even higher proportion of their income derived from beer brewing since in general such households were often found to depend on beer income as sole income source or as the major part of their already low income. Such households had no farm income and dependent on occasional gifts from their sons and daughters if they had any working somewhere in the urban areas or in the mines.

Summary and Conclusion

In this study, it was shown that while beer brewing amy still be used in religious, ritual, labor parties or ceremonial occasions, the most common role of beer brewing is that of income generation and distribution for all types of rural households rich, medium, and poor, who engage in home beer brewing and/or retailing of commercial beer. Since grain in critical in sorghum beer brewing, households that brew home made sorghum beer, were found to have greater access to sorghum grain resources than households that either sold Khadi alone or retailed one or a combination of various commercial beers. Many of these sorghum brewing households were found to be cattle owners; however, many were not found to be the richest of cattle owners. They were found to belong to households of poor and medium wealth. For them, beer earnings constituted a high percentage of their total household income than the wealthier cattle owning households. The relative proportion of household income derived from brewing income increased with decreases in total household wealth or income.

It was also found that since female headed households were mostly poor, home brewing income was more important to them, constituting a high percentage of their total household income than male headed households.

From this research it is clear that for many of the households, home brewing was important in terms of the aggregate income in generated for basic subsistence, for purchasing food, clothing and other necessities, as well as directly and

indirectly investing in or subsidizing of agriculture. Since many of the households that relied on beer income were found to have limited access to cash and income generating opportunities, it is recommended that Government Policy should aim at protecting the local home brewers by regulating the current practice of encouraging large commercial brewers which have the effect of benefitting the large foreign and local private corporations and groups at the higher end of the income distribution. Mostly the retaining of factory brewed sorghum is monopolized by licensed retailers, and these are generally wealthy traders from wealthy households as opposed to unlicensed home retailers at low and medium levels. A tax on such beer companies and cutlets may be used on health, education and income genesity activity which aim at benefiting the poor.
APPENDICES



(spupsnoy)

Massey explains the processess that led to the transformation of the Protectorate into a steady supplier of labor to South Africa as

"The paucity of wage labour opportunities at home; lack of arable agriculturual development; recurring drought and outbreaks of cattle diseases; South African marketing regulations which indirectly limited the sale of "native" cattle; active collaboration on the part of tribal authorities and colonial officials in pushing men into the labour market in order to pay Hut Tax, tribal levies and fines . . . , the negative developmental effects of the loss of manpower and skills implicit in the migration process itself" (Massey, 1979 quoted from Kerven, 1979, p.6).

Remittances from migrant labor are significant in terms of average cash earnings and foreign exchange benefits for the Deferred pay, drawn at end of contract of mine country. laborers, amounted to P10.5 million in 1977 and a further P2.5 million in remittances passed through official channels (CSO, 1979 quoted from Jones, 1981, p.37). There were also substantial remittances from non-mine labor such as farm labor and domestic service (See Table 1.4, which shows the magnitude of non-mine labor between 1910 and 1940. In 1976/1977, absentee non-mine labor earned a total of P18.44 million for the economy of Botswana (Kerven, 1979, p. 18). In 1978, 23,200 Botswana mine workers remitted P15.8 million to Botswana, not counting the cash and goods they brought with them at the end of their nine month contracts (Egner, 1980, p.31).

APPENDIX

INTERVIEW SCHEDULE

RURAL BEER STUDY 1982 Planning and Statistics Unit Ministry of Agriculture

Α.	DISTRICT
в.	LOCATION
c.	FARM NUMBER
D.	INTERVIEWER
E.	DATE OF VISIT
F.	CHECKED BY
G.	DATE
H.	NAME OF HOUSEHOLD HEAD
I.	SEX OF HOUSEHOLD HEAD (Check One): Male //Female //
J.	MARITAL STATUS OF HOUSEHOLD HEAD (Check one):
	Single / Married / Divorced /
	Separated / Widowed /
ĸ.	RESPONDENT (check one):
	Head /7
	Spouse /7
	Son //
	Daughter //
	Other //
L.	NAME OF RESPONDENT

-

I. BEER ACTIVITY SECTION

First we would like to discuss with you any beer brewing and related activities you have performed.

1.	Dur	ing th	e past year (1981) have you or anyone in
	you	r hous	ehold performed any of the following
	act	ivitie	s (check appropriate blocks)?
	a.	Brewe	d bojalwa ja setswana for:
		i.	household consumption
		ii.	sale
	b.	Sold	any of the following products:
		i.	khadi
		ii.	chibuku
		iii.	castle/lion//
		iv.	hard liquor
		v.	other liquorspecify/
IOTE	: I	f anv	beer related activities are reported. go

NOTE: If any beer related activities are reported, go to Question 6.

- 2. Have you ever performed any of these activities in years prior to last year (i.e., prior to 1981)/ Yes / ______ No / _____
- 3. Have you ever wanted to perform any of these beer related activities?

No /____ Yes /___/

4.	Which of these activities have you wanted to perform
	(check appropriate blocks)?
	a. Brew bojalwa ja setswana for:
	i. household consumption//
	ii. sale//
	b. Sell
	i. khadi//
	ii. chibuku
	iii. castle/lion//
	iv. hard liquor
	v. other liquor
5.	Why haven't you performed these activities?
	Reasons
6.	Which of these beer related activities have you
	performed prior to 1981 (check appropriate blocks)?
	a. Brewed bojalwa ja setswana for
	i. household consumption//
	ii. sale//
	b. Sold: i. khadi
	ii. chibuku//
	iii. castle/lion//
	iv. hard liquor//
	v. other liquor//
7.	When did you first begin brewing/selling beer/liquor?
	a. 1981 //
	b. 1980 //
	c. 1975 – 79 //

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	d. 1970 - 74 //
	e. before 1970 //
8.	For what reasons did you begin brewing/selling/
	beer/liquor?
	a. money
	b. other (specify) //
9.	When you brew(ed) sell (sold) beer/liquor, is (was)
	it done primarily at the village or at the land?
	a. village
	b. lands
	c. both
NOTE	: The following question should be asked only at
	those households which no longer brew/sell beer/
	liquor.
10.	Why did you stop brewing/selling beer/liquor?
	a. Had enough money //
	b. Other (Specify). //
	Go to Section IV p. 15
	II. BOJALWA JA SETSWANA BREWING
11.	Do you normally brew bojalwa ja setswana all year
	round?
	Yes / No /

(Go to Question 13)

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12.	Why don't you brew bojalwa ja setswana all year
	round (check one or more)?
	a. Lack of money
	b. Lack of own grain
	c. Lack of labor
	d. Other (specify). //
13.	During what periods of the year do you brew bojalwa
	ja setswana most often (check one or more)?
	a. Ploughing/planting
	b. Weeding months
	c. Harvesting
	d. After Harvest
	e. Other (specify). //
14.	Have you ever brewed bojalwa ja setswana for
14.	Have you ever brewed bojalwa ja setswana for cooperative labor?
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes / No /
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes / No / When did you <u>last</u> brew bojalwa ja setswana for cooperative labor? a. This crop year (1981/82) / b. Last crop year (1980/81) / c. Before last crop year / What agricultural or non-agricultural activities
14. 15. 16.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /
14. 15. 16.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /
14.	Have you ever brewed bojalwa ja setswana for cooperative labor? Yes /

..

	c. Harvesting
	d. Threshing
	e. Building house/hut
	f. Repairing house/hut
	g. Digging well
	h. Other (specify). //
17.	How many people attended your last cooperative
	labor effort?
18.	How much beer was served to this cooperative
	labor?
19.	How many times did you brew bojalwa ja setswana
	during last plowing season (Nov. 1981 - Jan. 1982)?
	a. None
	b. Once
	c. Twice
	d. Three to four times (write exact number). //
	e. More than four times (write exact number) //
19a	How much cash did you receive from selling bojalwa
	during the last plowing season (Nov. 1981 -
	Jan. 1982)?
20.	After harvest last crop year, how many times did
	you brew bojalwa ja setswana during August 1981?
	a. None
	b. Once
	c. Twice

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	d. Three to four times (write exact number). //
	e. More than four times (write exact number) //
20a	How much cash did you receive from selling bojalwa
	during August 1981?
20b	After harvest last crop year (1980/81) how many
	times did you brew bojalwa between August and
	October 1981?
20c	How much cash did you receive from selling bojalwa
	between August and October 1981?Number //
21.	How many times did you brew bojalwa ja setswana
	during the past month (May/June 1982)?Number //
22.	Now we would like to discuss how each of these
	batches of bojalwa you brewed last month was
	used. Would you please tell me, batch by
	batch which batches were used for:
	(check one or more batches for each batch brewed)

Use		Batch	Number		
	1	2	3	4	5
Own consumption					
Ceremony					
Cooperative labor	· · · · · · · · · · · · · · · · · · ·				
Sale					
Party					
Motshelo					
Other (specify)					

-

- 22a How much cash did you receive from selling bojalwa last month (May/June 1981)?..Number.. /___/
- 23. What kind of brewing do you prefer and why? (check appropriate block or blocks, rank and write reason in space(s) provided

Kind of brewing	Preference/rank Reason
Brewing for own consumption	
Brewing for ceremonies	·
Brewing for cooperative labor	
Brewing for sale	• • • · · ·
Brewing for party	
Brewing for motshelo	in an and an an an and an
Other (specify)	

III. BEER/LIQUOR SALES SECTION

NOTE: Refer to question 1 p. 2 to determine if the household being interviewed had bojalwa ja setswana or other liquor sal-s during the past year (1981). If it did not, skip to Section IV, p. 15. Otherwise continue.

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A. BOJALWA JA SETSWANA SALES

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NOTE:	This	subsection	should	be	completed	i or	ly for
	those	households	which	had	bojalwa	ja	setswana
	sales	during the	past y	year	(1981).		

24.	What in	gredients do you normally use in making
	bojalwa	a ja setswana?
	a. Son	-ghum
	b. Mai	lze
	c. Mil	llet
25.	Where o	lo you normally get your grain to make
	bojalwa	a ja setswana?
	a. Gro	ow grain myself
	b. Pui	chased from other farmers in village . //
	c. Pu	rchased from shop
	d. Obt	cained through majako
	(wa	orking for others)
	e. Oth	ner (specify) //
26.	Where d	to you normally get your malt to make bojalwa
	ja set:	swana?
	a. Sei	lf made from sorghum
	(G	o to Q. 2)
	b. Mad	de by another brewer
	c. Pu	rchased from shop
27.	The la	st time your purchased malt,
	what d	id it cost you (cost)(measure)

28.	How do you mill your grain and/or malt?				
	a. Stamped by myself				
	<pre>b. Stamped by household member/members</pre>				
	c. Hire village hammer mill //				
29.	The last time you had your grain/melt milled, what				
	was the cost and amount milled? (Cost)				
	(Amount)				
30.	Do you use other ingredients than grain, melt and				
	water to make bojalwa ja setswana?				
	Yes / (Go to Q. 32)				
31.	What other ingredients do you use to make bojalwa				
	ja setswana? (specify)				
32.	The last time you had cash brewing, what type of				
	activity did you have (check one or more)?				
	a. Brewing for sale				
	b. Party				
	c. Motshelo				
33.	Were you or was someone else primarily responsible				
	for organizing the activity?				
	a. Myself				
	b. Other person (specify). //				
	c. Equal responsibility //				
34.	Did you <u>sell</u> food items at this activity?				
	Yes / No / (Go to Q. 37)				

-

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35.	. What food items did you sell (check one or more)?					
	a. Bread					
	b. Meat					
	c. Samp					
	d. Other (specify). //					
36.	What was the cost to you of these food items?					
	Pula					
36a	How much money did you receive after selling					
	food items? Pula					
37.	How much bojalwa ja setswana did you brew for this					
	activity? Amount					
38.	What price did you charge when selling bojalwa					
	ja setswana at this activity? (Price)					
	Measure					
38a	How much money did you make from selling bojalwa?					
	Pula					
39.	When you brewed the bojalwa ja setswana for this					
	activity, what amounts of the following ingredients					
	did you use?					
	Ingredients Amounts					
Grai	n					
Malt						
Othe	r (specify))					

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•

40.	Do you own your brewing equipment?
	Yes // No //
41.	When you brewed bojalwa ja setswana for your last
	activitiy, where did you obtain your brewing
	equipment?
	a. Borrowed
	b. Rented
	c. Other (specify). //
42.	What was your cost for using this brewing
	equipment?
43.	Where do you normally obtain firewood for brewing
	bojalwa ja setswana?
	a. Gathered by self or other household members /
	-
	(Go to Q. 46)
	(Go to Q. 46) b. Purchase from other villages
	(Go to Q. 46) b. Purchase from other villages
	(Go to Q. 46) b. Purchase from other villages
44.	(Go to Q. 46) b. Purchase from other villages
44.	(Go to Q. 46) b. Purchase from other villages
44.	(Go to Q. 46) b. Purchase from other villages
44.	(Go to Q. 46) b. Purchase from other villages
44.	(Go to Q. 46) b. Purchase from other villages
44.	(Go to Q. 46) b. Purchase from other villages
44. 45.	(Go to Q. 46) b. Purchase from other villages

47.	During the past year did you brew any bad batches
	of bojalwa ja setswana?
	Yes // No // (Go to Q. 50)
48.	Approximately how many bad batches of bojalwa ja
	setswana did you brew during the past year?
49.	What do you normally do with a bad batch of bojalwa
	ja setswana?
	a. Give away to customers or other villagers//
	b. Exchange for other items $\dots \dots \dots$
	c. Convert it to another type of liquor $/$
	d. Other
50.	Approximately how many total batches of
	bojalwa ja setswana did you brew during the past
	year (calendar year 1981)? Number . //
50a	Of the total batches of bojalwa brewed last year 1981)
	how many were: i. for saleNumber //
	ii. for ceremonies and/or
	home consumption? Number //
	iii. for cooperative labor
	Number //
50b	Approximately how much money did you receive from
	selling bojalwa last year (1981)? Pula //

B. CHIBUKU SALES

- NOTE: This subsection should be completed only for those households which had chibuku sales last year (1981). Refer to question 1 page 2 to determine if the household had chibuku sales.
- 51. During what periods of the year do you sell chibuku most often? (check one or more)

a.	Plowing/planting months	
b.	Weeding months	/
c.	Harvesting	/
d.	After Harvest	
e.	Other (specify).	1-7

- 52. After harvest last crop year, how much chibuku did you sell between August and October 1981? August? Amount
- 53. How much chibuku did you sell during the past month (May/June 1982)? Amount
- 54. Do you sell chibuku all year round? Yes /____/ No /____/
 55. Approximately how many times did you sell chibuku during the past year (1981)?Number ______
 56. What price per litre do you charge for chibuku?

57. What price do you pay per litre?Cost

.....Price

- 58. Who in your household is primarily involved in buying and selling chibuku?

a.	myself (specify)	•	/
b.	other person (specify)	•	
c.	equal responsibility	•	<u> </u>

C. KHADI SALES

NOTE: This subsection should be completed for household's which had khadi sales last year (1981)? Refer to Question 1 page 2 determine if the household had khadi sales.

59. During what period of the year do you sell khadi most often?

(check one or more)

	a.	Plowing/Planting months
	b.	Weeding months
	c.	Harvesting months
	d.	After harvest
	e.	Other (specify). //
60.	How	many times did you brew and sell khadi during
	the	last plowing season (Nov. 1981 - January 1982)?
	a.	None
	b.	Once
	c.	Twice

	d. Three to four times (specify number)。//						
	e. More than four times (specify number). //						
61.	. After harvest last crop year, how many times did you						
	brew and sell khadi between August and October 1981?						
	a. None						
	b. Once						
	c. Twice						
	d. Three to four times (specify number). //						
	e. More than four times (specify number). //						
62.	Do you normally sell khadi all year round?						
	Yes // No //						
63.	How many times did you brew khadi during the past						
	month? Number						
64.	What size is your standard batch of khadi?						
	Amount						
64a	How much money do you make from your standard batch						
	of khadi? Pula						
65.	What ingredients do you use for your standard batch?						
	a. berries(cost) (Amount)						
	b. brown sugar(cost) (Amount)						
	c. other (specify)(cost)(Amount)						
66.	How do you obtain ingredients for your khadi?						
	(check one or more)						
	a. Collect by self						
	b. Buy from shop						
	c. Buy from other villages /7						
	d. Other (specify)/-7						

.

67.	What price and measure do you charge for your
	khadi? Price/Measure
68.	Who in the household is primarily involved in the
	sale of khadi?
	a. Myself
	b. Other person (specify) //
	c. Equal responsibility
	D. CASTLE/LION, WINE AND/OR HARD LIQUOR
NOTE	: This subsection is for those households which had
	castle/lion, wine and/or hard liquor sales
	last year (1981). Refer to question 1 page 2
	to determine if the household had any castle/lion
	and hard liquor.
69.	How much of the following did you sell in the past
	month (May/June 1982)?
	a. Castle/lionAmcunt Size
	b. Wine Size Size
	c. Hard liquor Amount Size
70.	What was the cost to you of those items?
	a. Castle/lion Pula
	b. Wine Pula
	c. Hard liquor Pula
71.	What price did you charge for each?
	a. Castle/lion(Price) / (measure)
	b. Wine(Price) /(measure)
	c. Hard liquor(Price) /(measure)

72.	During what periods of the year do you sell castle/
	lion, wine or hard liquor more often? (check one or
	more).
	a. Plowing/Planting months
	b. Weeding months
	c. Harvesting
	d. After harvest
	e. Other (specify) //
73.	During the last plowing season (Nov. 1981-Jan. 1982)
	how much castle/lion, wine or hard liquor did you sell?
	a. castle/lion(Amount)Size
	b. wineSizeSize
	c. hard liquor(Amount)Size
74.	After harvest last crop year, how much castle/lion,
	wine or hard liquor did you sell between August
	and October 1981?
	a. castle/lion(Amount)Size
	b. wineSizeSize
	c. hardSizeSize
75.	Do you normally sell castle/lion, wine or hard liquor
	all year round?
	Yes / No /
76.	Who in this household is primarily involved in the sale
	of commercial beer and liquor?
	a. myself (specify).//
	b. other person (specify).//
	c. equal responsibility

-

ALL BREWERS AND LIQUOR SELLERS

77.	Who are your main customers? (check one or more)
	a. young men (15-30)
	b. men (30-50)
	c. old men (50+)
	d. young women (15-30)
	e. women (30-50)
	f. old women (50+)//
78.	Where do people in your area/village like to drink?
	(check one or more)
	a. in their own homes
	b. in other people's compounds
	c. at depots
	d. other (specify) //
79.	Do you sell your beer/liquor on credit?
	Yes // No // (Go to Q. 82)
80.	Do you have problems with people not paying?
	Yes // No // (Go to Q. 82)
81.	What do you do to make them pay?
82.	What are the 5 most important uses of the earnings
	you receive from selling bojalwa and other commercial
	beers and liquor? Please rank these, starting with
	the most important.
	a. school fees
	b. medical fees

.

c.	taxes
đ.	arable inputs
	seed //
	hire draft power //
	hire labor
	other (specify) //
e.	livestock inputs
	borehole
	bonemeal
	other (specify) //
f.	buy small stock
ġ.	build/repair house
h.	buy clothes
i.	buy food
j.	buy cattle
k.	other (specify) //

IV. HOUSEHOLD COMPOSITION

ALL RESPONDENTS:

-

83. Please list all members of your household living in this compound right now.

	1	2	3	4
NAME	SEX	AGE	EDUCATION	RELATION TO HEAD
	• •			
	1			
	1		-	
	į			

84. Are you or any of your household members employed in the village including those employed at somebody else's cattlepost?

	1		2	3	4
NAME	RELATION TO	HEAD	OCCUPATION	LENGTH OF TIME WORKING	WAGE LAST MONTH

85. Are there any members of your household living somewhere else?

Yes / ____ No / ____ (Go to Q. 89)

86. Please list all members of your household living

somewhere else?

	1	2	3	4
NAME	RELATION TO HEAD	SEX	AGE	LOCATION
		L	ļ	
			1	
		•		

87. Are any of these absentees employed?

Yes / ____ No / ____ /

38. Which household members are employed?

	1	2	3	4	5	6 [.]	7
NAME	RELATION TO HEAD	SEX	AGE	LOCATION	TYPE OF OCCUPA- TION	REMIT- TANCES SENT?	AMOUNT LAST THREE MONTHS
		•					
				an a			

V. OTHER SOURCES OF INCOME

ALL HOUSEHOLDS.

89. Apart from beer what other sources of income does your household have? Please rank these starting with the most important.

	ACTIVITY	RANK	CASH RECEIVED IN THE LAST 3 MONTHS
a.	Sewing and knitting		
b.	Sell firewood	•	
c.	Sell handicrafts including baskets, pottery		
d.	Make and repair hoes, plows, etc	; ; ;	
e.	Make and sell bricks		
f.	Rent out record player to beer parties		
g.	Rents out hammer/grinding mill		
h.	Other (specify)		

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89a How much money did you receive from selling other beers last year (1981)Amount

The following information came from the Farm Management Survey for the 1980/81 crop year.

90. Household type by access to draft power

a. Male head with adequate draft power

- b. Female head with adequate draft power
- c. Male head with inadequate draft power
- d. Female head with inadequate draft power
- 91. Main method of draft power
 - a. oxen
 - b. donkey
 - c. tractor
- 92. Number of cattle owned (in Livestock Stock Unit-LSU).

93. Number of small stock owned (Sheep and goats) (in LSU).

- 94. Number of other livestock owned (donkeys, horses and mules) (in LSU).
- 95. Amount of farm income from livestock (in Pula).
- 96. Total number of hectares planted (all crops).
- 97. Number of hectares of sorghum planted.
- 98. Number of hectares of maize (corn) planted.
- 99. Number of hectares of millet/rapoko planted.
- 100. Total amount of sorghum produced (in kilograms).
- 101. Total amount of maize/corn produced (in kilograms).
- 102. Total amount of millet/rapoko produced (in kilograms).

APPENDIX C

Definitions, Conversion Factors and Abbreviations

- 1. Definitions
- Gross Margin (M.G.) The gross margin of a crop or livestock enterprises is the difference between the value of production and the variable costs. This is not net farm income since fixed costs have not been deducted.
 - A. Crop Gross Margin is the value of production of a given crop minus the variable costs.
 - B. Livestock Gross Margin for a given type of livestock is the appreciation (in either positive or negative terms) <u>plus</u> sales, gifts out and home consumption minus purchases, gifts in and variable cost.
- Variable Cost include hired labor, Seed, fertilizer, bags, veterinary and watering fees, etc.
- 3. Appreciation (livestock) is the increase or decrease in the value of the herd or flock during the crop year using constant prices.
- 4. Net Farm Income is the gross value of production minus variable and fixed costs. The cost of animal draft power when supplied by the farmer himself is not included. The opportunity cost of livestock investment is also not included.

- 5. Fixed Costs include building and equipment depreciation. These cost are deducted from either total crop or livestock production, not from the individual crop or livestock enterprises.
- Net Income in the combination of net farm income and off-farm income.
- Average Numbers of Animals in the herd is the beginning of year numbers plus ending year numbers divided by 2.
- Adequate Draft includes farms with 10 or more head of cattle.

II. Conversions

1. Anim	als to liv	estock units	(LU)		
Category	Age	Weight	Animal per L.U.		
Cows, Bulls	2 yrs &	1,000	1,000		
Oxen	older				
Heifers,					
Tollies	1-2 yrs	0,70	1,43		
Calves	under	0,30	3,33		
	l yr				
Goats, Sheep	Under	0,05	20,00		
	l yr				

	2. Metric Conversions					
	1 met	tre	=	1.1 Yard		
	1 kilometer		3	0,6 Miles		
	1 Ki	logram	=	2,2 pounds		
	1 li	tre	=	0,22 gallon		
III.	Abbro	breviations				
MM	=	Millimetre				
FMS	=	Farm Manag	gement Surv	vey		
L	=	Litre				
Ha	=	Hectare				
м	=	Metre				

- L
- Ηa
- М
- Kg = Kilogram
- L.V. = Livestock Unit
- CSO = Central Statistics Office

APPENDIX D-

Types of Home brewed or Retailed Beer and Their Production

Sorghum Beer

The production of home brewed sorghum beer is based on various tribal recipes that have been refined over the years with the commercialization or increase in cash beer brewing. The ingredients used include malt and corn/maize meal or grain (sorghum, millet or corn). Sorghum malt is important in the brewing process; however, in addition to sorghum, millet malt is also used in Northern Botswana. Home brewers do not follow identical procedures; however, the following provides the general procedure commonly observed throughout much of the country.

In order to brew sorghum beer, one needs to have the skill and to be able to use the correct ingredients. The first step in sorghum beer making is the preparation of malt (momela). The production of good quality malt is critical in the brewing of good sorghum beer. Malting involves the soaking of any desired quantity of sorghum grain in a pot for one to two days. This has the effect of softening the grain. After thorough soaking, the grain is removed from the water, covered in a pot or basket, placed in a warm place and allowed to germinate or sprout for another two to three

days, depending on the season and variety of grain. In summer this may take two days while it may take three days in winter. Certain varieties of sorghum are said to produce good malt faster than others.

When the sprouted grain has reached the desired degree of gemination, when the shoots and roots are about three quarters of an inch long, the sprouted grain in dried by being spread out of the mat or floor in the sun or in the hut. Drying time also varies according to the season and temperature; however, it generally takes about two days in summer and about 3-4 days in winter. After drying, the sprouted grain in either stored for future use or ground using a hand or diesel operated hammermill or well carved grindstone or by coarsely stamping it with mortar and pestle. Those without grinder or hand mills hire these and pay P0.25 to P0.50 or 400-500 mililitres of sorghum to grind a 20 liter bucket of grain.

During the survey, most home brewers made their own malt to brew their sorghum beer. They either grew or bought grain to make their malt, however, nationally many brewers used factory made malt, especially the urban and regular brewers. In the communities under study, few used factory made malt because it was not always available. Where it was available, it was used mostly by regular brewers. Infrequent brewers used factory made malt just before harvest when grain supplies are low and

when it is expensive to buy grain for malting. Commercial factory made malt is generally of the higher quality than most homemade malt.

The second step after malting is the actual brewing. The first requirement is to grind unsprouted grain (sorghum, maize, or millet). Maize/Corn meal bought from the shops may be substituted for grain. Sufficient amounts of ingredients (malt, grain or corn meal) will be used depending on the amount of beer desired. To brew a 200 litre batch of sorghum beer, about 2-2.5 buckets of water is brought to a new boil, and a 20 litre bucket of ground grain is added, cooked for a short while on an open wood fire using a 200 litre drum or a three legged iron pot. It is then removed from the fire and allowed to sit and cool. Cold water is added until the mixture is medium warm. Malt is added, and the mixture is left to sour 12-14 hours.

On the second day three legged pots or cooking drums are half filled with cold water and subsequently filled to three quarters full with water from the sour mixture. This is boiled and the remaining mixture added and cooked to thin porridge. This is continuously stirred to prevent lumping. The boiling and cooking may take 1.5-2.5 hours depending on the amount of fire or heat. The

cooked porridge is allowed to cool in a shady place Rapid cooling is accomplished by putting the cooked porridge into shallow containers followed with continuous stirring. This may take up to four hours. Cold water is then added followed by malt. The mixture is then left over night for ferment. On the third day a further small amount of malt is added to accelerate fermentation. The whole fermentation process can take 12-24 hours, depending on the quality of malt and weather. After this the brew is strained using homemade woven grass strainers. It is not filtered clear but only strained to remove the particles of the grain used. It is usually sold in an actively fermenting stage; however, it can last for as long as three days before it is completely spoiled.

Homemade sorghum beer has a sour taste. It is pinkish brown in color and is opaque with suspended solid materials. It has an alcoholic content of about 2-2.5 percent and is nutritious and high in B vitamins. Because of its low alcohol content and considerable nutritional value, sorghum beer has often been regarded as a food besides being a drink and is useful dietary supplement when taken in moderate amounts; however, analyses of different brews have shown that the change from sorghum to corn/maize has resulted in a marked decline in the vitamin content of the beer (Novellie, 1966). The vitamin content of different sorghum brews will, therefore, be found to be very dependent on the proportion of sorghum to

corn/maize used in the brewing recipe. The fall in the vitamin content is serious because in different villages it is known practice that some men and women may go entirely without other food for one or more days.

While sorghum beer has been and continues to be the dominant type of beer brewed and sold in rural Botswana, other types of home brewed sorghum beer have been introduced. One type of such homemade sorghum beer is produced from commercial beer powder made by maltsters. It does not involve the full scale brewing described above and involves the mixing of readily prepared ingredients with warm water. The few home brewers using powder beer as well as the consumers reported that it was not preferred over traditional sorghum beer. As a result, it was often brewed for family consumption as a last resort when sorghum was not available. A recent brand of homemade beer popularly known as power was produced by merely adding warm water and allowing the mixture to ferment over night. Power is commercially produced and imported from South Africa. It produces a high quality brew and is sold at a higher price than both traditional and factory sorghum beer.

Khadi

Khadi is sweet in taste and is made from wild berries (mogwana or moretlwa), tubers (segwere), and brown

sugar. These wild berries and tubers were often gathered by women and children either for their own use or for sale to khadi brewers.

The first step in making khadi is to make seretse from roots. These are dug up, washed, and chopped up into smaller pieces. The chopping are boiled several times until all the bitterness is removed. Khadi was usually made in 20,50, and 100 litre plastic containers, depending on the available market. Most of the regular brewers used 50 and 100 litre plastic containers. The ingredients varied enormously. A recipe for a 100 litre container was provided by a brewer in Polokwe. A 100 litre container is filled three guarters or a little less than three quarters with the seretse. Some khadi brewers used seretse alone while others may add berries to complete seretse. Some added boiled beans and millet to make the brew `extra good'. About 500 grams to one kilogram of sugar is boiled in 20-30 litres of water. This is allowed to cool and later added to the seretse in the container. The mixture is covered and left to ferment in a cool place. After about 8 hours, the brew is ready for straining and drinking. This produces about 20-25 litres of khadi. The ingredients may be used over and over provided they are dried when they are not in use.

Other Homemade Beer

Sethulaphoko,' `sekhokho,' and `mokokoontshebile' are made with ground or stamped sorghum malt, yeast, sugar, and water. In the case of sethulaphoko sugar yeast and/or malt are used while with sekhokho ground or stamped sorghum malt and sugar are boiled and the resulting cooled steam is an intoxicating drink called sekhokho. Their alcoholic content is said to be higher. These were mostly imbibed by men owing to their intoxicating nature. These were strictly prohibited in all but one area. They were often associated with ill health, drunkenness and crime; however, some women raised considerable profits from selling such homemade beers.

Morula beer and setopoti (watermelon beer) were also brewed in the areas under study. These are sweet in taste and were made fermenting the juice of the fruit (morula fruit or watermelon). These were, however, not so strong as sekhokho or sethulaphoko.




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Source: Department of Surveys and Lands, Gaborone





REPUBLIC OF BOTSWANA

Source: Cartographic Section, Ministry of Agriculture, Gaborone.

MAP C: Location of farm management data collecting stations

FOOTNOTES

- 1. The concept of `Mafisa' involves the placing of ones' cattle in the care of someone else. The holder of `Mafisa' cattle bears the bulk of their management burden while enjoying the use of the cattle for plowing, milk and an occasional calf. But Mafisad draft power usage accounted for only a small proportion in the Farm Management Survey.
- 2. Gross Margin of a crop or livestock is the difference between the value of production and the variable costs. Hence Crop Gross Margin is the value of production of a given crop minus the variable cost such as costs in hired labor, seed, fertilizer, etc.

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