

**Household Diversity in the Smallholder farms of Nduuri, Embu, Kenya.**

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**Abstract.**

*Interviews were carried out for Nduuri farmer communities to establish household characteristics, livelihood support constraints and strategies to cope with the situation. Land shortage, labour shortage and fall in price of the life supporting coffee crop were main constraints. It was realised that majority of small holder farmers in Nduuri opted to practice crop diversification to meet household food and cash requirements.*

**Background**

The Land use potential is generally dictated by the altitude, rainfall and soil factors. Any change in one of these factors could alter the land use system of a region. Besides, socio-economic factors also force farmers to try other crops and livestock enterprises for their livelihood. It is through this attempt of trying to overcome the prevailing production constraints that the systems diversity is introduced. Some crops and livestock are imported into the area despite the production limitation. For instance, areas designated to be potential for coffee growing end up producing crops less suited to the region due to problems related to marketing of the crop. Culture and traditions also influence what to grow in addition to labour and gender issue as pertaining to resource management. Nduuri is in agro-ecological zone 2. Rainfall is biannual with peaks in April and November (Approx. 1000-1200 mm/yr). Major crops include coffee, maize, beans and fruit trees. Livestock keeping is also common. The farmers are of small scale farming. The population density is 450-700 persons per square kilometer. The production constraints in view of small land sizes have been identified as:

- Poor market for cash crops (coffee and macadamia nuts) hence low income to meet family needs.
- Declining soil productivity due to continuous cultivation without adequate soil nutrient replenishment.

- Soil erosion due to cultivation on steep slopes without appropriate Soil and Water Conservation measures.
- Shortage of livestock feeds.
- A narrow range of income generating enterprises/ activities.
- Farm labour constraints due to rural urban migration.

### **Objective**

This study was carried out in order to establish the socio-economic set up of the Nduuri community especially to understand the diversity of farm and family characteristics.

### **Methodology**

Household interviews and group meetings were carried out with key informants of the area. Twigs, leaves, and sticks were placed on the ground to describe the seasonal farm activities calendars. Names of all the community household heads were listed and divided into different wealth categories by key informants. Key informants also established criteria for establishing farmer categories. Group meetings were used to identify the household chores by gender. Data was used to establish how land was acquired, major sources of income by various household categories, farm and family characteristics amongst other issues.

### **Results**

#### **Household and Farm characteristics**

The survey revealed that 92 percent of the households were male headed and the household size was between 2 and 25 with a mean of 7.6 members. The mean age of household heads was 53.87 (with a range of 26-104 years). The household head's formal education level ranged from 0 to 12 years. About 85% of the household heads attained standard (primary) education while 15% had no formal education.

Classification of farm households into homogeneous groups is an important component of agricultural research programs. It helps to investigate questions such as why certain categories of households are wealthier; why some categories of households more successful at growing certain crops or rearing animals and what

constraints each household category faces in terms of agricultural production. Understanding these questions allows for solutions to be identified, which could help the poorer and/or the less technically able households. Based on the criteria generated by the key informants 4 household groups were identified as shown in Table 1

**Table 1: Household characterization in Nduuri**

<b>Criteria\ Farmer group</b>	<b>Group I</b>	<b>Group II</b>	<b>Group III</b>	<b>Group IV</b>
1.Farm size in Ha. (Average)	1.6-4.0 (2.92)	0.8-3.2 (1.7)	0.4-2.8 (1.48)	0.1-2.4 (0.6)
2. Ownership of dairy grade cows	3-6	1-3	1-3	Few with 1-3
3. Use of certified seed	Yes	Yes	Yes	No
4. Use of fertilizer	Yes	Yes	Majority	Majority at low level
5. Ability to educate children	Secondary /university	Secondary /university	Majority secondary	Majority primary
6. Off farm income	75%	50%	0%	0%
%age presented (N=44)	6	18	23	53

**Land tenure**

The land in Nduuri is individually owned. Land can change ownership through purchase or inheritance. A major proportion of the land was acquired through inheritance while the rest was acquired through purchase. There is a small portion of community land for schools and other communal facilities e.g. dispensaries. Majority of land inheritance among the Nduuri community is patrilineal, but the farms are rarely divided while the father is still active. The sons are encouraged to establish their own farms on the land but fathers give land to their sons only when convinced they are responsible.

#### **Farm sizes and sources of income and Expenditure:-**

Across household group, land sizes varied between 0.1 and 4 hectares (0.92 hectares as the average size). In most households family (76%) income is wholly dependent on farm income. It was found that 55% of families hire labour to supplement family labour especially for coffee related operations

Most of the income in the study area has traditionally been generated from coffee, dairy and sale of food crops such as maize and beans. As a result of poor coffee marketing and co-operative society management, returns from coffee sales have decreased and farmers are paying less attention to coffee management. Farmers expenditure are mainly in school fees and crop and livestock inputs. Food purchase is rare except during the poor seasons.

#### **House Types And Farm Tools**

Four types of houses were observed the commonest being the tin roofed-mud walled type (71.8%). Others were tin roofed-timber walled (18.0%), tin roofed-stone walled (7.7%) and grass thatched-mud walled (2.6%)

All farmers use hand tools and implements such as *pangas*, flat and forked hoes, knives, axes and spray pumps for land preparation and crop protection.

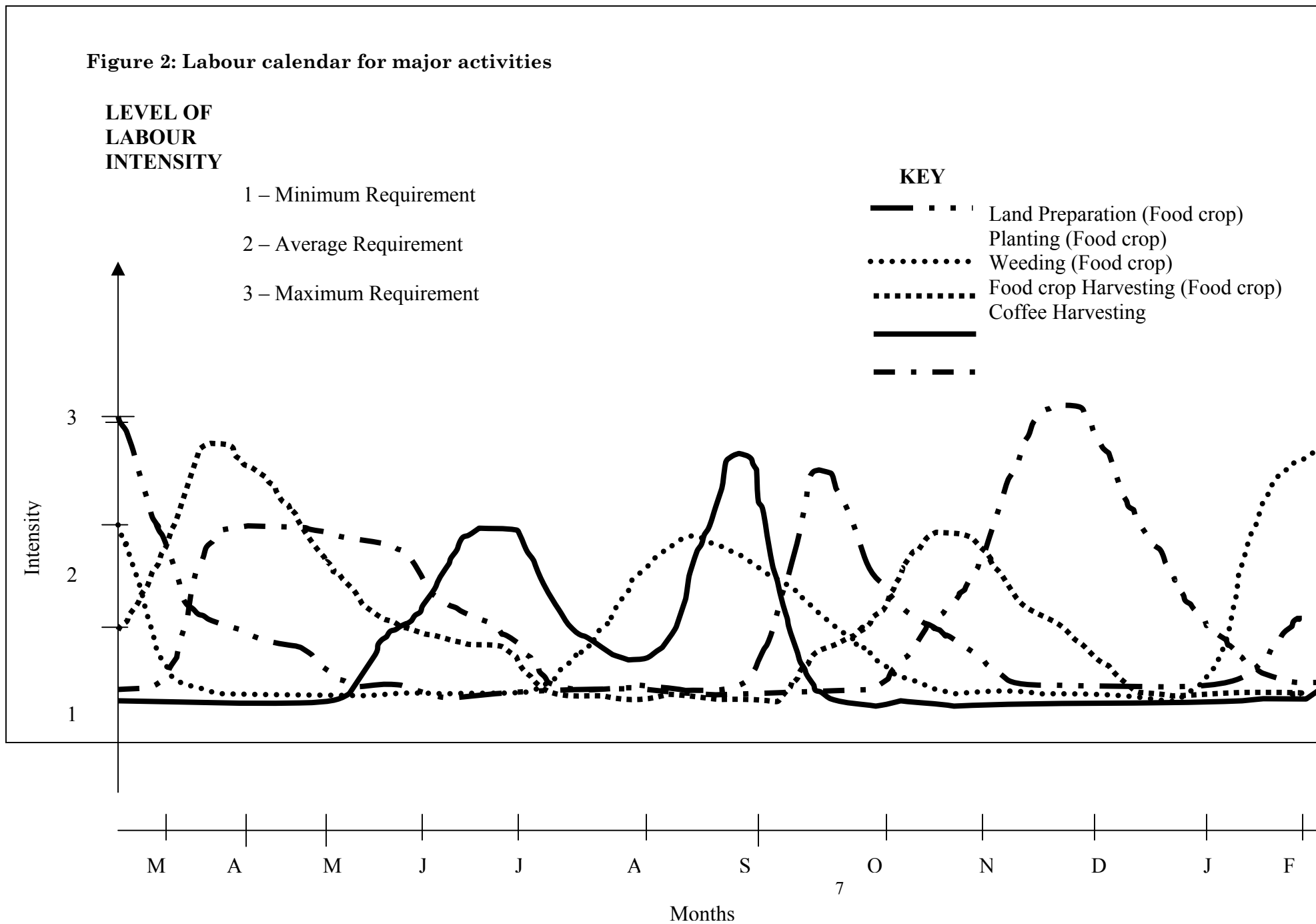
#### **Farm activities calendar**

Predominant farm activities include land preparation, planting of maize and beans, weeding, coffee harvesting and harvesting of beans and maize (Fig 2). Farmers are busy throughout the year with minimum labour requirement during the months of June, August and January. Labour demand for food crops is highest (June-

November) when coffee demands least labour. Coffee labour demand is in two periods of the year between October-January and between April and May



Figure 2: Labour calendar for major activities



### **Labour distribution by gender**

The sources of labour in almost all farms is family labour. However 76.9% of the farmers hire labour for specific activities such as land preparation, coffee pruning, planting and weeding. Coffee takes up 86% of the hired labour. In the analysis of gender labour distribution, it was found that specific activities are done by men while others are done by women and male-female children. Table 2 shows the labour distribution. Only activities that concern land management diversity were analyzed. Table 2 shows that male and female adults are highly involved in land preparation, maize and bean planting, harvesting and marketing, coffee weeding, spraying and marketing, purchase of farm inputs, Cattle feeding, milking and marketing of milk and application of manure in the farm.

Nevertheless, though much of the duties are performed by adult male and female, the youngsters also helped in weeding and coffee harvesting which occurs during the school holidays. Thus exclusive duties to male gender are spraying coffee and other crops, manuring the farm, construction of SWC structures and weeding of maize, while exclusive duties for female gender are planting, weeding and harvesting of beans. Bigger boys are also involved in the duties which are carried out by their fathers while bigger girls help their mothers with chores they carry out.

**Table 2: Allocation Of Major Household Activities**

Activity	Men	Wome n	Girls (>15 yrs)	Boys (>15 yrs)	Girls (<15yrs )	Boys (<15 yrs )
Land preparation (digging)	6	5	3	4	1	2
Planting maize	6	6	3	3	1	1
Planting beans	2	6	5	1	4	3
Weeding in maize	6	4	3	5	1	2
Weeding in beans	2	6	5	1	4	3
Weeding in coffee	6	5	2	1	3	4
Spraying crops (where applicable)	5	4	3	6	1	2



Spraying coffee (where applicable)	6	4	3	5	1	2
Harvesting maize	5	6	4	3	1	2
Harvesting beans	2	6	5	1	4	3
Harvesting coffee	6	5	3	4	1	2
Making SWC structures	6	4	2	5	1	3
Purchasing farm inputs	6	5	3	4	1	2
Marketing coffee	6	5	4	3	1	2
Marketing crops (maize/beans)	5	6	4	3	1	2
Milking and marketing milk	5	6	4	3	1	2
Manuring the farm	6	5	3	4	1	2
Feeding/watering livestock	5	6	3	4	1	2

**Note: Ranks/scores of 1 (least active) and 6 (most active) shows level of involvement.**

### **Conclusion**

Despite reducing land size for cultivation in Nduuri due to population pressure, there is evidence of that farmers are striving to survive. Most farmers (76 percent) grow crops for consumption rather than for market; majority of farmers depend mostly on farm crops for income generation. Due to poor market prices, low purchasing power and the institutional management problems, farmers are diversifying to meet their family food and income requirement.

### **References:**

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