

Full Length Research Paper

Division of labour in nakati (*Solanum aethiopicum*) production in central Uganda

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Nakati (*Solanum aethiopicum*) production is labour intensive. This paper reports on the division of labour in the production of this crop in central Uganda. There is significant division of labour between husbands and wives. Heavy duty land preparation is mostly done by husbands and hired male labour in order to do it fast when large acreages of Nakati are involved. Hired labour (35%) does most of the land preparation and weeding. Women do hand weeding better than men. Sowing is predominantly done by men (50%) who claim better experience than the females in broadcasting the crop. Pest control is mostly done by husbands and hired male labour (78%). Most women can not carry the knapsack sprayer and are often busy with household work. Fertilizer application is also mostly done by men (56%). Harvesting is mostly done by family labour (42%), and mostly by males who can carry the heavy Nakati bundles from the fields. Marketing is predominantly done by husbands (87%). Sometimes wives opt to have a separate plot of Nakati to cater for their unique needs. Generally, men do most of the work in Nakati production but training for Nakati improvement ought to target both men and women. Women should be organized into groups which can also be voluntarily joined by husbands, and these groups can be easily trained by extensions agents. It is preferable for women extensions agents to train the women farmers' groups because women are likely to relate to fellow women in this regard. Since women are usually busy with household work training should coincide with the dry season when there is less work in the field. Farmer field schools could also benefit Nakati growers.

Key words: Nakati, *Solanum aethiopicum*, labour, production, central Uganda.

INTRODUCTION

Nakati (*Solanum aethiopicum*) is one of the numerous local vegetables in Uganda (Goode, 1989; Musana and Rubaihayo, 2001). Both rural and peri-urban farmers are involved in its production (Bukonya- Ziraba, 1997; Schippers, 1997). However, commercial production of these vegetables is restricted mainly to peri-urban areas (Ssekabembe et al., 2002b). Commercial exploitation of local vegetables is still very limited in Uganda (Rubaihayo, 1996; Schippers and Budd, 1997), and this is partly attributed to neglected research input into local vegetables production. The nutritive value (Goode, 1989; Rubaihayo, 1994, 1996), food security value (Goode, 1989; Rubaihayo, 1994) and commercial importance of nakati makes research on this crop worthwhile. Actually, in parts of the nakati-production belt of central Uganda, nakati

and bugga (*Amaranthus lividus*) are more important for cash than coffee, which is the most important export crop for Uganda (Ssekabembe et al., 2002a).

Both men (husbands) and women (wives) appear to be involved, to some degree, in nakati production in central Uganda. Family-based farms are usually characterized by division of labour, not only in terms of agricultural enterprises but also with respect to specific tasks (Deere, 1999). Generally, in all societies, men and women often play different roles, have different needs and expectations. The tasks are socially and culturally constructed to address the different production constraints in crop production (Fong and Bhushan, 1996; Najjingo-Mangheni and Karuhanga-Beraho, 2003). In developing countries, women contribute up to 75% of the total agricultural labour force and provide up to 60 - 80% of the food production for both household consumption and for sale ((FAO, 1995, 2000; Mpuga, 2005). Men often seek women's labour for cash crops production. Women often make up for labour shortfalls in food crops production as

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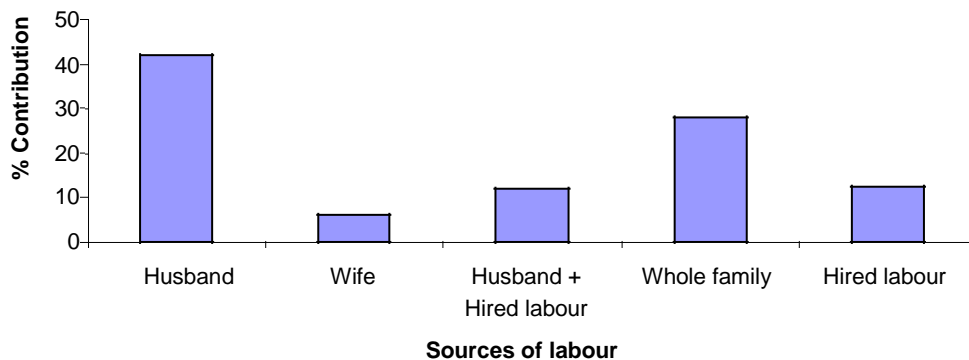


Figure 1. Average contribution of the various sources of labour to the tasks involved in the nakati enterprise.

as men have migrated to towns in search of off-farm income, and as increasing numbers of children attend school (Blumberg, 1992). Such gender-disaggregated data is usually needed to help technicians, planners and policy makers to identify the role differences in food and cash crops production as well as men's and women's different managerial and financial control over the production, storage and marketing of agricultural products (FAO, 2000). Unfortunately, gender roles are often not well spelt out or dully recognized. Therefore, the unique features of division of labour and resources by sex in African farming have until recently, been poorly understood (Blumberg, 1992). Therefore, the present redresses this problem in the case of nakati production, which is labour intensive, in central Uganda.

METHODOLOGY

The study was carried out in four villages in two sub counties (Nangabo and Busukuma) of central Uganda. This is the main nakati growing region in Uganda, and is located at about 0° 28' N and 32° 27' E. It is at an average altitude of 1200 m above sea level. The area receives bimodal rainfall, with March-April and October-November as the usual wettest months. The annual rainfall in the area is between 1200 - 1300 mm. The average maximum and minimum temperatures are about 27 and 17°C, respectively, and mean relative humidity ranges from 72 to 93% (Ssekabembe, 1986). A pre-tested questionnaire was used to generate the desired information. The questions concerned, among other things, the role of men and women in planting, fertilizer application, purchase of inputs and marketing the crop, acquisition of capital and seed, and weeding of the crop. The 63 respondents were selected from a list of nakati growers in the area, and this was provided by the local government leaders in the area. The interviews were conducted during the off-season for rain-fed nakati production. The data were subjected to descriptive analysis.

RESULTS

General aspects

The majority of the respondents (83%) were married but not all married men and women were involved in nakati

production. All the farmers interviewed were small-scale farmers cultivating less than 0.7 ha of nakati. The main reason for the small plots of nakati is that the land is often rented, and capital has to be raised to lease land for nakati production. Furthermore, nakati production is labour-intensive especially when it comes to weeding; only small plots of nakati can be effectively hand weeded unless hired labour is employed.

There is division of labour among the males (husbands) and the females (wives) involved in nakati production in central Uganda. According to the respondents, labour for the nakati enterprise is provided by either husband working alone, wife similarly working alone, husband assisted by hired labour or the whole family working together (husband, wife and children working at the same time) or entirely hired labour separately. On average, the husbands working alone provided the biggest source (42.0%) of labour in the nakati enterprise followed by the whole family (27.8%) while the wife working alone contributed the least labour (6.12%) (Figure 1). The main reason why husbands working alone dominate the nakati enterprise is that in central Uganda, this crop is predominantly grown for cash. In the nakati growing belt of central Uganda, nakati together with ebugga (*Amaranthus lividus*) are more important for cash than coffee, which is the main export crop from Uganda (Ssekabembe et al., 2002). In General, men tend to dominate commercial crop production while the production of food crops is mostly handled by the wives (Tanzarn, 2005). Wives also contribute some labour in the nakati enterprise when they work jointly with their husbands and children to carry out certain tasks in nakati production. The division of labour in the performance of the different tasks involved in nakati production is summarized in Table 1.

Source of labour in land preparation

Land preparation is considered to be the most difficult task in the nakati enterprise and this is mainly performed by men, including hired labour, husband + hired labour or

Table 1. Division of labour in the performance of different tasks in nakati production in central Uganda.

	Farm activities							
	Land Preparation	Sowing	Weeding	Thinning	Crop Protection	Fertilizer application	Harvesting	Marketing
Source of Labour	Percentages (%)							
Husband	17.5	49.2	6.4	54.1	55.6	55.6	9.7	87.3
Wife alone	3.2	4.8	14.3	10.8	3.2	4.8	04.8	3.2
Husband + Hired labour	23.8	6.4	9.5	05.4	22.2	7.9	17.7	3.2
Whole family	20.6	38.1	50.8	21.6	15.9	30.2	41.9	3.2
Hired Labour	34.9	1.6	19.1	8.1	3.2	1.6	25.8	3.2

Table 2. Summary of reasons advanced by farmers for using hired labour during land preparation (especially ploughing) for production of nakati.

Reason	Proportion of farmers that advanced the reason (%)
Hired labour does it faster; farmer alone would be slow and might fail to catch the season.	34.9
Strenuous work or difficult work for the farmer to do without hired labour.	30.2
Farmer not able to do this work alone on a large scale/has large area.	25.4
Male hired workers have more capacity for this work than females.	6.4
Husband has other work to do, so he leaves it to hired male labour	3.2

husband working alone (Table 1). This is because land preparation is generally too strenuous for wives. When involved in land preparation, the wife and children (as part of family labour) do the light work, such as burning of the trashes and making the seedbed fine during secondary tillage. However, a small percentage of wives (3.2%) is involved in the strenuous part of land preparation, and this mainly happens when the husbands are either absent or cannot be involved for one reason or the other. A big number of households (34.9%) prefer to use hired labour for land preparation. The main reasons for using hired labour in land preparation are summarized in (Table 2).

Sources of labour for sowing nakati

Most of the nakati sowing is done by husband (49%) or the entire family (38%) (Table 1). The main reason for this is that both the wife and hired labour do not have experience in broadcasting the crop. Some farmers do not trust hired labour with the nakati seed, and others do not have enough money to pay for hired labour. It is also suggested that although some women may have the required experience, they have a lot of household work. However, the few women (5%) who participated in sowing nakati indicated that sowing the crop is easy, and they do it without hired labour especially when husbands are absent. Occasionally, the husbands and wives do the

sowing together to do the work faster and to lessen the burden. When hired labour is used in sowing large acreages, it is done under the supervision of one of the couple.

Sources of labour for weeding and thinning

Nakati weeding is mainly done (51%) by family labour including the husband, wife and children (Table 1), although the participation of the latter is often limited when they go to school. The respondents argued that since weeding is a light work there is no need for expensive hired labour. When hired labour is necessary, women are solicited for the work because they do it better than the men. The main reasons for using hired labour for weeding nakati include the need to do the work faster and possession of large acreage of the crop. Few households (6%) indicated that weeding is done by husbands alone.

For more than half of the households (54%), nakati thinning is done by husbands alone, and this is followed by family labour at 22%. There seems to be no clear reason to explain the fact that husbands are the ones mostly involved in nakati thinning apart from the fact that they are the owners of the nakati enterprise. One striking reason advanced by women is that it is the husbands who know when to thin the crop and go ahead to do it themselves.

Source of labour for crop protection

Application of pesticides is mainly done by men including husband working alone and husband plus hired labour (77.8%) (Table 1). Women shy away from pesticide application because the knapsack sprayer is too heavy for women to carry. However, the women contribute indirectly to crop protection by fetching water for mixing the chemicals. When the men are busy with other work and when there is a large plot of nakati, hired labour may be employed to spray the crop.

Source of labour for inorganic fertilizer and manure application

According to the respondents, inorganic fertilizer and manure application are done mainly by husbands working alone (55.6%) followed by the whole family (30.2%) (Table 1). The men have the experience in fertilizer application and prefer to do it alone or together with the family to minimize losses due to over-application or theft. Other reasons for men domination of this task include the high cost of hired labour and women being occupied with other tasks. Manure is often carried in heavy sacks that women find hard to carry.

Labour for harvesting and marketing nakati

Harvesting of nakati in central Uganda was mainly done by family labour followed by hired labour (Table 1). Small plot size and cost of hired labour are some the reasons cited for dependency on family labour for harvesting nakati. In cases where the plots are large, hired labour is employed.

Marketing of nakati in central Uganda is almost entirely done by the husband (Table 1). The main reason for this is that the crop is mostly taken to the market at night when the women remain at home to look after children. The markets are located far from the farms and in most cases nakati is transported by bicycle and lorries that women cannot handle easily. Farmers often do not send hired labor to market the nakati because of lack of trust.

It was discovered that 3% of the respondents were wives of husbands who were not involved directly in nakati production. This is largely because their husbands had full-time off-farm employment. In this case, most of the work was done by the wives assisted occasionally by hired labour. Therefore, the majority of nakati was produced by men occasionally helped by wives, and also by hired young males. Nonetheless, besides the family nakati plot which is predominantly managed by the husband, there were occasions when the wives decided to have a separate plot of nakati for themselves. This was always a small plot near the homestead and such a plot would be managed almost entirely by the wife. Exceptions to this would be spraying and sometimes fertilizer application when the assistance of the husband would be

sought. Where land is rented, it is the husband who would do this and then assign a small portion of it to the wife. There are several reasons why husbands and wives occasionally had separate plots of nakati (Table 3).

DISCUSSION AND SUGGESTIONS

Generally, in crop production it is usually the men who plough the crop fields while the women do the majority of the other work including fertilizer and pesticide application and harvesting (Mrema, 1995; FAO, 2000, 2003). The present results show that this is not entirely true in the case of nakati production in Uganda. Here, it is men who do more work than the women in nakati production. Although agriculture is not an exclusively male activity (Boserup, 1970), the present results confirm that in central Uganda men play the dominant role in nakati production while the women mostly provide a supportive role. This is particularly so during land preparation, fertilizer and manure application, spraying against pests, harvesting and marketing the crop. However, women do more of the weeding and do it better than the men. In general, in Africa women contribute 70 - 90% of the labour required for weeding and weeding occupies farmers more than any other farm operation (Akobundu, 1980a,b). The results confirm previous findings that division of labour between men and women in crop production often varies considerably from region to region and from community to community (FAO, 2000; Schalkwyk et al., 2000). These results confirm that men often do most of the work of large-scale cash crop production (Tanzarn, 2005; Mpuga, 2005). Since nakati is a cash crop in central Uganda, this could explain why the men do most of the work including marketing the crop so that they can keep the cash (income) and control how it is used; sometimes without consulting the wives. In some areas, women may share work with the men in all aspects of commercial crop production besides being responsible for subsistence food crop production and preparation (Schalkwyk et al., 2000). Nonetheless, in an attempt to recognize the different interests and responsibilities of women and men in crop production, it is important to understand the different roles, responsibilities and needs of men and women (Schalkwyk et al., 2000). The present results show that women play very little or insignificant role in the marketing of nakati. This is not surprising. Although women in Uganda form about 51% of the population and constitute 70-80% of the total agriculture labor force and produce 60-80% of the food for home consumption and for export, they generally market only 64% of the food (PMA, 2000).

All rural farmers still lack access to basic agricultural inputs; information, capital and the market. Women farmers' family commitments including reproductive roles and 'nursing' role in the family, workload, and lower literacy levels further reduce their access to information, extension activities and training, and appreciation and adoption of new technologies (Najjingo-Mangheni and Karuhanga-

Table 3. Reasons why husbands and wives may have separate nakati plots in central Uganda

No separate plots	Have separate plots
<p>So as not to divide the limited available labour</p> <p>Have little fertilizer (manure) that cannot be split into two separate plots</p> <p>Work is easier and more efficient when both Wife together on the same nakati plot; some vegetables prefer to work together as a family.</p> <p>If work is not shared, the other plot would be neglected when the other sex is absent</p> <p>Wife not capable of growing a separate nakati plot because she cannot buy the inputs or spray against the pests</p> <p>Wife has other work to do; not growing vegetables.</p> <p>Both work for the children</p> <p>Wife does not have capacity to run a separate plot</p> <p>Husband not involved in farming; is a civil servant</p> <p>Limited land to divide into two separate plots</p> <p>Poverty does not allow money for managing separate plots</p> <p>There is mutual need to help each other on only one plot of nakati</p> <p>Nakati is too labour demanding for wife to adopt a separate plot</p> <p>Wife is involved in growing other food crops for the family; not vegetables for sale</p>	<p>To cater for her unique needs which husband cannot help; including development needs</p> <p>If there is plenty of land to rent, this is possible. If it is small they work together</p> <p>Wife has different objectives for growing local work</p> <p>Husband grows his vegetables far from the home; wife does so near the home</p> <p>Each needs ownership of a nakati plot and their own income</p> <p>To cater for household needs when husband is absent</p> <p>To have a small plot of vegetables for household use</p> <p>For wife to get her own revenue/income and, hence, avoid conflicts over sharing revenue</p> <p>Wife may not trust the husband with money/returns</p> <p>Wife needs to raise money for her daughter's education because the husband is not interested in girl education</p> <p>To increase family income</p> <p>Occasionally if she finds the land to rent, otherwise with limited land it is difficult to have separate plots</p> <p>Wife fears to work with husband who has a large plot although she occasionally helps him</p>

Beraho, 2003). Globally, women receive only 5% of all agricultural extension resources and constitute only 7 - 11% of the beneficiaries of credit programmes (Siwingwa, 2005).

This gender disparity needs to be addressed even in the case of nakati production in central Uganda. This can be done in at least two ways. The women farmers need to be organized into farmers' groups in which the husbands can also voluntarily become members. The women groups can be commodity- or enterprise-based. In this case, the nakati growers can be organized into groups with the main objective of increasing nakati production and promoting the participation of women in its marketing. Such groups can be easily trained by extension agents preferably by women extension agents to which female farmers are more likely to relate in this regard. In Kabale district of southwestern Uganda and Kitui district of eastern Kenya, such women farmers'

groups have been instrumental in the adoption of on-farm tree planting in these regions (Kaudia, 1996; van Houten et al., 2003). Some wives are often busy with household work such as fuel wood collection and cooking. Therefore, the training of women farmers ought to coincide with the dry seasons when there is less field work. Otherwise, the extension agents would require visiting these farmers while they work in the field and the timing of this can vary from household to household. The latter would also mean visiting individual farmers, which is cumbersome for the extension agents. Another strategy for increasing participation of women in nakati production is to increase their participation in marketing the crop. Middlemen who buy the crop at the farm cheat the women farmers with low farm-gate prices. This is one reason why the men take the crop directly to be major markets in the urban areas. With the women farmers organized in groups, they could avoid the middlemen and take their produce directly to

the urban areas for marketing since it would be a large volume that could be entrusted to a few fellow women while the others remain at home to cover the household work. The task of marketing the crop jointly in this way can then be alternated at agreed intervals. The concept of Farmer Field Schools (FFS) can also be adopted to increase nakati production by female farmers in central Uganda. At the moment this extension approach has been popular with crop protection projects in eastern Uganda. It was first developed as a way of introducing rice farmers in south-east Asia in the late 80's to more appropriate and ecologically sustainable agricultural practices resulting in reduced pesticide use. When well planned and implemented, the FFS could be an appropriate method of training farmers practically (Lave, 1995; Isubikalu, 2007). The FFS can be targeted at both women and male nakati growers.

Although the present results indicate that it is the male farmers who do most of the nakati production, the training of women in nakati production cannot be neglected. When both men and women work together, they could constitute a formidable partnership to achieve greater food security (FAO, 2003). Actually, one World Bank study has indicated that if women received the same amount of education and training as men, farm yields could rise by 7 - 22%, and this could have exceptional returns in terms of world food production and, hence, world food security. Similarly, in Kenya, a nationwide agricultural extension/information campaign targeted at women resulted in increases of maize, beans and potato of up to 28, 80 and 84%, respectively (FAO, 2003). Therefore, it is apparent that the traditional tendency to direct extension and training activities primarily towards the men, which is common in developing countries, is unfortunate and should be discouraged.

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