MARAGOLI ECONOMY

Diverse Farming and Soil Management Practices: "Don't You Know That Agriculture and Soils are the Same Thing?"

A focus on gendered divisons of labour, responsibility, rights and interests, and the ways these come together, helps us to understand both how these resource management changes come about and what they mean for different people. Because gender relations are the dynamic behind so many aspects of land and tree management [and soil management and farming practices], they are integral to questions of productivity and environmental sustainability as well as those of social equity. (Leach 1991a, p. 22)
Maragoli is characterized by intensive mixed farming on individual smallholdings, and diversity in crops, soil management, and farming practices. This chapter explores the importance of gender relations in production in terms of the diversity of various on-farm labour practices that are vital for sustainable soil management and agriculture. It discuses these relations in production as they relate to five on-farm labour practices: planting trees and hedges; digging trenches; managing livestock and using fertilizers; digging and clearing land for planting; and growing cash and subsistence crops. It illustrates that, irrespective of type of practice, in Maragoli, women are predominantly the farmers and carry out their roles and responsibilities in increasingly stressful circumstances — circumstances in which their labour burdens have intensified over time and they do not always control the proceeds of their labour.

By focusing on five key soil management and farming practices, this chapter highlights what has always been known to Logoli farmers: that agriculture and soils issues are inseparable. Furthermore, there is a fundamental yet evolving relationship between the gender division of labour and soil management and farming. Faced with an ever-changing environmental and political-economic context, the gender division of labour in Maragoli has been adapted and transformed in practice, sometimes challenging traditional gender roles and male authority, while, in other cases, reproducing patriarchal 'order' and entrenching men's power and control over women and "property."

While women continue to carry out the bulk of the day-to-day activities in farming and soil management, they have taken on additional roles and responsibilities that were 'traditionally' considered those of men. Although some men still carry out 'traditional' roles and responsibilities, these activities are not consistently or uniformly carried out, and men's labour input into the *shamba* has generally been on the decline. Hence, while women have taken on more on-farm labour responsibilities, they have not always been able to gain more rights for themselves in terms of decision-making and power within the household and with respect to certain practices. Moreover, women's degree of autonomy depends on their household circumstances and positioning, as well as how successfully they negotiate the heavy weight of patriarchal norms and idioms and the fierce social stigmas perpetuated by taboos, as described in the previous chapter. In the past, men's

roles and responsibilities rested on one-time labour contributions such as planting trees and hedges, digging trenches, and clearing land, as well as caring for livestock and providing specific labour inputs pertaining to certain types of crops. Today, the practices that continue to be controlled by men, and remain a taboo for women, are those that represent men's authority in terms of their material and symbolic control over land and property, and therefore power.

Despite the fact that women's labour in farming and soil management activities has intensified over time, and women are increasingly responsible for off-farm responsibilities, they manage to engage in a multitude of diverse farming, soil conservation, and erosion practices. These diverse activities are illustrated in tables 6.1 and 6.2. Women continue to engage in diverse practices to varying degrees, because their status and reputation as "good" Logoli wives depends on their ability to be "good" farmers. Moreover, the ability of farmers to carry out any combination of these activities depends on a number of factors, including personal preferences and motivation; access to information; and the ability to negotiate access to resources, such as money, labour, capital, credit, and other inputs. Another factor, which will be explored in the next chapter, has to do with the availability of time and energy, and the willingness to invest that time and energy in these activities, in the face of other competing priorities.

Table 6.1 The Diversity of Maragoli Farmers' Crops and Livestock.

Grains	**Vegetables**	**Fruits**	**Root Crops**	**Other**	**Cash Crops**	**Livestock**
Maize	*Sukumawiki**	Bananas	Onions	Woodlots	Tea	*Kukus*
Sorghum	*Mito**	Guavas	Groundnuts	Flowers	Coffee	Grade cows
Millet	*Mutere**	Paw paws	Potatoes	Sugarcane	French beans	Crossbred cows
Lentils	*Cowpeas**	Avocados	Sweet potatoes	Napier grass		Indigenous cows
	Cabbage	Mango	Cassava			Goats
	Beans	Tomatoes	Carrots			Turkeys
	Pumpkins	Berries	Arrowroot			Ducks/Geese
	Squash	Loquats				Cats
	*Tsisaga**					Dogs
	Tisuza					Sheep

Source: Individual interviews, personal narratives, group interviews, and surveys. N = 46 participants.
* Indigenous green collards

Table 6.2 Diversity of Maragoli Farmers' Soil Management Practices.

Soil Fertility	**Soil**

		Erosion
Organic Fertilizers Cow manure Chicken droppings Other livestock manure Cow urine and run-off from shed Improved quality of cow manure through feed* Refuse from the household Refuse from the farm Green manure	**Mulching** Mulching with couch grass Mulching with maize stalks/stover Mulching Compost pits Rubbish collected from the yard Rubbish collected from the household	Trenches Planting trees Terraces Planting shrubs Planting hedges
Inorganic Fertilizers Store-bought chemical fertilizers Chemical fertilizers from cooperatives/companies Placing top dressing in planting holes	**Use of Crops** Crop rotation Intercropping Rotational bush fallowing	
Combination Combination organic and inorganic fertilizers		

Source: Individual interviews, personal narratives, photo appraisals, group interviews and surveys.
N = 46 participants.
* Cow feed consisting of spent barley bought from beer breweries

The reinforcement of gendered boundaries: planting trees and hedges

Trees and hedges have important functions for conserving the soils. They are an important source of fertilizer; they provide green manure for mulching and composting; and they constitute an important measure against soil erosion — for "holding the soils" — especially during the rains. Trees and hedges have multiple values and meanings in Maragoli. For instance, not only are they useful in providing shade, fodder, and as a means for tethering cows, they also act as material symbols that mark claims to land and demarcate boundaries.

Photo 26: *This photograph was taken by a 43-year-old widowed farmer. She explains: "Trees are seen as being good. The way they are growing, they will help me tomorrow. I was having problems [because of the need to buy] firewood. If I want to cook, I had to buy firewood. Then I saw if I plant a tree of my own [it] is better. And I also saw that the food crops were not doing [well] there ... and only trees are the ones that are just doing [well] there ... The trees require less maintenance than food crops ... I put there cow dung from the yard. I mulch with maize stovers; when they decay, no grass grows. I bought the seedlings. My child planted them — the boy. This Maragoli place of ours, women are not allowed to plant trees." (L030)*

Photo 27: *"Bananas are very useful — like this one, if it gets ready, I sell at 200 shillings. And if I decide to cook it, it helps with my grandchildren. I take good care of them and they help me. I heap soils to surround the trunks, because bananas don't need fertilizer; their fertilizer comes from the leaves and bucks from cut stems. So by heaping the soil to hold onto them, they do better." (L008)*

Colonial policies encouraged the planting of trees within forestation initiatives in order to increase water infiltration and conserve water and soil in the 1930s and 1950s. Trees became an important cash crop that provided firewood for sale (Carter and Crowley 1997, pp. 9–10). Today, trees continue to be considered valuable cash crops that provide income through the sale of fruits, firewood, and construction materials. Other products from trees, such as fuelwood, and barks, berries, and other medicinal products, are also used in barter and exchange. For instance, one Logoli farmer in this study described how she negotiated the payment of her children's school fees with the local school by providing fuelwood from a large tree on her shamba. In addition, the number of hedges used for demarcating physical boundaries in Maragoli has increased over time, because of changes in land tenure and privatization of land (which encouraged ownership under the 'head' of household.)[56]

Given the multiple uses for trees and hedges, it is important to distinguish between the one-time activity of planting, and the ongoing labour involved in managing trees and harvesting their products. In Maragoli, in marked contrast to other Kenyan contexts, such as Machakos (Rocheleau and Edmunds 1997) and Kakamega (Bradley 1991), the planting of hedges for the purpose of demarcating boundaries is controlled by men. Planting trees also remains the exclusive domain of men, and is circumscribed by very

strong cultural taboos. An elder in her eighties describes the taboo that keeps women from planting trees (in this case bananas, an important food crop that is also considered a tree in Maragoli):

Bananas, women never plant. No, no. Potatoes you plant, vegetables you plant. But a banana, that was prohibited. Even these days, women do not plant bananas. Period. In Avalogoli culture ... they believe that if a woman plants bananas, she will become barren. (L039)

Photo 28: *This photograph was taken by a 48-year-old farmer whose husband is a carpenter. She says: "It is a good thing. It shows that these boys are really hardworking, because they buy these trees and then split the timber into wood and then sell it. Instead of working on the shambas, they have decided to buy these trees from people, splitting it, and selling it to make furniture ... This tree comes from the soil and from the land ... if you weed, it seems really big ones grow really fast." (L026)*

The location of a tree to be planted on the shamba has always been a point of struggle between husbands and wives, and may partially explain the "exceedingly strong opposition" that was encountered in the 1950s to colonial forestation programs (DCNN 1955, p. 12). In the contemporary situation, women complain that trees are sometimes planted in locations that do not meet their approval, and where they provide unwanted shade or drain water or nutrients away from crops. Although women carry out the day-to-day work and decision making in farming and soil management, the planting of trees is a symbolic gesture of power invoked by men. One Avalogoli woman explains:

You cannot plant trees on the compound and claim, "these are my trees," when your husband is alive. You cannot plant euphorbia and say, "this is the fence on my shamba*," when your husband is alive. Those are the two customs ... they say that if you do these things when he is alive then you want him to die.*
However, this taboo may be negotiated, contested, and even sabotaged by women, as discussed below.

The taboos that restrict women from planting trees and hedges continue to hold sway in the absence of a husband. While men's roles and responsibilities have eroded in other labour enterprises, men continue to retain control over the activity of planting trees and hedges, in all circumstances. Men's control over this activity represents their power and authority over "property," and confirms their control over the material and symbolic demarcation of physical space and boundaries. Both the decision-making and the actual labour in planting trees reinforce men's roles as 'heads' of household and are symbolic of men's power. Women who are heads of household cannot simply hire men to plant trees and hedges, but must call upon male relatives or sons to do so. It is therefore important to understand the gendered rights and nested obligations around the control of trees and

hedges when formulating soil erosion policies and research initiatives, in order to reflect farmers' realities better.

Photo 29: *This photograph was taken by Patroba (see Chapter Six). She is a 34-year-old farmer whose husband has out-migrated to Nairobi. She explains: "It's my garden plot behind my house — it's a good picture because it is showing good farming ... I look at my bananas and see that they are really shining because I've put a lot of cow-dung manure ... Even the onions do better here. I've planted sugar cane and it does well. I applied some of the fertilizer that is meant for tea, to plant the bananas. On the rest of the plot, I also apply rubbish that remains from the cow feed and the rubbish I have been sweeping — it is supposed to go there." (L015)*

While trees and hedges remains the domain of men, maintenance and access to the products of trees are more often the domain of women. One woman explains:

Once a man has planted bananas, they really don't bother looking after bananas. ... It's the woman who manages the banana plantation and sells and cooks.

This division of labour and roles indicates that both the control over trees and use rights to trees are based on multiple, nested, and overlapping rights that are mediated by different gender responsibilities. Bananas, in particular, provide a good example of the multiple use values of trees, as well as their cultural and gender meanings. In the past, both the planting and the use of bananas were a male activity. Today, bananas are planted in nearly all households, and, while women continue to be restricted in planting them, they actively harvest, maintain, and control the products from banana trees. Bananas can be used as food, sold, or exchanged, and the leaves and stalks act as green manure and livestock fodder. Women's control of the banana plot continues even after other parts of the *shamba* are allocated to their sons and daughters-in-law, as discussed in Chapter Four. The importance of this micro-niche to women's long term security helps to explain why they dedicate a great deal of labour and energy to this part of the *shamba*, and why this is the most fertile part of the *shamba*.

Photo 30: *This photograph was taken by Rina, a widowed farmer (see Chapter Four). It illustrates how produce from the banana plot can be used as exchange with neighbours and friends, not necessarily in the immediate term, but to ensure future reciprocal exchange. "These young boys [my neighbours] are carrying a banana stem for their cow to feed on. I cut it for them and gave it to them." (L028)*

Digging trenches

Digging trenches is an important strategy by which farmers sustain their soils and farms. Not only do trenches prevent the erosion of soils and hold water, they are also a way of controlling pests, which are a common problem on some *shambas*. As one farmer explains, "the cassava can do well and the potatoes can do well; but the mole — the mole eats from beneath" (L016). Hence, trenches create a break in the burrows of moles by inundating these passages with rainwater. While taboos around constructing trenches and terraces dictate that "digging holes" is the role of men, practice suggests that there is some degree of blurring in terms of how this practice is actually carried out. This situation can be made clearer by distinguishing between processes of decision-making and practice.

Photo 31: *This photograph was taken by a 37-year-old farmer. She describes it: "This boy is trying to dig for me a trench in my land. When we make a trench and plant on napier grass, the reason is to prevent soil erosion ... I learned about trenches one day I went to a seminar in Sabatia — that was an agricultural seminar in 1996, given by the district land management officer with his team. We were called, the organizers of the women's groups." (L038)*

Women often decide to have trenches built on their *shambas* to prevent soil erosion. They do this by hiring or bartering men's labour or drawing on their adult sons' labour. While women do not actually dig trenches themselves because of social stigmas attached to this activity, they often make the decision to have them constructed.

Unlike trees and hedges, trenches do not necessarily represent the symbolic or material demarcation of property ownership, which may explain the 'blurring' of gender roles in terms of this activity. However, it is in the interest of women that this labour-intensive activity remains in the domain of men. As Queen explained in her narrative in the previous chapter, "women cannot manage to use the spade while removing soil." This discourse is not a claim that women see themselves as incapable of removing the soil.

Rather, it is used by women as a strategy for ensuring that men contribute labour, and that labour, when available, is spread more equitably between wives and husbands. Cultural restrictions on digging trenches have important implications for conservation strategies and policies. Development researchers and agents should recognize that decision-making and the control of allocation of labour must be differentiated from the activity of "digging holes," and that this difference is highly gendered.

Photo 32: *This photograph illustrates the importance of trenches. Rebeka (Chapter Four) explains: "We have a trench here — I was trying to get this trench. It is a good thing because all the water that comes from the house goes straight to the bananas. So this trench, the water that goes through, it also helps my bananas to keep them the way they are looking." (L003)*

Managing livestock and using fertilizers

There are two aspects of livestock management that are important to sustainable soil management and agriculture. The first is the issue of managing different types of livestock and fodder, mentioned in Table 6.1. The second is the issue of using organic fertilizers produced from livestock, as well as chemical fertilizers purchased from the market or obtained from farming cooperatives.

Managing livestock

Livestock is an integral part of people's lives. They are an important resource, as well as a means of accumulating wealth in Maragoli. In the past, the number of livestock owned, in addition to the number of wives married, was the basis of measuring men's wealth and social status (Kitching 1980, p. 204). While livestock was used as a medium of exchange (in addition to land, millet, and other items), this part of the economy was totally dominated and controlled by men. Tending, herding, and grazing livestock were the responsibility of men and boys. Animals were grazed jointly on communal lands during the day and corralled in their respective homesteads by night (Crowley and Carter 2000). Colonial land alienation and distribution policies (motivated by the necessity to obtain money to pay colonial taxes, and later, to make purchases and pay for services) led to the disappearance of grazing land, decreased *shamba* sizes, and transformed the remaining grazing land available for agricultural production (Kitching 1980, p. 240). Decreased availability of grazing land diminished men's roles in grazing livestock. In addition to this, the unavailability of men's labour (because of male out-migration) led to an increase in "zero-grazing" practices. This increased women's labour burdens, because it became the responsibility of women to find, cut, and carry fodder to tethered cows. After independence, European farmers sold exotic dairy cattle in large numbers, giving a boost

to milk production and sale (Carter et. al 1998, p. 16). In the 1970s, government policies encouraged farmers to raise crossbred and grade cows, but these cows never supplanted indigenous cows, which were highly valued as bridewealth and were used as a reserve for wealth in difficult times (Crowley and Carter 2000). Crossbred cows required intense labour inputs such as cut-and-carry fodder management, an activity that also fell on the shoulders of women.

Today, livestock continues to be valued for its significance in social, cultural, and economic spheres of life, and is an important source of organic fertilizer for sustaining the soils. The ownership of livestock continues to be an important indigenous indicator of wealth and it is used for the payment of bridewealth. It also provides income from the sale of milk, meat, poultry, eggs, offspring, and surplus manure. The scale of these enterprises depends on the number of livestock owned, which in turn is contingent on a farmer's class. Enterprises range from the 'sale' of milk through bartering of small quantities to large volume selling.

Today, most cows are zero-grazed, although some are grazed along roadsides, usually by male children, hired *shamba*-boys, or women themselves. The labour-intensive activities of cultivating, searching for, cutting, collecting, and carrying fodder, as well as collecting cow manure, remain the responsibility of women. While the trading of livestock is considered the domain of men, this does not exclude women from engaging in trading by drawing upon men's assistance, especially in the absence of their husbands. Most Logoli farmers today opt for grade or crossbred grade cows, in addition to indigenous cows (which are used in the payment of bridewealth), if they can afford either or both. However, women trade and exchange poultry and eggs (although, until recently, women were not allowed to eat chicken or eggs because of strong social taboos).

Economically poor farmers may also enter into an agreement with a willing neighbour, friend or relative with inadequate land, fodder, or labour, in order to gain access to livestock, fertilizer, and its produce. The practice of using one's *shamba* to keep and maintain livestock for a neighbour, friend, or extended family member (in exchange for organic manure and a certain number of offspring from that livestock) was created by farmers as a strategy to "chase away the striga weed" on their *shambas*. In essence, a cow or goat is 'lent' to them, in exchange for which they can use the organic manure and other resources, such as milk, produced from the livestock (as discussed in Chapter 7).

Organic and inorganic fertilizers

Livestock, a vital source of organic fertilizer, plays a central role in soil conservation. Cow dung by itself, or in combination with chemical fertilizers or other types of organic input (such as ash or compost material), is used by a majority of farmers in Maragoli. The management and application of organic fertilizer is more labour-intensive than the application of chemical fertilizers. Yet, many farmers opt to use organic fertilizers, as they believe that chemical fertilizers "burn" crops and "dry" the soils. They feel that organic fertilizers are best in terms of maintaining the long-term sustainability of the soil, and cite examples of friends, relatives, and neighbours who use organic fertilizers and get

good yields. The following farmer explains her preference for organic fertilizer, although she reverts to inorganic fertilizers because of monetary constraints:
I prefer cow manure; it is better for fertility. ... There is a mole which is really giving us problems. The things on my garden are not pleasing because the land there is not fertile. I only have one cow and it does not produce enough manure. So I revert to buying chemical fertilizer. Its name I do not know. (L040)
Another farmer describes her preference for using a mixture of both types of fertilizers:
Even though I have [a] cow [and its] dung manure, I mix with three kilos of commercial fertilizer. ... It's just a matter of using both because the plot is not big. There is no otherwise. ... Our soils are funny — if you want them to produce good yields, you have to use both. That way you harvest something good. If you use farm manure, the crops won't do well. ... The soils are now exhausted. ...
Economically wealthy farmers tend to have more organic manure available because they own large numbers of livestock, and are able to hire full-time labour to rear livestock and produce fodder and organic fertilizer. As such, they use labour-intensive methods, such as the application of slurry from cow bomas on crops such as napier grass to increase yields. Napier grass is commonly grown in Maragoli for fodder and erosion control, and is an important cash crop. It can be harvested four or more times a year. However, economically poor households sometimes harvest this crop before it has reached maturity. They rarely apply inputs because they cannot afford them and do not have the labour available to invest. Farmers also use manure from poultry, especially on non-indigenous vegetables such as onions, cabbages, and tomatoes.

An increase in prices for inputs such as chemical fertilizers prompted by political-economic processes such as SAPs also affects soil fertility practices in several ways. Farmers who prefer chemical fertilizers cite lack of money or high costs as one reason for choosing organic fertilizers (where they have access to livestock), or no fertilizers at all, rather than chemical fertilizers. Farmers' real earnings have decreased, while the cost of livestock and the number of livestock required for bridewealth payments have increased over time. Faced with this situation, economically poor farmers cannot access enough livestock to benefit adequately from organic fertilizer. Differential access to credit (as an avenue to purchase fertilizer), and lack of money only partially explains the limited use of inorganic fertilizer.

Indigenous cows have multiple values (bridewealth being one), which may partially explain farmers' preferences in the use of organic manure for maintaining soil fertility. Livestock are prized property that are indigenous indicators of wealth and status, and are considered security in the face of hard economic times. Livestock are also slaughtered for food during ceremonial functions such as funerals and weddings. They are important symbolic ceremonial gifts for male circumcision ceremonies, and the first visit by a woman to her daughter's married home upon the birth of her first-born grandchild. Poultry such as kukus (chickens) are presented to visitors of status, although this custom is on the decline among economically poor or middle-income farmers, and is being replaced by gifts of eggs and vegetables. Further, livestock are important income generators, as milk, eggs, meat, and cow-manure can be sold in exchange for money, or exchanged and bartered in return for other products and inputs.

Given the multiple cultural, monetary, and use values of livestock, it is not surprising that many farmers prefer to own livestock (such as cows) and use organic manure, rather than purchasing chemical fertilizers — although this does not discount the fact that many farmers prefer organic manure for technical reasons.

Photo 33: *This photograph was taken by Frederika. She explains: "This is a good picture. The cows are the ones which have made my mother-in-law's shamba to be productive. Because of the manure she gets, even her bananas do so well." (L040)*

While there are some trends in the types of fertilizers used by farmers on certain types of farming enterprises (such as French beans and tea), the decision to use chemical or organic fertilizer is varied and very much dependent on the farmers themselves. As their opinions and experiences with either type of fertilizer vary, it is not possible to draw direct and consistent correlations between specific crops and preferences towards certain types of fertilizer inputs. It is only possible to highlight trends which vary according to the subjective understanding of farmers. Even though economically wealthy farmers can afford to use chemical fertilizers, they do not always do so, preferring organic inputs for sustaining the soils. On the other hand, some farmers do not engage in the method they prefer because of resource constraints such as labour, money, and credit. Lastly, although men have authority over the ownership and sale of livestock, women carry out much of the work required to manage and tend livestock, including the labour-intensive work of collecting and applying organic manure, cultivating, harvesting and collecting fodder, and collecting produce from livestock. This situation once again demonstrates that the division of responsibility pertaining to ownership and labour is differentiated by gender. This is important to consider when formulating research and development policy and initiatives.

Digging and clearing land for planting

"Digging" refers to the labour-intensive work of clearing, breaking the ground, planting, and weeding. At the turn of the century, large gender-based rotating work groups did the bulk of this work in exchange for an evening of beer drinking and festivities, and with the expectation that the labour would be reciprocated on their own *shambas* in the future (Crowley and Carter 2000). This work, carried out using a wooden stick, was eventually replaced by the handheld iron hoe, or jembe, in the 1920s and 1930s (Carter and Crowley 1998, p. 10). While the use of the mouldboard plough spread in Kenya during this time, Marogoli's steep topography and small plot sizes prevented its widespread adoption

(Carter and Crowley 1998, p. 10). Not all land was cleared simultaneously, and farmers practised the technique of rotational bush fallow, as an older Logoli woman recalls:
Shambas *used to be tilled in turns. ... A plot would be chosen where tilling would be done, then the other portion lies fallow and remains to grow many bushes called amasatsi [a local bush which is an indigenous indicator for of soil fertility] on it and people used it as a toilet. When you move to that one, the other lies fallow. This is how food was plenty. (L041)*
As discussed earlier, historical and political changes led to a decrease in the size of individual landholdings in Maragoli, which prompted a decrease in the availability of fallow land for the practice of rotational bush fallow. Today, only economically wealthy farmers with large non-dispersed plots continue to practice rotational bush fallowing. For many farmers, decreased plot sizes have meant that the same plot is cleared and tilled continuously without the adequate input of fertilizers, leading to a decrease in soil fertility. One farmer remarks:
Actually, the farms we stay on have really changed. However big the shamba you are working on might be, it can never give you enough harvest, because the soils have become exhausted due to continuous cultivation. Long ago we could have [farmed] on this plot this year and interchanged the next year, so that when you come back to the first one it has restored its fertility. So today it's hard — even if you add fertilizer, we cannot get more yields like we used to before. It is because of the subdivisions that we have done on our farms. The sizes have decreased. (L019)
In combination with diminished plot sizes, these changes in land use have also made men's allocation decisions pertaining to clearing and fallowing all but defunct. Women carry out most "digging," with men occasionally involved in the heavy work of breaking the ground. Land is cleared and broken twice a year, and, each time, the earth is broken and overturned two to three times. The first "digging" involves breaking the ground, while subsequent "digging" involves deeper over-turning of the soils and mixing of dried couch grass with the soils. A decrease in the availability of men's labour and the existence of de facto and de jure women-headed households have been central reasons for women's increased responsibility in "digging." Furthermore, diminished control and power over decision-making in "digging" (since the same plot is tilled repeatedly, decision-making is rendered all but defunct), has meant that this gendered taboo no longer exists and that women are 'free' to clear the land. This has further intensified women's labour on the shamba, without increasing their decision-making powers within conjugal relations.

Photo 34: *This photograph was taken by a 20-year-old farmer. She explains: "I took this picture to show that, in order for the plants to do well, you have to till the land first before planting. This way the crops will do well. We will plant when the rains come because the earth is too dry. I will plant the usual crops, maize and beans ... I choose to intercrop because the beans get ready earlier than the maize, so it saves us the hunger as we wait for the maize. And also, the plot is too small, so it is better to mix it."*

(L011)

Photo 35: *"This is a picture of my wife tilling. The goodness is that until you till the land you cannot be a farmer. I shall plant here some cassava and some guava and avocado trees You have to dig very carefully, making sure you uproot al the weeds so that, when you plant, the crops will grow nicely." (L007)*

Growing cash and subsistence crops

Farming in Maragoli is rain-fed. The annual agricultural cycle is characterized by two rainy seasons: the short rains (September to November) and the long rains (March to June), with a high average rainfall of 1800 mm to 2000 mm (Carter and Crowley 1997, p. 8). Crop harvesting is carried out by hand or with the use of machetes.

Logoli farmers use different cropping practices and patterns. Although regarded as 'unscientific' and 'backwards' during the colonial period (Odaga 1991, p. 75), the major cropping pattern involves intercropping with indigenous vegetables, cowpeas, beans, maize, and bananas. Given women's intense labour burdens, intercropping allows for efficient use of time, labour, and energy, as well as efficient use of small plots. In addition, it also yields better harvests, decreases splash from rain, is more reliable, and adds different nutrients to the soils. Another cropping pattern used to sustain the soils is crop rotation. This involves planting crops in sequence to take advantage of varying degrees of soil fertility over time.[57]This practice is on the decline. An Avalogoli woman, aged 78, explains that reduced *shamba* size has diminished the use of crop rotation, especially for many farmers with small landholdings:

Fertility has reduced in farms. Do you see, you always dig at the same place. People had bigger farms. They dug some of it and the other was left to preserve it for the next season and then they went to the part that they preserved and dug it. ... And in those days, they planted sorghum, maize, millet. ... If you finished maize, they also went on sorghum and millet. So there was not a lot of starvation. Nowadays we are just following maize alone — that's why you see starvation disturbing us very much, because we are not planting sorghum, we are not planting millet. Do you see that? (L039)

Other soil management practices are intertwined with crop choice, because farmers carry out different soil management practices with respect to specific crops. These practices are further affected by variability in the microenvironment in terms of differing soils types and fertility within *shambas*. Conversely, labour inputs towards maintaining soil fertility are driven by crop type. As discussed earlier, women's willingness to invest in soil management is a function of security in tenure. Banana and vegetable plots strategically receive more inputs. This shows that variability in soil fertility is not just a characteristic

of physical geography, but is actively shaped (literally constructed) by women themselves for strategic reasons.

In this manner, women also shape their environments through the types of crops and the interrelated soil management practices they undertake. However, these choices are affected by historical changes and broader political-economic processes. This section will focus on major cash crops such as tea, coffee, maize, and French beans, as well as several subsistence crops, highlighting the dynamics of gender relations in driving decisions with respect to crop abandonment or uptake. Such an analysis adds other dimensions (gender and other axes of difference) to existing understandings of crop changes over time, including poor yields, high labour requirements, pests and diseases, land shortages, and preference for other crops (Carter et al. 1998, pp. 20–21).

It also brings into question the "hard and fast" assumption of African agriculture that within the gender division of labour men are responsible for and control cash crops, and women are responsible for subsistence crops. Upon hearing this assumption, one Logoli woman exclaimed: "Tell them that this is a lie." In fact, women in Maragoli actively cultivate both cash and subsistence crops, and are responsible for almost all activities pertaining to farming and soil management. Their degree of control of the proceeds from selling subsistence and cash crops is subject to several factors, including their personal relationships with their husbands and others in the household, their life-cycle and household positioning, their ability to negotiate control within conjugal and kinship relations, and the type of crop cultivated. As discussed, the few restrictions that remain within the gender division of labour pertain to planting trees and hedges, which affect the cultivation of crops such as bananas, tea, coffee, and fruit.

Before discussing the gendered dynamics of crop changes, it is useful to review the major shifts in the type of crop cultivated over time. The most significant of these involves the decline and abandonment of crops such as sesame, groundnuts, bambara nuts, finger millet, and sorghum (Carter et al. 1998, pp. 20–21). Table 6.3 presents an overview of the extent to which certain types of crops are grown today in Maragoli.

Table 6.3 Types and Instances of Crops grown in Maragoli.

Crop	**Percentage of households cultivating the crop**	**Crop**	**Percentage of households cultivating the crop**
Bananas	95	Tea	17
Common beans	68	Finger millet	17
Napier grass	67	Finger millet	17
Maize	63	Coffee	12
Sweet potatoes	51	Groundnuts	11
Cassava	44	Bambara nuts	1
Sorghum	31	Sesame	0
French beans	30		

Source: Reported by Carter et. al. through survey data collected from 105 households in Maragoli in 1995 (1998).

Tea and coffee

Tea and coffee are important export crops that were introduced in Kenya during the colonial period. However Kenyans were prohibited from cultivating tea and coffee until the enactment of the Swynnerton Plan in 1954. Logoli men were first to be forced to plant tea through government schemes. Later, women engaged in the cultivation of this crop. They established it as a source of monetary income and gained experience in the use of chemical fertilizers, sometimes applying them to other crops such as maize to compensate for declining soil fertility (Carter and Crowley 1997, p. 11).

Today, the government emphasizes the cultivation of both coffee and tea as a strategy to address the balance-of-payment problem in conjunction with SAPs (Mackenzie 1993, p. 80). Tea and coffee are two of the three top foreign exchange earners in Kenya (Staudt and Nzomo 1994, p. 425). In Maragoli, tea and coffee are cultivated on individual plots by farmers, but the desirability of growing these two crops is very different, with tea being more valued, especially by women. The valuing of tea over coffee relates to issues of monetary returns to labour input, frequency and method of remuneration, gendered control of the products from labour, and the importance of income generation from cash crops in today's economic environment.

In general, Logoli farmers prefer to grow tea, as it entails less work per kilogram of output than coffee. Tea is cultivated continuously throughout the year, and is brought to tea collection centres in baskets carried by women on predetermined days. One male farmer, with a large acreage of tea approximating four acres, explains the advantages of cultivating tea:

For coffee, you get nine shillings per kilogram. We are paid six shillings per kilogram for tea. But tea is better than coffee because, when you compare the time you work and how much they pay, coffee consumes so much and you don't get as many kilos as compared to tea. ... If you take good care of your tea, if you put enough fertilizer, you can pick about four times or three times a week. But for coffee, you spend all that time putting fertilizer, and you will only pick like four times a month. (L007)

Because of their ability to make contact with and access free agents from Uganda, economically wealthy farmers continue to cultivate coffee. The agents buy the crop for a higher price (15 shillings per kilo, as compared to the price offered by Kenyan coffee cooperatives, which varies between two and six shillings per kilo). However, this is not a viable option for most farmers, and the advantage of tea over coffee remains its frequency of remuneration. A female farmer explains:

I chose tea because of its income: you are paid on a monthly basis. (L008)

Photo 36: *"I like the tea very much. I've taken very good care of it. What I like most about the tea is that it gives me a very good income. At the end of the year it can give me a bonus of about 9,000 shillings. Every year it is different: sometimes it is high; sometimes it is low ... That is the reason that I love this tea I put the fertilizer from the tea authority — ammonia. They deduct it from your income. I also put here rubbish." (L008)*

Photo 37: *"I am applying fertilizer on the tea, and this other lady is weeding. I hire her for to work on my tea." (L007)*

Women see monthly payments as one of the critical advantages of growing tea, because these payments allow them to meet numerous economic demands in their everyday lives. The cultivation of tea also brings with it a yearly bonus, which is an added benefit to farmers. Not only do women view tea as a "good cash earner," they also see it as advantageous in terms of the gender control over the products of their labour, a situation that is more precarious in the cultivation of coffee. The payments for coffee cultivation in Maragoli are made to shareholders of the Kenya Planters Co-operative Union, who, as landholders, are predominantly men. On the other hand, payments for tea are made to the holder of the tea registration number, who is not necessarily the owner of the title deed to the land. It is easier to control the payment for coffee for an absent male. Women consider tea a highly valued crop because they are better able to exert control over the proceeds of their own labour, even in the absence of their husbands. The control of monetary payments earned from labour inputs is of utmost importance to women in today's economic environment, as one Logoli woman explains:

This year I've been able to send one boy and a girl to Form One because of the tea. So I feel tea is a very good crop because it has helped me to educate my grandchildren. And it will help other grandchildren. That's why I like it. (L008)

Women also exert control over the products of their labour by taking advantage of the taboos against men carrying baskets. Women's control over this end of the tea harvesting process gives them some degree of power, because they become familiar with officials at the collection centres, and, over time, and are recognized as the cultivators of tea.

Income generation is a high priority for farmers, because SAPs have created an erosion of real earnings, while escalating the costs of education and health care by shifting the costs

of social services to local people. While women in other parts of Kenya may withdraw their labour from coffee and divert it to other income-generating activities, such as large tea estates (Mackenzie 1993), Logoli women do not have such options open to them. Participants in this study, however, spoke of farmers uprooting their coffee bushes in an illegal, and final, act of resistance. During the return trip for dissemination and feedback, this trend was more pronounced. Farmers spoke of how few women continued to cultivate coffee, many had uprooted their coffee plants altogether. This is seen as a powerful symbol of women's withdrawal of labour into activities where they have more control over the proceeds of their labour. Women opt to withdraw this labour and divert it to other food crops, off-farm income-generating activities, or the cultivation of tea or French beans (although to a lesser degree during the return trip). They justify these actions by pointing to men's failure to fulfill responsibilities for "providing" adequate income to meet their livelihood requirements. However, in order to cultivate of tea, women require land, capital, and the input of men's labour for planting bushes, as planting trees and hedges is a taboo for women. If women are able to negotiate men's labour for the planting of tea bushes, they may cultivate tea in a large portion of available land, at the expense of food crops. Economically poor farmers view tea as a highly valued crop, and aspire to grow it. However, the cultivation of tea is unattainable for many because it involves high start-up costs and requires land availability and access to seedlings, as well as the availability and co-operation of husbands or male relatives to plant tea bushes. Nonetheless, due to recent changes in Maragoli — including the uprooting of coffee and the declining cultivation of French beans — tea has become the cash crop that many farmers aspire to grow.

French beans

The cultivation of a relatively new crop in Maragoli, French beans, was prompted by the introduction of a new cannery run by a French export firm in the area (Carter et. al 1998, p. 27).[58] The firm not only provides chemical fertilizer inputs and guaranteed prices, but also controls production, including screening the beans, placing limits on area of cultivation, and asserting rigorous controls on weeding, mounding, and fertilizer use. The cultivation of French beans — because the crop is "just a vegetable" — remains the domain of women. Because French beans are harvested twice a year, require intensive labour inputs, and are limited by area under cultivation, they are normally cultivated by economically poor to middle-income women who rely on their own labour (Carter et. al 1998, p. 27), and those who do not have access to capital or large tracts of land to grow tea. For women who are able to enroll in the scheme, it provides an important avenue for generating income. Similar to tea, this cash crop allows women to exert control over the proceeds of their labour to some extent in order to meet their monetary requirements. However, women also complain bitterly that their husbands assume a "supervisory" role in the cultivation of this crop. It is easier for men to control the proceeds of French beans from afar than it is for them to control the proceeds of tea, given the infrequent, yet pre-set, harvesting schedule for beans.

Since the main research for this book was carried out, there has been a drastic shift in the cultivation of French beans. Simply put, very few farmers continue to grow this cash

crop. This is because they find the monetary returns for their labour is not worth their efforts. According to farmers, the cannery now focuses on farmers in other areas, because many farmers in this study area are no longer willing to grow it. In addition to the ever-escalating costs of goods and services, the fact that women find it difficult to control the proceeds from growing French beans has made this cash crop no longer viable in Maragoli.

Maize

The cultivation of maize, at the expense of other staple crops, was expanded in Maragoli in order to meet the demands of the colonial hut and poll taxes (Crowley and Carter 2000). In response to high war-time prices for maize in the 1940s, farmers disposed of livestock en masse and transformed grazing land to agricultural land for the cultivation of maize (Kitching 1980, p. 236). Further incentives for cultivating maize included its larger yields per unit of land in flat and relatively fertile areas, and the potential for harvesting two crops per year (Crowley and Carter 2000). This transformation was most likely driven by women. The high levels of out-migration of men during the wartime effort led women to expand agriculture — as farming was women's domain — and focus on maize because of its high monetary returns for labour.

Today, maize is important as both a food and a cash crop in Maragoli. Only wealthy farmers with large areas of land are able to grow maize as a cash crop. Economically poorer farms are barely able to meet their own food requirements from maize and frequently have to supplement their requirements for maize through purchase. Harvested maize is taken to posho (maize meal) mills for grinding and is used to make ugali, a common Avalogoli meal. Both the making of ugali and the cultivation of maize are carried out by women. Given that economically poor farmers rarely produce enough maize for home consumption, women often sell maize through informal and non-formal petty trading, in effect, buying maize from wealthy households and traders in urban towns, and reselling it in their village markets or in Mbale for a small profit.

Maize is harvested twice a year. However, given the diminished availability of fallow land and the practice of crop rotation, double cropping has had deleterious effects on soil fertility (Crowley and Carter 2000). Although maize is commonly intercropped with beans, other soil fertility practices include the use of chemical fertilizers, organic manure, top-dressing, stover incorporation, and, in the case of wealthier farmers, crop rotation and fallowing.

Photo 38: *This photograph was taken by a 65-year-old farmer and widower. He describes it: "This maize has just grown. It is good that we have planted maize on the soil, on the plot, and I just wanted to show the early stages of the maize. When it grew, I thought it wise to take it this high, so someone can see even the spacing and the lines." (L045)*

The cultivation of maize produces an important soil fertility input, as maize stover is often incorporated into the *shamba* for mulching purposes.

Other crops

As outlined in Table 6.1 in the beginning of this chapter, many types of vegetables are grown in Maragoli. Indigenous vegetables include leafy greens such as *mito* and *mutere*. Exotic vegetables such as *sukumawiki*, cabbage, tomatoes, and onions were introduced in the 1920s and constitute both important food crops and cash crops sold in markets or roadside stands. Recent changes in Maragoli have prompted farmers to invest in "market-niche" crops. These include crops that have high cash potential in local and urban markets. During the return visit, farmers were experimenting with more marketable crops such as eggplant, garlic and leeks, and many farmers expressed interest in the marketing of, and access to seeds and information regarding such crops. Vegetable plots are located where residences were once located and constitute another micro-niche high in organic matter, which receives a concentration of nutrients, such as household and shamba refuse, ash, and manure.[59]Vegetable plots can potentially provide the sustenance needs of the household. Increasingly, and similar to banana plots, this is a part of the *shamba* that older women continue to control, even after other parts of the shamba may have been allocated to sons and daughters-in-law. Following the death of parents, this highly fertile part of the *shamba* is used to grow vegetable crops.

Photo 39: *"Now these are vegetables — the reason I planted them is that vegetables mature in a short period and it gives money fast. I have put maize stalks because these maize stalks add manure to the soil. I put because of the sun [to protect the soil from direct sunshine], and also, when they decompose, they form manure." (L020)*

Photo 40: *"This is a good picture because it shows we use vegetables. We consume everything. I planted these cow peas in rows so that I can follow the lines when plucking." (L028)*

Root crops, such as cassava and sweet potatoes, can be grown in marginal conditions where soils may be infertile and which receive minimal inputs. Women increase the cultivation of root crops when their labour is scarce (Carter et. al 1998; Berry 1993; Odaga 1991). Root crops such as cassava can be left in the ground for a couple of years without deteriorating and can be harvested throughout the year, allowing women to allocate labour to other labour-intensive on-farm and off-farm activities. However, increased instances of theft have made this practice more difficult. Also, root crops are associated with low economic status, and therefore are often cultivated in economically poor households.

Conclusions

When on-farm labour is analyzed from the perspective of different soil management and farming practices, the picture that emerges illustrates that within the gender division of labour, many on-farm roles and responsibilities that were 'traditionally' the domain of men have been off-loaded on the shoulders of women. Colonial policies precipitated men's out-migration and prompted land alienation and the inequitable distribution of land. They explain to some extent the erosion of men's roles and responsibilities for clearing land and grazing livestock. They do not, however, explain why men continue to participate in other responsibilities, such as planting trees and hedges. It is these one-time labour inputs that have remained the exclusive domain of men. This chapter contends that these activities remain a taboo for women because they denote men's control over land — its physical demarcation and boundaries. These demarcations, however, are not just physical; they symbolize men's land ownership, authority, and control. Similarly, taboos exist against women trading and owning livestock — activities that also represent men's authority over the control and ownership of "property." Both of these practices signify who is the "commander" and the 'head' of household (Abwunza 1997). Even this representation is symbolic, as much of the day-to-day labour on the farm is carried out by women. Transformations in roles and responsibilities have been limited by the Avalogoli patriarchal 'order,' which centres on retaining control over "property," as well as the ideology, norms, idioms, and taboos that regulate that control. This situation maintains power relations in favour of men in an environment in which these same idioms and norms are increasingly being challenged because of broader historical and political-economic processes.

Moreover, in today's economic environment, a drive towards income generation has had major implications on the withdrawal of women's labour from certain on-farm labour enterprises. The case of tea and coffee clearly demonstrates a diversion of energy, time, and labour to cash crops that give women better control over the proceeds of their labour. Hence, less land is available for food crop production on small landholdings, and this has meant that poor and middle-class farmers must increasingly purchase their subsistence needs from the market. Faced with a simple "reproduction squeeze" (Bernstein 1979), women may opt to maximize short-term economic gain at the expense of labour-intensive soil management and farming practices such as mulching, green manuring, or the application of organic fertilizers.

Because women have had to assume men's on-farm labour responsibilities, men's 'traditional' roles and authority are increasingly being called into question. This challenge has also been substantiated by men's failure to fulfill their roles as "providers" of income, and has escalated gender conflict and discursive politics within the household. The discursive politics are especially heated around the issue of providing food and school fees. By focusing on the monetary requirements of children and grandchildren — the debate often centres on failure to meet school fees — women point to men's failure in "providing," thereby creating room to maneuver and to control the products of their labour. Women use men's failure to meet either set of responsibilities as grounds to argue that men should provide other means to carry out these activities and meet their obligations. In response, men draw upon 'tradition' as a way of re-establishing authority and power relations. While some gender roles and responsibilities have been transformed — skewing the gender division of labour to the detriment of women — it has also opened spaces for women. This new freedom of movement has created women's expansion in off-farm income-generating activities and other off-farm coping strategies. As the next two chapters demonstrate, these new spaces provide the discursive ground necessary for "walking where men walk." However, this freedom of movement has come at a cost, namely, the intensification of women's labour burdens and responsibilities in sustaining livelihoods.

The extent to which women engage in soil management efforts is not only contingent on their diverse life circumstances and their access to and control over resources within different on-farm labour enterprises, but also depends on the amount of time, energy, and labour they invest in other 'off-farm' livelihood strategies and opportunities. This situation is captured in a statement made by an older Logoli woman:

[Even though] we plant two times a year, I don't have food. My plot is small. We now depend on purchased food. ... Those days, almost all the food came from the shambas — unlike now, when you have to buy almost everything. If you want to eat, you have to buy. You even buy vegetables ... (L017)

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[56] The increase in hedge planting for demarcation in Mbale is confirmed by aerial photographs taken between 1963 and 1978 (Carter and Crowley 1997, p. 11).

[57]In the first year, crop rotation involved intercropping finger millet and maize during the long rains, followed by pulses such as beans and bambara nuts during the short rains. In the second year, sorghum and maize were intercropped, followed by sorghum in the short rains. In the third year, either millet was planted, or soils were allowed to rest, or the land was planted with sweet potatoes, followed by finger millet, before being left as livestock pasture for three to four years (Crowley and Carter 2000).

[58]According to Carter et. al, 30 percent of those in Maragoli grew French beans in 1995 — a figure that had increased by 11 percent over 10 years (Carter et. al 1998, p. 27).

[59]In Maragoli, after the death of both parents, the house in which they dwelled is destroyed. The area where the house lay is then used as a vegetable plot. It is often high in soil fertility because it has not been cultivated over a long period of time, and has benefited from the inputs of household refuse and rainwater around it. As such, it is an ideal location for vegetable plots.
