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Livelihood Agronomic Management Practice Intensification, Crop Diversification, and Gender Aspects in Ethiopia

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Abstract: *A In this chapter a variety of methods were used to collect data to study smallholders in Ethiopian The surveys were complemented by a set of qualitative interviews to establish gender dynamics in agriculture and for livelihoods. Key informant interviews were conducted with agricultural personnel in the sampled districts and focus group discussions were held with some farmers. For a bigger picture of the agricultural policies and practices, the study relied on a review of key documents and publications by government and other agencies implementing agricultural programmes in the country. Descriptive statistics demonstrate that a shift from maize and tobacco to Irish potatoes, groundnuts, and soya beans in the areas under study has provided an opportunity for smallholder farmers to diversify and increase production and thus improve their livelihoods. Another noticeable change has been the increased participation of women in the production and marketing of crops.*

Keywords: *Ethiopian , intensification, crop diversification, gender, policies*

1. INTRODUCTION

Agricultural intensification is currently being promoted in Ethiopia from Amhara region as one of the strategies for achieving food security while at the same time improving rural livelihoods. Continual cases of food shortages, vulnerability, and poverty lend credence to the narrative of 'low maize productivity trap' which has characterized in Ethiopian agriculture since the 1980s (Devereux 2002, Chirwa and Dorward 2013). In view of the declining levels of productivity and challenges of land shortages, agricultural intensification and crop diversification are some of the ways in which rural livelihoods can be improved. This chapter builds on the idea of intensification by analysing the dynamics of agricultural production in the rural setting of Malawi. It focuses on two key issues: the gendered patterns of intensification and the diversification of crop production. The study sought to answer the following research questions: What factors are driving agricultural intensification in the Fogera study areas in south Gonder How is agricultural intensification affecting both male and female farm managers in the dera,lebo study areas? What is the relationship between agricultural intensification and crop diversification in the study areas?

Data for the writing of this chapter were drawn from the three rounds of the study. The research was conducted in four regions, namely: wenchet, jigna, bura, koket Valley. For this chapter, we used both the quantitative dataset and qualitative data. Qualitative data are only from the period of the third round of data collection and were only collected from three villages in two regions based on changes in the dataset between Fogera, lebo,Dera site area The three villages (Gumera, Jegena kidesthana, Korata,Wenchet, Koket,Bura, area near erebe larege irrigation scale . A detailed description of **(p.159)** the approach, sample design, and data collection methods and analysis has been provided in Chapter 1.

In this chapter, we analyse differences between households with male farm managers and those with female farm managers. We use the gender of farm managers because they are often the ones who make decisions regarding what to grow, how to grow it, and what to sell. In our sample, the proportion of

male farm managers did not differ very much from the proportion of households that were headed by men, and the same goes for female-headed households. Among female-headed households, 99.2 per cent had female farm managers and only 0.8 per cent had male farm managers. The opposite is true among male-headed households, where 97.5 per cent had male farm managers and only 2.5 per cent had female farm managers. This implies that more often than not, household heads were also farm managers.

The first part of the chapter provides an overview of the general agricultural policies pursued by the Malawi government since independence. Special attention is placed on demonstrating the aspects of intensification and diversification with regard to gender relations. The next section presents findings from the study and shows ways in which gender relations resonate with policy and practices when promoting intensification and crop diversification.

2. BACKGROUND

The role of agriculture in Ethiopia national development endeavours cannot be overemphasized. The sector contributes significantly to food security and rural livelihoods, employment, income, and exports. For instance, agriculture accounts for nearly 80 per cent of Ethiopia export earnings, contributes a share of 36 per cent of its GDP, and occupies 80 per cent of the workforce (Mwase et al. 2014). Despite the centrality of this sector, efforts towards intensification and diversification have had no effects on rural livelihoods (Chirwa et al. 2008). Indeed, although Malawi has followed the spirit of the Maputo declaration to the letter by consistently allocating more than 10 per cent of the national budget to the agricultural sector, the problem of food shortages has not disappeared. The recent postcolonial history of Malawi has been characterized by frequent famines and food shortages. Many questions have been asked as to why the country continues to experience such disasters when the Ministry of Agriculture has traditionally received a significant amount of budgetary allocation compared to other sectors. Indeed, a lot of investment has been made in food production, raising incomes for farmers, soil fertility improvement programmes, and technology transfers. However, the impact has been adversely affected by persistently poor harvests and increasing impoverishment since the 1980s. In part, this is due to the **(p.160)** country's overreliance on rain-fed agriculture as well as low technology uptake by smallholder farmers (Chirwa et al. 2008). This is manifested in the recurrent food shortages, the dwindling export base, and the flood of agricultural imports which have severely depressed local production (Harrigan 2003, Peters 2004b).

Chirwa and Dorward (2013) have suggested three phases in understanding the development of Malawi's postcolonial agricultural policies. The first phase, spanning the period from 1964 through 1980, is described as pre-reform and was marked by state regulation of the agricultural industry. The state intervened in areas of production, extension, technology development, and marketing of agricultural produce. Alongside donor support, government made significant investments through the integrated rural development programme. Input subsidies were also made while a state parastatal dominated in the marketing of peasant-produced crops. Both men and women participated in different agricultural activities and in some cases they were organized in farmers' groups in order to access inputs.

The second phase was ushered in by the adoption of Bretton Woods structural adjustment programme conditionalities in the early 1980s. The agricultural sector underwent some major reforms including the removal of subsidies and liberalization of trade. The real turning point occurred in the 1990s when, as a result of liberalization of trade and the withdrawal of subsidies, the agricultural sector virtually collapsed. The Agricultural Development and Marketing Corporation's (ADMARC) functions of cushioning and moderating input and producer prices to the advantage of smallholder farmers were withdrawn from the agricultural sector, and this served as a deterrent to production. In addition, the private sector began to play a role even though its performance has not been very satisfactory, and cases of abusing the smallholder farmers have been reported (Chirwa 1998). Moreover, the market information system was inadequate to address farmers' needs. Finally, the prices of farm inputs were too high for the smallholder farmers. By 1994, however, agricultural productivity remained relatively low as poverty and vulnerability were exposed by the food shortages of 1987 and 1992–4. The poor members of society, including women, suffered most under the effects of these reforms. But the reforms also revealed structural weaknesses in the economy, including the slow growth in exports, the lack of diversification, and overreliance on tobacco exports (Chirwa et al. 2008).

The third phase is the post-reform, covering the period after 1994 to the present. Agricultural policies developed during this period reflect the political climate of competitive politics where increasing agricultural productivity is necessary for both achieving food security and for enhancing political patronage. It is a phase sometimes marked by inconsistencies in policy formulation and implementation. One issue that has attracted a considerable **(p.161)** amount of debate is that of the input subsidy programme. Before liberalization in the 1990s, the government used to run an input subsidy programme, particularly for fertilizer and seed. Although the programme was meant to stimulate smallholder maize production, it benefited the estate sector as well. For instance, large-scale commercial farmers could buy fertilizer at the same price as the smallholder farmers. The unfortunate part is that smallholder farmers were not allowed to grow high-income crops and remained with maize production. There was little diversification in terms of the crops grown. The greatest beneficiaries of the subsidy were therefore producers of high-income crops such as tobacco. However, in the 1994/5 growing season, Malawi liberalized the fertilizer market by introducing competition into the domestic smallholder market and reducing the monopoly of the Small Farmer Fertilisers' Revolving Fund of Malawi and ADMARC. The result was that fertilizer prices went up so high that not many farmers could afford to buy them. Consequently, production reduced drastically and Malawi began to experience food shortages in the mid-1990s, and the country began to import maize in order to meet the national food requirements (Chirwa and Dorward 2013).

In order to mitigate the effects of food shortages, the government intervened by introducing the Starter Pack Programme in the 1994/5 farming season which was later substituted by a Targeted Input Programme (TIP) in the 1996/7 farming season, whereby small quantities of packaged seed and fertilizer were distributed to needy farmers. Women, the elderly, and persons living with HIV/AIDS were particularly earmarked for this scheme. However, the subsidy was too little to have any meaningful impact on the country's food security. In addition, emphasis was largely on maize production. The food shortage situation was never completely addressed, as evidenced in the hunger crisis of 2002 (Devereux 2002, Dorward et al. 2004). The Agricultural Productivity Investment Programme (APIP) was another intervention in the 1990s aimed at increasing maize productivity. Funded by the European Union, this programme provided subsidized credit scheme facilities to smallholder farmers to increase maize productivity. However, by the early 2000s it was established that smallholder production of maize was inadequate to enable farmers to repay the loan on the basis of maize alone. Hence, diversification strategies were introduced to encourage the production of legumes (Government of Malawi 2007, Chirwa et al. 2008).

Literature on land tenure and the role of women in agricultural production and the differential access to resources is abundant (Kishindo 2004, Kerr 2005, Peters and Kambewa 2007, Peters 2010). As is the case in many parts of Africa, women perform most of the production tasks ranging from planting to harvesting of crops. At the same time, they attend to the various household chores like cooking, fetching water, and caring for children. While land in **(p.162)** the study areas is traditionally owned by women, decisions on the use and management of produce is controlled by men. Women face further constraints to production including labour and technology, as both men and women depend on farming for their livelihoods but men tend to have greater opportunities of participating in wage employment and non-farm income activities.

3. Intensification Policies and Gender Dimensions

The state has remained an important actor in efforts to increase agricultural productivity and to achieve food security. For instance, in 2006, the government came up with the Agricultural Development Programme whose aim is to harmonize the investment and support programmes in agriculture which have the highest potential for contributing to food security and agricultural growth in the next five years. It is a prioritized, results-based framework for implementing agricultural components of the Ethiopia Growth and Development Strategy (EGDS). It has identified key constraints of the agricultural sector and the required investments within the context of national and regional contexts. It is essentially an operational tool of the MGDS in the area of agriculture, food security, irrigation, and disaster risk reduction. On agriculture, the idea is to increase the contribution of the sector to economic growth through production of food crops and value added for domestic and export markets (Government of Malawi 2007).

Intensification has been promoted as one of the strategies for addressing the challenge of low agricultural productivity. The introduction of input subsidy programmes, although in a modified form from previous initiatives, was aimed at increasing productivity of principally the maize crop. In the 2004/5 farming season, government introduced the farm input subsidy whereby farmers were provided with coupons to buy hybrid seed and fertilizer at subsidized prices. Although heavily criticized by some donors, the programme registered an increase in production to the point of temporarily making Malawi a self-sufficient nation. As in previous subsidy programmes, women and other vulnerable groups were the main targeted beneficiaries (Levy and Barahona 2002, Chinsinga and O'Brien 2008, Chirwa and Dorward 2013, Mwase et al. 2014).

Ethiopian agricultural development has been driven by several factors including the promotion of irrigated agriculture, the subsidy programme, and the opening up of rural markets. One of the interesting aspects of liberalization has been the emergence of elite private groups trading in agricultural commodities. While the participation of the private sector has in some cases been instrumental in providing market opportunities in the rural and often **(p.163)** hard-to-reach areas (Sitko and Jayne 2014a), the situation in Malawi shows that private traders have generally been exploitative. Civil servants and businessmen have taken advantage to establish small-scale companies, sometimes 'briefcase' companies for the purpose of participating in the market opportunities opened up with liberalization. The problem is that they have squeezed out the small farmers since they have knowledge of the markets (Chirwa et al. 2008).

Private traders have been quite active in the marketing of produce. Again, the most accessible areas have benefited from private sector participation. For input supply it is mainly fertilizer, and this again has been controversial. There have been complaints of delays and selectivity in the areas private traders target. Sometimes this has been attributed to political influence and not market principles of demand. Chirwa (1998) has argued that although the gains and losses are not clear-cut, the major losers of these policy reforms are smallholder farmers who buy maize at high and volatile prices. These net food buyers are generally low-income or wage earners in urban and semi-urban areas and smallholder farmers in remote areas. These groups have suffered as a result of increased consumer prices and seasonal price instability for major food crops. Chirwa (1998: 91) further argues that 'remote areas which cannot be accessed by private traders are losers because most of the markets in such areas were also closed by the state marketing agency. The closure of markets meant that net food buyers did not have access to surplus maize while net food sellers had difficulties in selling the surplus maize to private traders at better prices.'

More recently, government implemented the Irrigation, Rural Livelihoods and Agricultural Development (IRLAD) project which promoted some aspects of intensification. Funded by the International Development Agency, the US$65 million project sought to raise agricultural productivity of rural households by providing an integrated package of support covering irrigation, production advisory services, and marketing between 2006 and 2012. With more than 40 per cent of the beneficiary households being female-headed, IRLAD intensified production of maize and rice as a way of achieving food security. At the end of the implementation period, the project contributed towards increasing farm income and building of institutional capacity for irrigation development in several districts of the country (Government of Malawi 2012, Government of Malawi 2015). The results of this project run contrary to the findings of Ricker-Gilbert et.al (2014), who argue that while areas of higher population density are associated with smaller farm sizes, there is no evidence of intensification. They show that households have not experienced any increase in maize yields per hectare, but instead tend to rely more on off-farm income to earn a living.

(p.164) Diversification Strategies and Gender Dimensions

Although the debate on agricultural diversification in Malawi has been going on for decades, the structure of the country's economy has remained relatively the same (Orr and Mwale 2001, Simtowe 2010, Chibwana et al. 2012, Asfaw et al. 2015). Concern for the country's overreliance on tobacco and maize has been expressed by a diverse group of stakeholders including government, donors, and partners. At the national level, initiatives have been introduced with qualified success. The European Union supported government with €23 million (approximately MK4.6 billion[1]) for the Farm Income Diversification Programme (FIDP) from 2009 to 2015 (Zant 2012). The recently ended phase

one aimed at increasing food security and income levels of rural households, while at the same time ensuring sustainable use of soil and water resources by encouraging agribusiness development and improved marketing of agricultural products. It focused on the areas of soil conservation and water management, organization of rural communities, promotion of agribusiness initiatives, and improvement of capacities of rural communities to access and develop post-harvest agricultural activities and provision of timely and relevant training in horticulture. The second phase of the programme aims at improving the livelihoods and nutritional status of rural households through increased and diversified production, and better market access. Having learnt lessons from phase one, FIDP II uses an integrated approach and seeks to address the need: to diversify and increase agricultural production; to promote income generation through agri-business initiatives with the involvement of the private sector; to improve FIDP farmer group management capacities; to improve FIDP farmer group social dynamics; to halt and reverse the decline of the natural resource base; and to capacitate farmers and district level staff on nutrition issues (Zant 2012).

The declining natural resource base and climate variability have been viewed as some of the factors influencing farmers' adoption of crop diversification. The report by Asfaw et al. written for the FAO (2015) shows that climate variability is one of the main drivers of diversification in developing countries. In the context of Malawi, the study showed that climate variability determined the likelihood of diversification in terms of labour, cropland, and income. In terms of gender, women were less likely to diversify their labour than men. This means that as a risk-management and shock-coping strategy, diversification would afford male farmers more opportunities to increase income security than women farmers.

(p.165) At the national level, Malawi has several alternative crops to replace or supplement the traditional ones like maize, tobacco, sugar, and tea, but whose market outlook looks poor, partly due to high transportation costs. Yet the need to diversify production has become necessary in order to optimize returns to the land and labour. The major constraint to intensification and diversification in Malawi include high transportation costs and market infrastructure. In the 1990s, paprika was unsuccessfully promoted as one of the cash crops to diversify Malawi's economy. In more recent years, the food crops being earmarked for diversification include cassava, sweet potatoes, Irish potatoes, pigeon peas, and bananas, while cash crops include groundnuts, soya beans, macadamia, and paprika (Zant 2012, Asfaw et al. 2015, CISANET Nd).

Studies on diversification in Malawi reveal structural challenges for its large-scale uptake. In his study of the determinants of livelihood diversification in Malawi, Simtowe (2010) argued that female-headed households were more likely to combine agriculture with casual labour than merely relying on agriculture. In addition, access to credit was another factor that determined the process of diversification as households with easy access were unlikely to diversify away from agriculture. Female-headed households which generally earned less income from agricultural production had limited opportunities to supplement income apart from engaging in casual labour. Another study by Chibwana et.al (2012) demonstrates that while there is a positive correlation between participation in the input subsidy programme and the amount of land used for planting maize and tobacco, empirical findings showed less diversification. This is due to the fact that farmers allocated more land to maize and tobacco and less land to crops such as groundnuts and soya beans.

Recent agricultural policy developments in post-independence Malawi demonstrate that while so many policies with good intentions have been formulated and implemented, the challenge of achieving food security has remained elusive. The country continues to experience frequent food shortages which are largely due to anthropogenic factors. The failure of intensification programmes to increase food production and food security remains as critical now as it was twenty years ago.

4. Discussion of Findings

This section presents key findings from the study by looking at issues of intensification and gender, crop diversification, and gender dynamics at household level. It shows how these ideas relate to specific aspects of the empirical data from the study.

(p.166) Intensification and Gender

Agriculture remains the main livelihood activity for farmers in the four regions. Farmers have been using the same fields for a long period and growing the same kind of crops, dominated by maize. There are relatively few new areas where farmers could get additional farming land if they wanted to expand. Instead, further fragmentation is taking place where the same units of land are being shared among members of households. It was common for a household to have more than one plot at different locations. Some of the farmers who had slightly larger plots in Ethiopia were found to have reduced plot sizes by the time of Amhara When asked to explain, the majority indicated that they had given out part of the land to their grown-up children. This was also confirmed by key informants both in the villages and among agricultural extension staff.

The farming land is still owned and inherited through the maternal side of the family, but in the case of married couples the farms are usually managed by men. In the quantitative study sample for Afrint III, 68.7 per cent were male farm managers while 31.3 per cent were female farm managers. Each household cultivates the family gardens and the produce is almost wholly used for home consumption or for sale if there is some surplus.

Most farmers depend on rain-fed agriculture although in some areas *dimba* (stream-bank gardens and low-lying areas using residual moisture during the dry season) fields are increasingly being utilized. The rainy season, which usually starts around November and ends in March or April of the following year, is the busiest and most active period for farming communities. *Dimba* fields have become important means of supplementing food requirements for households but also as sources of income. Empirical studies by Chinsinga (2007), Peters and Kambewa (2007), and Peters (2004a) also underscored the importance of *dimba* cultivation to household food security. Commonly grown crops during the winter season include maize, beans, tomatoes, and cabbages. Farmers who cultivate more than once a year have reported an increase in income levels as well as a general improvement in their livelihoods.

Estimated mean landholding that was put to the production of maize was, across the three rounds of surveys, less than 1 ha (Table 7.1). Holdings cultivated by households with female farm managers are slightly smaller than holdings cultivated by households with male farm managers and the differences are not statistically different. The household average yield of maize in the first round was no more than 4,668 kg/ha. This average has, over the years of the study, decreased to 1,092 kg/ha during round II and increased slightly in Afrint II to 1,248 kg/ha.[2] These findings are consistent with results from others **(p.167)** studies where the average yield in 2003/4 was 4,823 kg/ha, while between 1997/8 and 2002/3 it ranged between 1,274 and 1,309 kg/ha (RATES 2003: 10). Just as with average landholding sizes devoted to the growing of maize, the mean maize yield among households with female farm managers were in all rounds significantly less than the averages among households with male farm managers. Across the three seasons, the mean difference in production between households with female managers and those with male managers were not statistically significant across the three periods, but yield was slightly in favour of households with male farm managers.

Table7.1. *Mean area under maize cultivation (ha) and maize yield (kg/ha) by sex of farm manager*

					Afrint II				**Afrint III**			
	Male	**N**	**Female**	**N**	**Male**	**N**	**Female**	**N**	**Male**	**N**	**Female**	**N**
Mean area under maize cultivation	0.15	167	0.13	136	0.88	222	0.61	171	0.87	275	0.65	125
Maize yield	4,882	163	4,406	133	1,096	222	1,087	171	1,257	197	1,235	140

Note: a. N equals the number of respondents who answered the questions in that category.

Information and Technology

Apart from the amount of land that is devoted to a crop, the variety of seeds that a farmer uses matters as well. Our findings reveal that in the four districts under study, about 50 per cent of the households used traditional maize seed in the farming and this is consistent across the three rounds of the study. The other half used hybrid seed, and very few used open pollinated varieties or composite seeds. There are no significant differences between households with male farm managers and those with female farm managers. The widespread use of traditional seed varieties could be because of lack of resources to acquire these, but it could also be a result of limited knowledge regarding the value of planting improved seed varieties due to lack of extension services. Our study revealed that more than 50 per cent of the respondents had never received extension advice in the three rounds of the survey, and the percentage is as high as over 90 per cent in round III. Slightly more respondents from households with female farm managers had never had any extension advice than respondents from households that had male farm managers.

Another factor is the availability of fertilizer, particularly through the agricultural input subsidy programme, which has in some ways improved productivity. In principle, it is meant for needy members in the villages and **(p.168)** especially the elderly, widows, and female-headed households. All such needy people are registered and they are supposed to get inputs. But there have been many operational challenges with the implementation of this programme. Sometimes village heads decide to distribute inputs to all residents in the village disregarding their socio-economic status. In other cases, the coupons are not enough, so that the needy people get only a pail and the rest may not get anything at all. The local criteria, however, means that all fertilizer is shared widely so that it is used by more people. This subsidy programme also encouraged the splitting of villages partly to increase chances of benefitting from the inputs but also to avoid conflicts in the village. But the criteria for registering beneficiaries have been changing every year depending on the amount of resources available at national level. At village level, generally, the typical amount of fertilizer available and the number of beneficiaries have been declining over time. This could be responsible for the decline in yields as seen earlier, and this is regardless of the gender of the farm manager since levels of poverty in the villages tend to be the same.

5. Crop Diversification

As alluded to earlier, over the years maize was the main crop that every household was supposed to grow to ensure that the household was food secure. In the face of climate change, dwindling land sizes, and reduction in the productivity of maize there has been a push from both the state and non-state actors for households to diversify the crops that they grow. Results of this study show that people have slowly taken to the idea as most households grow several crops and not just maize. When presented with demand, farmers tend to respond positively as is the case with increased production of groundnuts, soya, and the hybrid varieties of potatoes and maize. Although most of these crops were being grown in some areas in the past, respondents interviewed during the qualitative fieldwork indicated that production was generally low (women's focus group discussion in Chikwanje, 24 November 2012 and men's focus group discussion in Nkhwangwa, 26 November 2012). They further pointed out that low prices and absence of markets in the area were some of the reasons for low production. The interest in diversifying crop production may be attributed to farmers' sensitivity to market opportunities as well as a strategy for coping with climate variability. Table 7.2 demonstrates that more than 50 per cent of the sample over the three rounds grew more than four different types of crops.

Analysis of the number of crops that people grew by gender of the farm manager shows little difference in households where farm managers were men and where farm managers were women. Only in round III were differences significant at the 10 per cent level, with female-managed farms (FMFs) on **(p.169)** average being slightly less diversified. This means that all households regardless of the gender of the farm manager are diversifying probably because they are all subjected to the same kinds of environmental and economic conditions. There are slightly fewer females diversifying probably because of the need to produce food for their households.

In this study, we classified maize, rice, and sorghum as the major crops that people grew. When we consider a combination of the three, most households in that respect grow one of the three crops (Table 7.3). This is true of the data from rounds I, II, and III. In all rounds, more households that had female farm managers than those with male farm managers grew one major crop. Thus, in terms of major crops grown there was little diversification, especially among households with female farm

managers in the last two rounds of the study. This implies that when it comes to issues of diversification, the gender of the farm manager does not matter. Since what we classified as major crops are largely subsistence crops, there is one crop that is dominant and that is maize. Messages of diversifying into other food crops may thus not be working.

The predominant crop grown by most people was maize. More than 95 per cent of the households interviewed across the three rounds grew maize. Less than 25 per cent grew rice and less than 2 per cent grew sorghum. Sorghum is one of the crops that is being slowly left out and replaced by other crops, both for food and non-food purposes. Differences between households with female farm managers and those with male farm managers were significant at the 5 per cent level for rounds I and II, but the differences were very small for both years and therefore need to be interpreted with caution.

(p.170) Other Crops

Apart from what are regarded as staple food crops, households in the study sample also grew other food crops, including vegetables, beans, sweet potatoes, groundnuts, peas, plantains, cassava, Irish potatoes, and millet (Table 7.4). Except for beans, peas, and cassava, a higher proportion of farms with male managers grew these crops than those with female managers. These are crops that are usually sold for cash. This may suggest a gender dimension that male farm managers grow crops that are usually sold while crops that are predominantly grown for consumption are the responsibility of women. In most cases, more than a third of households that grew other food crops, including vegetables, sold them. This was the case regardless of whether the household was headed by a man or a woman. The differences between the households were rather small. In round one though, the differences in the share of female- and male-headed households that grew several of the crops were statistically significant. Likewise, in Afrint II differences were statistically significant for several of the crops. In the final data collection round, however, it was only households that grew sweet potatoes and those that grew millet that recorded significant differences between male and female farm managers.

Table7.4. S*hare of households that produced other food crops, by sex of farm manager, At Fogera,dera,lebokemkem site I, II, and III*

	Fogera						**Dera**						**lebokemkem**					
Vegetables	71.4	168	60.4	134	11.0	**	40.5	195	40.1	152	0.4		68.1	276	69.8	126	−1.7	
Beans	60.1	168	58.5	135	1.6		68.6	194	71.4	154	−2.8		55.1	276	60.3	126	−5.2	
Sweet potatoes	61.9	168	57.0	135	4.9		46.7	195	47.1	153	−0.4		58.0	276	49.2	126	8.8	*
Groundnuts	42.9	168	33.3	135	9.6	*	47.2	195	28.8	153	18.4	***	50.0	276	43.7	126	6.3	
Peas	20.2	168	32.6	135	−12.4	**	18.6	194	35.7	154	−17.1	***	36.6	276	38.1	126	−1.5	
Plantains/bananas	35.7	168	44.4	135	−8.7	*	23.6	195	31.2	154	−7.6	*	38.4	276	32.5	126	5.9	
Cassava	12.4	226	25.0	172	−12.6	***	18.1	226	29.1	172	−11.0	***	27.2	276	31.0	126	−3.8	

	Fogera						Dera						lebokemkem					
Irish potatoes	27.4	168	12.6	135	14.8	***	24.9	193	14.4	153	10.5	**	20.7	276	15.9	126	4.8	
Millet	11.3	168	11.9	135	−0.6		14.0	193	13.0	154	1.0		13.8	276	21.4	126	−7.6	**

Note: a. N equals the number of respondents who answered the questions in that category.

Further investigations into crops that people grew showed that very few households grew non-food cash crops and these were mainly cotton, sugar cane, and tobacco, which were dominated by households that had male farm managers (Table 7.5). Thus, when it comes to growing high-value crops, households with female farm managers are in a minority. In round I, the only statistically significant difference between proportions male and female farm managers were those growing tobacco. In round II it was those growing tobacco and those growing sugar cane. In round III, significant differences were recorded for all the three crops.

Table7.5. *Proportion of households growing non-food cash crops by sex of farm manager*

	Fogera						Dera						Lebokemkem					
	Male	**N**	**Female**	**N**	**Diff.**	**Sig.**	**Male**	**N**	**Female**	**N**	**Diff.**	**Sig.**	**Male**	**N**	**Female**	**N**	**Diff.**	**Sig.**
Cotton	1.2	168	0.0	136	1.2		3.6	136	2.9	170	0.7		9.1	276	4.0	126	5.1	*
Sugar cane	14.9	168	15.4	136	−0.5		7.6	136	2.4	169	5.2	**	14.9	276	5.6	126	9.3	***
Tobacco	20.8	168	4.4	136	16.4	***	14.7	136	1.8	170	12.9	***	14.1	276	2.4	126	11.7	***

Note: a. N equals the number of respondents who answered the questions in that category.

(p.171)

(p.172) Crop Diversification Initiatives and Livelihood Changes

Commercialization of non-staple food crops was introduced by either NGOs or special production and marketing programmes. In Ntchisi, several organizations have been actively supporting commercial production of groundnuts, soya, and maize. These include World Vision and the National Association of Smallholder Farmers in Malawi, which provide groundnut seed. Farmers are expected to pay back at the end of the harvesting season double the amount of seed they received. In Thiwi Lifidzi, the Foundation for International Community Assistance, a micro-finance organization, has been organizing farmers to establish credit groups. Women in particular have benefited a lot from the Credit Union of Malawi Organisation, another NGO providing credit facilities, which facilitated the opening of a bank account from which farmers get loans to buy inputs. They have also been quite instrumental in securing markets for produce. Concern Universal used to support farmers through implementation of the APIP. A few donors also supported projects such as the Rural Economic Enhancement Project, which linked potato and groundnut farmers to markets like Universal Industries Limited. Similarly, the International Potato Centre project has been supporting farmers to increase production and marketing of potatoes in the two districts (key informant interview with District Agricultural Development Officer, Ntchisi, 23

November 2012; and District Agricultural Development Officer, Dedza District, Thiwi Lifidzi, 20 November 2012). Although the NGOs and micro-finance institutions provide an important service to the rural farming communities, the challenge is that they tend to operate in localized areas. Hence the results may be difficult to replicate or even scale up beyond the designated areas of intervention. In addition, regardless of the success of the projects, most donor-supported initiatives tend to fall off when such support phases out (Shivji 2006).

Some noticeable improvements in the livelihoods since the previous rounds of the survey were mentioned in the qualitative interviews. In many of the villages, and particularly in Khasu, there are more houses with iron sheets, the number of people keeping cattle has gone up, and in general more people can send their children to school. These changes can be attributed to increased income from the sale of crops. Farm-gate prices have also increased; for instance, a 200 kg bag of potatoes was selling at MK12,000—13,000 if sold to a vendor in the village—but the price went up to MK15,000 if sold at Chimbiya market. Farmers considered this to be a reasonably high increase from what they used to get in 2007/8 and this encouraged them to grow more potatoes (key informant interview with lead farmer at Khasu village, 21 November 2012).

One of the greatest challenges for farmers remains the issue of marketing. For example, while a market point exists at Chimbiya which is situated some **(p.173)** twenty kilometres away from Khasu, few farmers can afford to transport their commodities and be assured of getting reasonable prices in good time. In the villages of Chikwanje and Nkhwangwa, Ntchisi *boma* (town), situated at a distance of between twenty and thirty kilometres, is the main market outlet for farmers produce. This situation has created space for the entry of middlemen, commonly known as vendors. Since the economic liberalization of the 1990s, middlemen from urban areas have penetrated many rural farming areas where they offer highly variable prices. In some cases they offer competitive prices, and in other cases they exploit farmers with rates that are below production cost. Farmers complained that vendors exploit them in many ways, such as through tying up of weighing scales, bargaining, or mixing up the figures.

6. Contribution of Farming to Household Income

Farming appears to be the backbone of rural livelihoods in Malawi, as most income was drawn from farming-related activities. Analysis of variance in round I shows that differences between households with male farm managers and those with female farm managers in terms of incomes from sale of non-food cash crops, non-farm salaried employment, and remittances were statistically significant, but remittances were skewed towards female farm managers. In round II the significant differences had increased and were now found in all farm-based sources of income that involved the sale of produce (staple crops, other food crops, non-food cash crops, and animal products). With the exception of the sale of animal produce, these differences remained in round III. Diversifying into these types of crops therefore seems to pay dividends, but has also led to widening gender gaps in commercialization.

7. Gender Dynamics at Household Level

The two rounds of this study revealed that maize and vegetables are the most predominant crops that people grew. Earlier studies in ethiopia (Dorward et al. 2008) demonstrate that the ratio of maize growers in the country's four regions varied between 93 per cent and 99 per cent. This is consistent with the findings of this study as 98.7 per cent and 98.8 per cent of households with male and female managers, respectively, grew the crop in round II. The corresponding proportions in round III were 99.6 per cent and 99.2 per cent, respectively. Rice, on the other hand, was only grown in one of the regions covered by the study and sorghum was hardly grown at all. Patterns of production and growth are really based on the geographical location of the households. Rice could only be grown in one region because that is where conditions were ideal for production of this crop. What is striking about other **(p.174)** food crops though is that these are grown everywhere and, in all the Rural Development Programmes, more households with female farm managers grew crops that were used as relish or used with relish as condiments while households with male farm managers grew crops that could be sold. This indicates that for households with female farm managers, consumption was given more priority than cash generation.

Most households grew maize over one season but intercropped with other crops basically to fully utilize the small land holdings and to take advantage of some of the extension messages. Most people grew

either hybrid or local maize and very few grew the improved varieties. Data from qualitative research indicated that this was the case because improved varieties are labour and input demanding and difficult to store after harvest (men's focus group discussion, Nkhwangwa, 26 November 2012). Production has generally increased over the years but some households are still food insecure. This is not very different from the situation in other countries in the Southern African region (Sitko and Jayne 2014a). As Chirwa et.al. (2008) show, maize production had, over the past four decades, been growing in real terms but this growth has failed to keep pace with the population growth, a fact that has led to some commentators advocating for the idea of feeding the African population through increased imports of maize. Households with female farm managers in our sample are thus worse off, and over the years they consistently produced about half of their male farm manager counterparts. Holden and Lunduka (2013), in a study of who benefited from Malawi's targeted input subsidy programme, also noted that households with female farm managers were more likely to be net buyers as they produced significantly smaller amounts of maize than households with male farm managers. Whiteside (2000) points out that a disproportionate number of households with female farm managers in Malawi can be described as poor or very poor. He also argues that micro-level studies have shown that households with female farm managers are particularly labour constrained, a fact that makes it difficult for them to take advantage of off-farm employment.

Some of the maize that is grown is sold, most of it to traders from the village and briefcase traders (vendors) from outside the village. Results show that the price of maize over the years had got better (in particular, 14.3 per cent of the respondents in round III indicated that prices had got worse, while 78.6 per cent indicated that prices had improved), but only 40 per cent of the sample indicated that the volume of maize that they sold had increased. This is probably because the volume produced had also diminished because of the decrease in land sizes.

(p.175) Conclusion

This chapter started by raising three research questions regarding gender dynamics in agricultural intensification in the Fogera research areas of Amhara region It has been established that the desire to achieve food security has largely been responsible for propelling Ethiopian to adopt and implement agricultural intensification. But such intensification has not been systematic as policy changes have generally not been well coordinated. Many of the policy interventions were designed to benefit women and other vulnerable groups through an increase in farm income and food security. It has also been demonstrated that the declining land sizes and the provision of market opportunities have encouraged the process of crop diversification. Although government has in most cases formulated policies on diversification, implementation has until recently not been aggressively promoted. It is mostly NGOs and some donor-supported projects that have taken the lead, as confirmed by empirical evidence from our research sites. These organizations are actively organizing women to form groups so that they can access credit and inputs for effective production and marketing of their crops. NGOs are usually concentrated in small areas, but the initiatives would be of more benefit if they were replicated and up-scaled across the country.

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