

# CONTRIBUTIONS OF COMMERCIAL SMALL-SCALE FARMING TO FOOD ACCESSIBILITY – EXAMPLES FROM KENYA

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## Introduction

In the context of a globalising world and a globalising economy the problem of the existence of a large number of people still facing hunger and food insecurity has not been solved. Even further, discussions have taken place about whether small-scale farmers in the Global South would be better off not engaging in global capitalism – e.g. through export production – but focusing instead on self-supply strategies in order to produce enough food and not become dependent on volatile markets, high prices, and the vicissitudes of the global food situation. However, such a self-supply strategy might run the risk of earning insufficient money for an adequate and healthy diet. This paper offers evidence that a mixed strategy of self-supply and commercial production can be a practical solution to achieve sufficient food security.

Especially since the 1990s food security has emerged as a frequently discussed topic in research and society. Annually, the *Food and Agriculture Organisation* (FAO) publishes a report about ‘*The State of Food Insecurity in the World*’ (SOFI). These reports show that particularly in Sub-Saharan Africa hunger is still a common problem. Furthermore, even those people who are not affected by hunger often lack a healthy diet. While especially hunger problems were mostly linked to the problem of food availability, more recent studies and applied work further focus on the dimension of food accessibility. In this context the purchasing power of a household is seen as key factor for accessing food. As a result, an often-discussed strategy for farmers is to move from subsistence farming, with the aim of producing their own food directly, to a strategy of producing cash crops, most notably for export, in order to make money to buy food. Following this highly discussed argumentation this article is concerned with the food access of commercial horticultural small-scale farmers in the Mount Kenya region. The central questions include: What is the situation with regard to these farmers’ households’ food access? What does the case of food access of commercial horticultural

small-scale farmers in the Mount Kenya region teach us about issues of food security? What variables influence their households’ food access? To what extent does the households’ involvement in commercial horticulture, and global markets, influence the situation of food access, and therefore food security?

## Food Security and Access to Food

Food security is given when “all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO 1996). Following Ingram (2011), guided by the FAO definition, this concept should be seen in the broader context of food systems. Within food systems there are activities – such as the production and processing of food raw materials – and outcomes, such as e.g. food security. Food security incorporates three dimensions:

1. Food availability;
2. Food accessibility;
3. Food utilisation (cf. Fig.1).

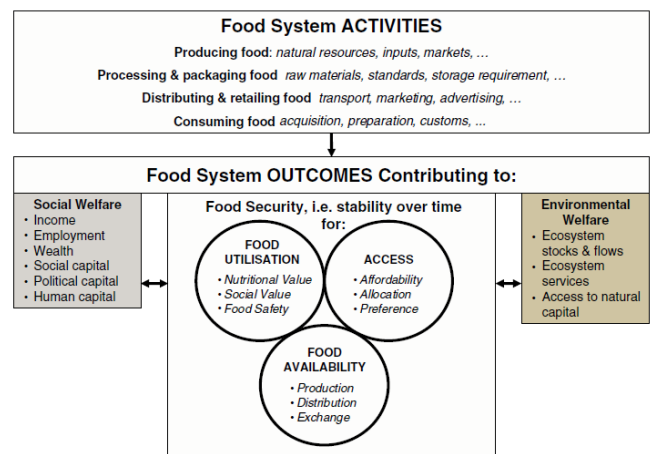


Fig. 1: Food System Activities and Outcomes (Ingram 2011, p.421)

Food availability is marked through the production, distribution, and exchange of food products. The safety, and the nutritional and social value<sup>10</sup> of food are parts of the food utilisation dimension. Food access is influenced by the purchasing power of the household and the relative affordability of food; the allocation of food products; and individuals’ preferences. “Food availability is necessary but not sufficient for access, and access is necessary but not

<sup>10</sup> The social value of food products is determined by social, political, and economic functions generated through the consumption of specific types of food. Ingram, J. (2011) A food systems approach to researching food security and its interactions with global environmental change. *Food Security*, 3, 417-431.

sufficient for utilization” (Webb et al. 2006, p. 1405). This study focuses on food access. “Access has been defined as a household’s ability to acquire enough food of sufficient quality to have all its members meet their nutritional requirements and lead productive lives” (Labadarios et al. 2011, p. 891). While Ingram defines food access as outlined above, this study follows the related definition of the FAO, which is more suitable in an empirical study. According to the FAO (2014), food access could be divided into *economic access*, measured with the domestic food price index, *physical access* as an infrastructural component, and the *prevalence of undernourishment*.

On the household level different access strategies are used to attain food security. One strategy to provide especially economic access in rural areas is cash-crop production in order to buy food. On the other side critics argue, from a perspective of food availability, that it is questionable to use scarce resources (e.g. land, irrigation water) for cash-crop production, instead of using them for household food provision (Brigham 2011, Idalinya 2012). In this context it is also generally discussable as to what extent cash-crop production is a possible strategy for all farmers, or rather only for a capable minority while potential negative effects affect the broader community (e.g. reduction of water availability).

### **Horticultural Farming in Kenya and the Mount Kenya region**

In the rural areas of Kenya, as in nearly every rural region of Sub-Saharan Africa, agriculture is the main contributor to a household’s livelihood, and as a result has a vital impact on the food security of most households. Commercial horticulture in Kenya is seen as a possibility for generating income and reducing poverty of rural households (Muendo and Tschirley 2004). Following this, horticultural production is regarded as a chance to improve the food access of those households involved by raising their incomes (Afari-Sefa 2007). However, keeping in mind possible conflicts between food- and cash-crop production, a deeper understanding of the food security situation and strategies of such farmers is needed.

In the Mount Kenya region cash-crop production is highly concentrated, and the region is known for a rapid growth of the horticultural export sector, mainly to countries in the European Union. Land holdings in the area – typical for Kenya – are generally less than 15 ha and

managed by family ventures. Since the 1990s horticultural export production has become the most important form of income in the region. Export products are, above all, French beans, snow peas, avocados, and mangoes. In 2005, about 4000 horticultural farmers in the area were producing for export (Dannenberg 2011, Dannenberg and Nduru 2013). However, even in Mt. Kenya a lot of farmers do not produce for export and most export-oriented small-scale farmer households in the region follow a mixed strategy in producing cash-crops for the export and domestic market as well as food crops for own consumption (Muendo and Tschirley 2004). To compare these different groups of farmers with different markets, incomes, and strategies and their influences on food accessibility, this study includes farmer households who produce for the horticultural export market and those who sell their produce at the local markets.

### **Data and Methodology**

The presented study is the outcome of a student thesis based on an empirical study of six weeks in February and March 2015. Following our research questions, a mixed methods approach was used, consisting of 88 quantitative questionnaires completed by farmers, and 29 qualitative interviews with farmers, extension officers, and employees at the *Ministry of Agriculture, Livestock and Fisheries (MALF)* and the *Horticultural Crops Directorate (HCD)*<sup>11</sup>.

In this research design, access to food is the dependent variable, and is measured through components of the households’ economic and physical access, as well as the prevalence of undernourishment. The monthly income level of the household was used to operationalize the economic access (Webb et al. 2006). The distance to the nearest food market and the type of transport used were indicators for physical access. Undernourishment was mainly captured by household data about the frequency of consumption of grains, vegetables, fruits, dairy products, meat, and fish, as well as the number of meals consumed. Additionally, the proportion of the households’ total farming production devoted to food-crop production was also a measure for the dimension of prevalence of undernourishment (Masekoameng and Maliwichi 2014). Food security or insecurity was captured

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<sup>11</sup> A detailed description of the data collection process and the qualitative and quantitative analysis can be found in Pargen, L. (2015): Zugang zu Lebensmitteln von Kleinbauern in der Mount Kenya Region. *Bachelor Thesis*. University of Cologne.

through the occurrence of food shortages during a year and the number of months characterized by food shortages (Coates, Swindale and Bilinsky 2007).

The first step of the statistical analysis was to verify a relation between the variables of food security and the variables used to operationalize the different access dimensions. Subsequently, variables which could have an impact on the access dimensions were tested. Data from the qualitative interviews were used to identify influencing factors on the farmers' food security and to interpret the quantitative results.

## Results and Discussion

In total 19 farmers in our sample produced for local markets, 65 farmers produced for export and local markets, and four farmers produced only for export. All surveyed farmers also produced food crops for own consumption. This already suggests that it is important for small-scale farmer households to achieve a certain balance between cash-crop production for income-generating purposes, and food-crop production for household consumption in order to have sufficient access to food.

However, 44% of the 88 interviewed households were still affected by food shortages during the year, and thus were classified as food insecure. Food shortages imply merely a restricted access to higher-valued food products like meat, fruits, and vegetables. Basic food products like maize, rice, and milk are still available. A greater part (49% of 39) of the food-insecure households face food shortages during two months of the year. Strengthening the findings of KFSSG (2011), food insecurity viewed from the food-access angle is not a striking issue. Following this, food insecurity may not be a so much a problem of food accessibility, but rather a question of food utilisation.

Food shortages during a year	Quantity	Valid quantity
yes	39 (44.3%)	45.9 %
no	46 (52.3 %)	54.1 %
	Missing 3 (3.4 %)	Total 100 %

Fig. 1: Food shortages during a year

Contradictory to FAO's assumptions (2014), there was no relevant relationship found between the infrastructural variables of the physi-

cal access and the occurrence of food shortages during a year. Our interviews indicated that this is due to the small nearby shops offering a basic stock of food products. Otherwise, both prevalence of undernourishment and economic access variables have an impact on households' food security, as measured by food shortages during a year.

Furthermore, our results showed no significant differences in food shortages between the export-oriented farmers and the non-export-oriented farmers. However, by taking a closer look at other related factors, significant differences appear.

A relation was revealed between the proportion of farmland used for export cash-crop production and the monthly income. This underlines the high economic value export production can have in relation to domestic market strategies (see also Afari-Sefa 2007, Dannenberg and Nduru 2015).

A further link exists between the economic access, measured by monthly income, and the occurrence of food shortages during a year. A higher monthly income of the household apparently leads to better food access and therefore enables food security. Furthermore, a higher monthly income decreases the duration of food shortages.

The proportion of farmland used for food crop production, a measure for the prevalence of undernourishment, has an influence on food access. Farmer households that allocate more than 10% for own consumption purposes are more likely to access enough food. Nevertheless, it is remarkable that households using more than 30 % of the farming land for food crop production have a tendency to be affected by food shortages, but this group of farmers is too small to exhibit a strong argument. This indicates that at a certain level the ratio of food production to cash-crop production (given the limited available land) becomes too high, and the outputs of cash-crop production become too small. Supporting Masekoameng and Maliwichi (2014) our study underlines that the combination of commercial income and food-crop production can be an important and useful strategy to assure food security.

The results further exhibit a relation between the gender of the farmer in charge and the occurrence of food shortages during a year. As other studies have already stated (Kassie, Ndiritu and Stage 2014, Ivers and Cullen 2011,

Mallick and Rafi 2010), if the farmer in charge or the head of household is male, the household is more likely to access enough food. According to the literature this gender effect can be explained as being due to male-headed households having greater access to resources like land, income, markets etc. However, this could not be verified by our data.

A key factor for food security however is water: In the dry season farmers are in severe competition over water, especially for their irrigation. Confirming earlier studies (Falkenmark 2010, Besada and Werner 2015), 90% of those classified as food-insecure households stated that the dry season and the associated scarcity of water induced food shortages. Investments of the government and non-governmental organizations are already targeting these issues.

As mentioned above, it can be problematic to use scarce resources for cash-crop production instead of food-crop production. Hence, a replacement of traditional food crops through cash crops for income generation could pose a problem for food security in the Mount Kenya region in general. Indeed, our results show that the proportion of land used for export cash-crop production has a negative impact on the proportion used for food-crop production. However, the proportion of land used for export production is negatively influencing the proportion of land used for local cash-crop production to a greater degree. Thus, producing cash crops for the export market is more at the cost of land otherwise used for cash-crop production for the local market than it is at the cost of the proportion of farmland providing crops for own consumption. Hence, farmer households are able to produce both cash crops for the export market and food crops for own consumption purposes. In this way a mixed strategy – which in the literature is discussed as being challenging (e.g. Brigham 2011) – is possible.

From an individual farmer's perspective this means that export-oriented cash-crop production can be a useful strategy to gain income and achieve economic food accessibility without reducing one's own food production and availability. (For broader political development strategies the decision-making process is more complex, as e.g. different capabilities of farmers and related problems of unequal distribution of wealth and potential external negative effects have to be taken into account).

## Conclusion

In sum, food insecurity among horticultural small-scale farmer households in the Mount Kenya region is not severe; at the most it is a temporary issue influenced by water scarcity. However, the food security of the analysed farmers is affected through the economic access dimension. A higher monthly income contributes to a better food access situation in those households. A larger proportion of the farming land being used for food crops increases the households' food access, yet only up to a certain threshold. Households with a male person in charge of the farming business, and sufficient access to water for irrigation, are better off in the dimension of food access and therefore food secure.

Our results underline that a mixed strategy, which includes food and cash crops in this context, can be a reasonable approach to achieve a relatively high level of food security. While generally it can be challenging for farmers to find the right balance between food and cash crops, the strategy of moving from local commercial food production to the high-value export production without eliminating food-crop production has turned out to be practicable so far. For farmers, mixed production of cash crops and food crops can be a possible strategy to ensure economic access and reduce the prevalence of undernourishment to reach food security. This indicates that a balanced integration of small-scale farming households into global markets may offer a good chance for farmers to achieve food security. As a result, such mixed strategies should be considered as options for achieving food security in similar agricultural production systems in Africa and the Global South. Policy-makers should however also keep in mind the specific capabilities of the farmers involved, and consider that often not all farmers are capable of following such strategies.



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