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Improving Benefits from Marginal Lands: Contribution of Homegardens to Household Income Generation in the Bieha District of Southern Burkina Faso

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Introduction

Homegardens (HGs) are common in most tropical countries and they play a vital role in supporting households (HHs) in many diverse ways, including the provision of food, fuelwood, building materials, fodder for livestock, and cash income. They are regarded as a source of income diversification and also play a crucial cultural and social role in rural communities. Fernandes and Nair (1986: 279) define homegardens as 'land use practices involving deliberate management of multipurpose trees and shrubs in intimate association with annual and perennial agricultural crops and invariably, livestock, within the compounds of individual houses, the whole crop-tree-animal unit being managed by the family labour'. Although HGs are primarily used for subsistence purposes by HHs, they are increasingly being used to generate cash income (Mendez et al., 2001). It is a common misconception that HGs are exclusively subsistence-oriented, whereas in fact they provide HHs with cash crops as well as food crops (Hoogerbrugge and Fresco, 1993). The quantity of homegarden (HG) production that actually gets sold is highly variable, differing from one household (HH) to another. In a study of HGs in Indonesia, Hoogerbrugge and Fresco (1993) reported that between 9% and 51% of production is sold. Okigbo (1990, cited in FAO, 2004) also reported that the sale of livestock and tree crops produced in HGs in southeastern Nigeria accounted for over 60% of family cash income. Despite the critical role that HGs play in both food security and income generation, very little research has been conducted on them in Burkina Faso. This study was therefore to determine the contribution of HGs to annual incomes of HHs.

Materials and Methods

The study was conducted in a village called Prata in the Bieha Department of Sissili Province of southern Burkina Faso. Prata is located some 14km away from Bieha and is inhabited by three main ethnic groups – the Nuni, Mossi and Fulani. The average annual precipitation in the area is between 800 and 1000 mm but inter annual variability is said to be high (Ouédraogo, 2006). Data was collected between March and May 2011. The study made use of a combination of qualitative and quantitative research methods for gathering relevant data. Rapid Rural Appraisal tools (review of secondary data, observation, and key informant interview) were used to generate initial information about trends and status of homegardens (HGs) in the area. Information was collected from both primary and secondary sources. Quantitative data was generated by the use of household survey (questionnaire) and field survey. Using systematic sampling, eighty (80) HHs were selected for the survey. The homegarden size of each sampled HH was measured and they were subsequently divided into three categories - small (0.1-1.5ha), medium (1.6-3ha) and commercial (>3ha) - based on size. Data was collected on the composition of animals, trees/woody plants, and crops present in the sampled HGs. Each sampled HH was asked to mention all their sources of income per year. For HGs, respondents were asked to disclose the quantity of each crop that they harvest per year (in bowls or bags) and also the estimated market

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prices per unit quantity of each HG product. The income from other HG products such as livestock or even tree products were also quantified in monetary terms. A market survey was also conducted to help validate prices of HG products reported by HHs. The income generated from all possible sources per year was estimated and the total annual income generated was then calculated. The contribution of HGs to the total annual income was calculated as percentages.

Results and Discussion

The study revealed that all the surveyed HHs manage HGs composed of trees, food crops and animals. Majority (43%) of HHs own small HGs (Table 1) due to land constraints. Eighty percent (80%) of respondents indicated willingness to increase HG size but were restricted by land and labour. It was found that farmers of the area mostly obtained their income from HGs, farms and business but do not have any other source of income besides these three sources. In fact, most HHs (70%) did not have any business and solely relied on their HHs and farms for both food and cash income. Trees were excluded from the analysis due to lack of quantitative information about cash generation. As seen in Figure 1, HGs generated over 60% of HH income for all categories of HGs. HHs owning small and commercial HGs both had 75% of their annual income from HGs, though crops and animals contributed different percentages for these two categories (see Table 1). For income generation from business, medium homegardeners recorded the highest percentage (5%) followed by commercial and small homegardeners with 4% and 2% respectively.

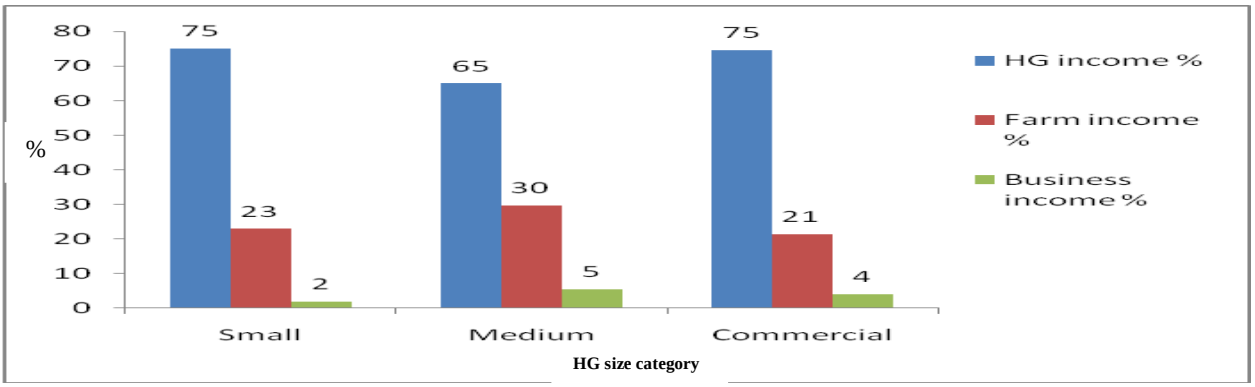

Figure 1 Contribution of different sources to household income based on calculation from yields

Table 1 Contribution of the crop and animal components of homegardens to household income

	Sources and percentage contribution to household incomes - based on total incomes (calculated)				
Size category	**No of households**	**HG crop value (%)**	**HG animal value (%)**	**Farm income (%)**	**Business income (%)**
Small	34 (43%)	7	68	23	2
Medium	28 (35%)	17	48	30	5
Commercial	18 (22%)	45	30	21	4

Table 1 presents an interesting result which shows the relative importance of crops and animals in the HGs. It can be seen that the percentage of income generation from animals is higher for small and medium HGs (68% and 48% respectively). For commercial HGs, however, the contribution of the crops to income generation is higher (45%) than the value of the animals (30%). It is realized that as the size of HG increases from small to medium to commercial, the value of animal component decreases while that of crop component increases. This may be because as the size of HG land increases, the financial value of the crops also increases but also when the size of HG is smaller, then the members of the household have more time to commit to animal rearing than for bigger HGs. Abdoellah et al. (2006:11) observed that "the commercialization of homegardens has led to a decline in animal husbandry, thereby eliminating another source of both nutrition and cash". The decrease of animal value with increasing HG size may also point to the

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fact that the number of animals a household rears does not really depend on the size of the land available. This is because the animals in the area are kept on extensive basis where for example cattle are taken far into the bush to feed daily. In some peculiar cases, some HHs were found who had several cattle but a very small piece of HG land for cultivating crops. Such HHs however had good yields of their HG because of the animal droppings.

From Figure 2, the correlation between number of crop species in HGs and HG crop value (in USD) at Pearson coefficient of 0.338 was significant (P<0.01).

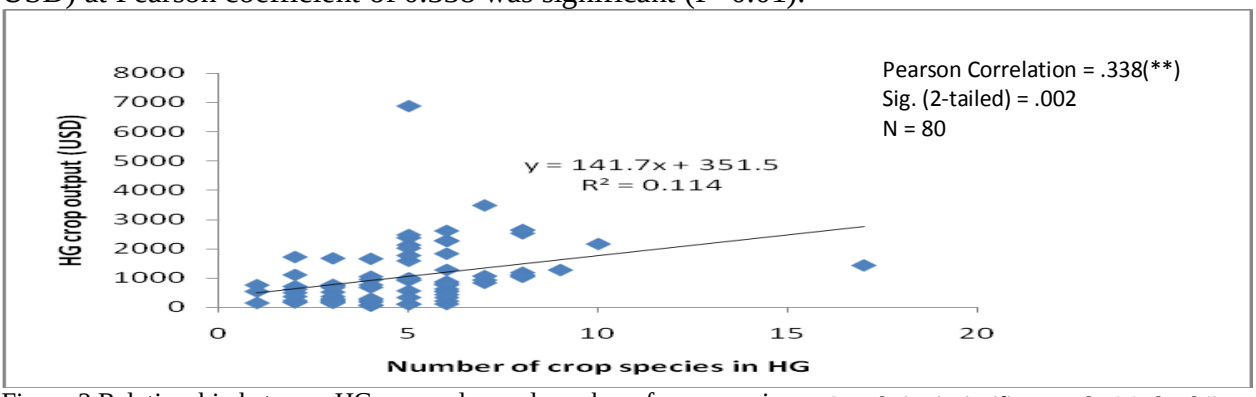

Figure 2 Relationship between HG crop value and number of crop species **** Correlation is significant at the 0.05 level (2-tailed).**

This implies that there is an increase in HG crop value with corresponding increases in number of crop species found in HGs. This may be because when a HH plants a variety of crops, it reduces risk of complete failure and also ensures that there is diversity in income sources. For example, when the price of one crop goes too low in a particular year, a HH with a variety of crops can still make good money from another crop whereas another HH with only one crop would be more severely affected by such price fluctuations.

As seen in Figure 3, it was found that 18% of HHs sold none of their HG crop products, 15% of HHs sold up to 20% of their products, 23% sold up to 40% of their products, 28% sold up to 60% of their products while 13% sold up to 80% of their products. Only 5% of HHs sold between 80% and 100% of their products. This implies that as much as 82% of the surveyed HHs sold some of their HG products.

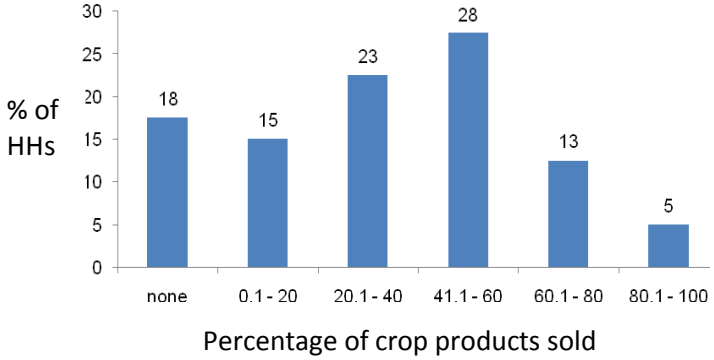

Figure 3 Percent of HG products sold by all households

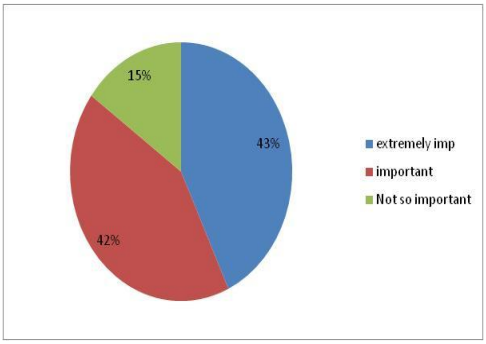

Figure 4 Importance ranking of HGs in HHs

This result is supported by research findings from other parts of the world. For example, in a study of Russian HGs, FAO (2004) reported that two-thirds of all HHs obtained some income from their HGs. Similarly, in the Hellen Keller International (HKI) pilot HG project in Bangladesh, 54 percent of HHs reported selling HG products and earning the cash equivalent of 14.8 percent of total average monthly income (HKI/AP 2003 cited in FAO, 2004). In total, an estimated 50% of the total HG products were sold. The quantity of HG products sold is variable

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in different HGs and in different regions of the world. The results of this study are close to the findings of Hoogerbrugge and Fresco (1993) who reported that "between 9% and 51% of HG products are sold". It was observed that most of the farmers who sold a high percentage of their products usually cultivate perishable crops like potatoes, and vegetables (such as tomatoes, onions, and cabbage) or commercial crops like cotton which cannot be used for food at home. On the other hand, those who sold less of their products usually cultivated crops like cereals and peas which can be stored for longer periods of time. In addition, such crops are staple foods and hence are very important for household food security. It was found that, farmers sell such non-perishable products during emergency situations such as to access health care or pay school fees. When asked to rank importance of their HGs (Figure 4), 43% of the households (HHs) reported that their HGs were extremely important to them, 42% reported that their HGs were important while another 15% indicated that their HGs were not so important to them. This means that all HHs are fully aware of the significant contribution that their HGs play in their livelihoods.

As seen in Figure 5, the proportion of HHs who did not sell any of their HG products is greater in small HGs (38%) than in medium (3%) and commercial (0%).

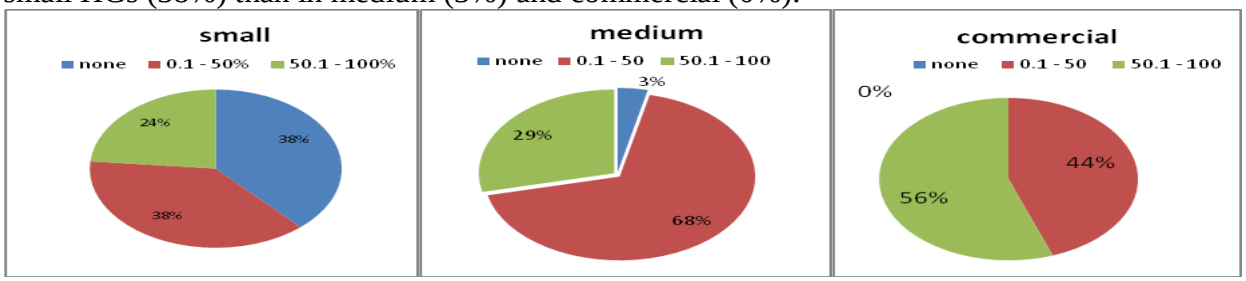

Figure 5 Percent of HGs products sold by HHs for various HG size categories

In contrast, the percentage of HHs who sell over 50% of their products is highest in commercial HGs (56%) followed by medium (28%) and the lowest in small HGs (24%). This implies that small HG owners are more particular about food security at home.

Contribution of trees to Household income generation

As stated earlier, trees were not included in the quantitative analysis because respondents were unable to provide good information on the contribution of trees to their income generation. Despite this lack of quantitative information, it was revealed that households acquire varying amounts of income and other non-cash benefits from both the natural and planted trees in their homegardens. Important uses included; fruits, vegetables, fuelwood, fodder, medicine, timber, carving, as well as provision of shade or even soil conservation. Some households reported that they were able to sell some tree products although these were not regular sources of income.

Conclusions and Outlook

The discussions have all pointed to the fact that HGs have been and continue to be of immense importance in supporting the livelihood of the rural poor. The role that HGs play towards income generation is becoming more and more important as population grows and land becomes fragmented. The percentage contribution of HGs to income generation varies depending on several factors such as HG size, species of crops, trees and animals managed, access to market and amount of inputs. HHs can increase their income generation potentials by diversifying sources of income. For example, there seems to be too much over-reliance on the crop component to the neglect of the tree and animal components which can equally generate huge amount of income. Over time, HGs have not been static but rather have been constantly modified by farmers to meet demands of society. Considering their multiple functions, it can be suggested that the HG is a sustainable production system. In recent times however, the loss of soil fertility, commercialization of HGs among others seem to threaten their sustainability. More research is required to ensure that HGs are able to adapt to the rapidly changing situations.

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