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Hidden Overburden of Female-Headed Households in Guar Bean Production: Zimbabwean Experience

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Abstract

The study was done on a guar bean-growing project in Makachi area, Zimbabwe. The study objectives were to determine ownership of resources, time spent on production and access to information by male-headed and female-headed households. Data collection and analysis were based on the FAO Gender Analysis Framework. Results showed that male-headed households had more ownership of resources and spent less time on production; access to information was equal; female-headed households allocated a greater proportion of their land to guar bean production and matched their male counterparts in the mean yield. While inter-household exchanges helped female-headed households access draft power and farming equipment, obligations associated with these exchanges were found to be a source of overburden to female-headed households.

Keywords: Zimbabwe, female headed households, agriculture

Introduction[7]

In recent years it has become increasingly clear that sustainable implementation of rural development projects is a function of socio-economic and gender context in which they operate. This realization is in line with the formulation of the Food and Agriculture Organisation (FAO) Gender and Development Plan of Action 2002-2007 whose main goal is to help rural men and women achieve sustainable development and food security by promoting a gender sensitive approach in the formulation of rural development policies, programmes and projects (FAO 2004). Gender analysis is important because productivity and efficiency are enhanced when interventions are targeted towards the actual users. However, hitherto the situation has been disappointing because there is a general failure to: address women's real priorities; include input from

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women in the planning or design of new technology; provide women with a choice of alternatives and establish any viable communication networks at the local level to assess community level impact (Carr 1999)

Gender analysis should start with interhousehold dynamics and then filter into intrahousehold dymamics. There is need to pay attention to interhousehold dynamics because different household structures have different resources and face different incentives. This variation in type is as important as ecological differences for designating appropriate recommendation domains (Feldstein and Poats 1990). Feminization in the agriculture sector is growing especially between 1990 and 2003, due to armed conflicts, natural disasters, embargoes and migration (FAO 2004). The number of female-headed households is increasing, in Egypt they represent almost 30% (FAO 2004) and in Zambia they constitute 31.2% of rural households (Carr 1999). The increase in the number of female-headed households coupled with the emergence of child-headed households triggered by the HIV and AIDS pandemic generate a significant need to analyse interhousehold dynamics.

The guar bean (*Cyanopsis tetragonoloba*) project, introduced in Zimbabwe in 1998 (Nyamapfene and Mugova 2002) provides a good case for interhousehold analysis because the project is still in its infancy and therefore provides a good example of technological change. This is in view of the fact that several other complex needs arise out of technological change. These needs, which include knowledge of new technology, extension services, and participation in rural organizations, determine the accessibility of the technology to rural women (Carr 1999). The use of Participatory Extension Approaches (PEA) in the implementation of the project further puts the project into a unique setting worth studying. This is because innovative approaches to extension, "that of using gender analysis and participatory approach facilitate client- oriented extension planning" (Percy 2001: 84) and hence are claimed to improve the situation of the disadvantaged groups in a society.

Guar bean is commercially grown for its seed, which contains guar gum (galactomannan). Guar is a deep-rooted drought-tolerant summer annual legume and this makes it a good crop for intercropping with crops like maize with shallow fibrous roots since it draws water and nutrients from deep down the soil reducing competition between the crops. The crop has various uses among which are vegetables for human consumption, fodder crop, soil fertility improvement through biological nitrogen fixation. In the food industry the gum is used as a: viscosifying agent in sauces and dressings; stiffener to improve the consistency of ice creams and yogurt; stabilizer in fruit beverages and juices, cheeses and alcoholic beverages; preservative in frozen foods and baked foods such as bread and biscuits; gelling agent in jams, jellies, fruit spreads and jelly sweets and binding agent in salad dressings, instant noodles and processed meats. Guar gum is also used in industries, which include; mining, textile, paper manufacturing, pharmaceutical, cosmetic, explosives, fire fighting, paints, mosquito repellant coils and oil well industries.

Analytical Framework

The gender analysis framework Asian Development Bank (2005:9) was employed as the main template for data collection and analysis. In this study however, the activity profile was not used in the conventional way since households were not disaggregated,

instead time spent on key production activities by the male-headed and female-headed households was considered.

The objectives of the study were to establish:

1. Ownership of land, livestock and farming implements by guar bean producing male-headed and female-headed households;
2. Time spent on guar bean production by male-headed and female-headed households and,
3. Access to information by guar bean producing male-headed and female headed-households.

Methodology

Study Site

The study was conducted in Rushinga district, Makachi area which falls under Natural Region IV that receives low and erratic rainfall ranging between 450-650mm per annum. Farmers in this area rely on rain-fed agriculture. The major crops grown in the area are cotton, maize, groundnuts and millets. Cattle and goats constitute the main livestock species in the area. The soils in the area are predominantly granite-derived sands with low inherent fertility.

Sampling Frame

The total numbers of households in the area is 320 and of these 56 households grow guar beans. A sample of 60 respondents comprising 30 guar bean-growing households, 30 non-growing households was purposively selected for the study. Non-guar bean growing households were included so that demographic and economic factors of the entire population could be inferred. Though small, the sample size meets the minimum of 30 units or sample values usually required for statistical analysis (Wilkins-Wells and Laitos 1983).

Data Collection

A structured questionnaire was used for administering interviews. The research team also visited farmers in their villages to observe the area cultivated and the different crops grown. Secondary data was collected from organizations that are collaborating in implementing the project that included the Intermediate Technology Development Group (ITDG), The Department of Agricultural Research and Extension (AREX) and Farmers Association of Chief/ Headman Investment Groups (FACHIG).

Data Analysis

Descriptive statistics were used to assess ownership of land, cattle and ploughs in guar bean production. The independent samples t-test was used to investigate the existence of significant differences in the number of hours spend by men and women in guar bean production and the frequency with which male-headed and female-headed households get information on guar bean production.

Findings

In this section the findings for the study are presented. Firstly socio-demographic data is presented in order to give some characteristics of the study sample. Thereafter findings directly related to the objectives of the study are presented.

Household demography

Table 1. Types of households

Type of household	Guar bean production status during 2004/05 season	
	Growers (n = 30)	Non-growers (n =30)
Male headed	24 (40%)	21 (35%)
Female headed	6 (10%)	6 (10%)
Child headed	0 (0%)	3 (5%)

The data in Table 1 show that the sample has more male-headed (75%) than female-headed households (20%) with child headed households constituting 5%. No child headed household grew guar bean.

Sources of Income

Table 2. Major source(s) of income for households

Majors source(s) of income	Guar bean production status during 2004/05 season	
	Growers(%)	Non-growers (%)
Crop sale	57	40
Informal local employment	13	33
Remittances	7	0
Crop sale and Livestock sale	10	10
Crop sale and informal local employment	10	7
Crop sale and fruit selling	3	7
Crop sale and remittances `	0	3

Results in Table 2 indicate that 57% of guar bean growing households and 40% of non-growing households get most of their income from crop sales.

Resource Ownership among Guar Bean Growers

Table 3. Resource ownership by type of household

		Type of household	
		Male-headed (n = 24)	Female-headed (n = 6)
Land size (ha)	<3.64	10 (42%)	6 (100%)
	≥3.64	14 (58%)	0 (0%)
Number of cattle	0	2 (8%)	4 (67%)

	1-3	5 (21%)	1 (16.5%)
	≥4	17 (71%)	1 (16.5%)
Number of ploughs	0	3 (12.5%)	6 (100%)
	1	17 (71%)	0 (0%)
	2	4 (16.5%)	0 (0%)

Table 3 shows that all guar-bean growing female-headed households own less than 3.64ha of land while the majority of male headed households, 58% own at least 3.64ha of land. A Chi-square test of association between sex of household head and land ownership showed that there is a significant relationship ($p < 0.05$).

For male-headed households growing guar bean, 8 % have no cattle, 20% have less than 4 cattle, while the rest have at least four cattle. For female-headed households, 67 % have no cattle, 16.5% have less than 4 cattle and 16.5% have at least four cattle. A Chi-square test of association between sex of household head and cattle ownership showed that there is a significant relationship between sex of head of household and cattle ownership ($p<0.01$).

The results show that plough ownership among female-headed households is 0% while 87.5% of male-headed households own at least one plough. A Chi-square test of association between plough ownership and sex of household head shows that there is a significant relationship ($p <0.001$).

Time devoted to guar bean production by male-headed and female-headed households.

Table 4. Time devoted to guar bean production per hectare per season

Activity	Mean time spend in hours ± SD		Significance
	Male-headed households (n = 24)	Female-headed households (n= 6)	
Land preparation	163±82	262±242	NS
Sowing	59±15	119±37	***
Hand weeding and thinning	161±183	225±141	NS
Weeding with implements	74±40	109±44	NS
Harvesting	156±86	346±222	**

Results in Table 4 show that female-headed households devote more hours to guar bean production than male-headed households. There is a significant difference in the number of hours spend by men and women in sowing and harvesting.

Farmers' access to information on guar bean production

Table 5. Frequency of getting information on guar bean production.

Activity	Mean Number of times ± SD	
	Female-headed households (n = 6)	Male-headed households (n = 24)
Planting	2.83±2.24	3.26±1.66
Weeding and thinning	3.20±2.17	2.71±1.49
Harvesting	3.67±2.52	2.40±1.26
Marketing	1.00±0	2.60±1.76
Utilization	3.20±2.17	2.75±1.81

Table 5 shows that there is a balance in the frequency at which male-headed and female-headed households receive information on guar bean production ($p > 0.05$).

Table 6: Acreage and quantities of guar bean sold by male and female-headed households in the 2003/2004 season.

	Type of household	
	Male-headed	**Female-headed**
Land size (ha)	0.42	0.40
Quantity sold (kg)	46.26	33.33

Table 6 shows that on average, in the 2003/2004 season, female-headed households grew 0.40ha of guar bean and male-headed households grew 0.42 each of guar bean. In the same season, female-headed households sold 33.33kg of guar bean and male-headed households sold 46.25kg each on average. Differences in size of land and amount of guar bean sold were not significant $p<0.05$.

Discussion

Male-headed households dominated guar bean production compared to female-headed households. This is because the population has more male-headed households than female-headed households as shown in Table 1.

Most of households growing guar bean had crop sale as their major source of income, implying that crop farming is their major source of livelihood. Gross margin analysis (Z$/Ha)[8] done for guar beans, cotton, sugar beans and sorghum in 2002 gave the following amounts 18403.70; 4836.91; 48118.85 and 7228.62 respectively (Nyamapfene and Mugova 2002). Guar bean performed better than cotton the major cash crop in the area hence it has high potential as a cash crop in the area. The better performance of guar bean was mainly due to its lower input costs and competitive market price.

Female-headed households had less ownership of land, cattle and ploughs; therefore, they were constrained due to resource limitations. Cattle provide draft power needed in preparing the land for growing the crop, cultivation and carrying the produce to

[8] At the time 1US$ = 30Z$

the market. Ploughs make land preparation and weeding easier. However, in spite of their low resource endowment female-headed households matched their male counterparts in terms of mean area of land allocated to guar bean and mean quantities of guar bean sold. In fact female-headed households allocated a greater proportion of their land to guar bean than male-headed households (refer to Tables 3 and 6). This may be partly explained by the relatively low interest in the crop exhibited by male farmers. Very few male heads of household attended guar bean meetings for planting demonstrations, and when they did some left before the end of the meetings. Instead female members of the male-headed households who had less decision-making powers on area allocated to guar bean and planting dates attended the meetings. The relatively high interest of the female-headed households and female members of the male-headed households in the guar bean project suggests that the PEA employed in the planning implementation of the project succeeded in catering for the interest of women farmers. This is in sharp contrast to the norm where as Chambers (1983:19) reports "Rural single women, female heads of households, and widows include many of the most wretched and unseen people in the world." However, the low interest of men is a cause for concern.

Another reason why female-headed households compared favorably with their male counterparts is that households or individuals within these households belong to other corporate groupings for example neighbourhood, kinship group and church which carry with them patterns of access to resources (Feldstein and Poats1990). These corporate groupings provide 'safety nets' for the less privileged female-headed households through interhousehold dynamics. These interhousehold dynamics also partly explain why despite their low resource endowment female headed households only spent significantly more time in only two of the five activities considered namely sowing and harvesting refer to Table 4. However, the interhousehold exchanges that enable female-headed households to access resources which they do not have need to be reciprocated. The reciprocation is in the form of obligations and responsibilities, which then tend to overburden female-headed households. The fact that female-headed households spent significantly more time in sowing and harvesting than male-headed households suggest that they will be depleted in terms of labour as they have to meet the obligations associated with interhousehold exchanges. These two activities are also not mediated by draft power. The relatively high standard deviations in mean time spent by the two households types on certain activities reflects the relatively large variability among individual households even within the same category.

Extension services in Africa generally do not have the organizational solution for advising rural women, who not only work at home, but also in the fields. The failure to reach women farmers is part of an overall problem related to a lack of support and resources. This is further compounded by cultural norms that prohibit African women farmers to freely interact with male extension workers Carr (1999 84) and Chambers (1983). However, in this study male-headed and female-headed households had equal access to information on guar bean production. The group extension approach coupled with promotion of farmer-to-farmer extension appeared to be effective in removing the male bias.

Conclusions

It was concluded that the male-headed households biased ownership of productive resources renders female-headed households vulnerable through inter-household exchanges obligations. Female-headed households were therefore, experienced *hidden* overburden. While female-headed households' ability to match male-headed households in the guar-bean project should be celebrated the overburden of female-headed households should be corrected.

Overall PEA used in the project succeeded in removing the barriers to accessing information that often disadvantage females but fell short of addressing the productive resource constraints of female-headed households.

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