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## **Food Security: Agriculture and Gender Relations in Post Harvest Storage** (Pp 144-152)

**Adeyemi, Hassan M. M.** - National Research Institute for Chemical Technology, P. M. B. 1052, Zaria, Kaduna state, Nigeria

**E-mail:** esdupe@yahoo.com

### **Abstract**

*Provision of food has always been a challenge facing mankind. A major cornerstone in this challenge is the competition from insect pests. While some pest-associated losses occur when the crops are standing in the farms or greenhouses, others are caused during storage in bins and granaries. Improvements in agricultural productivity are necessary to increase rural household incomes and access to available food but are insufficient to ensure food security. Achieving food security in its totality continues to be a challenge not only for the developing nations, but also for the developed world. Food security not only requires an adequate supply of food which also entails availability, access, and utilization of the food but also take into consideration post-harvest storage to prevent losses. In many African countries, subsistence farmers, regional scientists, and extension specialists rely on local plants for many medicinal needs and are amenable to using traditional plant materials for insect pest management. This paper discusses the rate of post harvest losses and sustainability of the agricultural policies and the role of the female gender in this issue.*

### **Introduction**

Food Security, at the individual, household, national, regional and global levels is achieved when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for a healthy and active life (FAO, 2001).

Improvements in agricultural productivity are necessary to increase rural household incomes and access to available food but are insufficient to ensure food security. Food security not only requires an adequate supply of food which also entails availability, access, and utilization of the food but also take into consideration post-harvest storage to prevent losses. Persistent low agricultural production, coupled with increased population growth, has meant that imports of agricultural products have been rising faster than exports since the 1960s. In many regions of the world, including Africa, Asia and Latin America, the yield of the major cereals (rice, wheat and maize) more than doubled during the years 1960-1990. This was due to the introduction of improved varieties with technological packages that allowed increased yield in the potential of the crops to be realized more fully and under conditions experienced by medium to large scale farmers of developing countries, yet the issue of post-harvest losses has caused a major set back in this achievement. Achieving food security in its totality continues to be a challenge not only for the developing nations, but also for the developed world. (USDA, 2000)

Despite the role of women as the backbone of food production in Nigeria as well as in many African countries, women are faced with many factors constraining their effective participation in achieving food security. Notable among these are limited access to land and capital, credit, agricultural inputs, The major problems militating against agriculture and food security in Nigeria were identified as inadequate farm inputs, lack of working capital, inadequate capital expenditure on agriculture by the government, low level of education, low rate of technology adoption, post harvest losses and communal/religious crises.

Gender-based inequalities all along the food production chain “from farm to plate” impede the attainment of food and nutritional security. Maximizing the impact of agricultural development on food security entails enhancing women’s roles as agricultural producers as well as the primary caretakers of their families. Food security is a primary goal of sustainable agricultural development and a cornerstone for economic and social development. (USDA, 2000)

It also demonstrates the vital and often unacknowledged role that women play in agriculture, as well as how their critical role in ensuring sustainable agricultural development translates into household-level improvements in food and nutritional security.

## **1.1 Challenges to Food Security in Africa**

**An Underdeveloped Agricultural Sector:** - The major challenge to food security in Africa is its underdeveloped agricultural sector that is characterized by over-reliance on primary agriculture, low fertility soils, minimal use of external farm inputs, environmental degradation, significant food crop loss both pre- and post- harvest, minimal value addition and product differentiation, and inadequate food storage and preservation that result in significant commodity price fluctuation. Ninety-five percent of the food in Sub-Saharan Africa is grown under rain fed agriculture. (Heritz, 2004)

A significant amount of the food is lost through pre- and post-harvest losses. The tropical climate makes foods produced in these regions prone to pests and diseases. Poor handling and storage further increase the post-harvest losses. Management of the African agricultural system is further complicated by the existence of diverse heterogeneous systems.

Traditional means of grain storage at village level are the result of the evolution of ingenious empirical systems. Through the generations, farmers have developed their own techniques; often simple but masterly. Apart from the storage function, the granaries and other traditional structures are designed to reduce to a minimum the losses caused by the principal enemies of the harvest: insects, moulds, rodents, and fire. Proliferation of insects and moulds depends on climatic factors- humidity, temperature and the interstitial environment of the grain; the presence of rodents, termites, fire and theft is linked to the techniques of construction of the granary (location, materials and type of architecture). Evaluation of the wastage through storage in traditional granaries has only been subject to precise measurement recently. Data in Table I give a fragmented representation of the rate of food losses in some parts of various African Countries. Though, this cannot be extrapolated to represent a complete full database for any of these countries or sub-regions (FAO, 1983, 1992 and 1994, 2006).

### **Women and Food Security**

Women produce between 60% and 80% of the food in most developing countries and are responsible for half of the world's food production, yet their key role as food producers and providers and their critical contribution to household food security is only now becoming recognized. Studies have confirmed that while women are the mainstay of small-scale agriculture, farm labour force and day-to-day family subsistence, they have more difficulties

than men in gaining access to resources such as land and credit and productivity enhancing inputs and services. (Heritz, 2004)

Food security has been defined by the Food and Agriculture Organization [FAO], not only in terms of access to and availability of food, but also in terms of resource distribution to produce food and purchasing power to buy food where it is not produced. Given women's crucial role in food production and provision, any set of strategies for sustainable food security must address their limited access to productive resources. Women's limited access to resources and their insufficient purchasing power are products of a series of interrelated social, economic and cultural factors that force them into a subordinate role, to the detriment of their own development and that of society as a whole.

The international initiatives and efforts developed, especially since the 1975 World Conference on Women in Mexico, have contributed to a greater recognition of women's key participation in rural and other domains of development. However, much remains to be done. The major constraint to the effective recognition of women's actual roles and responsibilities in agriculture is the scarcity of gender-disaggregated data available to technicians, planners, and policy-makers.

Therefore, the first step towards women's empowerment and full participation in rural development and food security strategies is the collection and analysis of gender disaggregated data to understand role differences in food and cash crop production as well as men's and women's differential managerial and financial control over production, storage and marketing of agricultural products.

In sub-Saharan Africa, for example, micro-level studies have shown that women play a crucial role in many aspects of crop production. While men are often responsible for land clearing, burning and ploughing, women specialize in weeding, transplanting, post-harvest work and, in some areas, land preparation, and both take part in seeding and harvesting.

Moreover, women in sub-Saharan Africa and the Near East play a major role in household animal-production enterprises, where they tend to have the primary responsibility for the husbandry of small animals and ruminants, but also take care of large-animal systems, herding, providing water and feed, cleaning stalls and milking. In all types of animal-production systems,

women have a predominant role in processing, particularly milk products and are commonly responsible for their marketing.

In many countries women are also responsible for fishing in shallow waters and in coastal lagoons, producing secondary crops, gathering food and fuel wood, processing, storing and preparing family food and for fetching water for the family including post harvest activities that were part and parcel of the reproductive activity of household labour (in the hands and under the feet of women - even if under the control of men).

Food security comes to depend not only on the market but also on the social and political structures in which markets are embedded. Women are either self employed or unwaged family workers for men who are themselves not fully independent but frequently dependent on money advances from commercial capital. Evidence from West Bengal in the 1990s - where the growth of rice production has eased up - shows by contrast that the process of commodification has not eased up at all. Products, by-products, intermediate and investment goods, waste, public goods, state regulative resources and labour are all relentlessly commodified. (Harriss-White, 2007)

### **Gender Sensitive Development**

There is an intrinsic gender issue where poverty is concerned. One of the ways in which this is manifested is in the shift from woman-lead leadership to man- lead leadership as one moves from subsistence farming to market driven farming. Women are important as food producers, managers of natural resources, income earners and caretakers of household food security. Agricultural productivity has been said to increase by as much as 20 percent when women are given the same inputs as men. (IFPRI, 2002)

The education of women is known to produce powerful effects on nearly every dimension of development, from lowering fertility rates to raising productivity, to improving environmental management.

### **Sustainable Food Security Requirements for a Gender Sensitive Era**

The understanding of food security has evolved over the years through increasingly integrated attention to the social, gender, environmental, technical and economic dimensions of the problem. The challenge for the future will be to pursue a concrete attainment of equity in access to resources by women to produce food, and purchasing power to buy food, where it is not produced thereby enhancing their potential to generate food security.

Specific policy measures are required to address the constraints facing women farmers and to give special consideration to the needs of female heads of households. FAO (2002) has recommended that such measures aim to:

- ensure that women have the same opportunities as men to own land;
- facilitate women's access to agricultural services tailoring such services to their needs;
- encourage the production of food crops through the use of incentives;
- promote the adoption of appropriate inputs and technology to free up women's time for income-producing activities;
- improve the nutritional status of women and children;
- provide better employment and income-earning opportunities;
- promote women's organizations;
- review and re-orient government policies to ensure that the problems that constrain the role of women in food security are addressed.

Research in Africa, Asia and Latin America has found that improvements in household food security and nutrition are associated with women's access to income and their role in household decisions on expenditure as women tend to spend a significantly higher proportion of their income on food for the family than men will do.

Women's wage income from farm and non-farm employment and from other income-generating opportunities is of particular importance for landless and near-landless rural households. Women's purchasing power may not only be used to buy food and other basic assets for themselves and their families, but also to pay for the inputs used in food production. Since food crops are consumed, the inputs for these have to be provided from income earned in other agricultural enterprises or non-farm income-generating activities. Thus, to improve food production for the household, greater priority has to be given to increasing women's participation in market production as well as other income-generating ventures.

## **Conclusion**

The main source of food insecurity in Nigeria is the massive post harvest loss which has been estimated to be as high as high as 20%. (FAO, 2006) The level of on – farm storage is still very poor and the state of agro allied industries in the country has not helped matters. The frequent communal clashes that displace farmers from their locations at very critical period of production, for example there has been lots of clashes between the farmers and Fulani cattle herdsman during the planting season as a result of claims by the farmers that Fulani cattle herdsman allow their cattle to graze on their planted crops. These and other major problems such as the issue of communal/religious crises should be addressed urgently.

All previous efforts to empower women through various poverty alleviation programmes have not yielded the desired results since they have not been supported by appropriate technologies. Women have the potential of increasing agricultural production given the population involved in farming and the roles they play in the production process. However, to achieve this, the women need to be empowered through education and the provision of appropriate technology that is gender sensitive. If women are to be fully effective in contributing to food and nutrition security, discrimination against them must be eliminated and the value of their role promoted. However, care should be taken not to aggravate the male gender while we pursue the noble task of empowering women. We should, as much as it depends on us, avoid imposing our preferences on society without taking time to understand the existing cultural structure. As and when possible, an inclusive approach where men and women complement each other to achieve set objectives should be used. One way to do this is by having open communication and group meetings. Nothing facilitates suspicion more than a breakdown in communication. If both men and women had more equal schooling, incomes, and thus the support in the local communities will be possible. When only half of the labour force is able to read and write, obtain credit, develop a work skill and obtain work, it is hardly surprising that there will be losses in output. There is, without question, a need to address issues related to women's low status that is evident in their minimal access to resources like inputs, land, and credit and the fact that they have low income and low literacy. There is a tendency for planners and policymakers to think that rural women do not know their own problems. These women can clearly articulate their problems based on their own experience. We need to use methods like focus Group discussions that capture this. It is not enough for the poor to

have property rights over land, water, trees, or other assets unless there are services to make those assets productive. Such services include roads, transport, access to market, and communications.

### **How then can Africa Achieve Food Security?**

The solution lies in increasing food availability, food access and food adequacy for all. Because the food insecurity in Africa is directly correlated with poverty, it is necessary to not only alleviate poverty but also create wealth for the target population. The key lies in mutual honest intention from multi-stakeholders to ensure that all is done with the sole purpose of benefiting them

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**Table I - Rate of loss through storage of some grains in traditional granaries in Africa**

Country	Product	Loss (%)
Senegal	Millet in ear	2.2
	Sorghum in ear	5.3
	Sorghum as grain	9.5
Northern Nigeria	Sorghum in ear	4.0
	Sorghum as grain	4.0
	Maize as grains	15.6
	Millet in ear	3.5
Southern Nigeria	Maize in ear	2.0 – 4.0
	Maize as grains	6.8
	Wheat as grains	2.4
Niger	Millet in ear	10.1
	Millet as grain	3.4
Burkina Faso	Millet in ear	6.9
	Millet as grain	8 months storage