

**Cassava Production, Processing Trends and Constraints
in Ohaji-Egbema Local Government Area of Imo State, Nigeria**

***ASINOBI, C. O. & *NDIMANTANG B, **NWAJIUBA, C. U.**

** Department of Nutrition & Dietetics*

Imo State University, Owerri

*** Department of Agricultural Economics*

Imo State University, Owerri

Correspondence:

Dr. Asinobi Chinagorom O.
Department of Nutrition & Dietetics
Faculty of Agric. & Vet. Medicine
Imo State University, Owerri
Imo State, Nigeria.
E-mail address: coasinobi@yahoo.com
Phone: 08035423973

Abstract

The study focuses on the cassava production and processing trends and constraints in Opuoma, Ohaji/Egbema LGA with a view of improving increasing cassava production in Igboland. Information on cassava production and processing trends, relative importance to other crops, cassava land area and constraints in cassava production and processing areas was obtained with structured questionnaires from 45 selected small scale farmers/processors including both men and women. The information was pooled, collated and summarized into frequency distribution. The results obtained shows that about 88% of the farmers/processors interviewed reported an increasing trend in cassava land area in the last previous 10 years, 6% reported no change and another 5% reported declining trends. Cassava was the most important crop in terms of land area and was grown sole more frequently than the average for other crops. About 91% of farmers/processors interviewed indicated that pest was one of the constraints, high hired labour of requirement by 95%, disincentive of low prices by 100%, local processing frying equipment by 88%, inadequate fund for cassava land area expansion by 84%, and poor access to markets centers by 98% of the farmer/processors. The constraints could drastically reduce the level of cassava production and processing and economic returns, affecting the general welfare of the farmers. The government should acknowledge that food crop prices are too low and provide adequate incentives to farmers such gesture would enhance household income and could contribute in no little measure in overcoming the existing constraints of the farmers/processors in the production and processing of cassava.

Introduction

The invention of agriculture is the most fundamental of human discoveries. It marked the watershed between the hazardous wandering life of the hunter and collector of wild edible plants and a settled more comfortable life, which in its turn made the development of further skills possible.

In the Igbo context, the fundamental discovery was that of yam cultivation. The discovery formed the economic basis of Igbo civilization. It was of supreme importance and was given ritual and symbolic expression in many areas of Igbo life. Other food crops such as cocoyam, banana, plantain, okro, egusi, rice, tomatoes, maize, chili peppers, and cassava were introduced later in Igbo land.

Cassava was well established in the Delta by the late seventeenth century but it often reached Igbo communities much later (Isichei 1976). Thus it was introduced in Onitsha in the mid-nineteenth century, where it created a minor economic revolution. It is extensively grown as a food crop in Igbo land and has traditionally been considered as a subsistence crop, destined mainly for household consumption (Fresco 1993). Cassava roots and by-products are increasingly being used in industry, indicating that cassava can be converted into an industrial crop, planted in medium-sized to large areas. The commercial production of good quality seed (stems cut into stakes) is therefore growing as the demand for health, vigorous and productive crops increases. But such production faces certain limitations that force the final cost per stake to relatively high levels, even when the value of the roots is included within the income returns.

Traditionally, cassava roots are processed by a variety of methods in many different products and used in diverse ways according to local customs and preferences to provide the carbohydrate part of the diet. Processing cassava reduces food losses and stabilizes seasonal fluctuations in supply of the crop (Nweke 1994). Cassava requires more processing than any

other food crops in Africa (Ugwu & Ay, 1992). In all consideration, its importance in rural farm economy and food security is well established. In recent times environmental, varietal and agronomic and socio-economic factors have constituted draw backs in the production and processing in Igboland.

This paper reviews the cassava production and processing trends and constraints in cassava production and processing in Igbo small scale farmers and processors in Ohaji/Egbema Local Government Area (LGA), Imo State and examines the opportunities for improving on the activities in Igboland.

Methodology

The study was conducted in Opuoma village in Ohaji/Egbema Local Government Area (LGA) in Imo State. The LGA is primarily agricultural. The villages produces cassava, yam, cocoyam, leafy vegetables, maize, groundnuts, tomatoes, melon, okro, sheep and goats. More than 90 percent of it agricultural production is concentrated in village of 80 – 200 households. And more than 60 percent of the food they produce is “exported” to urban towns in the LGA and as far as other LGA in Imo State. The LGA is well served by a network of rough but motorable rural roads that permit movement of agricultural produce from village farm to town markets. On-farm storage facilities and electricity are severally lacking in the village and the level and variety of processing in the village is limited to traditional methods except for some improved techniques for processing cassava.

The researcher collected the data during a 3-day survey after some months the food consumption and nutrition survey 2001 was conducted in the village.

In the village, a list of farm households and/or processors was compiled and grouped into “large” “medium” and “small” farm holder households with the assistance of key village informants. Farm households, which cultivated less than 10ha of all crops, were regarded as representative of smallholder farm households and/or processors. A sample of 45 small-scale

farmers and/or processors were randomly selected. Particular efforts were made to include both men and women. Each respondent was interviewed on pre-tested structured questionnaires to obtain information. Level of cassava production and processing, its relative importance to other crops, cassava production trend and cassava land area and constraints in cassava production and processing.

Information from the 45 questionnaires was pooled, collated and computerized with 27 variables summarized into frequency distribution.

Results

Cassava Production and Processing Trend

Cassava Production and Land Area Trend:

Cassava crops like other crops are sometimes grown as sole crops, sometimes as intercrops in mixed culture when crops were grown in mixed culture. Table 1 shows that on the average for all the crops, about 30% of the fields were sole cropped and 70% were intercropped. Cassava was grown sole more frequently than the average for other crops.

About 88% of the farmers (Table 1) also reported an increasing trend in cassava land area in the previous 10 years. 6% reported no change, and another 5% reported a declining trend. Famine and hunger market demand high food yield, usability in a wide range of forms, declining soil fertility were variously cited as the reasons for the increasing trend (Nweke et al 2000). Cassava was reported to be replacing fallow pasture, yam and cocoyam in that order (Nweke and Enete 1999). Among the few farmers that reported a declining trend, the reason cited was lack of finance support to obtain more land for other food crops consequently cassava land area was reallocated to other crops such as maize and cocoyam. This confirms the observation of Bokanga (1992).

Cassava processing and land area trend:

Cassava processing has many traditional technological pathways, which are adapted to take advantage of locally available processing resources or market opportunities in the area. Table 2 further shows that most of the farmers/processors in the village who processed cassava into convenient cassava food products reported expansion in cassava land area. Farmers could expand cassava land area under conditions of difficult access to market centers provided improved processing technologies were available (Nweke et al 2000). The improved processing technologies improved product quality, reduced bulk, and extended shelf life and made it possible for quality cassava products to be transported at reduced costs over since roads to distant urban market centers. Also, Inaizumi et al (1997) have reported that improved processing technologies were labor-saving; processing cassava into certain products was very labor-intensive. Cassava land area could have been expanded in most cases in response to any little improved processing technology in the area.

Table 3 indicates that about 91% of the farmers/processors interviewed in the village reported that pest (black insects) was one of the cassava production constraints. Cassava pests can reduce tuber yield especially in the late planted crop (Halin, 1988). The International Institute of Tropical Agriculture (IITA, 1984) has reported the increasing incidence of damage due to pests and diseases. The Existence of the pests in the village especially during is becoming alarming and requires urgency in the control and the treatment of the pest. One of the possible solutions to the constraints could be through the implementation of the fallow/rotational systems. Kesiwan, (1987) states that crop rotation is one of the classical methods of plant disease management and perhaps the most cost-effective. Nweke et al (2000) have reported significant reduction of cassava pest when cassava was grown in rotation with other crops compared with continuous cultivation of cassava. However, the reasons for these correlations are not clear. The possible explanation could be that farmers may be able to cultivate continuously where pest and disease pressure are low but need to

alternate cropping and fallows periods to break the pest/disease cycles where the pressures are high.

Among the constraints in cassava production is high hired labor requirement (Table 3). Hired labor i.e. labor paid for in cash or kind, was used in various combinations with family labor in the performance of land clearing, seedbed, preparation, sowing, weeding, and harvesting operations in the crop fields. The hired labor was frequently used for the initial farm tasks of land clearing and seedbed preparation which were executed mostly by men. Saito et al (1994) stated that hired labor tended to be used for certain tasks. The financial involvement in hired labor has been stated by Knipscher (1980) who reported that labor requirement in production of cassava roots and products is the most important and costly requirement. In areas where cassava is already cultivated, the crop is important as a source of income (as well as providing household food security) to the large numbers of people who grow, process, and/or market it. The potential for increasing farmers' returns from these activities or enhancing the relative importance of cassava as a source of increased rural income depends on the possibility of reducing biological and agronomic constraints (e.g. hired labor) to increase output and productivity, as well as on expanding sales and/or decreasing the cost of processing and marketing hired labor requirement had been a factor difficult to control. Further research on the extent to which changes in techniques or cost of production are compatible with cassava's present role as an instrument of income stabilization in rapidly changing environmental and economic conditions would revitalize rural economy and mostly the standard of living of the women food producers.

Apart from biological and agronomic constraints, relative prices for cassava products are reported to be low by 100% of the farmers/processors interviewed. For the southern states of Nigeria, cassava is a common food item. It is considered a low-quality food of the rural masses and urban poor. Still its nutritive deficiencies need not cause concern because

Nigerian of all income classes generally like cassava and many of their meals are likely to include cassava in some form (April et al 1974). The continuous existence of the disincentive of low prices of cassava fresh and products to farmers would certainly cause or prolong the impoverishment of some rural areas, often increases in a rates of rural migration by people seeking alternative source of income.

However, an extensive nutrition education program will be required before cassava reaches its full potential. Expenses on such an education program are justifiable and necessary if the goals of food security and increased income are to be achieved and maintained.

Moreso, that women produce much of the food in many regions of the world and provide for the eating of their families, has been known for a long time (Saito and Weidemann, 1990). With the emancipation of even rural women, it may soon become difficult to keep them in cassava production without sufficient financial rewards. Such rewards might be achieved through satellite cassava development centers to extend improved cassava production, processing and utilization technologies to rural women and children.

Another constraint in the cassava production and processing is access to market. The farming households sell both fresh and processed cassava and can use many distribution systems. A farmer can sell cassava to his wife who will then process and sell the product. Or he may harvest the cassava, transport it to town fresh, or processed. However, the bad condition of rural roads makes transport of fresh cassava and processed products to market difficult (Futa 1992). Access to market has not been as good as in East as in West Africa. Information obtained from the farmers/processors revealed that most of them sleep for some days in the markets center or delayed transportation of cassava fresh root/products to the market centers during raining season due to bad conditions of the network roads to market centers.

Thus improved access to market centers would result to rapid spread of cassava production and possibly increased market demand (Nweke 1996b). Such facilities as good network roads, market structure affect the occupation and income status and hence farmers relative contributions in the household. Government must make positive steps in helping to construct good network road and transport services to communities that produce food.

Poor processing technology especially good frying equipment was reported by about 89% of the farmers/processors as one of the constraints to cassava production and processing. The grading machine, pressing and general food crop milling machine were more widely available than the improved frying equipment. The employed local frying processing technology existing in the village could increase the percentage contribution of processing to total costs per unit weight of cassava product output as yield increases. Evidence from eastern Nigeria shows that high root yields attained through the adoption of improved cassava varieties would not have substantial cost-saving advantage under manual processing technology (Nweke et al, 1991). As processing cost (e.g. frying garri) per unit weight of output remains constant as yield increases (because the processing technique employed was manual, with a low level of capital investment) the percentage contribution of processing to total costs per unit weight of output increases as yield increases. The cost saving advantage of yield increasing technology may not fully translate into expanded production if there is no matching cost saving, technology at the processing stage. This is because the cost constraint is merely shifted to the processing stage. Improvement in the processing technology would have as much effect on cassava production expansion as improvement in yield.

Access to improved cassava processing technology at any processing stage would reduce processing labor and would lead not only to an increased level of processing but also to increased production since labor released could be channeled into production activities. It would also improve product quality. Improved quality would make the product attractive to

urban consumers thereby expand the market for the product; this would provide an incentive for expanded production. As most processing labor was provided by women, mechanization or use of improved technology for the frying activity should be obtained through rural savings and other sources of funds organized by women.

Inadequate fund for cassava land expansion was another constraint reported by about 85% of the farmers/processors interviewed. Women mostly reported the constraint. Women in rural areas are primarily active and engage in subsistence agricultural production and their role in wage earning and cash production is secondary. To increase productivity through land expansion women farmers need access to agricultural extension, credit, land and livestock, labor and technology. According to Nweke (1996) access to better productive resources in cassava producing areas depends on cash income. Increasing women's economic resources through increase participation in income producing activities would improve women affordability of available lands.

Moreso, in the cassava-growing areas, where the most important source of cash income was food crop production, cassava was the most important food crop generating the cash income. It should be important to clarify the nature and effects of government policies on cassava production and marketing.

Conclusion

Cassava was commonly produced and processed relative to other food crops. Cassava production and processing have resulted in the expansion of cassava land areas.

Cassava producers/processors in the study area are contained mainly by pests, high cost of hired labor, low price of fresh and processed cassava, local processing technology for frying of cassava product (garri) poor access to market centers and inadequate fund for the expansion of cassava land areas. The consequences of all these could reduce the level of

cassava production and processing and returns for the farmers adversely, affecting the general health and nutrition of cassava producers.

Recommendations

Governments fail to acknowledge that food crop prices are too low to provide adequate incentives to farmers. The implementation of newly developed agricultural technology is futile for national programs in those countries where government discourage farmers to produce. Undoubtedly and obviously, food crop pricing and policy-making decision are extremely complex. A solution must be found to balance the needs of government with that of its people, which at the same time provides adequate incentives for growth in food crop production and distribution.

Unfortunately, policy makers and planners have emphasized cash and export crops at the expense of food crops. Root and tuber crops have either received little attention or have been virtually ignored. Yet, throughout the continent, drought tolerant root crops generally form an indispensable component in the diet of the majority of the people and is often planted as an insurance against famine and crop failure. The commitment by government to support root crops is needed not only to increase food production, but also to increase the income of small farmers.

In all these, a lot of technological and educational investment will be needed in cassava growing areas to promote improved production, processing, marketing and utilization. Such investments may be channeled through groups of women who have proven interest in cassava.

References

1. April, J. E.; Hersh, G. J.; Rogers, D.J. and Salter, C.C. (1974). Cassava's role as food staple. Report prepared for office of Nutrition, Bureau of Technical Assistance, Agency for International Development, Boulder, Colorado.
2. Bokanga, M. (1992). Cassava fermentation and industrialization of cassava food production. Pp. 197 – 201. In: Tropical root crops: promotion of root crops-based industries, edited by M.O. Akoroda and O.B. Anene. Proceedings of the fourth triennial symposium of the International Society for Tropical Root Crops – Africa Branch. Kenchasa, Zaire, 5 – 8 Dec., 1989 ISTBC – AB?IITA Ibadan, Nigeria.
3. Fresco, L.O. (1993) The dynamics of cassava in Africa, an outline of research issues. COSCA Working Paper No. 9 Collaborative Study of Cassava in Africa, International Institute of Tropical Agriculture, Ibadan, Nigeria.
4. Futa, M.T. (1992). Structural adjustment programs and their implications for agricultural development in Africa. Invited paper presented at the at the International Symposium on “Sustainable Food Production in Sub-Saharan African” held at the International Institute of Tropical Agriculture (IITA), Ibadan to mark the 25th Anniversary of the Institute, 7 – 9 December 1992.
5. Hahn S. K. (1988). Constraints on cassava and yam research and production in Africa. In: The use of Biotechnology for the improvement of cassava, yams and plantain in Africa. Contributors from a meeting of African Research Institutions IITA meeting Reports series 1988/2. IITA, Ibadan, Nigeria.
6. IITA, (1984) Annual Report, Ibadan, Nigeria.
7. Inaizumi, H.A., Enete, A., Brodie-Mende, O. and Oyetunji, E. (1997).

Determinants of mechanized cassava processing technology adoption in West African pages 51 – 62. In: Advances in ecological science edited by J. L. Uso; C. A. Brebba and Power, H. Proceedings of the first international conference on ecosystems and sustainable development, castle of Peniscola, Spain 14 – 16 Oct., 1997.

8. Isichei, E. (1976). A history of the Igbo people. Macmillan Press Ltd., London.
9. Kesiman, C.L. (1987) Plant disease control. In: Improving food crop production on small farms in Africa FAO, Rome, Italy.
10. Knipscheer, H.C. (1980). Labour utilization data for selected tropical food crops. Agricultural economics bulletin No. 6 IITA, Ibadan, Nigeria.
11. Nweke, F.I., Ngoram K., Dixon, A.G.O., Ugwu, B.O. and Ajobo, O. Cassava production and processing in Cote d'Ivoire COSCA working paper No. 23 Collaborative Study of Cassava in Africa, IITA, Ibadan, Nigeria.
12. Nweke, F.I. and Enete, A.A. (1999). Gender Surprises in food production, processing and marketing with emphasis on cassava in Africa. COSCA working paper No. 19. Collaborative study of cassava in Africa, IITA, Ibadan, Nigeria.
13. Nweke, F.I. (1994) Processing potentials for cassava production growth in Africa. COSCA Working Paper No. 11 Collaborative Study of Cassava in Africa, IITA, Ibadan, Nigeria.
14. Nweke, F.I. (1996b). Cassava: A cash crop in Africa. COSCA Working Paper No. 14 Collaborative Study of Cassava in Africa, IITA, Ibadan, Nigeria.
15. Nweke, F.I., Ugwu, B.O., Asadu, C.L.A. and Ay, P. (1991). Production Costs in

the yam-based cropping systems of southeastern Nigeria. RCMP Research Monograph No. 6 Resource and Crop Management Program, IITA, Ibadan, Nigeria.

16. Saito, K.A. (1994) Raising the productivity of women farmers in Sub-Saharan Africa. World Bank Discussion Papers. Africa Technical Department Series 230. The World Bank, Washington DC, USA.
17. Saito, K.A. and Weidemann, C.T. (1990) Agriculture Extension for Women Farmers in Africa. World Bank Discussion Paper. The World Bank, Washington, DC, USA.

Table 1: Percentage distribution of farmers by most important crops by sole cassava land area trend.

Major Crops	No. of Field	% of Sole	Percentage			Total
			Increasing	No Change	Decreasing	
Cassava	135	55	88	6	4	100
Yam	66	19	72	14	14	100
Maize	71	15	46	51	3	100
Plantain/ Banana	52	25	78	20	2	100
Cocoyam	21	8	42	44	14	100

Table 2: Percentage distribution of farmers by cassava land area and main cassava products

Cassava Product	No. of Processors	Percentage			Total
		Increasing	No Change	Decreasing	
Fresh Roots	45	91	9	0	100
Garri granules	45	96	4	0	100
Others (Starch, tapica, paste)	14	84	16	0	100

Table 3: Percentage distribution of farmers/processors by cassava production and processing constraints.

<u>Processing Constraints</u>	<u>No of Farmers</u>	<u>%</u>
<u>Environmental factors</u>		
Raining Season	10	22.2
Availability of water	15	33.3
Difficulty of harvesting during dry season	19	42.1
<u>Variety factors</u>		
Difficulty of peeling	14	31.0
Irregularity of root shape	6	13.3
High cyanide contents of roots	4	8.8
Late harvesting	24	53.3
<u>Agro-nomic and socio-economic factors</u>		
Diseases and pests	41	91.0
Harvesting and transportation of roots	18	39.9
High hired labor requirement and cost	43	95.5
Disincentive of low prices roots and products	45	100
Local processing technology (frying equipment)	40	88.8
Inadequate fund for cassava land area expansion	38	84.3
Scarcity of fuelwood	23	51.1
<u>Marketing factors</u>		
Cost of use of improved technology equipment	29	64.6
Distant location of market center	17	37.7
Poor market demand of product	5	11.1
Poor access to market centers	42	98.0
