

CASSAVA UTILIZATION AND MARKETING IN COASTAL KENYA

J.N. Kiura, C.K. Mutegi, M.D. Kengo and P. Kibet

Kenya Agricultural Research Institute (KARI) P.O. Box 16 Mtwaya, Kenya Tel: 254-41-5485842 Fax: 254-41-5486207 (karimtw@africaonline.co.ke)

Introduction

Energy deficiency and malnutrition are widespread in developing countries (IITA, 1990). In Kenya, the Coast province (map 1) is particularly vulnerable to food shortage. Over one quarter of the children are malnourished in the province (Nicholson et al., 1999) whose poverty level is as high as 62% (IEA, 2002). Table 1 shows the food deficit situation in the province.

Table 1: Food production and deficit in Coast Province

Commodity	Production p.a	% Deficit
Cereals	680,000 bags	80
Meat	5,550 tons	99
Milk	30 million liters	67
Eggs	52 million	94

Source: State of the art document 1999, KARI-Mtwapa

Cassava is the second main staple food at the Coast and is becoming a major cash crop (Munga, 2000), hence has the potential of alleviating poverty. It yields 5-10t/ha while the potential is 32t/ha (Munga, 2000).

Use of cassava as a cash crop could increase its production to full potential. This requires cassava processing into quality end products. A survey on the utilization and marketing of cassava was done in 2003 targeting farmers and small-scale cassava processors. The objectives were to:

- identify desirable cassava attributes for utilization
- identify and document the existing processing technologies
- assess the level of use of cassava as a livestock feed, and
- identify areas of training on processing and post-harvest handling.



Map 1. Administrative provinces of Kenya

Materials and Methods

- A cassava enterprise survey was conducted in four districts of the Coast Province in 2003
- Questionnaires were administered to farmers and small-scale processors in the target region
- Farmers from the main cassava growing areas were identified by agricultural extension staff according to Lelo et al. (1995). They were selected at random within sites
- Processors were interviewed at their business premises.
- A total of 179 farmers and 44 processors were interviewed.

Results and Discussion

Utilization at farmer level

The difference in the percentages of farmers using the three cassava utilization forms was highly significant ($P > 0.01$) (Fig. 1). Cassava chips were consumed as a whole meal, flour from pound or ground *makopa* was used for the preparation of *ugali*, and young leaves were used as vegetable.

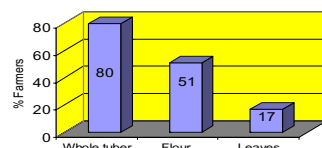


Figure 1: Cassava utilization forms

Most processing was done manually. To reduce human labor on pounding, farmers need to be encouraged to use modern hammer mills.

Preference for taste as a home utilization attribute was significantly ($P > 0.01$) higher than for all the other attributes (Table 2). Early maturity as a growing attribute was particularly important.

Table 2: Qualities preferred by farmers utilizing cassava at home

Attribute	Preference (% of farmers)
Taste	44.9 ^a
Low crude fiber content (CF)	27.4 ^b
Cooks well	16.2 ^{bc}
Low CN	3.6 ^c
LSD (0.01)	13.7

NB: Numbers bearing the same superscript are not significantly different ($P < 0.01$)

LSD (0.01) = Least significant difference among attributes

Cassava was fed to cattle, goats, and chicken by 55% of the farmers.

Marketing at farmer level

Most farmers sold some cassava with more sales occurring at the farm gate (Fig. 2).

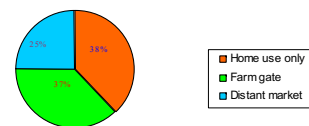


Figure 2: Cassava markets by farmer percentages

Since majority of farmers sold cassava tubers, the potential of cassava as a cash crop exists. Farmer training is needed on tuber handling, making clean quality *makopa*, and making alternative products (bread, composite flour) for better incomes.

Utilization at processor level

Small-scale processors made chips, crisps and flour (Fig. 3), mostly by themselves (Table 3).

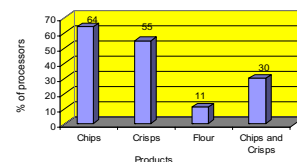


Figure 3: Cassava products and % of processors selling them

Table 3: Persons processing the various cassava products

Processor	Product		
	Chips	Crisps	Flour
Self (%)	88	90.5	20
Employee (%)	12	9.5	-
Other (%)	-	-	80

Chips and crisps were low value products. Processors' training is needed on the use and access of equipment that have high productivity, are safe, and less tedious such as chippers and graters (figures 4 and 5) for better returns on labor and capital.

Marketing at processor level

The crisps and chips were bought mainly by passers-by. Sales improved during festive seasons such as Easter, Christmas and Idd ul fitr holidays, during shortage of other foodstuffs, the 'high' tourist season, and when a processor is located near a school.



Figure 5: Chipper (used in flour processing) Figure 6: Grater (used in starch processing)

About 91% of the processed products were sold at the site of processing. Product packaging using various materials and better storability to capture distant markets is needed.

Conclusions

1. Cassava was utilized for food and income, therefore production and processing was needed
2. Cassava breeding should incorporate taste, low CF, low CN and early maturity
3. Livestock feeding strategies that are economical using cassava need to be developed
4. Training is needed for both farmers and processors on processing methods to improve on product output, storability, add value and reduce human labor.

References

- IEA (International Institute of Economic Affairs). (2002). The little fact book. The Socio-Economic and Political Profiles of Kenya's districts. Nairobi, Kenya.
- IITA (International Institute of Tropical Agriculture). (1990). Cassava production in Tropical Africa. A Reference Manual. Ibadan, Nigeria.
- Lelo, F., Ayieko, J., Makenzi, P., Muhia, N., Njeremani, D., Muiruri, H., Omollo, J. and Ochola, W. (1995). A PRA Field Handbook for Participatory Rural Appraisal Practitioners.
- Munga, T.L. (2000). Root and Tuber crops. In: Annual Report (2000), Regional Research Centre, KARI-Mtwapa. Internal report.
- Nicholson, C.F., Thornton, P.K., Mohammed, L., Munga, R.W., Mwamachi, D.M., Elbasha, E.H., Staal, S.J. and Thorpe, W. (1999). Smallholder Dairy Technology in Coastal Kenya. An adoption and impact study. ILRI (International Livestock Research Institute), Nairobi, Kenya. 68 pp.
- State of the Art. (1999). Regional Research Programme, Mtwapa. Internal Report No. 28. Eds. Munga, R.W., Kamau, G.M., Munga, T.L., Muniu, F.K., Mwamachi, D. and Saha, H.