

Cashew production in the northern part of Ghana

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Abstract

A survey was conducted in 1997 among farmers in the cashew growing areas of Brong-Ahafo, Northern, Upper East and Upper West regions. The study revealed that 98 per cent of the farmers are small-holders who have only recently responded to the promotion of the crop by the Ministry of Food and Agriculture. Yields of cashew on most farmers fields are very low, resulting from the use of poor quality seed and low yielding cultivars. Ninety-five per cent of the farmers across the regions surveyed intercrop cashew with their usual annual crops. Farmers neither have any recommended cultivars to plant nor do they have information about agronomic practices, such as planting distances and fertilizer rates that should lead to optimum yields. One of the disincentives to cashew production is the complete lack of an organized market in most areas for growers to sell their produce. Future research needs to concentrate on collection, characterization and evaluation of germplasm available in the country in order to identify superior genotypes for recommendation to farmers. Agronomic research is likewise essential since recommended cultivars should go with an optimal crop husbandry package for maximum returns. A rewarding marketing system needs to be developed to sustain production.

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Introduction

Cashew (*Anacardium occidentale* L.) is increasingly becoming a popular non-traditional export crop in Ghana. Cashew fruit is either eaten fresh or processed into soft drinks, jams, alcohol and honey (Anon., 1997). The fruit contains a high level of vitamin C. It is widely used as dessert and also in confectionery. The nut has a high level of malic acid and is used in some parts of northern Ghana for tattooing. The shell or pericarp of the nuts is very rich in phenol-containing oils, which are used in many industrial applications such as waterproofing, preservative, oil-proof brake linings for high performance cars after distillation and polymerization, inks, oil- and acid-proof cements and tiles (Purseglove, 1988; Rice *et al.*, 1993; Samson, 1992; Kochhar, 1986). In Ghana, its potential lies not only in providing good nutritional balance to farm families but also in boosting the incomes and, hence, the standard of living of such families. In addition, it has a good export potential and can generate the needed foreign exchange for national development. As one of the non-traditional export crops, the total export volume from cashew reached 289 mt in 1995

(Ghana Export Promotion Council, Provisional Report, 1994/5). However, in spite of this enormous potential and vigorous promotion by the Ministry of Food and Agriculture (MOFA), not much work has been done by way of technology generation and transfer in the past. Farmers have virtually no information on the crop's agronomic requirements, pests and diseases and their control, as well as marketing channels for the produce.

Germplasm available in the country is diverse but there is no background information on them. Consequently, farmers plant any seed they obtain resulting, most often, in the realization of very low yields. There is, therefore, the need to study the socio-economic circumstances of cashew production in Ghana and to conduct research into the agronomy, breeding and other production constraints faced by farmers. Surveys act as vital tools for gathering information from farmers. Such information forms the basis for planning research activities and, thus, help researchers address relevant farmers' needs in different agro-ecological zones. Such location specific research generates location-specific recommendations

with a higher degree of adoption and diffusion.

An informal/exploratory survey was conducted by scientists involved in the National Agricultural Research Project (NARP) Tropical Fruits Programme in the northern parts of Ghana, viz. Brong-Ahafo, Northern, Upper East and Upper West regions from 3rd to 19th August 1997. The objectives of the study were to 1. gather information about farmers' production practices, production constraints and other factors that influence their decision making; 2. examine the status of expansion of the crop in the country; 3. identify marketing and utilization constraints; 4. gather baseline information to facilitate the conducting of a formal survey and future adoption and impact studies on technologies developed; 5. identify recommendation domains and their technological characteristics which will form the basis for designing future research trial.

Materials and methods

The core survey team was made up of one agricultural economist, one virologist, a plant breeder and a plant pathologist. In each area visited, one or two agricultural extension officers in charge of the area were included. Since the crop is not grown by all farmers within any particular locality, regional staff of MOFA acted as key informants. These officers provided the team with a list of important areas of cultivation since they are in those areas and also in constant contact with the farmers. A total of 100 farmers were then visited based on the information provided. The areas visited included some parts of the Tamale, Savelugu and Bole districts of the Northern Region; Wa, Nadawli and Tumu districts of Upper West Region; Navrongo and Bolgatanga districts of the Upper East Region; Techiman and Kintampo districts of Brong-Ahafo Region. The locations/districts were chosen because they were known to have increasing numbers of relatively new cashew farmers.

Results

Areas under cultivation

Across all the regions and districts visited most of the farmers involved in cashew cultivation are small holders having between 1-3 acres. A few farmers (2%), however, cultivated up to 25 acres. Eighty per cent (80%) of the farmers with relatively large acreages developed their plantations gradually. Their cashew fields, therefore, had plants at different stages of development.

Land preparation

Farmers normally slashed and burnt their fields in the Brong Ahafo Region. Some plant their cashew after this whilst others plough in addition before planting. In the three northern regions, 70 per cent of the farmers use hoe to clear and loosen the soil before planting. Those who can afford tractor services plough and harrow their fields. In these regions, 95 per cent of farmers intercrop cashew with staples such as cowpea, millet, sorghum and groundnuts. It was realised that 98 per cent of farmers in these regions clear and prepare their fields primarily for the cultivation of these annuals, and cashew is then planted later.

Planting

In the Brong Ahafo Region, 97 per cent farmers obtain seeds or seedlings for planting from private seed merchants and colleague farmers. Farmers in all the regions also obtain seeds/seedlings for planting from either the Agroforestry Unit of MOFA or from the aforementioned sources. In the Northern, Upper East and Upper West regions, MOFA is encouraging private nurseries. Farmers plant at the onset of the rainy season, i.e. around May, till July. Planting distances across all the four regions ranged from 6 m × 6 m to 10 m × 10 m. However, to enable the incorporation of intercrops 85 per cent farmers use the 10 m × 10 m planting distance. No proper agronomic work has been carried out to determine optimum densities that would fit in to the various cropping systems.

Varieties planted

There are no identifiable varieties planted in any of the areas visited. Neither the MOFA officials nor farmers could tell the original sources or the names of the various cultivars planted. Some farmers (20%) plant cultivars from a wide variety of sources. Consequently, the plants have varying degrees of germination, maturity periods, yield and other important crop characteristics. There appears to be no barriers to the flow of planting materials. The cashew seed/seedling market is proliferated with seeds from several sources and does not conform to any quality standards. A lot of field losses, especially low yields, could be attributed to the way planting materials are acquired for utilization.

Weeding

As in the case of land preparation, farmers generally pay more attention to the annual crops inter-planted with the cashew. This is more so in the northern regions, i.e. Northern, Upper West and Upper East regions). Weeding is done generally about two to six times in a year depending on the types of intercrops, stage of growth of the cashew and type of weed pressure. Five per cent of farmers interviewed prune their cashew trees after every 2 years. Annual ploughing of the fields for intercropping with the annuals helps suppress weed growth.

Soil fertility management

Farmers do not normally apply inorganic fertilizer to their cashew plantations. Two per cent of farmers apply organic manure such as cow dung to their cashew trees. A Roman Catholic Church project at Bole applies compound fertilizer, NPK, to their cashew plants. The team was informed that fertilizer results in early fruiting, i.e. fruiting after 2 years. There are no recommended fertilizer rates at the moment. Fertility management requires further investigations and recommendations.

Pests and diseases

In most of the areas visited no serious cases of pests and diseases were reported. Incidence of insect pests and diseases were observed on some of the established farms visited. These also require further investigation to determine economic thresholds for control. Farmers who reported of insect attacks attributed the high rate of flower abortion to the insect infestation. In the Upper West Region, gum exudation from the lower portion of some tree stems was observed. The exudation was suspected to have been caused by fungal infection predisposed by cutlass wounds and other field implements. Further field and laboratory investigations are required for complete diagnosis, treatment and control. There were also reports of high flower abortion in all areas visited which had matured trees.

Marketing and utilization

This is the most important constraint to cashew production in the locations covered in the study. There was no organized system in place at any of the producing areas. The Cashew and Spices Product Company (CASHPRO) purchases from farmers in the Brong-Ahafo Region. In the Northern and Upper West regions, MOFA buys some of the high quality produce as seed. These are nursed and sold to other farmers. NAJEEM, a cotton company, also buys from farmers in the Upper West Region. Other farmers produce and give out the produce to their neighbours to plant because there is no buyer and they did not know what to do with them. Some farmers in the Upper East Region were not even aware that the nuts are useful and so they threw them away after eating the apples. In this region the apples are rather in greater demand as they sell at about 50 cedis on the average and 100 cedis for big size apples. Apart from the top grade nuts which attracts a price of ₵240,000.00 and ₵96,000.00 per 100 kg by MOFA in Tamale and Wa, respectively,

the other grades were taken at give-away prices. Some prices gathered during the survey are given in Table 1.

Market organization should go along with utilization campaigns to develop the local market for the produce. Some farmers in the Northern Region have abandoned their plantations while others have stopped further expansion because of marketing problems. The investigating team realized that yields were very low in most areas and so the quantity of produce in one area may not be enough for any efficient assemblage and transportation to major marketing centres. For the same reason, it will not be economically viable for private buying organizations to step in the trade only to buy small quantity of nuts. Only the Catholic Church projects at Bole and Tano Boasi near Techiman harvested 1.2 and 6.5 tons, respectively, from their fields. The harvest at Bole was from 6 acres, while that at Tano Boasi was from a 100-acres plot of plants at various stages of maturity, the oldest trees being 6-7 years.

Discussion

The production of cashew appears to have several problems. Most of these production constraints could be solved with appropriate research effort and marketing policy.

Germplasm collection and characterization

It has already been mentioned that currently the sources of varieties being cultivated by farmers are not clearly defined. The characteristics of such varieties are also not known. There is, therefore, the need for collection, characterization and evaluation of all germplasm available in the country at the moment so that those with superior qualities could be identified and recommended for adoption. There is also the need to name these cultivars to avoid the current confusion.

Agronomic trials

Since most farmers currently intercrop cashew with the important staples grown, there is the need to determine optimum planting distances that fit the various cropping systems under the various farming systems. It was also reported that application of fertilizer results in early fruiting and also higher yields. This needs further investigation to determine optimum rates and times of application.

Pests and diseases control

The survey identified pests, like insects, and diseases. These need further monitoring to determine thresholds and appropriate control

TABLE 1

Producer Prices of Cashew Nuts in the Brong-Ahafo, Northern, Upper West and East Regions of Ghana, August 1997

<i>Location</i>	<i>Region</i>	<i>Price/Unit(¢)</i>	<i>Comments</i>
Tamale	Northern	240,000/100 kg or 120,000/100kg	Purchased by MOFA as seed By private buyers
Ligba	Northern	5000/maxi bowl equivalent to 200,000/10 kg)	By private buyers
Wa	Upper West	96,000/100 kg 40,000/100 kg 16,000/100 kg	Purchase by MOF A as seed (First grade). Prices paid by NAJEEM for 2nd and 3rd grade nuts, respectively
Techiman and Kintanpo	Brong-Ahafo	650- 700/100 kg	Purchased by CASHPRO

measures.

In general, it can be said that farmers have taken up the promotional campaigns from the staff of MOFA and have gone into cashew production. Marketing is the greatest constraint to further expansion and development. There is a good potential for much higher levels of production if high yielding varieties are developed and promoted along with good agronomic packages.

REFERENCES

- Anon.** (1997) *Study Tour Report on the Cashew Industry in Brazil*. Seminar at Miklin Hotel, Accra, Ghana.
- Ghana Export Promotion Council** (1995) *Provisional Report 1994/5*.
- Kochhar, S. L.** (1986) *Tropical crops - a textbook of economic botany*. Macmillan Publishers.
- Purseglove, J. W.** (1988) *Tropical crops. Dicotyledons*. Longman.
- Rice, R. P., Rice, L. W. & Tindall, H. D.** (1995) *Fruit and vegetable production in Africa*. Macmillan Publishers.
- Samson, J. A.** (1992) *Tropical fruits*. Longman Scientific and Technical/ John Wiley and Sons Inc., New York.