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Socio-economic constraints to potato production, processing, and marketing in Nigeria

O. P. Fawole & M. O. Akoroda†

Department of Agricultural Extension & Rural Development, University of Ibadan, Nigeria

†Department of Agronomy, University of Ibadan, University of Ibadan, Nigeria

Abstract

Potato production is largely on smallholder farms scattered around the Plateau of northern Nigeria and concentrated particularly in areas around Jos. Yields of 4.65 tonnes per hectare obtained by smallholder farmers is about 40 percent of the potential yield. Reasons for this relatively low output are limited cultivated land, low adoption of improved practices and limited use of potato. Similarly, marketing of the crop is dominated by middlemen, to whom most of the profit accrue thereby serving as a disincentive to the small holder farmers. There is, therefore, a need for adoption of improved production techniques, development of appropriate and affordable storage and processing technologies, more efficient distribution and marketing system and an effective extension service to improve current potato production in Nigeria.

Key words: Potato, production, socio-economic constraints

Résumé

La production de la pomme de terre est largement cultivée dans des champs des petits fermiers au tour du Plateau au Nord du Nigeria et particulièrement concentrés dans les régions de Jos. Les rendements obtenus de 4.65t/ha par des agriculteurs représentent à peu près 40% du rendement potentiel. Des raisons de ce faible rendement sont la superficie de terre cultivée limitée, la faible adoption des pratiques culturales et l'utilisation limitée de la pomme de terre. De même la commercialisation de la pomme de terre est dominée par des hommes intermediaire du commerce, qui profitent beaucoup trop laissant ainsi les petits exploitants sans motivation. Il ya ainsi un besoin d'adopter des techniques améliorées de production, de développement des technologies de stockage et de transformation appropriées et abordables, une distribution et système commercial plus efficace et un service de vulgarisation effectif pour améliorer la production actuelle de la pomme de terre au Nigeria.

Mots clés: Pomme de terre, production, contraintes socio-économiques

Introduction

Potato (*Solanum tuberosum* L.) is an important root crop in Nigeria, with a strong preference from white population and elite Nigerians residing in urban centres of Lagos, Port-Harcourt, Warri and at Abuja. Most state capitals (36 in all) also have a sizeable population of people with potato tongue.

The socio-economic constraints mainly exist in the areas of production, processing, and marketing though the crop is an alternative to several other carbohydrate crops in Nigeria. Its late arrival to the Nigerian food systems has not afforded it a pride of place relative to rice, maize, sorghum, cassava, plantain, and yam. Yet, its rise in the food sector is evident in its increasing share of the daily calorific consumption especially in Plateau, Taraba and Adamawa states of north-eastern Nigeria.

The objective of this paper is to provide a national outlook to the current system for potato as a food crop with particular highlight on the socio-economic constraints hampering the full realisation of this worldwide crop of rich starch and appreciable protein content in Nigeria.

Methodology

The study examined Nigerian data from the following sources: National Root Crop Research Institute (NRCRI),

Umudike-Umuahia, Nigeria, Federal Ministry of Agriculture, Nigeria, Central Bank of Nigeria Annual Report, as well as more recently acquired information from the internet downloaded from FAO database to provide figures for area harvested, production, yield including the proportion of potato tuber used as seed (planted material). Finally, a rapid rural assessment (RRA) was undertaken in Ibadan to determine current marketing system and associated problems.

Production

In Nigeria, potato is grown in the Plateaux of Jos, Biu, Mambila, and areas around Zaria, Kano and parts of Adamawa and Taraba States in the north. It is also grown in Obudu Plateau of Cross Rivers State in the south east of the country (NRCRI, 1980). These areas experience the required minimum temperature of 15°C for potato cultivation during the growing periods (Ifenkwe, 1998).

Potato production is largely in the hands of smallholder farmers in Nigeria. These farmers obtain an average of 4.65 t/ha (FAO, 1999) which is about 40 percent of the potential tuber yield obtained on research fields (Ekpere, 1991).

According to Ekpere (1991) several reasons have been adduced for the relatively low net return per hectare of potato on smallholder farms. These included land area cultivated, low soil fertility, poor management

practices and prevalence of pests and diseases. Other socio-economic constraints include poorly organised seed supply and tuber storage problems.

Land area cultivated

Potato cultivation in Nigeria is not widespread because of the specific growth conditions required. Of these, temperature needs are most restrictive, as it is not found in lowland areas except in few local government areas in northern Nigeria. The area of land cultivated to potato is thus limited and this in itself restricts potato output and explains in part the low level of potato production in Nigeria.

The trend of the area cultivated, production and yield of potato (FMA, 1997) are indicated in Table 1. Area cultivated to potato increased from 7,000 ha in 1984 to 230,000 ha in 1999 equivalent to a three-fold increase. Similarly, production rose annually from 28,000 tonnes in 1975 to 107,000 tonnes in 1999 representing a four-fold increase. Tuber yield, however, decreased generally from 6-7 t/ha during the 15 years to less than 5 t/ha in 1999. The implications are that potato output over the years has increased significantly though yields have been consistently low at around 5 t/ha which is a third of the world's average (CIP, 1998). This suggests that there are problems either with marginal suitability of the areas of land cultivated or poor soils due to low adoption of fertiliser use, poor crop management by potato farmers and short fallow periods. The varieties grown could also be less well adapted to the 23,000 ha of land scattered over the seven states where potatoes are produced.

The farm size distribution among farmers in the major potato growing areas also explains the low potato output, which is land related. According to FOS (1999), close to 60 percent of farmers in the northeast, which is the major potato growing area in Nigeria, have farmland less than 5 ha. Thus, efficient large scale equipment cannot be used in production. Animal and human labour dominate farm operations. Tractorisation is still poorly integrated. That majority of these farmers cultivate small hectares, hence their consistently low production output of potato.

Use of fertiliser

The use of fertiliser has been reported to improve potato production on research fields. Okonkwo & Ifenkwe (1983) reported significant potato tuber yield with the use of fertiliser, of which a yield of up to 26 t/ha has been recorded on experimental plots (NRCRI, 1986). However, fertiliser use is not usually the case on smallholder farms where the bulk of potato in Nigeria is produced. This could be as a result of ineffective input delivery arrangements, the high cost of fertiliser and poor local extension services relative to the crop. Indeed, a Central Bank of Nigeria (1999) report on agricultural production corroborates these issues. It stated that the crop sub-sector experienced shortages in the supply of fertilisers. The shortfall in this commodity resulted in higher sale prices as a 50 kg bag of fertiliser sold for N2,100 on the average during the year 1998 as against an average price of N1,400 in 1997. This implies a 50

percent increase in prices which is not realisable from produce sales. Thus, the farmers cannot afford to apply fertiliser to their potato crop.

Seed supply

Seed availability is a major constraint to the expansion of potato production in Nigeria. Every year an average of 15 tonnes of seed potato are produced for the National Seed Service for distribution to state governments (NRCRI, 1986). This is rather low and does not meet the seed needs of farmers. Usually, about 1.67 t/ha is good planting seed rate and tuber yield is reduced from 20 t/ha to 16 t/ha when half-size seed is used and even fell to 12 t/ha when a quarter-size seed is planted (Ifenkwe & Okonkwo, 1988).

Attempts to generate more seed tubers rapidly as a means of satisfying this requirement through seed multiplication programmes have not yet yielded the desired results. For example, from a total potato seed multiplication 4.5 ha yielded only 16 tonnes of seed tuber, 13 t of ware tuber were obtained, whereas 2.8 t accounted for losses due to damage or tiny tubers (NRCRI, 1989). Similarly, FAO (1999) reported that seed constituted 19,550 metric tonnes out of a total production of 107,000 metric tonnes of potato harvested in Nigeria during 1999. This is equivalent to 18.3 percent of the output. In both reports, the

Table 1. Selected statistics of potato production in Nigeria: 1975-1999.

Period	Cultivated area (000 ha)	Production (000 t)	Yield (t/ha)
1975	-	28	-
1976	-	30	-
1977	-	32	-
1978	-	34	-
1979	-	38	-
1980	-	40	-
1981	-	38	-
1982	-	40	-
1983	-	38	-
1984	7	42	6.00
1985	7	43	6.14
1986	8	46	5.75
1987	8	45	5.62
1988	7	44	6.28
1989	8	50	6.25
1990	8	54	6.75
1991	9	66	7.33
1992	10	73	7.30
1993	11	80	7.27
1994	13	90	6.92
1995	14	95	6.78
1996	20	99	4.95
1997	-	-	-
1998	-	-	-
1999	23	107	4.65

Source: FMA (1997) and FAO (1999).

Wholesale trade

At the Ibadan central depot, a 100 kg jute bag of potato is sold during the period of glut at N2,000-N2,500 but is N4,000-N4,500 during the normal period. At scarcity, the price rises to N5,000-N5,500. Wholesalers take about 5-7 days to sell 10 - 13 jute bags of potato at the Ibadan central depot. Storage is in stalls with wood pallets to prevent contact with the soil. Spoilage is minimal. However, when spoilage is noticed during hot weather, spoiled potatoes are sorted and disposed of.

Retail trade

Retailers purchase potato from wholesalers weekly, usually on Fridays at the Ibadan central depot. Payment for bags purchased can be instant by cash or after sale of potato by credit to retailers. Retailers sell potato by the kilogram weight at N30-N35 during glut, N50 during normal period, and N60 during scarcity. Retailers sell a jute bag of potato in 5-7 days.

Retailers store potatoes in open baskets to avoid spoilage. Freshly harvested potatoes spoil easily and 5-7 kg is lost per bag. Old potatoes do not spoil easily. Problem with old potatoes is that of shrinkage resulting in weight loss of 5-10 kg per bag. Occasionally, sprouting is another storage problem with old potatoes.

The retail prices of potato are much higher compared to prices at source. According to CBN (1999) increase in urban market retail prices were largely due to rising cost of production and transportation costs, occasioned largely by persistent shortage of fuel and other petroleum products for motor transport. The poor condition of some rural roads also contributes to the hike in food prices as evacuation of farm produce to urban centres attracts high transportation cost which are eventually passed on to consumers.

Conclusion

Potato as a major staple food in Nigeria is currently increasing its share of food calorie intake by the Nigerian population. In the 23,000 ha under production, yields are yet low with poor agronomic input utilisation. Poor price structures for input and produce do not facilitate a more widespread adoption of effective production, processing and marketing.

The future is bright if soil fertility is improved and the extension of known technology made to producing farmers in areas with adequate agro-ecologic conditions for potato production in Nigeria.

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