

Agricultural Policy in the Cassava Sub-Sector: Implications for Welfare of Cassava Farmers in Nigeria

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Abstract

This study assessed selected agricultural policy packages in the cassava sub-sector and its implications for the welfare of cassava farmers in Nigeria using farm-level data collected from randomly sampled 360 cassava farmers in Benue State. Data were analysed using frequency distribution, percentages and means, minimum and maximum. The finding of the study indicated that the favorable policy intervention of government in the cassava sub-sector resulted to an improvement in the cassava output of the cassava farmers in Nigeria. Furthermore, the study showed that the favorable policy environment in the cassava industry brought about an improvement in the income generation of the cassava farmers from their cassava enterprises. There was a reduction in farm costs through the adoption of cost reducing technologies made available to the farmers through the policy intervention. The study revealed that the friendly policy environment in the cassava sub-sector led to the expansion of farmland under cassava production. Policies that would guarantee provision of adequate modern production resources to the cassava farmers are strongly advocated. This ensures that cassava farmers have access to sufficient production resources that would enable them to increase their resource utilization thereby expanding their cassava production by expanding hectareage under cassava production.

Key words: agricultural policy packages, cassava sub-sector, welfare, cassava farmers, friendly policy environment

Introduction

Over the years, agriculture's contribution to the Gross Domestic Product (GDP) has moved inversely with the rise and fall in oil revenues, peaking at 45 percent before the oil boom in the early 1970s, and stabilizing at about 38 percent after the Structural Adjustment Programme (SAP) in the mid-1990s. In the oil boom period, pursuance of macroeconomic policies adverse to the sector displaced labour from the rural to urban centres in search of more remunerative employment (in public

services, manufacturing and construction), and this led to a virtual stagnation in agricultural growth (IFAD, 1999). The introduction of SAP in 1986 reversed the trend by reducing price distortions and removing administrative controls on agricultural exports (IFAD, 1999).

In January 1988, the Federal Government of Nigeria (FGN) issued an agricultural policy statement, which outlined its agricultural development strategy and growth prospects. The underlying goal of the FGN was to attain a massive structural transformation of Nigeria's agricultural production technology from the current low input-low output technology to a high input-high output technology. The development strategy adopted involved a combination of agricultural inputs (mainly fertilizer, credit and unified extension services), on-farm adaptive research, and programmes on rural infrastructure (feeder roads, water supply and rural electrification), storage schemes and irrigation schemes (IFAD, 1999). In line with the FGN's policy statement, the World Bank prepared an agriculture sector report to identify specific actions needed to attain the FGN's objectives. The initial projected agricultural growth was 4-5 percent per annum, with 1.3 percent growth expected from expansion of private irrigation, 1.2 percent from increase in cultivated area, and 2.0 percent from improved technology as well as improved availability and more efficient use of inputs such as fertilizers (IFAD, 1999). The sustainable expansion of input-intensive production systems, however, has been brought into question by the unfavourable input supply and credit conditions. As long as these unfavourable conditions persist, inexpensive and low-input technology improvements have a better chance of being adopted by poor farmers (IFAD, 1999).

The dramatic expansion of Nigerian's oil exports in the 1970s increased the real rate of growth of per capita Gross National Product (GNP) by 5.3 percent and sparked massive rural-to-urban migration together with high urban demand for food (Akande, 2000). During the 1970s, government used foreign earnings from petroleum exports to pay for food imports. From 1976 to 1985, for example, the annual per capita rice imports increased by more than 1,500 percent of its 1961 to 1965 level. The substantially over-valued Naira effectively subsidized the consumer price of imported rice (Nweke, 2004). In addition, the Nigerian National Supply Company Limited, a money-losing government agency, further subsidized rice consumers by selling rice at a uniform price nationwide and absorbing transportation costs. The resulting quantum jump in subsidized rice and wheat imports artificially depressed the price of *gari* and acted as a constraint on the spread of the Tropical Manioc Selection (TMS) varieties from the late 1970s to 1985. The Nigerian government's policy of subsidized grain imports, undoubtedly, contributed to unstable growth in cassava production from 1971 to 1986 (Nweke, 2004).

Likewise, during the early 1980's government subsidy on fertilizer ranged from 72 percent to 85 percent of the farm delivered price (Nweke, 2004). Not surprisingly, use quintupled, increasing from 100,000 tons in 1980 to 518, 120 tons in 1990 (Akande, 2000). Cassava, however, did not benefit from the fertilizer subsidy (Nweke, 2004). In Nigeria, the Collaborative Study on Cassava in Africa (COSCA) study found that chemical fertilizer was used in only 15 percent of cassava fields compared to 52 percent of maize fields.

By the early 1980s, rapid petroleum-led economic growth had slowed down significantly (Nweke, 2004). The declining petroleum revenue in the mid-1980s apparently spurred renewed interest in cassava and other food staples by the Nigerian government. Owing to declining petroleum revenue, the Nigerian government was no longer able to finance large-scale subsidized grain imports to feed the country's large urban population.

In 1985, the Nigerian government banned the importation of wheat, rice and maize and the exports of yam and cassava products. The following year, the government adopted a Structural Adjustment Programme (SAP), which consisted of a number of policy reforms, including the

devaluation of the Naira (Akande, 2000). The ban on food import, the SAP and the currency devaluation contributed immensely to the rapid diffusion of the TMS varieties.

Prior to the implementation of SAP in 1986, the marketing of cassava and its products had limited government intervention. Except for less than one year in 1977 when cassava marketing came under the now defunct Nigerian Root Crops Marketing Board, the marketing system has remained in the hands of private traders (World Bank, 2000).

The dramatic increases in prices of most tradable agricultural exports that accompanied the devaluation of the Naira and the liberalization of exports were not applicable to cassava and cassava products to any significant extent because as an internationally non-tradable staple food product, prices were not directly influenced by world market development (World Bank, 2000).

The main source of price increase for cassava and its products on account of SAP and market liberalization policies was indirect, through increase in the prices of substitute products such as rice, wheat and maize (World Bank, 2000). The ban placed on the importation of these tradable products raised their domestic prices, thus, reducing their demands, such that consumers switched over to the consumption of cassava and its products. This culminated in price increases. But the increases were short-lived because of inconsistent government policies (Manyong *et al*, 2003), which include the lifting of the ban on the importation of substitute products such as rice, wheat and maize; the exclusion of cassava in tradable food exports, which eventually depressed the price of cassava and its products in Nigeria. Market liberalization has not had the desired positive effect on prices of cassava and its products (FACU, 1993; Nweke, 2004).

However, the Federal Government of Nigeria added some impetus to the global efforts in the development of cassava by putting in place a 'Presidential Committee on Cassava for Exports', with the mandate to ensure that the country becomes the world-acknowledged cassava-exporting nation (Abdullahi, 2003). The Federal Government of Nigeria had directed that all bread produced in Nigeria must contain 10% cassava (Gumm, 2005). Nigerian government also entered into trade agreement on cassava exports with China and South Africa, in which Nigeria is to export about 1 million metric tons of cassava chips to China every year (Gumm, 2005; Nigeria Tribune, 2005; Xinhua, 2005). As a follow up to the cassava trade agreement with China, Nigeria started cassava exportation to China with 40 metric tons of cassava chips (Gumm, 2005). According to Eno (2004), Nigeria is producing 40 million tons of cassava roots up from 36 million tons while the average yield is 10 tons. Anga (2004) noted that cassava yield (productivity) could be easily increased by over 100% (from 10 t/ha to 30 t/ha).

According to Abdullahi (2003), favourable policy direction of government encouraged cassava development leading to a new orientation in the research-extension-farmers linkage, especially in the IFAD-assisted Cassava Multiplication Programme (CMP); and subsequently in the Roots and Tubers Expansion Programme (RTEP) (Dambatta, 2004). The Raw Material Research and Development Council (RMRDC) sponsors research projects on cassava processing equipment fabrication (Abdullahi, 2003).

Ezedinma and Oti (2001) reported that labour-saving machinery for such processing stages like peeling, slicing/chipping, grinding, sieving and drying are non-existent at the village farm levels. These machines exist at the research institute level (Nwokedi, 1984; Odigbo, 1985; Kwatia, 1986; IITA, 1990) but their precision, efficiency and suitability to the investment portfolio capacity of the smallholder farmer are problematic and consequently deter farm level dissemination (Ezedinma and Oti, 2001).

The system for traditional crops including cassava and its products is characterized by fluctuations in supply, and the law of supply and demand determines product prices (World Bank, 2000). According to the report of World Bank (2000), the marketing arrangements for cassava and

cassava-based products were devoid of government intervention, such that the market operated without distortion. It noted that marketing activities were carried-out by private traders who operate in both rural and urban markets.

Given the government policy interventions focused on cassava in Nigeria, this study is designed to assess selected government agricultural development policies in the cassava sub-sector and its implications for the welfare of cassava farmers in Nigeria. The specific objectives of the study are to:

- i. articulate specific policy packages focused on cassava;
- ii. analyze the demographic characteristics of cassava farmers in Benue State; and
- iii. analyze the socio-economic characteristics of cassava farmers in Benue State;

Methodology

The Study Area

Benue State derives its name from River Benue, the second largest River in Nigeria. The State, created in 1976, is located in the middle Belt region of Nigeria, approximately between latitudes $6\frac{1}{2}^{\circ}$ and $8\frac{1}{2}^{\circ}$ N and longitude $7\frac{1}{2}^{\circ}$ and 10° E.

The State shares boundaries with five states namely, Nasarawa to the North, Taraba to the East, Cross River to the South-East, Enugu to the South-West, and Kogi to the West. The Southern part of the State also shares boundary with the Republic of Cameroon. The State is also bordered on the North by 280 km River Benue, and is traversed by 202 km of River Katsina-Ala in the inland areas.

The State has a total land area of about 30,955 square kilometers and administratively it is divided into 23 Local Government Areas. Benue State has an estimated population of 2,780,398, and is made up of 413,159 farm families (National Population Commission, 1991b; Crop Area and Yield Survey, 1998).

Benue State has a tropical climate, which manifests two distinct seasons. The rainy season is from April to October while the dry season is from November to March. Annual average rainfall varies from 1750 mm in the Southern part of the State to 1250 mm in the North. In the mountain region of Kashimbia area average rainfall rises up to 400 mm. The hot season comes in mid April with temperatures between 32° C and 38° C with high humidity. The State stretches across the transition belt between the forest and savanna vegetations. Much of the area consists of undulating hills or grassy open space on the North and derived Savanna in the South.

Benue State is referred to as the Food Basket of Nigeria because of the abundance of its agricultural resources. About 80% of the State population is estimated to be directly involved in semi-subsistence agriculture. The State is a major producer of food and cash crops like cassava, yams, rice, benniseed and maize. Others include sweet potato, millet and a wide range of other crops like soyabeans, sugar cane, oil palm, mango, citrus and bananas.

Nigeria has 3.5 million hectares of cassava land across the country (Eno, 2004). Benue State has a total land area of 310 million hectares, and agricultural land is estimated to be about 180 million hectares or more than 58% of the total land area (BMANR, 2003). At present only about 138 million hectares is used i.e. more than 76% of the cultivable land (BMANR, 2003).

Nigeria is the largest producer of cassava tuber in the World with an estimated production figure of 40 million metric tons of cassava tubers per annum (Eno, 2004) and Benue State is a leading producer of cassava in Nigeria, accounting for more than 8.87% of the total cassava output in Nigeria (BMANR, 2003). Apart from the ecological support for cassava growth and population, Benue State has mounted deliberate strategies such as distribution of improved varieties to sustain its leading role in cassava production in the country (BMANR, 2003).

While different varieties of cassava can be adequately grown across the State, some Local Government Areas like Logo, Ukum, Katsina-Ala, Gboko, Buruku, Agatu, Otukpo, Okpokwu and Ohimini, as well as Ado, Konshisha and Vandeikya are blessed with additional advantages in terms of ecological adaptation to the production of the crop (BMANR, 2003; PFD, 2004). The Benue State ADP, Benue State Agricultural and Rural Development Authority (BNARDA), benefited from IFAD loan, which became effective in 1987 but closed June, 1997 (PME, 1996; PME, 2004). Benue State government took another loan as a follow up from IFAD, the Roots and Tuber Expansion Programme (RTEP), which became loan effective in July, 2001 and disbursement effective July, 2002 (PME, 2004).

Sampling Technique

It was reliably gathered from Benue State Agricultural and Rural Development Authority (BNARDA) that there are 4,013 cassava farmers in Benue State. Only 75 percent (3010 cassava farmers) of this population has benefited from the IFAD-assisted cassava multiplication programme (PME, 1996), and Roots and Tubers Expansion Programme (RTEP) (PME, 2004). Since it was impractical and uneconomic to obtain information from the entire population, a sample of the population was used for the study.

Benue State is divided into three agricultural zones namely, Zone A, Zone B and Zone C. A total of nine Local Government Areas were selected for the study under the guide of ADP workers in BNARDA. Particularly, areas that apparently have benefited from the IFAD-assisted Cassava Multiplication Programme (CMP) and other government policy interventions focused on cassava such as Roots and Tubers Expansion Programme (RTEP) were selected for the study. From each Zone, three Local Government Areas were selected using randomized sampling design in the first phase multistage sampling design.

From each of the nine selected Local Government Areas in Benue State, two communities that typify the State in terms of cassava production were drawn employing a randomized sampling design. Finally, from each community, 20 households were drawn for the study through a randomized sampling design. A total of 360 cassava farmers were selected for the study using the randomized sampling design. This consists of both male and female farmers.

Data Collection

Data were collected from both primary and secondary sources. Primary data for the study were generated through the use of a structured questionnaire, copies of which were administered to 360 cassava farmers selected for the study in the study area. This sample was randomly drawn from the nine Local Government Areas (Logo, Katsina-ala, Ukum, Gboko, Tarka, Buruku, Otukpo, Okpokwu and Ohimini) that were selected for the study.

Secondary data was collected from the Benue State Ministry of Agriculture and Natural Resources (BMANR) on the cassava output, cassava cultivated area and mean yield of cassava in Benue State from 1996 to 2002. Secondary data and information were also gleaned from Nweke *et al.* (2002), Nweke (2004) and PME (2004).

Measurement of Variables

- i. Age: This was measured in years.
- ii. Sex: This indicated the gender of the respondents as male or female.
- iii. Marital status: This indicated the marital status of the respondents as single, married, divorced, widow, or widower.

- iv. Household size: This indicated the number of wives and children in the family.
- v. Farm size: This was the total area of farmland under cassava production in hectares.
- vi. Education: This indicated the highest educational attainment of the respondents as primary, secondary, post-secondary or no education at all.
- vii. Farming experience: This was measured in terms of the period of time a farmer has been growing cassava in years.
- viii. Farm income: This was the total income from the cassava farm annually in Naira.
- ix. Family labour: This was measured in terms of number of man-days of family labour used for production. Eight hours of work equals one man-day.
- x. Hired labour cost: This was the total cash expenditure on hired labour in Naira.
- xi. Fertilizer quantity: This was the total amount of fertilizer used for production in kilograms.
- xii. Cassava variety: A dummy variable, which takes the value one for improved cassava variety and the value zero for local (traditional) variety.
- xiii. Cassava processing technology: A dummy variable, which takes the value one for improved (mechanized) processing technology and the value zero for local (manual) processing technology.
- xiv. Market access: A dummy variable, which takes the value one for good market access and the value zero for poor market access. For the purpose of this study, it was assumed that the marketable surplus produced by a farmer depends on his access to markets where he can dispose of them. Therefore, in this study, farmers who declare marketable surplus of more than 50% was said to have good access to markets and was assigned the value one, and farmers who declared marketable surplus of less than or equal to 50% was said to have poor access to markets and was assigned the value zero. Marketable surplus in this context referred to proportion of the farmer's farm produce supplied to the market for sale.
- xv. Extension services: A dummy variable, which takes the value zero for non-access to extension services and the value one for access to extension services.
- xvi. Cassava output: This was the total amount of cassava production per annum in kilograms.
- xvii. Production cost: This was the total cost incurred on production per annum in Naira.
- xviii. Cassava stems planted: This was the total number of cassava stems used as planting material.
- xix. Price: This was the prevailing village market price of cassava product in Naira.
- xx. *Gari* yield: This was the total quantity of *gari* produced per annum in kilograms.
- xxi. Processing cost: This was the total cost incurred on cassava processing per annum in Naira.
- xxii. Wage rate: This was the cost of hired labour per hectare in Naira.
- xxiii. Occupation: This was measured in terms of the number of the respondents that engaged in farming as primary occupation or secondary occupation.

Data Analysis

Descriptive statistics were adopted for data analysis. The descriptive statistics include frequency distribution, percentages, and means, minimum, maximum and standard deviation. Data on the specified policy packages on cassava (objective i) and the data on the demographic characteristics (objective ii) were analyzed using descriptive statistics such as frequency distribution, percentages, while socio-economic characteristics data (objective iii) were analyzed using descriptive statistics such as frequency distribution, percentages, and means, minimum, maximum and standard deviation.

Results and Discussion

Policy Packages for Cassava

The study investigated policy packages on cassava, which include cassava variety planted, cassava processing technology available, market access and extension services (Table 1). Majority of the respondents (52.78%) planted the local cassava variety while others (47.22%) planted the improved cassava varieties. This result suggests that availability of the improved cassava varieties was a constraint to many of the respondents. This finding validates the observation of PME (2004) that the most desired improved cassava variety (e.g. 92/0057) was relatively scarce. Given the highly improved quality of the improved cassava varieties, there is high demand for them, which makes them to be scarce. This explains why many cassava farmers who could not get them resorted to planting the local variety as an alternative. However, it is important to note that government policy intervention in the cassava sub-sector was an important factor in the rapid diffusion of the desired improved cassava varieties (the TMS varieties). Before the policy intervention of government through IFAD-assisted CMP in 1986, the level of use of these improved cassava varieties was very low until government invested in measures to multiply and distribute the TMS varieties to farmers (IFAD, 1999; Nweke, 2004; PME, 2004). The government policy intervention in the cassava sub-sector also led to decline in the cost per bundle of cassava stems (PME, 2004), such that the demand for them increased, thereby causing their scarcity.

Most of the respondents (68.06%) used the improved cassava processing technology while others (31.94%) used the local cassava processing technology. This result suggests that improved cassava processing technology was available to most of the cassava farmers in Benue State. This finding is in agreement with the observation of Nweke (2004) that improved cassava processing technology was available in most of the cassava-producing villages in Nigeria. Prior to the government policy intervention in the cassava sub-sector, promotion of improved processing packages was limited (IFAD, 1999). However, through the government policy intervention in the cassava industry, there was the introduction of relatively inexpensive purpose-built cassava processing equipment, which led to the achievement of higher returns for the cassava farmers (IFAD, 1999). This explains the high level of patronage of the improved cassava processing technology as observed in the studied area.

The study revealed that 42.78% of the respondents had good access to markets while 57.22% had poor access to markets. This result implies that 42.78% of the respondents declared more than 50% marketable surplus while 57.22% declared less than or equal to 50% marketable surplus. Prior to the government policy intervention, cassava marketable surplus was very low due to less emphasis on cassava processing and marketing in previous government agricultural policy interventions (IFAD, 1999; Nweke, 2004; PME, 2004). However, through the current government policy interventions in the cassava industry improved technological packages have been provided to ensure optimum gains from processing and marketing (IFAD, 1999; Anga, 2004; PME, 2004; Gumm, 2005). This has led to relative increase in the cassava marketable surpluses. Thus, the current level of access to markets as observed among the respondents is only an improvement over the previous situation. Poor access to market can be attributed to inadequate feeder roads network in most rural areas, with many farming communities being inaccessible from the main roads. Moreover, most of the existing feeder roads are poorly maintained, and have difficult accessibility in the rainy season (IFAD, 1999; PME, 2004).

Table 1: Distribution of Cassava Farmers in Benue State by Policy Packages for Cassava

Index	Frequency	Percentage
(i) Cassava variety planted		
Local variety	190	52.78
Improved variety	170	47.22
Total	360	100.0
(ii) Cassava processing technology		
Improved technology	245	68.06
Traditional technology	115	31.94
Total	360	100.0
(iii) Market access		
Good access to markets	154	42.78
Poor access to markets	206	57.22
Total	360	100.0
(iv) Extension services		
Access to extension services	188	52.22
Non-access to extension services	172	47.78
Total	360	100.0

Source: Field Survey, 2005.

Most of the farmers (52.22%) had access to extension services while others (47.78%) had no access to extension services. This result implies that most of the respondents were disposed to adopting agricultural innovations, and as such could manage their farms very well as result of the training they received from the extension agents. Prior to the current government policy intervention in the cassava sub-sector, cassava had always been excluded from government extension programmes (Nweke, 2004). However, the current policy direction has encouraged cassava development leading to a new orientation in research-extension farmers linkage, especially in the IFAD-assisted cassava multiplication programme (CMP), and subsequently the Roots and Tubers Expansion Programme (RTEP) (IFAD, 1999; Abdullahi, 2003; Dambatta, 2004; Nweke, 2004; PME, 2004). This explains the high percentage of access to extension services observed among the respondents.

Demographic Characteristics of the Respondents

The demographic characteristics of the respondents studied include age, sex, marital status, number of wives and number of children (Table2). Majority of the respondents (40.28%) were between 31 and 40 years of age. In all, more than 50% of the respondents were between the age of 21 and 40 years. This result suggests that most of the farmers are young people who are still strong and full of energy to make meaningful impact in agricultural production. This finding validates claim by PME (2004) that most roots and tubers farmers in Benue State were within the age brackets of active farm work. This suggests that the favourable policy environment in the cassava sub-sector in Nigeria is attracting the youths to cassava production.

Cassava production in Benue State as the study has revealed was dominated by the male, which accounts for 58.33% of the respondents. This result suggests that men who, naturally, are the stronger

gender, form majority of the cassava farmers. This finding agrees with the research finding of PME (2004) that roots and tuber production in Benue State is dominated by the male gender. The favourable policy environment in the cassava industry has improved the profitability of the cassava enterprise such that most men now depend on it for income generation and survival (Anga, 2004; Nweke, 2004; PME, 2004). This explains why men, as the head of family, are attracted to cassava business for income generation for the up keep of their families.

The largest proportion of the respondents (90.83%) was married, 4.17% single, and 3.33% widowed. This result suggests that mostly married people who would usually have additional labour supply from the family engaged in cassava production in the studied area. This finding is in consonance with the research finding of PME (2004) that most roots and tubers farmers in Benue State were married. This implies that the friendly policy environment in the cassava industry has improved the income generation potential of the cassava business such that many farm families now depend on it for survival.

The study revealed that most of the respondent (40.27%) married 2 wives, 25.56% married 3 wives while majority of the respondents had between 9 and 12 children and 34.72% had between 5 and 8 children. The high household size of the majority of the respondents suggests that there is abundant supply of family labour in the studied area, which can be harnessed for increased agricultural production. This implies that the favourable policy environment in the cassava industry has made the cassava business a reliable means of livelihood for many large families.

Socio-economic Characteristics of the Respondents

A number of socio-economic characteristics such as labour source, annual cassava output, annual farm income, estimated annual production costs, estimated annual processing cost, annual *gari* yield, market price of *gari*, farm size, period of growing of cassava, educational level attained, wage rate and occupation were presented (Table 3).

The major sources of farm labour force supply were family and hired labour sources, which accounts for 58.61% of the respondents, family labour 27.78% and hired labour 13.61%. This result agrees with claim by PME (2004) that family and hired labour sources constitute the major sources of farm labour supply of the roots and tubers producers in Benue State. The implication of this result is that in spite of the high cost of hired labour, the favourable agricultural policy of government in the cassava sub-sector, which has improved the profitability of the cassava industry, has encouraged the rural cassava farmers to invest on hired labour to supplement family labour supply for increased farm production.

Table 2: Percentage Distribution of the Demographic Characteristics of the Cassava Farmers in Benue State

Index	Frequency	Percentage
(i) Age		
21 – 30	41	11.39
31 – 40	145	40.28
41 – 50	101	28.06
> 50	73	20.28
Total	360	100.0
(ii) Sex	210	58.33
Male	150	41.67
Female		
Total	360	100.0
(iii) Marital status	327	90.83
Married	15	4.17
Single	6	1.67
Divorced	12	3.33
Widow	0	0
Widower		
Total	360	100.0
(iv) Number of wives	88	24.44
1	145	40.27
2	92	25.56
3	35	9.72
≥ 4	360	100.0
Total		
(v) Number of children	21	5.83
1 – 4	125	34.72
5 – 8	181	50.28
9 – 12	33	9.17
> 12	360	100.0
Total		

Source: Field Survey, 2005.

Table 3: Percentage Distribution of the Socio-economic Characteristics of the Cassava Farmers in Benue State

Index	Frequency	Percentage
(i) Labour source		
Family	100	27.78
Hired	49	13.61
Both	211	58.61
Total	360	100.0
(ii) Annual cassava output (kg)		
< 1000	5	1.39
1000 < 20,000	179	49.72
20,000 < 40,000	107	29.72
40,000 < 60,000	45	12.50
≥ 60,000	24	6.67
Total	360	100.0
(iii) Annual farm income (₦)		
< 10,000	2	0.56
10,000 < 40,000	102	28.33
40,000 < 70,000	100	27.78
70,000 < 100,000	108	30.00
≥ 100,000	48	13.33
Total	360	100.0
(iv) Annual production cost (₦)		
< 7000	52	14.44
7,000 < 9,000	75	20.83
9,000 < 11,000	94	26.11
11,000 < 13,000	81	22.5
≥ 13,000	58	16.11
Total	360	100.0
(v) Annual processing cost (₦)		
< 1000	86	23.89
1000 < 3000	192	53.33
3000 < 5000	61	16.94
≥ 5000	21	5.83
Total	360	100.0
(vi) Annual gari yield (kg)		
< 1000	74	20.56
1000 < 2000	97	26.94
2000 < 3000	112	31.11
3000 < 4000	65	18.06
≥ 4000	12	3.33
Total	360	100.0

(vii) Market price of gari (₦/ton)

< 30,000	106	29.44
30,000 < 40,000	132	36.67
40,000 < 50,000	82	22.78
≥ 50,000	40	11.11
Total	360	100.0

(viii) Farm size (ha)

< 4.00	167	46.39
4.00 < 6.00	100	27.78
6.00 < 8.00	74	20.56
8.00 < 10.00	17	4.72
≥ 10	2	0.56
Total	360	100.0

(ix) Period of growing cassava (years)

< 6		
6 < 11	35	9.72
11 < 21	55	15.28
≥ 21	125	34.72
Total	145	40.28
	360	100.0

(x) Education

Illiterate	33	9.17
Primary	201	55.83
Secondary	74	20.56
Post-secondary	52	14.44
Total	360	100.0

(xi) Wage rate (₦/ha)

< 1000	20	5.56
1000 < 2000	91	25.28
2000 < 3000	103	28.61
3000 < 4000	81	22.5
≥ 4000	65	18.06
Total	360	100.0

(xii) Occupation

Farming as primary occupation	266	73.89
Farming as secondary occupation	94	26.11
Total	360	100.0

Source: Field Survey, 2005.

The study revealed that majority of the respondents (49.72%) had an annual cassava output of between 1,000 and less than 20,000 kilograms, and the mean annual cassava yield was 5530 kilograms per hectare. This figure (5530 kilograms per hectare) is higher than the mean yield of 5120 kilograms per hectare obtained in the State in 1987 (BMANR, 2003) before the government policy intervention in cassava sub-sector through IFAD-assisted CMP and subsequently, RTEP. The implication of this is that the favourable policy environment in the cassava industry has resulted to an improvement in the yield of cassava for the cassava farmers in Benue State.

Majority of the respondents (30%), as revealed by the study, earned annual farm income of between ₦70,000 and less than ₦100,000. The mean annual income per farm family was ₦63,168.40 while the mean annual farm income per farm family per hectare was ₦14,605.41. This is an improvement over the earlier incomes (₦31,000 – ₦40,000) with the mean ₦35,000.00 as established in the baseline (PME, 2004). This implies that the government agricultural policy intervention in the cassava industry under review has brought about an improvement in the income generation of the cassava farmers in Benue State.

The study also revealed that most of the respondents (26.11%) spent between ₦9,000 and less than ₦11,000 annually on cassava production. The mean annual production cost of cassava was ₦2,359.77 per hectare. Furthermore, the study revealed that most of the respondents (53.33%) spent between ₦1000 and less than ₦3000 annually on cassava processing. The mean annual cost of cassava processing was ₦507.74 per hectare. This relatively low cost of production and processing observed on most of the respondents is attributable to the adoption of cost reducing technologies by most of the respondents. This finding is in consonance with the research finding of PME (2004) that root and tuber producers in Benue State currently use relevant cost reducing technologies. This suggests that the favourable policy environment in the cassava industry has made it possible for a large number of cassava farmers in Benue State to reduce farm costs through the adoption of cost reducing technologies, which include: improved cassava varieties, improved cassava processing technology, agro-chemicals, optimum plant population and cultural practices. Nweke (2004) noted that cassava can be a powerful poverty fighter in Africa, and that the cash income from cassava proves more egalitarian than the other major staples because of cassava's low cash input cost.

Majority of the respondents had an annual *gari* yield of between 2000 and 3000 kilograms per hectare while the mean annual *gari* yield was 490 kilograms per hectare. The observed mean annual *gari* yield is considered to be too low. The low *gari* yield can be attributed to inadequate supply of improved cassava varieties such as TMS 30572 variety which is the most popular high-yielding cassava variety especially for *gari* production and sale in the urban markets (Nweke, 2004). Nweke *et al.* (2002) noted that *gari* yield is as high as 5.13 metric tons per hectare when the improved variety (TMS 30572) is used. However, the friendly policy environment in the cassava industry has ushered in high patronage of the *gari* business. The result is high demand for the most popular high-*gari*-yielding TMS 30572, thereby creating scarcity. This scarcity compelled most *gari* producers to resort to using other cassava varieties, which are not as high yielding as the TMS 30752. This explains the relatively low *gari* yield as observed among the respondents.

The study also revealed that the village market price of *gari* as indicated by most of the respondents (36.67%) ranged between ₦30,000 and less than ₦40,000 per metric ton. The mean price of *gari* was ₦35,000 per metric ton. This mean price of *gari* is considered to be too high relative to what was obtainable previously. Nweke *et al.* (2002) noted that the village price of *gari* was ₦3,140.00 per metric ton. This anomalous hike in the village price of *gari* as observed among the respondents is attributable to the inadequate supply of *gari* occasioned by reduced yield of *gari* as a result of the insufficient availability of the high-*gari*-yielding TMS 30752-cassava variety. Furthermore, due to the

numerous market opportunities that have been opened up in the cassava industry, there has been stiff competition among the cassava products with respect to production preference such that the supply of *gari* reduced. The consequence is hike in the price of *gari*.

Majority of the respondents (46.39%) had farm size of less than 4 hectares under cassava production, 27.78% had between 4 and less than 6 hectares, 20.56% had between 6 and less than 8 hectares, 4.72% had 10 hectares or more. The mean farm size per farm family was 4.33 hectares. This is an improvement over the average farm size of less than 4 hectares cultivated by most rural farmers in 1980 (Olayide *et al.*, 1980; IFAD, 1999) before the government agricultural policy intervention in the cassava sub-sector. This implies that the favourable policy environment in the cassava industry has led to the expansion of farmland under cassava cultivation. This agrees with the report of PME (2004) that root and tuber producers were expanding their enterprise sizes.

Most of the respondents (40.28%) have been growing cassava for over 20 years, 32.72% between 11 and 20 years, 15.28% between 6 and 10 years and 9.72% between 1 and 5 years. In all, more than 50% of the respondents entered the cassava business in less than 20 years ago. This result suggests that since the coming into effect of the government agricultural policy intervention in the cassava sub-sector, especially through IFAD-assisted CMP and subsequently RTEP, many people have joined the cassava business. This implies that cassava business has attracted more patronage due to its increasing benefits occasioned by the increasing friendly policy environment in the industry.

Most of the respondents (55.83%) attended primary school, 20.56% attended secondary school, and 14.44% attended post-secondary school while 9.17% did not attend any school. In all, more than 90% of the respondents are literate farmers. This result suggests that the cassava industry now attracts many literate people, including the school leavers. This is attributable to the improved profitability of the cassava industry as a result of the favourable policy environment in the industry occasioned by the increasing favourable government agricultural policy intervention in the industry.

Majority of the farmers (28.61%) paid a wage of between ₦2000 and less than ₦3000 per hectare, 25.28% paid between ₦1000 and less than ₦2000 per hectare, 22.5% paid between ₦3000 and less than ₦4000 per hectare while 18.06% paid ₦4000 or more per hectare. This result suggests that wage rate paid differed among the farmers across the state. Those areas located close to the urban areas have to pay higher wage rate to compete better with them (the urban areas) for workers (Kurkalova and Jensen, 1998). The implication of this result is that there is relative rise in the demand for hired labour in the cassava industry given the friendly policy environment, which has ushered in relatively high patronage of cassava business. Consequently, there is higher demand for labour in areas with close proximity to the urban centres because of the relatively higher availability of market opportunities. The result is that the labourers tend to charge higher wage rates due to the high demand for their labour.

The study revealed that most of the respondents (73.89%) engaged in farming as their primary occupation while others (26.11%) engaged in farming as their secondary occupation. This result suggests that most of the respondents devoted their full time to cassava production. This finding validates claim by PME (2004) that farming was the major occupation of most root and tuber producers in Benue State. This implies that the friendly policy environment in the cassava industry occasioned by the favourable government policy intervention has made the industry so attractive such that many people now devote their full time to cassava production. This explains the high percentage of people who take cassava business as their primary occupation.

The result of the summary statistics for the socio-economic characteristics of the cassava farmers in Benue State is presented in Table 4. The result of the summary statistics shows a wide variation in the cassava output of the respondents, ranging between 500 and 100,000 kilograms, and a mean cassava output of 24,129.90 kilograms. The wide variation in the cassava output of the farmers

could be attributed to variations in input use due to differences in technical efficiency occasioned by differences in the relative access of farmers to cassava policy packages. For example, farmers who had relatively more access to improved cassava varieties and improved cassava processing technology in Benue State achieved higher levels of technical efficiency in cassava production and hence, higher cassava output (Umeh and Asogwa, 2005). Also, farm income of the respondents showed wide variation, ranging between ₦4,320 and ₦145,000, and a mean income of ₦63,179.18. This result implies that many cassava farmers in Benue State have left the poorest income bracket of less than ₦50,000 as established in the baseline survey (PME, 2004).

Table 4: Summary Statistics for the Socio-economic Characteristics of the Cassava Farmers in Benue State

Variables	Mean	Standard Deviation	Minimum	Maximum
Annual cassava output (kg)	24129.90	21116.73	500.00	100,000
Annual farm income (₦)	63179.18	31187.81	4320.00	145,000
Annual production cost (₦)	10124.00	2646.98	1500.00	1695
Annual processing cost (₦)	2189.07	1491.00	123.20	8100.00
Annual <i>gari</i> yield (kg)	2113.76	1045.83	144.00	4880.00
Cassava farm size (ha)	4.3269	2.16	0.30	10.00
Hired labour cost (₦)	7968.89	1647.72	5850.00	13650.00
Family labour (man-days)	219.70	42.66	117.00	273.00
Market price of <i>gari</i> (₦/ton)	34055.56	10038.77	20000.00	55000.00
Farming experience (years)	17.73	8.61	1.00	31.00
Wage rate (₦/ha)	2502.78	1142.37	800.00	4500.00

Source: Field Survey, 2005.

The cost incurred on production by the respondents ranged between ₦1,500 and ₦16,950, with a mean cost of production of ₦10,124, while the processing cost ranged between 123.20 and 8,100, with a mean cost of processing of 2,189.07. The low production and processing costs observed among the respondents can be attributed to the use of cost reducing technologies – including improved cassava varieties and improved cassava processing technology – in their cassava enterprise. The adoption of these cost reducing technologies by the cassava farmers was ushered in by the policy intervention of government in the cassava sub-sector (IFAD, 1999; PME, 2004).

The farmers involved in the study have farm sizes that varied widely, ranging between 0.30 and 10 hectares, and a mean farm size of 4.33 hectares. This is an improvement over the average cultivated area per farming (rural) household of 0.5 – 4 hectares reported by IFAD (1999). This suggests that cassava farmers in Benue State are increasing their farm sizes because of the favourable policy environment in the cassava sub-sector, which has improved the profitability of the cassava enterprise.

Investment on hired labour ranged between ₦5,850 and ₦13,650 with a mean investment on hired labour of ₦7,968.89, while family labour use ranged between 117 and 273 man-days with a mean family labour use of 219.7 man-days. These results suggest that both hired and family labour were extensively used by the respondents. The extensive farm labour use observed among the respondents could be attributed to increase in their farm sizes, which necessitates more farm labour use by them.

Conclusion

The study showed that the current friendly policy environment in the cassava industry is attracting the youths to cassava production in Nigeria, with more than 50% of the respondents being within the age brackets of active farm work. The study also showed that the current friendly policy environment in the cassava industry, which has improved the profitability of the cassava enterprise, is also attracting so many men into cassava production as a means of livelihood in Nigeria, with men accounting for 58.33% of the respondents. Similarly, many married couples and large families are now attracted to cassava production as a means of livelihood due to its improved profitability occasioned by the friendly policy environment in the cassava industry.

In spite of the high cost of the hired labour, the favorable policy environment in the cassava industry with its profitability improvement capacity has encouraged the rural cassava farmers in Nigeria to invest on hired labour to supplement available family labour for increased cassava production. The finding of the study indicated that the favorable policy intervention of government in the cassava sub-sector resulted to an improvement in the cassava output of the cassava farmers in Nigeria. Furthermore, the study showed that the favorable policy environment in the cassava industry has brought about an improvement in the income generation of the cassava farmers from their cassava enterprises. The current policy intervention in the cassava sub-sector has also made it possible for a large number of cassava farmers in Nigeria to reduce farm costs through the adoption of cost reducing technologies made available to the farmers through the policy intervention. The study revealed that the friendly policy environment in the cassava sub-sector has led to the expansion of farmland under cassava production. In addition, the cassava business has attracted more patronage due to its increasing profitability/benefits occasioned by the increasing friendly policy environment in the cassava industry. Moreover, the cassava enterprise now attracts so many school leavers owing to its improved profitability occasioned by the favourable policy intervention of government in the cassava industry, and many people now devote their full time to cassava enterprise as a means of livelihood.

Cassava enterprises should be made to be more attractive to both the old and the young people especially the school leavers, through the vigorous pursuit of policies that would adequately ensure the reduction of drudgery associated with cassava production through the provision of modern farm equipment and machines (such as tractor and processing machines) to the prospective cassava farmers. This, no doubt, would result to quantum leap in cassava output in Benue State and Nigeria in general with a concomitant increase in the farm income of the cassava farmers, and at the same time curtails rural-urban drift.

Policies that encourage input expansion in the cassava industry should be sufficiently reinforced to bring about much larger increase in cassava production and, hence maximization of profit of the cassava farmers in Benue State, and Nigeria at large. This will ensure that the cassava exportation bid of the Federal Government of Nigeria is sustained while also guaranteeing cassava availability for domestic consumption in Nigeria.

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