Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.5, No.23, 2014

Preference for Contract Farming in Sustainable Cassava Production among Farmers in Oriire Local Government Area of Oyo State – Nigeria

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Abstract
Contract farming is a component of Agricultural transformation programme in Nigeria that is meant to disseminate technical skills, develop markets, guarantee access to inputs and organize the enterprise in a profitable way. The study investigated the preference of cassava farmers for contract farming in Oriire local government area of Oyo state. Multi-stage random sampling technique was used to select 120 cassava farmers. Interview schedule was used to elicit information from respondents. Data were presented using descriptive statistics and an index was generated to categorise the farmers into those with high preference and low preference. The study hypothesis was tested using Chi-square statistics. The study revealed that more than half (53.2%) of the respondents were between the ages of 25 and 55 years, married (76.7%) and 16.7% went beyond secondary education. More than half (56.7%) of the respondents had high preference for contract farming. The respondents' sex ($\chi^2 = 45.66$, $p \leq 0.05$), level of education ($\chi^2 = 290.93$, $p \leq 0.05$) and Cassava Output ($\chi^2 = 795.54$, $p \leq 0.05$) were significantly related to farmers' preference for contract farming. The study showed that contract farming is a key factor in cassava transformation agenda and recommends that needs assessment of farmers by gender should be an integral part of the contract farming programme.
Keywords: Contract, Preference, Cassava, Farmers, Sustainable

1. Introduction

Nigerian agriculture which is dominated by small scale farmers who produce the bulk of food requirements in the country is also known to be the world largest producer of cassava. It was estimated in 2011 that, her production was over 52 million metric tons (MT) (FAOstat, 2012). Cassava is also of high importance to the people of Nigeria because of its potential contribution to the total food intake of the populace. Despite this unique and pivotal position, the smallholder farmers belong to the poorest segment of the population and cannot invest much on their farms therefore; this vicious circle of poverty among these farmers has led to unimpressive performance of the agricultural sector (Ajibefun, 2002).

These farmers also lack the needed input required for cassava production in large quantity, most of them still use crude tools for farming while acquiring even simple processing equipment is an investment which is out of reach for the majority of small-scale cassava farmers. These make the cassava farmers not to be able to process harvested roots and therefore forced to sell their crop at a very low price to middlemen who are willing and able to reach them thereby, depriving farmers the full benefit of the crop. This affects pricing of processed products as well as investment decisions. However, where there is a clear-cut market for primary processed products, borrowing to acquire such equipment that would be economically profitable and bring real benefits to the farmers or processors are not readily available. On the contrary, poor credit facilities and high interest rates have made such investments risky and financially unattractive, and all these hinder the development of the economic potential of the crop (Knipscheer et al, 2007).

These challenges have left the control of the world market of cassava in the hands of countries that produce far less quantity of cassava roots than Nigeria. Therefore, in 2002, the government of Nigeria launched a presidential initiative on cassava. The aim of the initiative was to use cassava as the engine of growth and diversify Nigeria's economic base away from its principal export – crude oil (Ezedinma, *et al*, 2006). The current government Agricultural Transformation Agenda (ATA) has also included cassava as one of the crops to boost the economy of the country. Other contributions of the ATA include positive influence on employment creation, income generating capacity and food security of Nigeria households. This therefore, shows the need for industries, government agencies and private organizations to get involved because the intervention of these sectors would result in an increased productivity for cassava, as well as, ensuring a better level of living for the farmers (Bijman, 2008). In this case, these sectors would help to improve the supply of homogenous or high quality products. The main feature of these sectors' intervention will be that farmers grow a crop under a buy-back arrangement with a firm engaged in processing or trading (Ravikumar et al., 2013). This is an arrangement of agricultural production carried out according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm products and it is referred to as contract farming (Eaton

and Shepherd, 2001 and FAO, 2008).

Contract farming has been instrumental in providing farmers access to supply chains with market and price stability, as well as technical assistance. Production input and farm investment on credit are often provided by firms to resource-poor farmers while in return, contractors expect delivery of goods in specified quantities, quality and set prices. Market and price certainty for both parties and integrated farm-processing enhances the country's competitiveness through improved quality of products and an efficient supply chain (Sriboonchitta and Wiboonpoongse, 2008a). Contract farming in developing countries have successfully enabled small-scale farmers to commercialize their farming operations through the creation of domestic and international market linkages (Masakure and Henson, 2005). It was further stated that, well coordinated contract farming systems assist development in less privileged farming sectors (Sriboonchitta and Wiboonpoongse, 2008b). For example, countries like Thailand have diversified her agricultural production from mainly rice to include various cash crops such as cassava of which contract farming has been instrumental in providing farmers access to supply chains with market and price stability, as well as technical assistance.

In Nigeria, the contribution of contract farming is evident in the substantial increase in private sector investment in the cassava downstream activities. For instance, Ekha Agro collaborated with more than 20,000 cassava out-growers and cluster farmers who daily supply to the factory 400 tons of fresh cassava roots in order to guarantee the source of raw materials for the production of glucose (CGIAR News, 2007). For ATA to be a huge success it is important that farmers collaborate with cassava based industries to ensure sustainable supply and required quality of cassava. However, as good as contract farming is, it has its attending challenges which includes; risk of production problems and market failure, sponsoring companies may be unreliable, farmers may become indebted because of production problems and excessive advances and staff of sponsoring organizations may be corrupt in the allocation of quotas (Eaton and Shepherd, 2001). In view of the pros and cons, it is important that cassava farmer's interest be sought on contractual arrangement.

Therefore, this study determined cassava farmer's preference for contract farming and investigated their level of preference to know whether farmers are willing to partner with organizations to bring about the desired development in the agricultural sector which could invariably lead to improved standard of living for the farmers. Also, socio-economic characteristics that affect farmers' preference for contract farming were also investigated.

2. Methodology

The study area was Oriire Local Government Area of Oyo State. Its headquarters is in the town of Ikoyi. It has an area of 2,150.404 km² and a population of 149,408 comprising 76,465 males and 72,943 females (NPCN, 2006). It is one of the five major rural Local Government Area that constitutes Ogbomoso Agricultural Zone of Oyo State. The Local Government Area lies on latitude of 8.1^0N and longitude of 3.29^0E. It has a moderate to heavy seasonal rainfall and high relative humidity, a mean annual temperature of 24.4^0C. Oriire LGA also experience two major season types(dry and wet season). The raining season is between mid-March and October while that of the dry season is between November and February. The major occupation of the inhabitants is farming and crops like maize, sorghum, yam, cassava and vegetable are usually grown in the area. Yoruba is the common spoken dialect.

A multi-stage random sampling technique was used to select respondents for the study from list of farmers obtained from the Agricultural office of the Local Government. In the first stage, four (4) wards were randomly selected from the ten (10) wards, while in the second stage, three (3) communities were selected from each ward, and third stage involved random sampling of 10 farmers from each of the communities to arrive at 120 farmers for the study. Before data collection in each community, farmers were lectured on contract farming to ascertain and refresh their memory about contract farming on issues such as benefits and risk of the agreement. Primary data was collected through interview schedule. In order to present the objectives of this study, descriptive statistics such as frequency, percentage were used while inferential analysis used was chi-square to determine if there exist any significant relationship between the personal characteristics and preference of respondents for contract farming. Preference for contract farming was measured on a rating scale of Strongly agree, Agree, Undecided, Disagree and Strongly disagree. Positive statements were assigned points of 5,4,3,2 and 1 while negative statements were assigned reversely.

Statements which respondents were favourably disposed to were calculated thus:

Grand Mean = Total Mean ÷ Statement Number

Where Total mean = 86.17 and Number of Statement = 22. Therefore, Grand Mean = 3.92 .

If the mean of a statement is greater than grand mean, then respondents are favourably disposed to the statement. The scores of the farmers computed from the rating scale were also used to generate an index which was used to categorise the farmers. Farmers with mean between 87 and 120 were categorised as farmers with high preference for contract farming while those between minimum value (66) and 86 were categorised as farmers with low preference for contract farming. Chi-square was used to test the relationship between personal characteristics of cassava farmers and the farmer's preference for contract farming system.

3. Result and Discussion

3.1 Personal characteristics of the respondents

The mean age of the farmers was 53.6 years as presented on Table 1. Hence, most of the respondents are in their active ages. The difference in this result and the earlier finding (mean age of farmers = 45 years) of Ekwe and Njoku (2011) may be due to regional and cultural difference among Nigerians. Majority (76.7%) of the respondents in the study area were married. Also, the study showed that 52.5% of the respondents in this study area were Christians, 38.3% are Muslims while only 9.2% practiced the traditional type of religion, hence the dominant religion practiced by the respondents in this area was Christianity.

Moreover, it was revealed that 66.7% of the respondents had no formal education; while 33.3% had one form of education or the other. The results show that majority of the farmers had no formal education. This relates to previous findings that, majority of farmers in Oyo State have no-formal education (Oladele, 2011). The farmers are well knowledgeable in cassava production with mean years of farming experience as 30 years and mean household size was 6 while majority (71.1%) of respondents in this study area engaged in farming as their primary occupation.

Table 1: Distribution of Respondents by their Personal Characteristics n=120

Personal Characteristics	Frequency	Percentage	Mean/Modal category
Age (years)			
25 – 35	12	10.0	
36 – 45	15	12.5	
46 – 55	37	30.9	53.6
56 – 65	41	34.2	
66 – 75	15	12.4	
Sex			
Male	92	76.7	
Female	28	23.3	
Marital Status			
Married	92	76.7	
Single	8	6.7	
Divorced	13	10.8	Married
Separated	7	5.8	
Religion			
Christianity	63	52.5	
Islam	46	38.3	Christianity
Traditional	11	9.2	
Level of Education			
No formal education	48	66.7	
Primary education	10	8.3	Non-formal education
Secondary education	10	8.4	
Tertiary education	20	16.7	
Years spent in Highest education			
0 – 10	113	94.0	4.03
11 – 20	7	5.8	
Household Size			
1 – 5	46	38.3	
6 – 10	60	50.0	6.4
11 – 15	14	11.6	
Farming experience (Years**)**			
1 – 10	9	7.4	
11 – 20	23	19.2	
21 – 30	26	21.7	30.45
31 – 40	31	25.9	
41 – 50	25	20.5	
51 - 60	6	5.0	
Primary Occupation			
Farming	86	71.7	
Agro-dealer	1	0.8	
Okada	6	5.0	
Teaching	3	2.5	Farming
Driving	8	6.7	
Personal business	10	8.3	
Trading	6	5.0	

3.2 Assessment of Respondents Preference for Contract Farming

Using the rating scale, the mean score for each item was calculated and ranked as the item with highest score implied that the higher the rank the more positive the farmers' preference for the item while the lower the rank the more negative the preference of respondents about the item. On Table 2, out of the 22 items used to measure the farmers' preference for cassava, the farmers agreed with 16 statements and are positively disposed to the

statements. The highest ranked statement revealed that the farmers preferred contract arrangement because it will improve the farmers' standard of living.

Also, the cassava farmers were optimistic that contract farming will make them enjoy better technical advice/ production support than their non-contract counterparts, help produce more and better output, enjoy better marketing support services, be a solution to small-scale farmers' problem and make them enjoy credit-benefits than their non-contract counterparts as they were ranked 21, 20, 20, 18 and 17 respectively. Although, as good as the farmers preferred the contract arrangement, contracting firms will have to look critically at issues that could foil the arrangement such as; failure to deal with small-scale farmers because of their small-scale level of production (2.42), respect the terms of the contract by buying less of the produce than the pre-agreed quantities (2.43) which were lowly ranked as this may mere the arrangement. Also the farmers will have to be orientated on the need to honour contract agreements (2.63), improve on quality of produce by adopting recommended practises that will make them better in terms of quality management and that farmers should not use inputs supplied for other purposes (3.63).

Table 2: Cassava Farmer's Preference for Contract farming

S/N	Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean	Rank
1.	Contract farming will be a solution to small-scale farmers' problem(s)	63 (52.5)	49 (40.8)	2 (1.7)	3 (2.5)	3 (2.5)	4.38* (0.852)	18
2.	Contract farming arrangement will help produce more and better output	58 (48.3)	52 (43.3)	9 (7.5)	1 (0.8)	0 (0.00)	4.39 * (0.665)	20
3.	Contract farmers will enjoy credit-benefits than their non-contract counterparts	55 (45.8)	50 (41.7)	13 (10.8)	2 (1.7)	0 (0.00)	4.32* (0.733)	17
4.	Contract industries could end up taking advantage of farmers	57 (47.5)	30 (25)	13 (10.8)	8 (6.7)	12 (10)	3.93* (1.327)	7
5.	Contract farmers will enjoy better technical advice/ production support than their non-contract counterparts.	46 (38.3)	48 (40.0)	14 (11.7)	7 (5.8)	5 (4.2)	4.43* (4.594)	21
6.	Contract industries might not deal with small-scale farmers because of their small-scale level of production	37 (30.8)	33 (27.5)	21 (17.5)	21 (17.5)	8 (6.7)	2.42 (1.274)	1
7.	Contract farming will promote agricultural production/ marketing	51 (42.5)	51 (42.5)	14 (11.7)	3 (2.5)	1 (0.8)	4.23* (0.817)	14
8.	Contract farming will reduce the risk of production for contract farmers	43 (35.8)	59 (49.2)	9 (7.5)	7 (5.8)	2 (1.7)	4.12 * (0.900)	12
9.	Contract farming will be a profit situation for the contract farmers	49 (40.8)	46 (38.3)	11 (9.2)	8 (6.7)	6 (5.0)	4.03* (1.107)	11
10	Contract farming will improve the level of living of farmers	67 (55.8)	44 (36.7)	6 (5.0)	1 (0.8)	2 (1.7)	4.44* (0.776)	22
11.	Contract farmers will enjoy better marketing support services	63 (52.5)	45 (37.5)	10 (8.3)	0 (0.00)	2 (1.7)	4.39* (0.781)	20
12.	Contract farmers could use inputs supplied for other purposes	35 (29.2)	58 (48.3)	13 (10.8)	4 (3.3)	10 (8.3)	3.87 (1.130)	6
13.	Contract farmers could be introduced to new technology and practices which would lead to an increase in productivity	49 (40.8)	38 (31.7)	22 (18.3)	8 (6.7)	3 (2.5)	4.02* (1.045)	10
14.	Contract industries will help farmers by subsidizing input costs	40 (33.3)	51 (42.5)	14 (11.7)	15 (12.5)	0 (0.00)	3.97 (0.978)	8
15	Contract farmers will enjoy better access to reliable markets than their non-contract counterparts	55 (45.8)	49 (40.8)	12 (10)	4 (3.3)	0 (0.00)	4.29* (0.782)	16
16	Contract farmers will be assured of a better, reliable and efficient processing of their produce	47 (39.2)	62 (51.7)	9 (7.5)	1 (0.8)	1 (0.8)	4.28* (0.710)	15
17	Contract industries might buy less of the produce than the pre-agreed quantities	45 (37.5)	42 (35)	12 (10)	11 (9.2)	10 (8.3)	3.84 (1.257)	5
18	Contract farmers will enjoy better quality management than their counterparts	40 (33.3)	42 (35)	8 (6.7)	14 (11.7)	16 (13.3)	3.63 (1.396)	4
19	Contract industries might not respect the terms of the contract	44 (36.7)	36 (30)	6 (5)	13 (10.8)	21 (17.5)	2.43 (1.504)	2
20	Contract farmers might decide to sell produce to a different buyer	46 (38.3)	47 (39.2)	11 (9.2)	12 (10)	4 (3.3)	3.99 (1.088)	9
21	Contract farmers might not respect the terms of contract	29 (24.2)	43 (35.8)	11 (9.2)	18 (15)	19 (15.8)	2.63 (1.409)	3
22	Contract farming will contribute to an increase in income for contract farmers	54 (45)	48 (40)	5 (4.2)	7 (5.8)	6 (5)	4.14* (1.079)	13

(Figures in bracket are the percentages while those on the column with asterisks are standard deviation)

3.3 Respondents' level of preference for contract farming

Also from Table 3 it could be deduced that 43.3% of the respondents had low preference for contract farming while 56.7% had high preference for contract farming. Respondents are favourably disposed to contract and will be willing to partner with contracting firms for the development of cassava to a profitable venture for the farmers. Therefore, more than of the farmers believe that contract farming is a favourable arrangement for cassava production and marketing. However, a lot needs to be done in educating the farmers more about contract farming while the contractors ensure that every terms of the arrangement is honoured so that farmers can have a good experience.

Table 3: Respondents' level of preference towards contract farming

Preference Level	Frequency	Percentage n=120
Low preference	52	43.3%
High preference	68	56.7%

Mean= 86 Source: Computed from Survey Data

3.4 Tested Hypothesis

Data presented on Table 4 shows the relationship between personal characteristics of cassava farmers and their preference for contract farming system. It was revealed that characteristics such as sex ($\chi^2 = 45.66$, $p \leq 0.05$) and highest level of education attained ($\chi^2 = 290.93$, $p \leq 0.05$), and cassava output ($\chi^2 = 795.54$, $p \leq 0.05$) had significant relationship with preference of respondents at 5% level of significance. Sex being significant implies that what makes male and female prefer contract farming differs and will therefore need to be considered while collaborating with the farmers for contract arrangement. The significant relationship between preference for contract farming and education confirms previous findings that, farmers appreciate improved technologies better when they are educated and even use them appropriately (Fakayode, 2008). This also means that educative programmes on contract farming be organised for farmers from time to time This will be very important considering the result on table 1 which showed that majority of the respondents had low level of education. It is envisaged that when this is done, the farmers will be enlightened more about contract arrangement and more farmers might be interested. Also, as the farmers adopt improved cassava technologies under the agreement, they will prefer to be involved in contract so as to absorb their increased output.

Table 4: Chi Square result of the relationship between personal and preference for respondents on contract farming

Variable	df	χ^2	CC	*p*-value	Decision
Age	1116	1077.7	0.949	0.790	Not Significant
Sex	31	45.66	0.525	0.044	**Significant**
Marital status	93	97.72	0.670	0.342	Not Significant
Religion	62	79.73	0.632	0.064	Not Significant
Level of education	248	290.93	0.841	0.034	**Significant**
Household size	403	372.85	0.870	0.857	Not Significant
Farming experience	1364	1369.29	0.959	0.455	Not Significant
Cassava Output	713	795.54	0.932	0.017	**Significant**
Primary occupation	186	185.01	0.779	0.507	Not Significant

Source: Computed from Survey Data df-degree of freedom, cc-Contigency Coefficient, *p*-value-Level of significance, χ^2- Chi-value

4. Conclusion and Recommendation

The study concludes that the farmers are favourably disposed to contract farming for cassava production and marketing. Therefore, sustainable production and guaranteed market for cassava could be achieved. From the result of the finding, it will be important that contract firms conduct need assessment by gender so that male and female farmers' needs are met while responses from such assessment are used to improve the contract arrangement to suit the contracting firm and the farmers. Also, contract firm should ensure provision of adequate training and input that will boost the production of the farmers to ensure regular supply of cassava. Farmers should also honour agreement with contracting firms, make use of skills and put knowledge gained during training to use. Farmers' organizations, Government agencies and industries should deploy contract farming to bring about sustainable production of cassava which results to ready market for farmers, increased income and adequate supply for industries using cassava as raw material.

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