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ASSESSMENT OF FARMERS YIELD ON SESAME PRODUCTION UNDER THE RAW MATERIALS RESEARCH AND DEVELOPMENT COUNCIL PROGRAM IN KEBBI STATE, NIGERIA

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Abstract

This study assessed the influence of farmers yield on sesame production under the raw materials research and development council program in Kebbi State. Two hundred and seventy nine farmers representing twenty percent of the participating farmers were randomly selected and used as the sample size for the study. The data collected using structured questionnaire was analyzed using descriptive and inferential statistics. Frequency percentage and tables were used to describe the socio economic characteristics. The relationship between farmers' yield and their socio-economic characteristics was determined using Regression Model. The result revealed that farmers within the age group of 31- 40 years and average of 36 years participated more in the program and there was very low participation of women. Most of the farmers attested that the program had much effect on their income. The socio-economic characteristics were regressed against farmers' yield and the results suggest that family size is the only socio-economic characteristic that contributes to farmers' yield. However, the multiple correlations were found significant since rCalculated = 0.490 >rCritical = 0. 195. This shows that there is a significant relationship between the

Farmers' yield and their socio-economic characteristics. The major constraints faced by the farmers are untimely disbursement of credit, cumbersome procedure in the administration of the program and late delivery of inputs. Major recommendations are: credit should be disbursed timely, and the farmers should be linked up with Micro finance banks in their areas as an alternative source of income. There should be early supply of inputs, the farmers should be encouraged and supported to form inputs supply cooperatives,.

Keywords: Influence, Socio-economic, Sesame production, farmers, Yield, Program.

Introduction

The Raw Materials Research and Development Council, established by decree No. 39 of 1987 to coordinate activities of both public and private sector organizations with respect to the utilization and development of locally available raw materials, was part of these initiatives. To facilitate increased agricultural production in the country, the council, in 1992, introduced a program of boosting the supply of agricultural raw materials for industrial use. The objectives of the program are to ensure availability of improved high yielding varieties of agricultural crops for industrial use in the country and reduce the drudgery associated with farming activities through the introduction of simple farm implements, equipment and machinery (RMRDC, 2010).Through this program, the council distributed improved varieties of soybean, groundnut, cassava, sesame, ginger, maize, sorghum, kenaf, cotton, horticultural crops and castor seeds to farmers in different ecological zones of the country, thereby boosting their production as primary raw materials for the processing industries (RMRDC, 2008).

In 1976, Nigeria was rated sixth largest producer of sesame seed in the world, producing 3.3% of the world output, with Benue State accounting for 97% of the national export grading (Joel, 2009). However with the rise in demand and production of soybeans, sesame production declined significantly. This was mainly due to low yield per unit area and subsequent shift towards the production of soybeans for higher economic consideration by the farmers in the producing areas of Benue, Kwara, Kogi, Niger and Kaduna States (RMRDC, 2004). With increased domestic awareness of the potentials of the crop as a valuable raw material, and the efforts of various stakeholders including the Raw Materials Research and Development Council (RMRDC) through its crop boosting programme, and the research efforts of the National Cereals Research Institute (NCRI), Badeggi, production figure rose to 64, 000 metric tons in 1996 (Suraj, 2009) and this is still on the increase. It was estimated that production would increase from 70, 000 metric tons in 1998 to about 139, 000 metric tones by the 2010 (RMRDC, 2004).

In Kebbi State, commercial production of sesame is more or less a new enterprise. However, within the last six years, with the assistance of the state government, Raw Materials Research and Development Council, the National Cereals Research Institute Badeggi, Sasakawa Global 2000 and the National Sesame Seed Association of Nigeria, it has proved to be a highly potential tool for poverty alleviation in the state (Joel, 2009).

Sesame is the most sought after vegetable oil in the world as its industrial ingredients can be used for the production of margarine, canned sardine, corned beef, soap making and ink. It is

well preferred to other vegetable oils because of its lack of odour, chemical composition, colour and taste. The world trade in sesame is about 550, 000 metric tons at gross value of $400 million with a growth rate of 2.6 per cent per annum. Of this, Nigeria's share of the world market is 4 per cent equivalent to ₦ 12.8 billion, and exporting about 1, 700 metric tons to the EU and 22, 000 metric tons to Japan (NEPC, 2012).

This study is set out to assessthe influence ofsocio economic characteristics on sesame farmers' yield under the raw materials research and development council program in Kebbi State. Specially to describe the socio–economic characteristics of participating farmers in the program of boosting sesame production, investigate the relationship between farmers' yield and their socio-economic characteristics and identify constraints faced by the participating farmers in the program.

Historical development of sesame seed

Sesame (*Sesamumindicum* L.) is an erect, hairy annual herb (or occasionally perennial) that grows to a height of 80-100cm and reproduces from seeds. Some varieties are highly branched, while others are un-branched. Leaves on sesame plant are most variable in shape and size, on the same plant and between varieties. Leaves are alternate or sub-opposite, linear-lanceolate to ovate-lanceolate, but the lowest ones are irregularly divided. The bell-shaped white to pale-rose flowers begin to develop in the leaf axil 6 to 8 weeks after planting and this continues for several weeks (Olumide, 2011).

Sesame is normally self-pollinated, although cross pollination by insects is common. The fruit is a deeply grooved capsule that contains 50-100 or more seeds. The seeds mature 4-6 weeks after fertilization. Capsules near the stem base normally ripen first, and those nearest the tip last. Growth of wild sesame is indeterminate; that is, the plant continues to produce leaves, flowers and capsule as long as the weather permits. Sesame seeds are small and vary in color (Olumide, 2011). Sesame will thrive in most agro-ecologies suitable for cereal crop production in Nigeria, but production is better suited for the well-drained upland areas. Depressions and valley bottoms such as fadama with poorly drained soils are generally to be avoided (RMRDC, 2004).

Sesame (*Sesamumindicum* L.) also referred to as Beniseed, gingely, til and simsim in different parts of the world (Seegelar, 1989). It is one of the most ancient oilseed crops known and used by man and its centre of diversity is in West Africa (Onwueme and Sinha, 1991). It is perhaps one of the oldest crops cultivated by man, having been grown in the far-east and Africa for over 5, 000 years for cooking and medicinal needs. The oil was used in barter trade across the Sahara because of its long shelf life even in extreme weather conditions (Olumide, 2011).

African slaves were said to have brought the seeds of beniseed, which they called Benne seeds to America where it became a popular ingredient of food recipes in South America. The English sesame traces back to the Arabic "simsim", Coptic "semsem", and early Egyptian "semsent". Seeds of sesame were identified in excavations at Harappa, Pakistan dating 2000Bc and some papyrus from Egypt. In recent years research breakthrough has made possible large-scale production; while health concerns have influenced the industrial production and demand for sesame oil worldwide (RMRDC, 2004).

The origins of sesame are still debated. Kobayashi (1986) in, D. R. Langham and T. Wiemers (2002) suggested that sesame originated in Africa, but Bedigian *et al.* (1985) concluded that sesame originated on the Indian subcontinent. Ashri (1998) felt that settling the debate on the origin of sesame will require more detailed cytogenetic and suitable DNA comparisons.

From whatever origin, sesame spread into Africa, the Mediterranean and into the Far East. In the Middle East a tremendous amount of sesame is consumed as *tahini* (sesame butter or sesame paste). *Tahini* mixed with ground chickpea kernels becomes hummus. In China, Japan, and Korea, sesame is used widely as cooking oil, and it is consumed for its medicinal qualities. In these countries, grandmothers advise, "Eat sesame for health" (Namiki, 1995). In recent years the Japanese have been identifying and quantifying the medicinal benefits of sesame. In vitro and animal studies have verified several antioxidant properties (Namiki 1995). In the West, sesame is primarily used in the confectionary trade in rolls and crackers. Throughout the world, sesame seeds or paste are mixed into sweets, especially halva. Sesame oil use in the cosmetic industry continues to expand. In India sesame is used in many religious ceremonies (Joshi 1961).

The world crop area under sesame is about 6 million hectares (Uzo, 1998; Dudley *et al*. 2000). The major reason for low total hectare is its low yield and difficulty encountered during harvesting. The average yield of this crop is about 300 Kg/ha but in recent years, research efforts resulted in yield of close to 1000 Kg/ha (Uzo, 1998). World production of sesame recorded was about 24,014,000 tones/year in 1993 and the major producing countries are China, India, Mexico, Sudan, Ethiopia and Nigeria (Hasanah, 1995).

In 1993, the world trade in sesame seed was 486,000 tons. Japan was the largest importer taking 24% of the world imports. The second largest importer was the USA with 8% of world imports. It is forecast that the imports of sesame seed will grow at between 6 and 8% per annum until the year 2012. Australia imported 6400 t of sesame seed in 1996 (worth $A12.7m), with China, Mexico and India being the main suppliers. Australian sesame seed production is centered in the Northern Territory and Queensland, with New South Wales showing interest. Although production has fallen from 291 t in 1988–89 to 90 t in 1993–94, it is anticipated that improvements in cultivars and harvesting technology will increase production (Bennett, 2011). Lawal (2009) reported that world production of sesame stood at 2.25 Million metric tons in 2005. He added that most producing countries consume 70% of the estimated world production, but Nigeria export more than 80% of its production, whereas in 2006, world trade was 879,725 metric tons valued at US$795.9 billion with India being the world largest exporter, while China was the world largest importer. However, world trade in sesame seed oil is relatively low.

In Nigeria, the crop is called *'Ridi'* in Hausa, *'Igogo'* in Igbo, *'Shawa'* in Tiv and *'Yanmoti'* in Yoruba (Voh, 1998). The crop is grown mainly in the northern and central parts of the country that includes Abuja, Benue, Kogi, Nassarawa and Jigawa states. Other states involved in commercial production of sesame include Gombe, Yobe, Borno, Kaduna, Kano, Katsina, Niger, Kebbi and Zamfara (Olumide, 2011). The crop is mainly grown for its seeds. The seeds provide an important source of cooking oil which is odorless and semi-dried. Sesame oil is rated next to olive in terms of quality and often as a cheaper substitute (Weiss, 1983).

Sesame production in Nigeria was stimulated by the great demand for oilseed in Europe after the World War II. In 1947, the West African Oilseeds Mission was mandated to investigate the possibility of the production of groundnut and other oilseeds in Nigeria. Ever since then, there had been considerable growth in the cultivation of sesame beyond the traditional producing areas in the country. Sesame therefore became one of the major agricultural commodities that attracted foreign exchange, prior to independence. It was exported to the tune of 15, 000MT in 1960 and 27, 000MT in 1961 (RMRDC, 2004).

Methodology

The study was conducted in Kebbi State which was created on 27th August, 1991, out of the then Sokoto State. Its headquarters is Birnin Kebbi, an ancient town dating back to the 14th century. Located between latitudes 10^{o} 8′N and 13^{o} 15′ N and longitudes 3^{o} 30′E and 6^{o}02′ E, the state shares boarders with Benin and Niger Republics to the north, Niger State to the south and Sokoto and Zamfara States to the east and south east, respectively. Kebbi State is divided into twenty-one Local Government Areas, four emirate councils (Gwandu, Argungu, Yauri and Zuru), and sixty-nine districts (KSG, 2009). The State is also divided into four Agricultural Development zones namely; Zone I (Argungu), Zone II (Bunza), Zone III (Yauri) and Zone IV (Zuru). According to NPC, 2006, Kebbi State has an estimated population of 3, 662, 103 (Kebbi State Diary, 2008).

The state has a total land area of approximately 37, 698 square kilometers. The distribution of land in Kebbi State is as follows: Grassland- 13,099.5km (34.748%), Woodland- 6,508.75km (17.265%), Shrub land- 133.25km (0.353%), Farmland- 13,745.25km (36.46%), Grazing Reserve – 1,025km (0.003%), Plantation and Forestry- 3,414.82km (9.056%), Water- 457.93km (1.214%), Rivers and Creeks- 30.75km (0.81%), Built-up areas- 307.50km (0.816%), total- 99.998% (KSG, 2006).

Kebbi State has diverse ethnic groups, the dominant among which are Hausa, Fulani, Dakarkari, Kambari, Gungu, Zarma, Fakkawa and Bangawa. These ethnic groups speak diverse languages and dialects, with the Hausa language spoken all over the state. Over seventy-five per cent of the state population resides in rural areas. Farming is the major occupation of the people in the state. A significant number of urban dwellers also engage in farming to supplement their income (KSG, 2009). Next to farming are non-farm activities such as trading, fishing, animal rearing, various art works, food crop processing, building, construction works, and et cetera. About twenty percent of the people engaged in these activities to either supplement their income from the farm or those from the private or public sector. Less than 2.5 percent of the state active labour force is engaged in formal public or private sector employment. Diversity is also reflected in the works of arts and crafts, as well as culture. Famous among the works of arts and crafts are gold-smiting, weaving, carving and knitting. Through these, various items such as domestic utensils, agricultural tools, body adornments, decorative materials and fishing equipment are produced for local and commercial consumption (KSG, 2006).

Kebbi State has relatively abundant surface water resources in form of rivers, such as the Niger, Rima and Ka. These rivers are sources of water for irrigation, domestic use, fishing and

transportation. Out of the 37, 698 square kilometers total land of the state, only 13, 745.25 sq. km representing 36.46%, is currently being used for cultivation, while 307.5 sq. km (0.816%), is the built area thus far, leaving a large proportion of land still under-utilized. About 200, 000 ha of fertile land is fadama land, mainly situated along the flood plains of the Rima and Niger valleys. The rest is upland, where wet season cultivation by mainly small holders dominates (KSG, 2006). Rainfall begins in April and ends in October with highest rain in July and August. The annual rainfall ranges from 400- 850mm increasing both in quantity and intensity within the state from the North to the South (Singh, 1995).

Although there are great potentials for large-scale productions and improved subsistence peasant-farming techniques available in state, they have not been fully harnessed to maximize profit. The major crops grown in the state can be broadly classified into food crops which include: millet, sorghum, maize, rice, cassava, cowpeas, Sweet potatoes, wheat, vegetables, e.t.c., while the Cash crops consist of onion, Soya Beans, tomato, sesame seed, Gum Arabic, Sugar-Cane, Pepper, Cotton, Mango, e.t.c. (KSG, 2006).

The data for the study was collected through administering of structured questionnaire to the farmers. The questionnaire used covered relevant information about the general socio-economic characteristics of the farmers, such as age, sex, educational level, marital status, experience on sesame farming, house hold size, sources of inputs, sources of funding, marketing avenues, sources of information on the production and marketing, availability of extension services, involvement in planning, common problems encountered in the program and suggestions.

The sampling frame for the study comprised farmers in Kebbi State who participated in the sesame promotion program of the Raw Materials Research and Development Council. A multi stage sampling procedure was used. The Local Government Areas were classified into four groups according to the existing zones of the Kebbi Agricultural and Rural Development Authority; namely, Zone I (Argungu), Zone II (Bunza), Zone III (Yauri) and Zone IV (Zuru).

A total of one hundred and forty eight farmers' cooperative groups participated in the program with a total of one thousand, four hundred and eighty five (1,485) farmers. These formed the sampling frame for the study. Therefore, in each zone twenty percent of the farmers that participated were randomly selectedfor the study. This was doneby writing their names on papers, folded, mixed up in a container and then randomly picked the required numbers in each zone, as shown in table 1 below:

TABLE 1: Sample Selected based on zone and LGAs

Zones	LGAs	No. of Cooperatives	No. of farmers	No. of Selected (20%)
Zone I	Argungu, Arewa, Augie B/Kebbi, Dandi, Gwandu	48	475	70
Zone II	Aliero, Bagudo, Bunza, Jega, Kalgo, Maiyama, Suru	36	360	54
Zone III	Danko- Wasagu, Fakai, Ribbah, Zuru	23	230	35
Zone IV	Koko- Besse, Ngaski Shanga, Yauri	42	420	63
Total		**149**	**1,485**	**297**

Source: Field survey, 2012

The data for the study was collected through administering of structured questionnaire to the farmers. The questionnaire used covered relevant information about the general socio-economic characteristics of the farmers. Data for this study were analyzed using descriptive and inferential statistics. The descriptive statistics involved the use of measures of central tendency such as means, frequency distribution and simple percentages and Regression model was used to determine relationship between the "Farmers' Yield' and their "Socio – Economic Characteristics in the program.

Regression Model: The fitted regression equation model with multiple predictors used in this research is:

$$y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6$$

Where y=response, predicted or fitted value (i.e. Famers' Yield)

b_k= estimates of the population regression coefficients for$k = 0,1, \ldots 6$. In matrix terms, the vector of coefficients inmultiple regressions are calculated by the formula:$b = (X'X)^{-1}X'Y$where X = matrix of predictors, including the constant, and Y = response vector.

x_1 =Age

x_2 =Sex

x_3 =Marital Status

x_4 =Family Size

x_5 =Level of Education

x_6 = Years of Farming

Results and Discussion

The results obtained from the analysis of the data collected in the field. The socio-economic characteristics of the farmers were assessed using their age groups, sex, marital status, household size, level of education and years of farming experience. Other aspects assessed

include; the differences in production of sesame before and after introduction of the boosting program in the state.

Socio-Economic Characteristics of the Farmers

Socio-economic characteristics such as age, sex, marital status, household size, level of education and farming experience tend to determine the level of participation of individuals in economic activities.

Table: 2 Socio-Economic Characteristics of the Farmers n=279

Variables	Frequency	Percentages
Age		
Below 20 Years	8	2.9
20 – 30 Years	55	19.7
31 - 40 Years	154	55.2
41 – 50 Years	52	18.6
51- 60 Years	8	2.9
Above 60 Years	2	0.7
Sex		
Male	265	94.98
Female	14	5.02
Marital Status		
Single	27	9.7
Married	242	86.7
Divorced	10	3.6
Household Size		
1 – 9	216	77.4
10 – 19	50	17.9
20 – 29	10	3.6
30 - 39	3	1.1
Level of Education		
Islamic Education	73	22.58
Non- Formal Education	12	4.3
Primary Education	33	11.8
Secondary Education	127	45.5
Tertiary Education	34	15.77
Years of Farming Experience (years)		
1 - 4	174	62.4
5 – 9	86	30.0
10 – 14	17	6.1
15 – 20	2	0.7
TOTAL		100

Source: Field Survey, 2013

Age Group

Age of an individual could to some extent determine his/her responsibilities and involvement in certain economic activities. The age group distribution of the farmers is presented in Table

2. It indicates that age group of 31 – 40 years has the highest frequency (55.2%) while those above60 years have the lowest participation representing only 0.7%. the mean age of the farmers is 36. The highest frequency of the age group of 31 – 40 years was because it's the most active stage and is more active to fend for themselves and their dependents, while the low participation of those above 60 years was possibly due to their weak nature and are largely dependent at such age. This is in line with report of David *et al.* (2009) who stated that, 15 -50 years is a period that is economically productive in a population.

Sex

The sex distribution of the farmers is shown in Table 2. The result had shown that majorityof the farmers (94.98%) were male. This shows that female participation in the sesame boosting program in the state was very low. This may be as a result of the role the society attributes to female due to religious beliefs since the society is predominantly Muslim population, where women are mostly excluded from most economic and political activities and the practice of purdah. Similarly, the results further corroborates the findings of the FAO (2009), which reported that in the North-West of Nigeria men participated fully in farming activities while women engaged mostly in processing and selling of farm products.

Marital Status

The marital status of the farmers as shown in Table 2 reveals that 86.7% were married and 9.7% were single. This is not surprising because early marriage is a common practice in this part of the country. The result is also in line with the findings of Soyebe *et al* (2005), who reported that agriculture is very much practiced by married people to make ends meet and cater for their children.

Household Size

In many African societies household size is considered as an asset and gift of nature from God. Thus, the number of people in a household has some socio-economic implications on the entire household's economic life. The results of the study on Table 2 show that 77.4% of the farmers had size of between 1 to 9 family members while the least percentage (1.1%) had a size of between 30 to 39 members. The average household size of the farmers is 8. This is similar to what was obtained by the M.S. Swaminathan Research Foundation (2007) in Indian sesame farming community of Thiruchengode, Namakkal District and Avalpundurai, Erode District, where a household size of the farmers was reported to be between 4-6. Thus, majority of the farmers have a relatively reasonable family size to contribute to labor for the production in the farm as common with traditional African society, where family size can provide surplus labor on the farm. It means therefore, most of the farmers had the opportunity to use extra labor of their household to increase productivity. This large family size cannot be separated from the reports by Oruboye (1995) that since Nigeria is still largely agrarian and due to low level of technology prevailing in agriculture and communal land tenure practices, especially in the rural areas, emphasis has been strongly on large family size. Similarly, Kebede *et al* (1990) observed that, the larger the family, other things being constant, the higher will be the probability of adoption.

Educational Level

Educational level of an individual could be a factor in the level of his/her appreciation of a new program as well as participation. It increases awareness and understanding of program goals by individuals. Table 2 shows that 45.5 % of the farmers had attained secondary school education while the least (4.3%) had non-formal education. Although, only 15.77% of the farmers had tertiary education, with majority of them having secondary education, the level of acceptance of the program was high. Generally however, the farmers basic educational level may allow them easy appreciation and understanding of the program. This is in line with observations of Ahmad (2007) in Muhammad (2010), who observed that education increases awareness and understanding of goals of a project by an individual. Similarly, research has shown that education is positively related to adoption of innovation (Balogun, 2000 and Farinde, 1995).

Farming Experience

Experience is the frequency of exposure to events and or activities from which an individual or group may gather knowledge, opinions, and skills. Table 2 shows that 62.4% of the farmers had between 1 – 4 years of experience in sesame production. The least percentage (0.7%) was of those who had 15 – 20 years of farming experience. While the average years of sesame farming experience of the farmers is 5. It can be seen that though sesame farming seems to be relatively a new practice amongst farmers in the state, five years could be good enough to acquire necessary experience for a successful farming of a crop like sesame. Lawal (2002), noted that experiences acquired by farmers have been of tremendous contributions to the sustainability of their farming occupation.

Table: 3 Relationship between Farmers' Yield and their Socio-economic Characteristics

Parameter	N	Mean	Std. Deviation	Coefficients			Multiple Correlations		F	df
				B	T	Sig	R	R Squr.		
Farmers' Yield	**279**	**16.18**	**13.780**							
Socio – Economic Character. (Constant)				**9.256**	**1.566**	**.119**				
Age Group	**279**	**3.01**	**.824**	**.620**	**.437**	**.663**				
Sex	**279**	**1.05**	**.219**	**-4.019**	**-1.203**	**.230**	**.490**	**.240**	**14.297**	**6, 272**
Marital Status	**279**	**1.93**	**.378**	**-.360**	**-.170**	**.865**				
Family Size	**279**	**7.12**	**5.832**	**.933**	**4.978**	**.001**				
Levelof Education	**279**	**3.44**	**1.139**	**.424**	**.616**	**.538**				
Years of Farming	**279**	**4.12**	**2.816**	**.453**	**1.466**	**.144**				

Level of Significance 0.05

Source: Researcher's field survey, 2013

Table 3above gives the number of respondents, 279, the mean value of "Farmers' Yield" and that of various "Socio – Economic Characteristics" along with their standard deviation. The table displays the coefficients of regression model against famers' yield as:

$$y_{Famers'Yield} = 9.256 + 0.620_{Age\ Group} - 4.019_{Sex} - 0.360_{Marital\ Status} + 0.933_{Family\ Size} + 0.424_{Level\ of\ Education} + 0.453_{Years\ of\ Farming}$$

By considering the individual coefficient, at level of significance, 0.05, since p – value < 0.05 level of significance, the results suggest that family size is the only socio – economic characteristic that contributes to farmers' yield. This is in agreement with the observations of Oruboye (1995), who noted that due to low level of technology prevailing in agriculture and communal land tenure practices in Nigeria, especially in the rural areas, emphasis has been strongly on large family size as a source of labor to increase production. Similarly Dabai (2011) observed that households with more members may have readily available labor for work on the farm, which increases the size of land to be cultivated. However, the F – test for testing adequacy of the whole regression model, at 0.05 level of significance, since p – value < 0.05 level of significance implies that the regression model is significant to determine famers' yield putting the above socio – economic characteristics together. The multiple correlations were found significant since rCalculated = 0.490 >rCritical = 0.195. This shows that there is significant relationship between the "Farmers' Yield' and their "Socio – Economic Characteristics".

Table 4: Rating of the program in terms of yield

Yield Increase with the Program	Frequency	Percent
Very high	51	18.3
High	117	41.9
Moderate	60	21.5
Low	51	18.3
Total	**279**	**100.0**

Source: Field Survey, 2013

Table: 4above gives the frequency and percent of rating the RMRDC sesame boosting program in terms of yield. 'High' has the highest frequency 41.9% and "Low" has the lowest frequency18.3%. Those who rated the program 'Very high' had a score percentage of 18.3 while 'Moderate' was 21.5%. Therefore, it could be concluded that the program was good. This further corroborates the results obtained in Table 4, which indicates that there was an increase in production of sesame in the state after the introduction of the program.

Table 5: *C*onstraints faced by the farmers in the program

Constraints	Frequency	Percent
Inadequate Input	72	26.0
Late delivery of inputs	236	85.0
Cumbersome Procedure	145	52.0
Untimely disbursement of credit	245	88.0
Inadequate capacity building	123	44.1
Bad experience from past intervention	1	0.40
Total	**822**	**295.5**

Source: Field Survey, 2013

Multiple responses

The Table 5 above shows the distribution of constraints faced by the farmers in the program. The constraints of "Untimely distribution of credit" 29.8% and "Late delivery of inputs" 28.7% could be highlighted as the major constraints faced by the farmers in the program. This was similar to what was reported by the M.S. Swaminathan Research Foundation (2007) in a study conducted in two sesame farming communities of Thiruchengode, Namakkal District and Avalpundurai, Erode District, where inadequate inputs and access to timely credit facility were noted among some of the constraints faced by the sesame farmers.

Summary

The study examined the role of the Raw Materials Research and Development Council (RMRDC) in boosting sesame production in Kebbi State and the effectiveness of the extension strategies adopted by the council. The specific objectives were to: (i.) describe the socio – economic characteristics of farmers in the program of boosting sesame production in Kebbi State, determine the relationship between farmers' yield and their socio-economic characteristics, to examine the extent to which the program package has been disseminated to the farmers, find out whether the sesame boosting program has effects on the income of the farmers, identify constraints faced by the farmers in the program.

Secondary and primary data were collected in the study. The primary data was collected using a structured questionnaire. `The data collected were analyzed using descriptive and inferential statistics.

Two hundred and seventy nine farmers representing twenty percent of the total number of farmers that participated in the program, were used across the four zones as classified by the Kebbi State Agricultural and Rural Development Authority. The respondents were selected using a multi stage random sampling from the zones after a purposive classification of the areas in accordance with the classification mentioned above.

52.2% of the respondents were within the age group of 31- 40 years and those above 60 years have least participation with 0.7%, while the mean age of the farmers is 36. This shows that most of the participating farmers were within their most active age. Most of the farmers were male with 94.98% participation with only 5.02% representing the females, revealing very low participation of women in the program. The results show that most of the respondents were married (86.7%) with household size of between 1-9 (77.4%) and an average household size of 8 members. Many of the respondents had secondary school education (45.5%), and only 4.3% had no any form of education, while 15.77% had tertiary education. On their experiences, most of the respondents had between 1- 4 years of sesame farming experience (62.4%) and 30.8% of them had between 5-9 years' experience while only 7% had between 15- 20 years' experience. The relationship between farmers' yield and their socio-economic characteristics was determined using Regression Model. The socio-economic characteristics were regressed against farmers' yield as:

$$y_{Famers'Yield} = 9.256 + 0.620_{Age\ Group} - 4.019_{Sex} - 0.360_{Marital\ Status} + 0.933_{Family\ Size} + 0.424_{Level\ of\ Education} + 0.453_{Years\ of\ Farming}$$

By considering the individual coefficient at 0.05 level of significance the results suggest that family size is the only socio – economic characteristic that contributes to farmers' yield. However, the F – test for testing adequacy of the whole regression model, at 0.05 level of significance, implies that the regression model is significant to determine famers' yield putting the socio – economic characteristics together. The multiple correlations were found significant since rCalculated = 0.490 >rCritical = 0.195. This shows that there is significant relationship between the "Farmers' Yield' and their Socio – Economic Characteristics.

The extent to which the program was disseminated to the farmers was rated in terms of yield by the farmers on a scale of 'very high',' high', 'moderate' and' low'. 33.7% of the farmers said it was high, 21.5% said it was moderate while 18.3% both were of the opinion that it was very high and low respectively. These therefore suggest that the dissemination of the program to the farmers was good.

5.2 Conclusion

From the results of the study, it can be concluded that the RMRDC boosting program has increased sesame production in Kebbi State. The study also found that there was a significant relationship between farmers' yield and their socio-economic characteristics.

Although many of the farmers rated the program as good and attested that it moderate effect on their income, the study revealed that there were some constraints faced by the farmers, which include, untimely disbursement of credit, late delivery of inputs, cumbersome procedure in the administration of the program, and inadequate inputs supply.

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