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Entrepreneurial Skill Needs of Sesame Farmers and Marketers in Katsina State, Nigeria

***Ikwuakam, O. T., Tsagem, M. M & Giwa., S.F**
Federal College of Education, Katsina
PMB 2041 Katsina State
*Corresponding author: ikwuosca@yahoo.com

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ABSTRACT: *This study was designed to investigate skill needs of sesame farmers and marketers in Katsina State. Descriptive survey design was adopted and 386 respondents were sampled from the population of registered sesame farmers and marketers in the state using multistage sampling technique. Data were collected on socioeconomic characteristics, skill needs, benefits and constraints using structured interview guide. Frequency counts, percentages, means, Ch-square and PPMC were employed in data analysis. Majority were young, male, married, Muslims, had Quranic education, large household size and operated small scale farms. Levels of skill needs for farmers and marketers were high. Major farmers' skill needs were fertilizer application, pest/disease while skills to make goods and services available to customers at the right place and time, capture, negotiate/bargain, grad/sort/bag were among marketers' major skill needs. Benefit levels were high for farmers and marketers. Inadequate facilities for training, education and training and cost of training were common constraints to farmers and marketers. Chi-square analysis revealed marital status as having significant association with farmers' skill needs level while education significantly associated with both marketers and farmers' skill needs levels. PPMC analysis indicated that farm size significantly correlated with farmers' skill needs level just as significant correlation existed between benefit, constraint and farmers, marketers' skill needs levels. Significant correlation existed between marketers' years of experience and skill needs level. The t-test analysis result showed farmers and marketers in Katsina central senatorial district (KCSD) had significantly higher skill needs than their counterparts in the north senatorial district (NSD). Because the skill needs of both farmers and marketers were high coupled with low educational qualifications, government should develop those distinctive skill needs into training modules using local language for easy understanding and utilization.*

KEYWORDS: Skill needs, producers, marketers, benefits, constraints

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INTRODUCTION

Sesame (*Sesamumindicum*) also known as beniseed in Nigeria is a plant family of *Pedaliacea*. It is an important oilseed crop that originated from tropical Africa from where it spread to India (Purseglove, 1996). In Nigeria, sesame is called "Ridi" in Hausa, "Ekuku" in Ibo and "Isasa" in Yoruba. It is extensively cultivated and yields well in relatively poor climatic conditions. In Africa, Nigeria ranks second largest and seventh in the World, with an estimated production of 120,000 metric tons annually (RMRDC, 2004).

Sesame is mostly produced in Northern States of Nigeria namely - Benue, Taraba, Kebbi, Kano, Bauchi, Kogi, Plateau, Adamawa, Kwara, Niger, Gombe, Katsina, Yobe, Bomo and Nassarawa with the later as the leading producer in Nigeria. Reportedly, sesame is used within Nigeria and constitutes an important component of Nigeria's agricultural exports (RMRDC 2004). This report further estimated national production figure at about 300,000 metric tons annually with about 60-70% of this exported annually.

Nutritionally its oil can be extracted from the seed and the cake made into kulikuli which together with the leaves are used to prepare local soup. The oil is also used locally for cooking as well as for medicinal purposes such as treatment of ulcers and burns. The stem and the oil extract are equally used in making local soap. Mshelia, Sajo and Gungula (2012) found out that the dried stems can be burnt to ashes, dissolved in water, stored and allowed to settle and the filtrate used in soap making. Internationally, sesame seed is the most sought after vegetable oil as its industrial ingredients is good for the production of margarine, canned sardine, corned beef, soap and ink (Sankar, Ali, Sambandam and Rao, 2010). The paste of ground sesame seeds is good for bread making, and the oils highly valued for their capabilities in fighting, preventing, reversing illness and disease.

The importance of sesame to national economic development has however brought series of intervention input by both Government and private sector to boost farmers' production capacity over the years. Nigeria Agricultural and Rural Development Bank (NARDB) and Olam (a subsidiary of Olam International Limited) are the front runners in providing support services (credit fertilizer and hybrid seeds) to sesame farmers in Nigeria (Mshelia *et al* 2012).

Katsina State is one of the leading producers in Nigeria (RMRDC 2004) and as such contributes to the nation's estimated 300,000 metric tons annual production and export rates. In the state, sesame is consumed as snack in various forms, oil and has robust market locally that could sustainably engage a willing entrepreneur successfully. An entrepreneur refers to someone who is able to balance the economically desirable with the technologically/operationally feasible skills, someone who takes a calculated risk to seize an opportunity. This implies that possession of relevant skill to either create new methods of production and products, new markets and supply chain and new forms of enterprise are attributes. It also means that an entrepreneur is not restricted

to buying and selling concepts but comprises of the producers, processors and marketers of goods and services.

Production is a process of creating an output and making it get to final consumers to satisfy human wants (Iwena 2008, Uko 2003). Sesame involves a combination of resource inputs for the purpose of obtaining sesame seeds as an outputs, and making same available to consumers. This process is categorized into pre-planting, planting, post planting and harvesting, and distribution operations. Marketing too is a means through which products of producing entrepreneurs are sold and made available to willing buyers at an agreed price. As a critical area in the agricultural production enterprise, it does not only concerns the disposal of agricultural produce to consumers but involves the purchasing of farm Inputs (Iwena 2008). It also covers various interconnected activities that range from planning production, growing and harvesting, grading, packing, transport, storage, processing, distribution, advertising, and sales. This implies that entrepreneurship in sesame production and marketing are operations that entrepreneurs carry out to earn profits, and living. Involvements in them however, are often times based on interest, knowledge, ability, attitude, value and above all skills. Of all these, skills are particularly germane to successful involvements in sesame production and marketing enterprises.

Skills are simply competencies an individual requires to effectively function in an enterprise. It is the specific ability of doing things effectively Ibrahim (2018) and entails acquisition of the right knowledge, practical attitude, and professional potentials to expand business horizons, and adapt to the changes in the dynamic world of production (Mayer (2002). According to Nsiah (2009) is crucial in making one remain self-reliant and longer in business. However, a lack of relevant entrepreneurial talents and skills in any sector of the economy has a consequential effects of high level of risks, loses and perhaps failures.

Statement of problem

The report that about 95% of consumed food and fibre crops used in our domestic industries are produced by rural farming entrepreneurs either as a group or individual (Amed, 2014) is a common knowledge. Also obvious is that entrepreneurs do so to generate income with which to better their lives. However, it is reported that in the midst of perceived high level of involvement and participation of Nigerians in the sector, poverty has maintained a ravaging gale on the populace. This raises questions on how competent/skilled the nation's agricultural workforce is to produce enough to sale, and improve income earning, as well as citizens' wellbeing.

Skills are competencies an individual requires to effectively function in an enterprise. Skills are the specific abilities of doing things rightly and adapt to the changes in the dynamic world of production (Ibrahim 2018 & Mayer 2002). It is simply the right knowledge, practical attitude; professional potentials that one requires to function well and expand his horizons. Unfortunately, as important as skills are in the productive and marketing activities of nation's agriculture, most entrepreneurs are reasonably lacking in them to manage, and survive in their distinctive enterprises (Nonyelu 2000).

Sesame farming and marketing are parts of the agricultural options worthy of venturing into for income and food generation. As part of the agriculture sector, the dearth of appropriate skills among the operators cannot be ruled out. Federal Government of Nigeria' response by establishing the Industrial Training Fund to offer skills trainings to Nigerians is an attestation that virtually all the sectors of the economy was facing skilled labour force shortages (Nasarawa State Government 2008). The report maintained that, despite this effort, relevant skills have continued to characterize the economy. Rising level of risks loses and perhaps enterprises failures have been the consequences. Sesame farmers and marketers in Katsina State may not be immune from this seemingly canker worm. Thus, specific but critical skill gaps/needs among sesame farmers and marketers need identification. Evidence also suggests that agro-enterprises generally are bedeviled by distinctive challenges (Nwosu and Onumadu 2008). Consequently, determining those associate with skills acquisition in sesame farming and marketing is important as the outcome will provide basis for appropriate intervention.

Objectives of the study

The general objective of the study was to investigate skill needs of sesame farmers and marketers in Katsina State. The specific objectives were to:

1. identify areas of skill needs in sesame farming and marketing
2. examine benefits derived from possessing sesame farming and marketing skills
3. Identify constraints to acquisition of skill needs in sesame farming and marketing.

LITERATURE REVIEW

Sesame commonly called beniseed is one of the cultivated oil seed crops in the world. It has recorded unprecedented significance compared to other cash crops since its introduction in Nigeria. Its cultivation during its early years of introduction was mainly in the northern and central parts of Nigeria as a minor crop. However, it has become in recent time a major cash crop particular in Benue, Gombe, Kogi, Yobe, Jigawa, kano, Plateu, Nasarawa, and Katsina States. Its widespread was due to its increasing demands at national and international levels and the oil that is very stable, free from undesirable nutrition or flavor component, rich in protein and other nutritional values similar to soybean. Such sterling qualities are hard to ignore, no wonder an estimated 3.5 metric hectares of the country's agricultural land have been found suitable for its cultivation which increased steadily from 15,000 metric tons in 1960 to 50,000 metric tons in 1980 (Anuoye, Funde & Abaji 1999). This production trend has since changed as Nigeria today is the second largest producer in Africa exporting an estimated 150,000 metric tons in 2008 (FAO 2009). Arising also from its unique socioeconomic values, the northern governors in 2007 embarked on a pilot project aimed at increasing its production, and utilization across various States in conjunction with the National Sesame Seeds Association and First Bank of Nigeria (Abdullahi 2009).

It is important to note that for this production scale be sustained, and enable farmers take advantage of its market potentials, sound agronomic practices and marketing skills are germane. Production as explained by Iwena (2008) is the rational combination of various resources to create a stipulated and expected output. It is the process of creating an output as well as getting it across to the final consumers. Iwena (2008) maintained that production encompasses all economic activities, which result in the creation of goods and services to satisfy human wants. In this understanding, Ereboh (1995) categorized activities in crop production effort to include pre-planting, planting, and post planting, and harvesting operations. In this sense, sesame production has come to mean a process that involves all the activities as amplified above including resource inputs for the purpose of obtaining seeds as outputs and making same available to consumers.

The process of getting the outputs available to consumers revolves around marketing enterprise. Sesame marketing refers to means with which products/outputs are made available or sold to buyers. Hoyt (1995) referred to it as various activities by which the products are supplied, advertised, and sold to the consumers. Such activities are interconnected, and include purchasing of seeds, and fertilizers, growing, and harvesting, grading, packing, transport, storage, processing, distribution, advertising and sales (Iwena 2008, George 2008).

In this perspective, George (2008) maintained that acquisitions of relevant skills are crucial for every crop farmer and marketer particularly those who would want to profit in the enterprise is germane. After all entrepreneurship encompasses a process of bringing together creative and innovative ideas, combining same with managerial and organizational skills in order to pull people and resources together to meet identified needs (Agomuo 2002). Such skills so referred in this context are simply enterprise skills which all farmer and marketer need to effectively function. In corroboration, Okpara & Wynn, (2007), Terry (2005), Lyve (2005) stated that such skills are crucial in enterprise build-up, development, financing and marketing.

The importance of having prerequisite marketing skills has also been articulated to include helping farmers to be informed, knowledgeable, and confident, determine the most efficient method of physical distribution of goods, and services, determine the extent to which products will sell, determine current trends in sales of products, knowledge of advertising, determine, and interpret factors which indicate extent of and strength of competition, (Ezeani, 2012). Such competence, according to Grove (1993), is the state of being functionally adequate or having knowledge, skill or strength for a particular duty. Olaitan (2003) also stated that being skilled is synonymous with competence, which simply implies that an individual has prerequisite knowledge, skills, attitude, and judgment which is crucial to attain proficiency.

As important as these skills are, it has been captured that most crop farmers and marketers lack some of these basic competencies (Amusa & Dumbiri 2010). Inadequate training facilities for skills development, planning, coordination, confusion, mismanagement, inefficient application of

scarce resources and deficient value orientation were observed to have characterized farmers and marketers' operation (Adetokunbo 2009). Added to these are the absence of extension agents and services, poor road network and high cost of transportation to the cities for possible training programme (Umar, *et. al* 2010). This has created serious skill gaps or needs. Skills need refers to lack of relevant skills/expertise/competences with which to performance or function at optimal level. It is the difference between what is required or expected and what one actually has (Adetokunbo 2009).

METHODOLOGY

The population of the study consisted of all registered sesame farmers and marketers in Katsina State. A survey research design and multistage sampling procedure were adopted to sample sesame farmers and marketers. In the first stage, two senatorial districts were purposefully selected from the three senatorial districts in the state because of their prominence in sesame farming and marketing. The second stage involved using random sampling technique to select two Local Government Areas (LGAs) from each of the selected districts. The third stage involved using random technique to select four communities from each of the selected LGAs to give 16 communities. In the fourth stage, a list of registered sesame farmers were obtained from Sesame Farmers' Association in each selected community and twenty four sesame farmers and marketers each were selected using systematic sampling technique. This gave a sample size of 386 respondents of 193 sesame farmers and marketers each that were used in the study. Data was primarily sourced from quantitative means that comprised structured interview schedule covering information on respondents' socioeconomic characteristics; skill needs constraints and benefits derived. Content validity of study instrument was achieved through interactions with professionals in Agricultural Economics and Extension. The process resulted into correcting defective questions, deletion of irrelevant items and inclusion of relevant ones. The instrument was further pre-tested on sesame farmers and marketers in a place that was not part of the area under investigation. Split half method was adopted in running the analysis. Pearson Product Moment Correlation (PPMC) test produced a correlation coefficient (r) of 0.7 that was adjudged reliable.

In order to operationalize respondents' skill needs, a list of farming and marketing skills were presented, from which respondents indicated their level of needs. A 4 – point response scale of highly needed = 3, averagely needed = 2, slightly needed = 1, and not needed = 0 were used. Mean values for each of the skills were obtained and used to rank respondents' skill needs on the basis of importance. A score of skill needs was obtained for each of the respondents and used to categorize them into high skill needs (>mean) and low skill needs (<mean). Constraints to acquisition of skill needs were measured on level of severity, ranging from serious=2, mild=1, not a constraint=0. Benefit of skill needs was measured using 3- point scale of Low = 1, Moderate = 2, High = 3. The mean and standard deviation of the respondents' scores for benefit were obtained for both producers and marketers and used to categorize them into having low (< mean ± 1SD),

moderate (within mean ± 1SD) and high (> mean ± 1SD) level of benefits. Data analysis was carried out using descriptive statistics (means, frequencies and percentages) while the test of relationship was carried out using Chi-square and PPMC.

RESULTS

Socio-economic characteristic of respondents

The result on Table 1 shows that 79.0% of the respondents were married while 17.9%, 0.3% and 2.8% were single, divorced and widowed respectively. The distribution by age and years of experience showed that 32.9% were between 21-30 years while 40.2% had an average 14 years' experience. An average of 6 bags of sesame were produced and marketed by 68.1% while 78.0% of them had an average of 2ha of farm land. Table 1 further revealed that 36.5% had a mean household size of 11 people and Quranic educational qualification (36.8%) while 97.4% were Muslims. Source of labour ranged from self (43.5%) to friends (37.6%). Average annual income was ₦351, 742 among 51.6% while 78.2% practiced mixed cropping pattern.

Table 1: distribution of respondents based on socio-economic characteristics

Variables	F	%	Mean±sd
Marital status			
Married	305	79.0	
Single	69	17.9	
Divorced	1	0.3	
Widowed	11	2.8	
Age			
Less or equal 20	12	3.1	
21-30	127	32.9	
31-40	108	28.0	
41-50	65	16.8	
51-60	42	10.9	
>60	32	8.3	
Years of experience			
Less or equal 5	155	40.2	
6-10	118	30.6	
11-15	40	10.4	
>15	73	18.9	
Number of bags			6.334±10.733
Less or equal 5	263	68.1	
6-10	75	19.4	
11-15	26	6.7	
>15	22	5.7	
Size of farm (ha)			1.977±1.950
Less or equal to 2	301	78.0	
2.1-4	46	11.9	
4.1-6	27	7.0	
> 6	12	3.1	
Household size			10.802±7.055
Less or equal 5	88	22.8	
6-10	141	36.5	

11-15	88	22.8	
16-20	46	11.9	
>20	23	6.0	
Educational status			
No formal	1	0.3	
Quranic	142	36.8	
Primary	33	8.5	
Secondary	117	30.3	
Tertiary	93	24.1	
Religion			
Islam	374	97.4	
Annual income			3517242±71338.85
Less or equal 200000	199	51.6	
201000-400000	112	29.0	
401000-600000	38	9.8	
>600000	37	9.6	
Cropping system			
Mixed	302	78.2	
Sole	39	10.1	
Shifting cultivation	45	11.7	

Source: Field survey 2023

Sesame producers' skill needs

The result in Table 2 reveals that across the state, skills to apply fertilizer (91.2%), control pest/disease (91.2%), control weeds (90.4%), rodents/birds (88.9%), purchase farm input (87.6%), and process (87.3%) were highly needed by the producers. Others were harvesting (85.2%), surface leveling (55.2%), thinning (84.5%), planting (82.9%), landing clearing/tillage (84.2%) and irrigation (82.4%). Using the mean values, fertilizer application (mean = 3.90), pest/disease (mean = 3.87), weed control (mean = 3.85) and purchase of farm input were producers' major skill needs across the state. In KCSD, major skill needs were plant/disease control (mean = 3.93), fertilizer application (mean = 3.92), purchase of farm inputs (mean = 3.90) while NSD recorded fertilizer application (mean =3.88), plant/disease and weed control (mean = 3.82), purchase of farm inputs (mean = 3.70) as most skill needs.

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Table 2: Distribution of sesame producers based on skill needs

Producer' skill needs	Highly Needed	Averagely Needed	Slightly needed	Not Needed	Mean TOTAL	Zone	
						Central	North
Purchase of farm inputs	87.6	6.7	3.6	2.1	3.80	3.90	3.70
Planting	82.9	9.1	2.3	5.7	3.69	3.82	3.56
Land clearing/tillage	84.2	8.8	3.1	3.9	3.73	3.81	3.66
Surface leveling	85.2	6.7	4.4	3.6	3.74	3.84	3.64
Irrigation	82.4	8.5	4.7	4.4	3.69	3.89	3.48
Fertilizer application	91.5	7.3	1.0	0.3	3.90	3.92	3.88
Thinning	84.5	8.3	3.4	3.9	3.73	3.85	3.61
Plant/disease control	91.2	5.7	2.3	0.8	3.87	3.93	3.82
Weed control	90.4	6.5	1.3	1.8	3.85	3.89	3.82
Rodents/birds control	88.9	4.1	2.6	4.4	3.77	3.88	3.67
Harvesting	85.2	7.5	2.1	5.2	3.73	3.84	3.61
Processing	87.3	5.4	1.6	5.7	3.74	3.88	3.60

Source: Field survey 2023

Sesame marketers' skill needs

Table 3 shows that across the state, abilities to make goods and services available to customers at the right place and time (95.9%), carry out effective marketing information research (95.1%), capture, maintain and retain customers attention (94.8%), negotiate/bargain (94.8%), grade/sort/bag (94.6%), carry out effective sales techniques (90.2%) and determine customers' needs (92.0%) were highly needed skills by marketers. Others were skills to identify new marketing trends (86.5%), advertising (85.2%), enquire about demand and supply situation (83.9%), identify seasonal fluctuations (79.8%) and determine factors that indicate competitors' strength and weaknesses (79.5%). Using mean values also, abilities to make goods and services available to customers at the right place and time (mean =3.96), carry out effective marketing information research (mean =3.95), capture, maintain and retain customers attention (mean =3.95) grade/sort/bag (mean =3.94), determine customers' needs (mean = 3.92) formed marketers' skill needs. In KCSD, good advertising techniques (mean =3.96), ability to identify new marketing trends (mean =3.94), ability to make goods and services available to customers at the right place and time (3.94), ability to carry out effective marketing information research (mean =3.94) and ability to determine customers' needs (3.94) were major marketing skill needs. Also in the NSD, abilities to make goods and services available to customers at right place and time (mean = 3.98), capture, maintain and retain customers attention (mean =3.98), negotiate (mean =3.96) carry out effective marketing information research (mean =3.96) were most marketing skill needs.

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Table 3: Distribution of sesame marketers based skill needs

Marketing skill Needs	Highly Needed	Averagely Needed	Slightly needed	Not Needed	Total	Mean Central	North
ability to carry out effective marketing information research	95.1	4.9	0	0	3.95	3.94	3.96
ability to determine customers' needs	92.0	8.0	0	0	3.92	3.94	3.90
ability to capture, maintain and retain customers attention	94.8	5.2	0	0	3.95	3.93	3.97
negotiation skills	94.8	5.2	0	0	3.95	3.93	3.96
effective sales techniques	90.2	9.1	0.5	0.3	3.89	3.92	3.86
ability to acquire demand and supply situation	83.9	13.2	2.8	0	3.81	3.91	3.71
ability to make goods and services available to customers at the right place and time	95.9	4.1	0	0	3.96	3.94	3.98
good advertising techniques	85.2	7.8	7.0	0	3.78	3.96	3.60
ability to identify new marketing trends	86.5	12.7	0.8	0	3.86	3.94	3.77
ability to determine factors that indicate competitors strength and weakness	79.5	15.3	4.7	0.5	3.74	3.93	3.54
ability to identify seasonal fluctuations	79.8	15.0	4.4	0.8	3.74	3.93	3.55
grading/sorting/bagging techniques	94.6	5.2	0.3	0	3.94	3.94	3.94

Source: Field survey 2023

Producers and marketers' levels of skill needs

Table 4 shows summary of producers and marketers' levels of skill needs. The results show that the respondents were categorized into two based on levels of skill needs using mean scores as benchmark. The result revealed that across the state, maximum skill needs score was 96.00 and minimum 58.00 with a mean of 91.74. Using this as benchmark, the result shows that both across state (71.5%), KCSD, (85.1% and NSD 61.5% senatorial districts had high skill needs levels in both sesame production and marketing. For the producers, the maximum score was 48.00, minimum 16.00, with the mean of 45.25. Also based on this benchmark, producers across the state (85.6%), KCSD, (85.6%) and NSD (69.3%) senatorial districts were adjudged to have high skill needs level. For marketers too, the maximum score was 48.00; minimum 34.00 while mean was 46.48. Using this as benchmark, marketers' level of skill needs across the state (74.6%), KCSD, (85.6%) and NSD (60.9%) senatorial districts were adjudged high.

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Table 4: Distribution of respondents based on levels of skill needs

Level	F	%	Central		North		Min.	Max	Mean	SD
Production needs							16.00	48.00	45.25	6.10
Low	87	22.5	28	14.4	59	30.7				
High	299	77.5	166	85.6	133	69.3				
Marketing needs							34.00	48.00	46.48	2.85
Low	98	25.4	28	14.4	75	39.1				
High	288	74.6	166	85.6	117	60.9				
Pooled needs							58.00	96.00	91.74	8.13
Low	110	28.5	29	14.9	74	38.5				
High	276	71.5	165	85.1	118	61.5				

Source: Field survey 2023

Benefits of production skill needs

Table 5 shows results on benefits of sesame production skill needs. The results indicate that across the state, knowledge of when to plant (83.1%), identifying best soil type (81.9) using tools and equipment effectively (81.3%), purchasing right tools and equipment (76.4%) and thin and weed properly (75.6%) as benefits were very high. Other benefits adjudged very high were abilities to clear, till and carry out land leveling (77.2%), reduce, prevent and control pest/diseases/rodents (75.4%), buy right input (74,6), produce high quality sesame (71.5%), process high quality sesame seeds (73,6%), properly apply fertilizers (70.7%), and make more returns with minimal cost (69.2%). However, using the mean scores, identifying best soil type for sesame (mean = 3.80), use tools and equipment effectively (mean =3.80) knowledge of when to plant (mean =3.78), harvest properly (mean = 3.77) and ability to clear, till and carry out land leveling (mean =3.76) were major benefits across the state. In KCSD, using tools and equipment effectively (mean =3.89), identifying best soil type for sesame **(**mean =3.88), reducing, preventing and controlling pest/diseases/rodents (mean =3.87) were major producers' benefits. In NSD, abilities to make more returns with minimal cost (mean =3.73), identify best soil type for sesame (mean =3.73), use tools and equipment effectively (mean =3.71) harvest properly (mean =3.71) were major benefits.

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Table 5: Distribution of producers based on benefits of skill needs

Benefits of production skills	Very High	High	Low	Very Low	Mean		
					Total	Central	North
Ability to buy right input	74.6	21.8	3.4	0.3	3.71	3.86	3.55
Knowledge of when to plant	82.1	14.8	2.1	1.0	3.78	3.88	3.68
Identifying best soil type for sesame	81.9	16.6	1.6	0	3.80	3.88	3.73
Ability to clear, till and carry out land leveling	77.2	22.3	0.3	0.3	3.76	3.84	3.69
Reducing preventing and controlling pest/diseases/rodents	75.4	21.8	2.8	0	3.73	3.87	3.58
Purchase right tools and equipment	76.4	21.2	1.3	1.0	3.73	3.88	3.58
Use tools and equipment effectively	81.3	17.4	1.3	0	3.80	3.89	3.71
Thin and weed properly	75.6	21.8	2.3	0.3	3.73	3.84	3.61
Ability to make more returns with minimal cost	69.2	23.3	7.3	0.3	3.61	3.47	3.76
Proper irrigation/water application	59.8	14.8	24.6	0.8	3.34	3.21	3.47
Proper application of fertilizers	70.7	25.4	3.9	0	3.67	3.76	3.57
Production of high quality sesame	71.5	26.2	2.3	0	3.69	3.78	3.60
Harvest properly	79.3	18.4	2.3	0	3.77	3.83	3.71
Process high quality sesame seeds	73.6	24.6	1.0	0.8	3.71	3.80	3.62
Knowledge of infrastructure utilization	63.7	17.9	18.4	0	3.45	3.29	3.62

Source: Field survey 2023

Benefits of marketing skill needs

The study also determined benefits of sesame marketing skill needs (Table 6). The result revealed that across the state, abilities to determine availability and shortage of sesame(90.9%), determine customers needs (87.6%), keeps entrepreneurs' confident (82.6%), helps entrepreneurs detect seasonal fluctuation (78.0%), help entrepreneurs' determine the extent the produce will sell (77.5%) and knowledge of best advertising method (76.4%) as benefits were very high. Also, 75.6% and 54.9% of the marketers indicated that abilities to determine factors and extent of competition and taking records of expenditure, income, profit and loss as benefits were very high. Applying the mean values in order of importance, the abilities to determine availability and shortage of sesame (3.89), determine customers needs (3.88), keeps entrepreneurs' confident (3.83) and help entrepreneurs' determine the extent the produce will sell (3.77) were major benefits to marketers across the state. In KCSD, the skills to keep entrepreneurs confident (mean = 3.92), detect seasonal fluctuation (mean =3.92) determine the extent the produce will sell (mean =3.91) were major benefits while major benefits in NSD were abilities to determine availability and shortage of sesame (mean = 3.93), customers needs (mean = 3.86) and keep entrepreneurs' confidence (mean = 3.73).

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Table 6: Distribution of marketers based on benefits of skill needs

Benefits of marketing skills	Very High	High	Low	Very Low	Mean		
					Total	Central	North
Keeps entrepreneurs confident	82.6	17.4	0	0	3.83	3.92	3.73
Helps entrepreneurs detect seasonal fluctuation	78.0	10.1	11.9	0	3.66	3.92	3.40
Help entrepreneurs determine the extent the produce will sell	77.5	22.0	0.5	0	3.77	3.91	3.63
Helps entrepreneurs determine current trends in produce sales	75.9	24.1	0	0	3.76	3.89	3.63
Determine customers needs	87.6	12.4	0	0	3.88	3.89	3.86
Knowledge of best advertising method	76.4	21.0	2.3	0.3	3.74	3.83	3.64
Ability to determine factors and extent of competition	75.6	22.8	1.6	0	3.74	3.87	3.61
Ability to determine availability and shortage of sesame	90.9	8.0	0.5	0.5	3.89	3.86	3.93
Taking records of expenditure income profit and loss	54.9	13.0	28.8	3.4	3.19	3.31	3.08

Source: Field survey 2023

Producers and marketers' levels of benefit

The result on Table 7 is a summary of the distribution of farmers and marketers based on levels of benefits derived. The results indicated that both marketers and farmers were categorized into two, based on their levels of benefits using mean scores as benchmarks. The results across the state revealed the maximum score as 96.00, minimum 58.00 and mean 91.74. Using this as a benchmark, 71.5%, 85.1% and 61.5% of both farmers and marketers across the state had high benefit level. In KCSD, the maximum score for farmers was 60.00, minimum 34.00 and mean 55.28. Again using this as a benchmark, farmers in KCSD (54.1%) and NSD (52.1%) were adjudged to have had high benefit level. On the other hand, the maximum, minimum and mean scores for marketers were 36.00%, 24.00% and 33.46 respectively. Using these as a benchmark, 53.1%, 81.4% and 61.5% were adjudged to have high benefit level across the state, KCSD and NSD respectively.

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Table7: Distribution of producers and marketers based on level of benefit of skills needs

Level	F	%	Central		North		Min.	Max	Mean	SD
Pooled needs							58.00	96.00	91.74	8.13
Low	110	28.5	29	14.9	74	38.5				
High	276	71.5	165	85.1	118	61.5				
Production benefits							34.00	60.00	55.28	5.70
Low										
High	103	26.7	89	45.9	92	47.9				
	283	73.3	105	54.1	100	52.1				
Marketing benefits							24.00	36.00	33.46	3.49
Low	181	46.9	36	18.6	74	38.5				
High	205	53.1	158	81.4	118	61.5				

Constraints to producers' acquisition of skill needs

Table 10 presents distinctive constraints to acquisition of skill needs in order of severity. The result revealed that inadequate facilities for training (81.1%), inadequate education and training (77.2%), lack of awareness (60.0%), insecurity (58.3%), training cost (56.5%) and poor transportation infrastructure (56.5%) were very serious constraints. Contrarily, 78.8%, 70.2% 63.0% and 57.0% indicated that lack of interest, marital status, age, household size were not constraints. Using the mean values, inadequate education and training (mean = 1.76), inadequate facilities for training (mean = 1.74), inadequate experienced extension workers (mean = 1.67) and poor transportation infrastructure (mean = 1.36) were major constraints in the across the state. In KCSD and NSD, similar trend of constraints such as inadequate education and training (mean = 1.58), inadequacy of experienced extension workers (mean = 1.44), and lack of awareness (mean = 1.41) was obtained.

Table 10: Distribution of producers based on constraints to acquisition of skill needs

Constraints to production skills	Serious constraint	Mild constraint	Not a Constraint	Mean		
				Total	Central	North
Inadequate education and training	77.2	22.5	0.3	1.77	1.58	1.58
Inadequate facilities for training	81.1	7.0	11.9	1.69	1.39	1.39
Training cost	56.5	16.3	27.2	1.29	1.24	1.24
Poor transportation infrastructure	56.5	16.3	27.2	1.29	1.26	1.26
Insecurity	58.3	1.3	40.4	1.18	1.14	1.14
Inadequacy of experienced extension workers	75.9	12.2	11.9	1.64	1.44	1.44
Lack of interest	17.6	3.6	78.8	0.39	0.58	0.58
Age	12.4	24.6	63.0	0.49	0.70	0.70
Marital status	11.7	18.1	70.2	0.41	0.55	0.55
Household size	12.4	30.6	57.0	0.55	0.58	0.58
Lack of awareness	60.0	24.1	15.3	1.45	1.41	1.41

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Constraints to marketers in acquisition of skill needs

Table 11 presents results on constraints to sesame marketers' acquisition of skill needs. Inadequate facilities for training (79.5%), inadequate education and training (76.4%), lack of awareness (70.7%), poor transportation infrastructure (63.5%), insecurity (57.8%), training cost (56.5%) were identified as serious constraints. On the other hand, 79.5%, 71.2% and 68.4% of the marketers indicated that lack of interest; marital status, age, and household size respectively were not constraints. Also inadequate education and training (mean = 1.76), inadequate facilities for training (mean = 1.74), inadequate experienced extension workers (mean = 1.67) and poor transportation infrastructure (mean = 1.36) were major constraints in the whole state. In KCSD, however, inadequate facilities for training (mean = 1.99), inadequate education and training (mean = 1.95) inadequacy of experienced extension workers (mean = 1.84) were tops as constraints while inadequate education and training (mean = 1.58), lack of awareness (mean = 1.41) and inadequate facilities for training (1.39) were major constraints to marketers in the NSD.

Table 7: Distribution of marketers based on constraints to acquisition of skill needs

Constraints to marketing needs	Serious constraint	Mild constraint	Not a Constraint	Mean		
				Total	Central	North
Inadequate education and training	76.4	23.3	0.3	1.76	1.95	1.58
Inadequate facilities for training	79.5	14.8	5.7	1.74	1.99	1.39
Training cost	56.5	17.4	26.2	1.30	1.34	1.24
Poor transportation infrastructure	63.5	9.3	27.2	1.36	1.32	1.26
Insecurity	57.8	2.3	39.9	1.18	1.22	1.14
Inadequacy of experienced extension workers	72.0	23.1	4.9	1.67	1.84	1.44
Lack of interest	17.9	2.6	79.5	0.38	0.20	0.58
Age	11.9	22.5	65.5	0.46	0.29	0.70
Marital status	11.1	17.1	71.2	0.40	0.28	0.55
Household size	11.7	19.9	68.4	0.43	0.53	0.58
Lack of awareness	70.7	14.0	15.3	1.55	1.49	1.41

Source: Field survey 2023

Test of relationship between independent variables and level of skill needs

Chi-square test of association between selected independent variables and respondents' level of skill needs

The result of analysis in Table 8 reveals that marital status ($\chi^2 = 8.647$) was significantly related to producers' skill needs, but not to marketers ($\chi^2 6.222$) and overall entrepreneurial skill needs ($\chi^2 7.124$). Also, education ($\chi^2 = 10.303$) had a significant relationship with the marketers, producers and overall skill needs.

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Table 8: Chi-square test of relation between selected independent variables and respondents' level skill needs

Variables	Producer			Marketer			Pooled		
	χ^2	Df	P	χ^2	Df	P	χ^2	Df	P
Marital status	8.647	3	0.034	6.222	3	0.101	7.124	3	.068
Education	10.303	4	0.036	19.001	4	.001	16.537	4	.002

Source: Field survey 2023

PPMC test of relation between selected independent variables and level of skill needs

The result on Table 9 shows that farm size (r = -0.196) significantly correlated with the overall (r = -0.163, producers (r = -0.196) skill needs and not significant with marketers (r = -0.045) skill needs. It was also revealed that significant relationship existed between benefits and producers ((r = 0.391), marketers (r = 0.522), overall (r = 0.730) skill needs. In the vein, constraints showed a significant correlation with both the producers (r = 0.299), marketers (r = 0.341), overall (r = 0.343) skill needs.

.**Table 9: PPMC test of relationship between selected independent variables and Respondents' level of skill needs**

Variables	Producer			Marketer			Pooled		
	R	p	Sig.	r	P	Sig.	r	p	Sig.
Age	0.066	0.194	NS	0.079	0.120	NS	0.078	0.128	NS
Household size	0.040	0.438	NS	0.119	0.020		0.071	0.162	NS
Years of experience	0.038	0.461	NS	0.090	0.076	S	0.060	0.241	NS
Size of farm	-0.196	0.000	S	-0.045	0.381	NS	-0.163	0.001	S
Number of bags produced	-0.052	0.311	NS	0.023	0.654	NS	-0.031	0.547	NS
Annual Income	0.016	0.751	NS	0.093	0.068	NS	0.045	0.381	NS
Benefits (production)	0.391	0.000	S	0.522	0.000	S	0.476	0.000	S
Benefits (marketing)	0.608	0.000	S	0.782	0.000	S	0.730	0.000	S
Constraints (Production)	0.299	0.000	S	0.341	0.000	S	0.343	0.000	S
Constraints (marketing)	0.233	0.000	S	0.597	0.000	S	0.263	0.000	S

Source: Field survey 2023

Test of difference by senatorial districts on level of skill needs

The t-test analysis result on Table 10 shows that in Katsina central district producers (mean = 46.44), marketers (mean = 47.21), overall skill needs (mean = 93.66) had higher mean values than their counterparts in the north with producers, marketers and pooled means of (44.05, 45.74 and 89.797) respectively.

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Table 10: Distribution of based on t-test analysis of mean difference by senatorial districts on level of skill needs

Needs	Region	N	Mean	Std. Deviation	t-test	Df	sig.
Pooled needs	Central	194	93.660	6.179	4.801	384	0.000
	North	192	89.797	9.328			
Production skill needs score	Central	194	46.443	4.606	3.922	384	0.000
	North	192	44.052	7.120			
marketing needs scores	Central	194	47.216	2.327	5.250	384	0.000
	North	192	45.745	3.126			

Source: Field survey 2023

DISCUSSION OF RESULTS

The result on respondents' age revealed that majority were between the ages of 21-30 years. This indicates that they are still young and active. The implication could be improved productivity as they are still vibrant to carry out distinctive strenuous operations that characterize sesame production and marketing. The result contradicts the finding of Edeoghon et al (2008) that arable crop farming in Edo state is in the hands of the aged who are less active but in conformity with Ikwuakam et. al (2016) on age of sesame farmers in Katsina State.

The study also revealed that most respondents were married and had average household size of 11 people. This means a relatively large household size and may be attributed to the polygamous marital pattern prevailing in the States. This implies the likelihood of the respondents relying reasonably on the household for labour provision that may be cheap. The finding agrees with the findings of Onasanya (2007) that most crop farmers are married and that agriculture is very much practiced by married people as a strategy to make ends meet and cater for their children (Soyebo *et. aI.* 2005). The finding on household size is in also tandem with that Soyebo *et. aI* (2005).

The result that an average of 6 bags of sesame were produced and marketed by majority on an average of 2ha of farm land is an indication that they are small scale sesame producers and marketers. The implication is that large expanse of land and labour as available within the household were not utilized effectively. The result is consistent with the finding of Ikwuakam *et. al* (2016) that small farm holdings characterize most sesame farmers in Katsina State.

However, a large number had average years experience of 6 years implying that sesame producers and marketers are not adequately experienced in the technicalities associated with sesame production and marketing. The result is not in tandem with that of Edeoghon (2008) who found that most farmers in Nigeria have about 20 years farming experience.

The study further revealed that the highest educational qualification of majority was Quranic education which was complimented by the Islamic religion that prevailed in the state. This finding is in tandem with a priori expectation and has implication on the rate of access, and utilization of information, interpretation and technology especially those written in English language other than Hausa language. This result confirms that of Ikwuakam and Lawal (2015) who found that most sesame farmers in Batsari Local Government Area possessed Quranic education and were mainly Muslims

Source of labour was mainly self labour with an average annual income of ₦351, 742. This means that most sesame farming and marketing operations were at subsistence level. The implication is fund limitation they may likely face in trying to acquire relevant skill trainings and input. Whereas the result on labour agrees with that of FAO (2005) who noted that family labour is mostly used in most developing countries' agriculture, Okoli *et. al* (2004) noted that most sub-sectors in agriculture has remained predominantly subsistent with low income earning.

The mixed cropping pattern practiced by majority may have been adopted as a strategy to increase earnings, ensure for security and meet other household needs. This however, has implication for the soil which its fertility may deplete leading to undesirable poor yields. The result agrees with the finding of Youdeowei and Akinwumi (1999) that most farmers practice mixed cropping in Nigeria as it produces total yield.

Another result of the study across the state showed that fertilizer application, pest/disease, weed control and purchase of farm input were foremost producers' skill needs. In Katsina central senatorial district, the most skill needs were plant/disease control, fertilizer application, and purchase of farm inputs while northern district recorded fertilizer application, plant/disease and weed control, and purchase of farm inputs. The result implies that sesame producers were homogenous in their skills needs and this may have contributed to the low yield and income earning levels. These findings are in consonance with Ugwoke *et. al* (2013) who found that the occupational competences required by retiree agricultural producers and marketers are absolute and high.

Also, the study revealed across the state that abilities to make goods and services available to customers at the right place and time, carry out effective marketing information research, capture, maintain and retain customers attention, grade/sort/bag, determine customers' needs were foremost in the chain of sesame marketers' skill needs. In Katsina central senatorial district, good advertising techniques, abilities to identify new marketing trends, make goods and services available to customers at the right place and time carry out effective marketing information research and determine customers' needs were tops among marketing skill needs while abilities to make goods and services available to customers at the right place and time, capture, maintain

and retain customers attention, negotiate, carry out effective marketing information research were major in the north. This implies that a wide gap exists between sound marketing principles and actual marketing practices in the district. These results are in tandem with Olaitan, *et. al* (2011), Omeje and Asogwa (2013) who found similar skill needs as been deficient among marketers of vegetable and melon products.

The study further revealed that across the state, skills to identify best soil type for sesame, use tools and equipment effectively, knowledge of when to plant, harvest properly and ability to clear, till and carry out land leveling activities were major producers' benefits. The result also revealed that in Katsina central using tools and equipment effectively, identifying best soil type for sesame, reducing, preventing and controlling pest/diseases/rodents were among the producers' benefits while abilities to make more returns with minimal cost, identify best soil type for sesame use tools and equipment effectively, harvest properly were producers' benefits in the northern. The implication is that it will be difficult to make meaningful achievement in sesame production in the absence of relevant skills. The result is in conformity with Iwena (2008) who explained that production is an economic activity that requires critical skills for goods and services to be created.

Another result across the state revealed marketers' major benefits were abilities to determine availability and shortage of sesame, determine customers needs, determine customers' needs, keeps entrepreneurs' confident and help entrepreneurs' determine extent the produce will sell foremost. In the vein, the skills to keep entrepreneurs' confidence, detect seasonal fluctuation; determine extent the produce will sell were most marketing skills' benefits in Katsina central. The result further showed that in the northern district, abilities to determine availability and shortage of sesame, customers' needs and keep entrepreneurs' confidence were major benefits. This means that success in agricultural produce marketing does not just mean the purchase of critical inputs, and disposal to consumers but dependent on possessing and using relevant marketing skills. The result is in line with Mayer (2002) who stated that relevant entrepreneurial skills enable young men and women to expand their business horizons, and adapt to the changes in the dynamic world of production and marketing. Okereke and Okoroafor (2011) asserted in corroboration that entrepreneurship skills are pertinent and rewarding tools for venture and economic survivals.

The study revealed that inadequate facilities for training, inadequate education and training, lack of awareness, insecurity, training cost and poor transportation infrastructure as constraints to acquisition of skill needs in sesame production were very serious constraints to acquisition of production skills. In Katsina central and northern zone, the same trend of constraints prevailed. This implies that both zones similar trend and magnitude of constraints. It also implies that this chain of constraints may reasonably translate into farmers' inefficiency in most of their production operations. The result is tandem with Adetokunbo (2009) who noted that inadequate training facilities for skills development, planning, coordination, confusion, mismanagement, inefficient

application of scarce resources and deficient value orientation as characterizing communities where the farmers and marketers operate. It is also in conformity with Umar, Okoye & Okoye (2010) who revealed the absence of extension agents and services, poor road network and high cost of transportation to the cities for possible training programme as major bottlenecks to acquisition of production skills.

Across the state too, inadequate facilities for training, inadequate education and training, lack of awareness, poor transportation infrastructure, and insecurity and training cost were revealed to be very serious constraints to acquisition of marketing skills. In Katsina central, however, inadequate facilities for training, inadequate education and training and inadequacy of experienced extension workers were tops as constraints while inadequate education and training, lack of awareness and inadequate facilities for training were most crucial areas of constraint in the northern zone of the state. This may have been the reason why marketers' levels of operation and income generation were low. The result corroborates the submission of Adetokunbo (2009) that inadequate training facilities for skills development, planning, coordination, confusion, mismanagement, inefficient application of scarce resources and deficient value orientation characterize most communities where farmers and marketers operate. Also in conformity is

The test of association (Pearson's Chi-square) revealed that marital status had significant association with production skill needs level. Education was also revealed to have significant association with marketing and production skill needs level of the respondents. These results imply that levels of skill needs of categories of respondents varied due to their marital status and educational qualification. The result contradicts Ikwuakam and Lawal (2015) who found that marital status and educational qualification has no association with sesame farmers' access to intervention input.

Similarly, the PPMC analysis indicated that farm size significantly correlated with the overall production skill needs' level. It was further revealed that significant correlation existed between benefits, constraint and production, marketing and overall skill needs' level of the respondents. Similarly, a significant correlation was found to have existed between respondents' marketing skill needs level and years of experience. The results imply that the more these variables varied, the more, the skill needs varied. The result agrees with Adeleke and Afolabi (2012) that marketing experience is a significant factor in sesame marketing.

The t-test analysis result which showed that respondents in Katsina central zone had significantly higher production, marketing and overall skill needs than their counterparts in the north is in contradiction with a priori expectation. It was expected that the metropolitan nature of Katsina central with existence of various department and agencies could have guaranteed respondents access to training opportunities. However, the finding of IFAD (2001) and Ikwuakam and Lawal (2015) that low access to intervention input was a limiting factor may have played a greater role.

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CONCLUSION

Arising from the findings, it is concluded that producers and marketers' skill needs levels across the state were high. In Katsina central, producers' major skill needs were plant/disease control, fertilizer application, and purchase of farm inputs while the northern zone recorded fertilizer application, plant/disease and weed control, and purchase of farm inputs as most skill needs. Also, whereas in Katsina central, good advertising techniques, abilities to identify new marketing trends, make goods and services available to customers at the right place and time carry out effective marketing information research and determine customers' needs were most marketing skill needs, abilities to make goods and services available to customers at the right place and time, capture, maintain and retain customers attention, negotiate, and carry out effective marketing information research were most skill needs in the north.

Furthermore, level of benefit derived was high across the state with abilities to make more returns with minimal cost, identify best soil type for sesame use tools and equipment effectively, harvest properly toping sesame production skills needs benefits in northern zone while using tools and equipment effectively, identifying best soil type for sesame**,** reducing, preventing and controlling pest/diseases/rodents were the most production were most skill needs benefits in Katsina central. In the same vein, marketing skill needs benefits in Katsina central included abilities to keep entrepreneurs' confidence, detect seasonal fluctuation; determine extent the produce sales while that top areas of benefits in northern zone were abilities to determine availability and shortage of sesame, customers' needs and keep entrepreneurs' confidence. Inadequate facilities for training, inadequate education and training, lack of awareness, insecurity, training cost and poor transportation infrastructure were common constraints to acquisition of skill needs in sesame production and marketing across the state.

Whereas marital status had significant association with production skill needs level, education had significant association with marketing and production skill needs levels of the respondents. Also, whereas, farm size significantly correlated with the production skill needs level, significant correlation existed between benefits, constraint and production, marketing skill needs levels. Similarly, years of experience significantly correlated with respondents' marketing skill needs level. However, respondents in Katsina central zone had significantly higher production, and marketing skill needs than their counterparts in the north.

Recommendations

It is recommended that:

1. Government should make available financial resources through granting of loan that will assist sesame farmers and marketers expand their scale of production and marketing.

2. Skills training programmes should be organized for the sesame producers and marketers at the Local Government Headquarters using experienced extension agents and the training content based on the priority of the identified farmers' and marketers' skill needs
3. the state and local governments should establish skill development training centers in all the Local Government Headquarters and equip them with necessary human and materials resources to boast training quality in such centres. This will also reduce the risk and cost of travelling far distances for trainings
4. In view of the low educational qualifications of the producers and marketers, the government should develop identified sesame producers and marketers' distinctive skill needs into training modules using local languages for easy understanding and utilization

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