ISSN 1313 - 8820 (print)
ISSN 1314 - 412X (online)
Volume 10, Number 2
June 2018

AGRICULTURAL SCIENCE AND TECHNOLOGY



2018

An International Journal Published by Faculty of Agriculture,
Trakia University, Stara Zagora, Bulgaria

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This issue is printed with the financial support by Contract No. DNP 06-41/20.12.2017, financed from Fund 'Scientific Research' grant Bulgarian scientific periodicals.

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ISSN 1313 - 8820 (print)
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Volume 10, Number 2
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AGRICULTURAL SCIENCE AND TECHNOLOGY, VOL. 10, No 2, pp 133 - 139, 2018
DOI: 10.15547/ast.2018.02.027

An assessment of farmers' knowledge of yam entrepreneurial skills in Ekiti State, Nigeria

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Abstract. *This study assessed the farmers' knowledge of yam entrepreneurial skills in Ekiti State, Nigeria. Two-stage random sampling procedure was used to select 580 respondents. Questionnaire was used to collect data. Both descriptive and inferential statistics were used to analyse the data collected. Findings show that the majority of the respondents had access to yam entrepreneurial business training/seminar (75.5%), sources of information through agricultural extension agents (86.2%), radio (83.3%) and fellow farmers (79.5%), non-member of any crop related enterprise group (66.2%). The overall farmers' knowledge of yam entrepreneurial skills was low among the majority (62.6%). Specifically, the knowledge level of respondents on cultivation skills ($\bar{X}$=67.0) was high while managements skills (X=39.5), co-operation/networking (X=29.3), customer/marketing skills (X=27.1) and opportunity skills (X=21.3) of respondents were considered low. It was, therefore, concluded that farmers' knowledge of yam entrepreneurial skills was low. Agri entrepreneurship training in management skills, opportunity skills, customer and marketing skills, co-operation and networking skills is recommended and encouraging the less educated yam- based entrepreneurs to participate in the agri-entrepreneurship capacity building training.*

Keywords: cultivation, management, opportunity, customer/marketing, co-operation/networking knowledge

Introduction

Worldwide, entrepreneurship is regarded as a panacea to unemployment, poverty and poor economic growth. The benefits of entrepreneurship for rural development and economic growth have been widely highlighted. For instance, Korsching and Allen (2004) viewed entrepreneurship as a self-development strategy which allows individuals and households to escape poverty while Igwe et al. (2013) found it to promote wealth and job creation. In fact, entrepreneurship has been claimed to be the single most important pathway out of poverty. Stevenson (2005) added that certainly the growth and development of a country's economy is possible through entrepreneurial activities and its education. As diversification in the value chain becomes an almost expected agricultural practice, farmers are increasingly recognized as entrepreneurial, needing to develop new skills and capabilities to remain competitive (McElwee, 2006). Williams (2011) asserts that entrepreneurship is a learnable process that can be taught, nurtured, supported and enhanced through formal or non-formal types of education and training.

Agricultural entrepreneurship education and training of innovative opportunity skills is an important factor for sustainable livelihood of farmers (FAO, 2012). The process of becoming more entrepreneurial can be a challenge for small-scale farmers, but the problem can be overcome through agricultural extension workers. According to Adekunle (2013) the role of agricultural extension agents involves the dissemination of information; building capacity of farmers through the use of a variety of communication methods and help farmers make informed decisions. Christoplos (2010) posited that extension and rural advisory services (RAS) are crucial to putting farmers' needs at the centre of rural development, ensuring sustainable food security and poverty reduction. FAO (2012) argued that extension organizations must understand that there is little future for farmers unless they become more entrepreneurial in the way they run their farms and they must increasingly produce for markets and for profits. Similarly, Meert et al. (2005) had stated that for the livelihood of farmers to be sustained in the rural areas, farmers are increasingly required to become more market oriented, and to treat their 'farms as firms'. Onyebinama and Onyebinama (2010) recommended in a study that extension education should provide the basis for providing entrepreneurial training for farmers in Nigeria. McElwee (2005) earlier suggested the need for researchers and governments to recognize the need for a more entrepreneurial culture in the farming activities and added that the development of entrepreneurial skills of farmers is a significant issue, which needs to be addressed by all stakeholders in the agricultural socio-economic network.

Knowledge is a social construct (Freire, 2011). The knowledge process was developed by Nonaka and Takenuchi (1995) noted that data develops into information and information develops into knowledge and this develops into wisdom. The acquisition of knowledge begins with the process of receiving or acquiring new information. This is usually done through visual, aural, and tactile signals that a person receives through his or her senses. One of the primary components of knowledge acquisition is that people are born without knowledge and that it is gained during a person's lifetime (Wiesen, 2013). Adesoji and Kerere (2013) further reshape the process to add that experience is also very important in this process since it plays a vital role in the transformation of data to wisdom. When knowledge is put into practice, it develops into experience and experience matures into wisdom.

The general objective of the study is to assess farmers'

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knowledge of yam entrepreneurial skills in Ekiti State, Nigeria. The specific objectives are to:

(i) describe farmers' access to information among yam entrepreneur farmers,

(ii) examine the knowledge level of entrepreneurial skills among yam farmers, and

(iii) investigate the determinant factors associated with yam farmers knowledge entrepreneurial skills.

Material and methods

Study area

This study was conducted in Ekiti State, Nigeria. Ekiti State is situated entirely within the tropics. It is located between longitudes 40°51' and 50°451' East of the Greenwich meridian and latitudes 70°151' and 80°51' north of the Equator. Agriculture is the main occupation of the people of Ekiti. Agriculture provides income and employment for more than 75% of the population of Ekiti State. Some of Ekiti's agricultural produce are: cash crops such as cocoa, oil palm, kolanut, plantain, bananas, cashew, citrus and timber; arable /food crops such as rice, yam, cassava, maize and cowpea.

Sampling procedure

Two-stage random sampling procedure was used in the selection of respondents for the study. The first stage involved a random selection of 32 farming communities. The second stage involved a random selection of 20 yam farmers in each of the farming communities selected. A total of 640 respondents were sampled and were administered with questionnaire in October, 2016. Only 580 questionnaires were analysed, while the others were rejected. The criterion for rejection of a questionnaire was based on its incompleteness.

Measurement of variables

Respondents were required to respond carefully to two options (yes or no) to indicate their areas of knowledge. Responses indicating yes option were assigned 1 (implies knowledgeable), while responses indicating no option were assigned 0 (implies no knowledge). To classify the knowledge in different categories, the knowledge index of each respondent was computed using this formula:

$$\text{Knowledge index} = \frac{\text{Respondents Total Score}}{\text{Total possible score}} \times 100, \%$$

Based on the knowledge index scores, the farmers were categorized under five knowledge level categories namely; very low, low, medium, high and very high.

Decision rule

Since the mean scores of respondents were multiplied by 100 to give the knowledge index, 100 was divided by 5 = 20. 20 index intervals were then considered. Category 1: knowledge indices from 0 to 20 were considered very low. Category 2: knowledge indices from 21 to 40 were considered low. Category 3: knowledge indices from 41 to 60 were considered moderate. Category 4: knowledge indices from 61 to 80 were considered high. Category 5: knowledge indices from 81 to 100 were considered very high.

Table 1. Access to information among yam entrepreneur farmers (n=580)

Variables	n (%)
Access to yam entrepreneurial business training/seminar	
Yes	438 (75.5)
No	142 (24.5)
Number of seminar/training attended	
0	142(24.5)
1	34 (5.9)
2	51 (8.8)
3	348 (60.0)
4	5 (0.8)
Means of acquiring information	
Agricultural extension agents visit	500 (86.2)
Internet/journals	29 (5.0)
Television	355 (61.2)
Radio	483 (83.3)
Newspapers	77 (13.3)
Cooperative meetings	214 (36.9)
Fellows	461 (79.5)
Private consultants	42 (7.2)
Training subject(s)	
General agro-enterprises	333 (57.4)
Improved yam production practices	48 (8.3)
Yam processing	19 (3.3)
Agricultural marketing and distribution	8 (1.4)
Irrigation	7 (1.2)
Savings and records	1 (0.2)
Secured way of transporting produce	27 (4.7)
Not applicable	142 (24.5)
Educational status	
No formal education	115 (19.8)
Adult education	73 (12.6)
Primary education	198 (34.1)
Secondary education	169 (29.1)
Tertiary education	25 (4.3)
Membership of crop related enterprise association	
Yes	196 (33.8)
No	384 (66.2)

Source: Field survey, 2016
Note: *Multiple responses

Results and discussion

Access to information on yam entrepreneurial activities

The results in Table 1 show that the majority (75.5%) of the respondents indicated they had access to yam entrepreneurial business training/Seminar and few (24.5%) of the respondents did not have access to training yam-based entrepreneurial business training/Seminar. The majority (60.0%) of the respondents who had access to training further indicated they attended up to three seminars. Only 5.9% attended one seminar, 8.8% attended two trainings, 0.8% attended four trainings. The average number of trainings on yam entrepreneurial business training/seminar among respondents was three.

Table 1 further shows that the major sources of information among respondents were agricultural extension agents (86.2%), radio (83.3%), fellow farmers (79.5%) and television (61.2%). Other sources of information were cooperative meetings (36.9%), newspaper (13.3%), private consultants (7.2%) and the least was the Internet/journals (5.0%). Agricultural extension agents being the leading sources of information among respondents could be attributed to EKADP contact farmers selected for this study.

The majority (68.4%) of the respondents who had access to training further indicated that training was received from Agricultural Development Project, only 3.4% indicated Fadama programme, 3.6% in their cooperative groups. Training Subjects from training organization as indicated in Table 1 were general agro-enterprise (57.4%), improved yam production practices (8.3%), yam processing (3.3%), agricultural marketing and distribution (1.4%), savings and records of farm produce (0.2%) and secured way of transporting produce (4.7%). This finding implies that ADP in Ekiti state were involved in entrepreneurial building capacity of farmers but the average number of training received (three) is so small when compared with respondents' average years of experience (30 years).

The results in Table 1 show that the majority (66.2%) of the respondents indicated non-member of any crop related enterprise association group and only 33.8% were members. Non-membership among the majority is more a disadvantage to yam entrepreneurial activities in the study area as only respondents who belong to a crop related association group are expected to have benefited in their agricultural activities through their participation. As noted by Onubuogu et al. (2014), membership in cooperative society affords farmers the opportunity of sharing information on modern farming practices. Also, Meinzen-Dick et al. (2002) argued that collective action realizes scale economies by pooling smallholders' resources and that it enables smallholder groups to adopt technologies, increase their bargaining power, and overcome land size, capital and other wealth-related constraints.

Knowledge of yam cultivation skills

Table 2 shows that all (100%) of the respondents indicated they had knowledge of skill in improved land preparation, selecting suitable fertile land for yam production, mulching, sticking and appropriate time of harvesting, respectively.

Table 2 further shows that most (8.6%) had the knowledge of methods of processing yam tubers and processed products, 81.6% had the knowledge of recommended row to row and plant to plant spacing, 77.8% had the knowledge of modernized drying of processed yam chips for storage, 55% had the knowledge of operating knapsack sprayer, 74% had the knowledge of recommended dose and application of fertilizer, pesticide, insecticide and weedicide. Large population (81.6%) of the respondents indicated that they had knowledge of recommended dose and application of fertilizer, pesticide, insecticide and weedicide is expected to influence yam production positively. This is contained in a statement by Korieocha et al. (2011) that weeds are known to compete with crops for space, light, water and nutrient and could cause a significant yield loss due to if not controlled. Only 11.4% had knowledge of sourcing for farm machinery and 12.8% had knowledge of operating farm machinery.

Knowledge of opportunity skills

Table 2 shows that percentage distribution of respondents with knowledge of opportunity skills were; Market and customer orientation (41.7%), sourcing for fund to finance yam farming and processing activities (14.8%), value addition skills in processing yam tuber to different products (12.6%), identifying, investigating and evaluating opportunities (21.9%), packaging skills of yam produce and processed products (15.3%).

Knowledge of management skills

Anderson and Jack (2000) insist that entrepreneurship is more than managerialism, although successful business creation also requires managerial competencies. The difference, they claim, seems to lie in the novelty in creating new businesses; the opportunity perception, the development of ideas into viable opportunities and pulling resources together, are for them as much an art as science.

Table 2 shows that percentage distribution of respondents with knowledge of management skills were; time management skills (61.4%), skills for ensuring full security of yam enterprises (30.9%), skills in decision making, control and negotiation (61.9%), managing/supervision skills of hired farm labours and their needs (53.8%), precautionary practices against crop farming related hazards (49.7%), improving efficiency, cutting costs and increase productivity (22.9%).

Knowledge of management skill for assessing and managing farm risk was indicated among few (13.4%) of the respondents. Agricultural enterprises are risky in nature. Knowledge of assessing and managing farm risk found among few respondents could be attributed to farmers' non-readiness to manage risk in Nigeria (Adah et al., 2016). Instead, most farmers often adopt traditional means through less risky technologies of lower but reliably yielding drought-resistant crops; by seeking diversification both in terms of production activities on-farm and income generating activities off-farm; and by devising informal and formal risk sharing arrangements (Aidoo et al., 2014).

With most (52.1%) indicating that they possess the knowledge of problem solving skills implies a tool for successful yam farmer entrepreneurs. Timmons and Spenelli (2003) view successful entrepreneurs as those who seek to overcome hurdles, solve problems, complete jobs, disciplined and persistent in solving problems.

Knowledge of co-operation / networking skills

Table 2 shows percentage distribution of respondents with knowledge co-operation and networking skills. The percentage of respondents with knowledge of identifying and cooperating with other players were; Agriculture extension agents (39.4%), farmers' cooperative group (38.6%), customers (77.9%), support NGOs

Table 2. Percentage distribution of respondents having knowledge of innovative skills for yam entrepreneurial activities

	Knowledge Areas	Frequency	%
A	Yam cultivation skills		
1	Improved land preparation	580	100.0
2	Selecting suitable fertile land for yam production	580	100.0
3	Performing improved yam miniset technology	443	76.4
4	Mulching	580	100.0
5	Sticking	580	100.0
6	Sourcing (rent/purchase) use of necessary farm tools/machinery	103	17.8
7	Operating farm machinery	117	20.2
8	Recommended row to row and plant to plant spacing	473	81.6
9	Recommended dose and application of fertilizer, pesticide, insecticide and weedicide	429	74.0
10	Operating knapsack sprayer	431	74.3
11	Appropriate time of harvesting	580	100.0
12	Processing and value addition	451	77.8
13	Improved storage of yam tubers and processed products	512	88.3
B	Opportunity skills		
1	Identifying, investigating and evaluating opportunities	204	35.2
2	Sourcing for fund to finance yam farming and processing activities	276	47.6
3	Value addition skills in processing yam tuber to different products	204	35.2
4	Packaging skills of yam produce and processed products	106	18.3
5	Market and customer orientation	345	59.5
C	Management skills		
1	Keeping basic records of farm income and expenses	107	18.4
2	Time management skills	456	78.6
3	Managing/supervision skills of hired farm labours and their needs	386	66.6
4	Planning, prioritising and organising yam farming tasks	323	55.7
5	Assessing and managing farm risk	78	13.4
6	Improving efficiency, cutting costs and increase productivity	133	22.9
7	Problem solving skills	439	75.7
8	Skills in decision making, control and negotiation	421	72.6
9	Precautionary practices against yam farming related hazards	288	49.7
10	Skills for ensuring full security of yam enterprises	423	72.9
D	Co-operation / networking skills		
1	Identifying and cooperating with other players such as;	452	77.9
	a.Agricultural extension agents	299	51.6
	b.Customers	316	54.5
	c.Farmers' cooperative group	81	14.0
	d.Support NGOs	61	10.5
	e.Support government bodies		

2	Effective networking and communication with other players through electronic networking tools;		
	a.Facebook	303	12.2
	b.Electronic mailing address	64	11.0
	c.Whatsapp	81	10.0
	d.2go	50	8.60
	e.Voice call/SMS	385	66.4
3	Team working skills	281	48.4
4	Training and developing others	145	25.0
5	Motivation and Leadership of farmers' group skills	111	19.1
E	Customer/marketing skills		
1	Skills for transporting yam produce/products securely to the market	290	50.0
2	Skills of identifying and understanding the demand of the customer	388	66.9
3	Skills of finding distribution channels	270	46.6
4	Avoiding failing to meet customer's specification	107	18.4
5	Persuasive communication and negotiation skills	401	69.1
6	Fix price for different yam produce/processed product	239	41.2
7	Becoming more effective in satisfying the need of buyers that buy yam produce	316	54.5

Source: Field survey, 2016
Note: *Multiple responses

(14.0%), and support government bodies (10.5%). The percentage distribution of respondents with knowledge of effective networking and communication with other players through electronic networking tools were: voice call/ voice call/SMS (54.1%), facebook (19.8%), whatsapp (11.9%), electronic mailing address (8.1%) and 2go (8.6). Other percentage distributions include team working skills (48.4%), training and developing others (25.0%) and motivation and leadership of farmers' group skills.

Knowledge of customer/marketing skills

The result presented in Table 2 shows the percentage distribution of respondents with knowledge of customer/marketing skills were; persuasive communication and negotiation skills (29.8%), skills of identifying and understanding the demand of the customer (43.8%), skills for transporting yams produce/products securely to the market (28.8%), skills of finding distribution channels (17.1%), fix price for different yam produce/processed product (20.5%) and avoiding failing to meet customer's specification (18.4%) and 31.0% of the respondents indicated they had the knowledge in satisfying the need of buyers who buy yam tubers/processed produce. This finding indicated that respondents possess the entrepreneurial knowledge against loss of income and exploitation of farmer entrepreneurs by middlemen and satisfying customers. This is contained in a statement by Dollinger (2008) that a successful entrepreneur should be able to satisfy clients.

Summary of knowledge level of yam entrepreneurial

Table 3. Summary of respondents' knowledge level of entrepreneurial skills for yam entrepreneurial activities

	Categories	Very Low	Low	Medium	High	Very Low	%
	Index range	(0 – 20) Freq. (%)	(21 – 40) Freq. (%)	(41 – 60) Freq. (%)	(61 – 80) Freq. (%)	(81 – 100) Freq. (%)	(SD)
A	Yam cultivation skills	0 (0.0)	10 (1.7)	78 (13.4)	485 (83.6)	34 (5.9)	67.0 (9.654)
B	Opportunity skills	414 (71.4)	132 (22.8)	27 (4.7)	21 (3.6)	7 (1.2)	21.3 (18.031)
C	Management skills	130 (22.4)	219 (37.8)	192 (33.1)	39 (6.7)	0 (0.0)	39.5 (17.520)
D	Co-operation and networking skills	97 (16.7)	414 (71.4)	61 (10.5)	8 (1.4)	0 (0.0)	29.3 (11.663)
E	Customer and marketing skills	237 (40.9)	176 (30.3)	152 (26.2)	13 (2.2)	2 (0.3)	27.1 (17.516)
F	Overall skills	0 (0.0)	363 (62.6)	217 (37.4)	0 (0.0)	0 (0.0)	38.9 (6.082)

Table 4. Result of regression analysis to identify socioeconomic characteristics determinants of knowledge on yam entrepreneurial skills of respondents

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	2.269	0.042		54.595	0.000
Educational Status	0.012	0.005	0.124	2.583	0.010
Access to yam entrepreneurial business training/seminar	0.015*	0.003	0.223	4.547	0.000
Number of seminar/training attended	0.001*	0.000	0.172	3.665	0.000
Means of Acquiring Information	-0.011	0.008	-0.060	-1.429	0.153
Training Subject (s)	0.002	0.004	0.023	0.585	0.559
Membership of crop related enterprise association	0.001	0.002	0.030	0.683	0.495

Dependent Variable: Knowledge of yam entrepreneurial skills

R = 0.364
R Square = 0.533 (53.3%)
Adjusted R Square = 0.516 (51.6%)
Std. Error of the Estimate = 0.10443
F-Statistics = 7.906, P < 0.01
Sum of square residual = 6.194

* Correlation is significant at the 0.01 level.

Table 3 indicates that the general knowledge level of respondents on cultivation practices (mean=67.0) was high. Management skills (mean=39.5%), co-operation/networking (mean=29.3%), customer/marketing skills (mean=27.1%) and opportunity skills (mean=21.3%) of respondents were considered low. This finding is in line with Apata (2015) who found that few farmers in Southwest Nigeria had modest communication skills that aid adoption of effective entrepreneurial processes. This finding clearly indicates that farmers are more knowledgeable in the area of yam cultivation practices. This study agrees with the results of Onyebinama and Onyebinama (2010) who found that most farmers in Nigeria have limited entrepreneurial (technical and managerial) capacity.The authors further argued that the primary aim of the current extension education practices in Nigeria is the dissemination of information on and in introduction of new and improved farm technologies to farmers without any provisions for improving the ability of these farmers to cope with the changes in production organization resulting from the introduction of the new technologies. Regarding areas with low knowledge, Weissleder and Heckelei (2008) had inferred that lack of knowledge is responsible for inability to recognize opportunities, for failure to plan with sufficient accuracy, or for fear of not being able to execute plans properly.

The overall skills of respondents in Table 3 showed that the majority (62.6%) had low knowledge level. This finding indicates that respondents' knowledge of yam entrepreneurial skills is generally low.

The multiple regression model with six predictors was observed to produce R^2 value of 0.533 and adjusted R^2 = 0.516 values with F statistics =7.906, as the significance of the F values at P< 0.01 indicates the significance of the model and hence its ability to make valid predictions on the effect of the variables.

The result of the multiple regression analysis model in Table 4 showed that educational status (t= 2.583; p=0.010), access to yam entrepreneurial business training/seminar (t=4.547; p=0.000), and number of seminar/training attended (t=3.665; p=0.000) were positive determinant factors for high knowledge of yam entrepreneurial skills among respondents. Here, the null hypothesis is rejected and the alternative is accepted. The implication is that highly educated farmer entrepreneurs who frequently visit major towns will be willing and always see the need to be trained in yam capacity building skills. Similar importance of education had been cited in literatures, Butt et al. (2011) in a study argued that entrepreneur farmers who attained formal school education might develop and improve knowledge, wisdom and other desirable qualities of the respective individual. On the one hand, lesser educated entrepreneur farmers might struggle with the entrepreneurial environment. Also, Burger et al. (2005) reported that education is an important contributor to the development of an entrepreneurial culture of a nation and that entrepreneurial culture and related skills are products of some attained levels of formal school education.

Conclusion

Based on the findings in this study, it was concluded that farmers in Ekiti State had low knowledge of yam entrepreneurial skills. Specifically, farmers had high knowledge level of yam cultivation skills; farmers had low knowledge level of management skills, opportunity skills, customer and marketing skills, co-operation and networking skills; educational status, access to yam entrepreneurial business training/seminar, and number of seminar/training attended were the main predictors for increasing knowledge of yam entrepreneurial skills. To build the capacity of yam entrepreneur farmers in Ekiti State for entrepreneurial skills, this study suggests agricultural extension policies formulation and implementing programme that will focus on (i) agri-entrepreneurship training in management skills, opportunity skills, customer and marketing skills, co-operation and networking skills and (ii) encouraging less educated yam-based entrepreneurs to participate in the agri-entrepreneurship capacity building training

Acknowledgements

The authors wish to thank the project participants for providing the data.

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AGRICULTURAL SCIENCE AND TECHNOLOGY

Volume 10, Number 2
June 2018











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