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Assessment of Farmers' level of Participation in Melon Value Chain in Kwara State, Nigeria

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Abstract

The study assessed the level of participation in melon value chain in Edu and Patigi Local Government Areas of Kwara State, Nigeria. For small scale domestic producers to take advantage of domestic demand, value chain need to be embraced. The study described the socio-economic characteristics, identified the factors influencing their participation and the market margin of the actors in the value chain. Respondents were purposively selected for the study. Primary data were obtained using a well-structured questionnaire complemented with interview schedule to one hundred and twenty (120) melon farmers. Descriptive statistics and probit regression model were used for data analysis. The results reveal that 87.5% of processors were male while 12.5% were female. The average age of all value chain actors was 35 while the mean household size was 5. Majority (92.5%) of actors were businessmen/women. Probit regression shows that the probability that a melon farmer will participate in value chain activities is influenced positively by their age, gender, farm size, market accessibility and membership of cooperatives. It was therefore recommended that melon farmers need to increase size of land devoted to its production. Existing cooperatives need to be strengthened so that they can have access to input resources at subsidized rate.

Keywords: Value chain, Melon, Participation

Introduction

Melon (*colocynthiscitrullus L.*) is the most popular melon type in the sub region of West Africa. It is an herbaceous annual vegetable with trailing hairy, ridge vine which bear tendrils and lobed leaves on long petioles that belong to the cucurbitaceae family (Agba *et al.*, 2009). The origin of the crop is Africa where it is cultivated in mixed cropping system with other crops like yams and cassava in peasant farms and traditional farming systems (Sadiq *et al.*, 2013). In Nigeria melon- egusi (in Yoruba) or agushi (in Hausa) is a group of cucurbit species that produce protein and oil rich seeds for which crop is mainly grown.

The value chain of a product describes the full range of activities which are required to bring a product or service from conception, through the different actors involved in the production, processing and delivery to the final consumers (Adekunle, 2012). Value chain provides a unique way to manage risk by all actors. It is the marketing aspect of production. Buyers are assured of the supply of desired products and are able to trace the food back to the farm of origin. A well functioning value chain provides the means to effectively link production activities to market demand and supply. A value chain analysis is therefore an assessment of the actors and factors that influences the performances of an industry and relationships among participants to identify the main constraints to the increased efficiency, productivity and competitiveness of an industry and how these constraints can be overcome (Inuwa *et al.*, 2011).

The value chain model asserts that a product is usually not consumed directly at the place of its production. It is transformed, combined with other products, transported, packaged and displayed until it reaches the final consumer and meets up with the desire of the consumers. This reflects that the various actors who are linked by trade, own the raw materials, intermediate products and final products and services and each add some level of value to the product (Inuwa *et al.*, 2011).

Methodology

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The study was conducted in Kwara state. The state has a total of sixteen Local Government areas. It is located between latitudes 7°45'N and 9°30'N and longitude 2°30'E and 6°25'E. The annual rainfall ranges between 1,000mm and 1,500mm. average temperature ranges between 30°C and 35°C. it is divided into four zones by the Kwara State Agricultural Development Project (KWADP,1996) in consonance with ecological characteristics, cultural practices and administrative convenience.

Multi stage sampling techniques was used in the selection of the respondents. First, two local governments areas (Edu and Patigi) were purposively selected based on the predominance of melon. Secondly, four (4) villages each were randomly selected from the two local government areas. A total of 120 respondents were selected for the study.

Primary data was used for the study. Structured questionnaire and oral interview was used to collect data from the respondents. Descriptive statistics, probit regression analysis and market margin were the tools for analysis.

Probit regression model: Probit model is a model used in estimating the probability of events based on dependent dichotomous variables. A dichotomous dependent variable assumes only two values (either zero or one). This model was used to determine the factors that influence the probability that a melon farmer will participate in melon value chain activities. This model as used by Paul (2008) observed that the binary (1, 0) for whether there is participation in value chain or otherwise is assumed to be normally distributed. Therefore, probit model is mathematically expressed as:

$$p(y_i = 1) = F\left(\frac{\beta_1 + \beta_2 x_i}{\sigma}\right) \quad (1)$$

The standard probit model is therefore given as:

$$p(y_i = 1) = F\left(\frac{\beta_1 + \beta_2 x_i}{\sigma}\right) = \int_{-\infty}^{\frac{\beta_1 + \beta_2 x_i}{\sigma}} \frac{1}{\sqrt{2\pi}} e^{-\frac{t^2}{2}} dt \quad (2)$$

Where; F is the normal cumulative density function.

The general empirical probit model is expressed as:

$$Y^* = \beta_1 + \beta_2 X_i \quad (3)$$

The explicit form of the Probit model is then expressed as:

$$Y^* = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + e \quad (4)$$

Where;

Y^* = Participation in value chain (1 if yes, 0 if otherwise)

X_1 = Farmers' age (year)

X_2 = gender (male or female)

X_3 = Education level (year)

X_4 = Household size (number)

X_5 = Farming experience (year)

X_6 = Farm size (hectare)

X_7 = Market access (access =1, non-access =0)

X_8 = Extension access (access =1, non-access =0)

X_9 = Cooperative society (member =1, non-member =0)

e = error term

β_0 = Intercept to be estimated and

$\beta_1 - \beta_8$ = Coefficients to be estimated.

Results and discussion

Table 1 revealed the gender of the respondents, the findings shows that all the melon producers/farmers in the study area were male, while 75% of the marketers were male and 25% females also 87.5% of processors were male while 12.5% were female. The average age of producers was 34 years while that of processors was 35 years and the average age of marketers was 35 years. This results corroborates with the findings of Ezeet *al.*, (2017) that the average age of processors was between 31-40 years. The results revealed that the average household size for producers, marketers and melon processors was 6, 5, and 4 respectively. This does not tally with the findings of Omorogbeet *al.*, (2017) who found out in their study of

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socio economic determinants of melon production in Gombe State that the average household size was between 11-20.

The findings reveal that 15% of the marketers have no formal education, while 22.55 of marketers had primary school education, 47.5% had secondary education while 15% of marketers had tertiary education. The findings also show that 15% of the producers had no formal education, while 27.5% of the producers had primary education while 42.5% and 15% had secondary and tertiary education respectively. The findings reveal that 30% of processors had no formal education, while 20% and 45% had primary and secondary education; 5% of processors had tertiary education. The findings further revealed that 5% of marketers were students, while 95% were businessmen and women. Table 1 also shows that 7.5% of producers were students while 75% were farmers, 15% were civil servant while the remaining were businessmen/women. The findings also show that 7.5% of the processors were students, while 92.5% of processors were businessmen/women. The years of experience of the respondents revealed that the average years of experience for producers was 10 years, while that of marketers and processors were 11 and 10 years respectively.

Table 2 shows the result of factors influencing the probability for a respondent to participate in melon value chain. Two variables –years of experience and farm size were significant at 1% level of significant while age, gender and household size were significant at 5%, however access to market and membership of cooperatives were significant at 10%. This implies that the probability for these variables to increase holding other variables constant will result in a proportionate increase in participation melon value chain activities.

Conclusion and recommendations

Participation in melon value chain is influenced by influenced positively by their age, gender, farm size, market accessibility and membership of cooperatives. It is therefore recommended that more young people should produce more with specific attention to consumers' preference. Melon farmers need to increase size of land devoted to its production. Existing cooperatives need to be strengthen so that they can have access to input resources at subsidized rate.

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Table 1: Socio economic characteristics of melon value chain actors

Socio economic characteristics		Producers		Marketers		Processors	
		Freq	%	Freq	%	Freq	%
Gender	Male	40	100	30	75	35	87.5
	Female	0	0	10	25	5	12.5
Age	1 - 20 Years	5	12.5	2	5	14	35
	20 - 40 years	21	52.5	22	55	26	65
	40 - 60 Years	14	35	16	40	0	0

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	Mean Age	34		35		35	
Household size	1 - 4 persons	12	30	18	45	14	35
	4 - 8 persons	15	37.5	22	55	24	60
	8 and above	13	32.5	0	0	2	5
	Mean	6		5		4	
Level of education	Non formal	6	15	6	15	12	30
	Primary education	11	27.5	9	22.5	8	20
	Secondary education	17	42.5	19	47.5	18	45
	Tertiary education	6	15	6	15	2	5
Years of experience	0-10 years	9	22.5	16	40	34	85
	11 - 20 years	21	52.5	24	60	6	15
	20 - 30 years	8	20	0	0	0	0
	30 years and above	2	50	0	0	0	0
	Mean	10		10		10	
Occupation	Student	3	7.5	2	5	3	7.5
	Farmer	30	75	38	95	37	92.5
	Civil servant	6	15	0	0	0	0
	Business people	1	2.5	0	0	0	0
Total		40	100	40	100	40	100

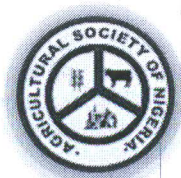
Table 2: Probit regression estimates of factors influencing participation in melon value chain

Variables	Coefficients	Standard Error	z - value
Constant	-3.025	4.429	-.683
Age	0.0311	0.518	0.49**
Gender	0.036	0.625	0.058**
Educational level	-0.544	0.428	-1.272
Household size	-0.564	0.320	-1.762**
Year of experience	-0.023	0.430	-0.053***
Farm size	0.179	0.556	0.323***
Market access	2.804	2.196	1.277*
Extension access	-0.978	0.955	-1.024
Cooperative	0.116	0.602	0.192*
Pseudo R - squared	0.6476		
Chi -squared	35.29		
Pseudo R ² =	0.137		

Source: Field Survey, 2018

* implies significant at 10%, ** implies significant at 5% and *** implies significant at 1%

High transportation cost	60	90.9	2 nd
Insecurity	55	91.7	3 rd
Inadequate capital	50	75.8	4 th
Excessive tax/charges	50	75.8	4 th
*Multiple responses taken			



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Review Evaluation of analysis of Risk Attitudes and Management strategies of Poultry Farmers in Kogi State, Nigeria

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Abstract

Poultry is a collective term for all Avian species, nutritionally and economically useful to man, the avian species classified under poultry include domestic fowl, turkey, duck, guinea fowl, goose and pigeon. Agricultural production decisions are generally made under the environment of risks and uncertainties as yield, product prices, input prices and quantities are usually not known with certainty when investment decisions are being made. This review aimed at evaluation of analysis of risk attitudes and management strategies of poultry farmers in Kogi state, Nigeria. The review reveals that the 3 most important risks in poultry farming were disease out-break, rise in cost of inputs, and change in poultry output prices. The review also revealed that majority (70.1%) of the farmers were risk averse, while 23% are risk takers and 6.9% were risk neutral. This implies that the poultry farmers have a risk-averse behaviour. It was observed that the level of adoption of risk management strategy was low.

Introduction

Poultry is a collective term for all Avian species, nutritionally and economically useful to man (Sterniša *et al.*, 2018). The most important poultry species remains the domestic fowl, commonly called chickens, not only