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FARMERS' PERCEPTION ABOUT QUALITY OF PLANTED SEED YAM AND THEIR PREFERENCES FOR CERTIFIED SEED YAM IN GHANA

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Abstract

The study examined the effect of farmers' perception about the quality of seed yam typically used for cultivation on their preferences for certified seed yam. Heckman's sample selectivity probit model was applied on survey data collected from 380 yam farmers. The study found that farmers generally agree that the use of certified seed yam would help to improve yield because of minimum to no disease/pest infestation. Farmers expressed their willingness to purchase certified seed yam if the price is about 26% higher than those supplied from the informal system in as much as the quality can be assured. The study found that farmer educational level, experience, access to extension services and household incomes were factors influencing farmers' perception about quality of seed yam cultivated. Variables such as age, educational level and income were also found to be factors that influence farmers'

preference for certified seed yam. The results were similar for both Pona and other white yam varieties. The study recommends promotion of farmer education through increased access to extension services on seed quality assessment together with other agronomic practices including farmer field schools, to help improve their ability to assess the quality of seed yam obtained from other sources as well as increase their preference for certified seed yam.
Key words: *Seed quality, certified seed, seed yam, preference*
Jel Codes: *D01, Q12*

1. Introduction

Yam production is a source of livelihood to millions of households in the West African Sub-region (Mignouna *et al.*, 2014, Maroya *et al.*, 2013, Otoo *et al.*, 2013). Ghana is the largest exporter of yam in the World and second largest producer following Nigeria (FAO, 2016). The production of this important crop is mainly constrained by limited availability of quality seed yam. This has resulted in raising the prices of available seed yam leading to high cost of production (Aighewi & Maroya, 2013; Otoo *et al.*, 2013; MEDA, 2011; Asumugha *et al.*, 2008; Ezeh, 1991). Farmers are left with no choice but to rely on own production (either through milking (double harvesting), use of small whole tubers and/or use of portions of saved ware yam (up to 30%), and/or procure additional seed yam from other farmers and different market sources (Otoo *et al.*, 2013; ISSD, 2012). The methods used by farmers to produce own seed yam are limited by low multiplication ratio (1:4 to1:8) and encourage the spread of diseases because of continuous exposure to pest and diseases, especially for late maturing varieties (Aighewi & Maroya, 2013). Aighewi *et al.*, (2014) found that small whole tubers used as seeds may be small because they are infected with pathogens.

To ensure availability of quality seed yam for cultivation, the International Institute of Tropical Agriculture (IITA) in collaboration with the government of Ghana and other development partners have introduced farmers to improved methods of seed yam production such as minisett technology and vine cutting technologies. However, adoption of these technologies by farmers is limited, as such availability of quality seed yam continues to be a challenge to production (Abubakar *et al.*, 2015; Otoo *et al.*, 2013; Otoo, 2003). In response to this, MEDA (2011) proposed the establishment of commercial seed yam certification system to produce and supply quality seed yam to farmers. While there are policy considerations in this regard, little is known about farmers' perception about the quality of the seed yam they are currently cultivating and how that would impact on their preferences for certified seed yam. This study was therefore conducted to fill the knowledge gap. Quality seed in this study is defined as the ability of a seed to germinate under field conditions and to establish a desired plant stand as indicated by farmers (Weltzien & vom Brocke, 2000). This is determined by the viability of the seed, the health of the seed, and the degree of contamination with foreign matter that could contribute to introducing pests and diseases into the crop (Ibid). This study was conducted to (i) Assess farmers' perception about the quality of seed yam used for cultivation; and (ii) Assess the effect of their perceptions on preferences for certified seed yam.

2. Theoretical Framework

The study applies the induced innovation hypothesis to examine farmers' perception about the quality of seed yam used for production and their preferences for seed yam certification system. This theory stipulates that the direction of technological change in agriculture is induced by differences in relative resource endowments and factor prices. Induced innovation refers to the process by which societies develop technologies that facilitate the substitution of relatively abundant (hence cheap) factors of production for relatively scarce (hence expensive) factors in the economy (Cowan *et al.*, 2015). The primary intuition of this theory is that

farmers' investment in innovation of new technology (purchase of quality/certified seed yam) is a function of change that affects the production function of the farmer due to *associated* cost of adoption. This takes cognisance of the fact that agricultural innovation does not involve only the use of quality seeds but other factors such as economic, environmental, and political factors play a critical role in the adoption of new agricultural innovation (Indambiri *et al*, 2012).

An assumption underpinning this theory is that farmers who are experiencing low germination and yield of their produce due to the quality of the seeds planted, are more likely to prefer certified seeds in order to overcome germination and yield constraints resulting from the use of lower quality seeds. Thus, perception about quality of seeds planted ignites certain preference responses for certified seeds, in addition to other land use and farm management practices to overcome the effect of the use of low quality seeds. The study, therefore, hypothesized that perception of quality of seed yam planted by farmers would provoke farmers' preferences for certified seed yam in an inverse direction.

Following literature, socio-demographic variables such as age, household size, experience in yam production, educational level of decision maker (household head), household income, farm size, and information flow (proxied by membership to farmer association and access to extension services) are important factors that influence farmers' preferences. Age is believed to be one of the household characteristics that influence demand for purchased inputs. According to Blisard *et al.* (2003) age captures changes in preference behaviour due to changes in the consumer's biogenic and psychogenic needs over the life cycle. It is expected that older farmers are used to producing their own seed yam and will therefore be less willing to purchase quality seed yam. Age is therefore expected to have a negative influence on farmers' preference for quality seed yam.

Household size is used as proxy for labour (Croppenstedt & Demeke, 1996). Family labour is the cheapest form of labour available to smallholder farmers. It is included in the model because it can influence seed purchasing behaviour of a household. It is expected that household size will have a positive effect on farmers' preference for quality seed yam. A study by Assa *et al.* (2014) found that larger households tend to allocate more resources to purchase seed rather than other inputs such as fertilizer.

Acquisition of formal education enhances reading and interpretation of extension leaflets and other teaching and demonstration materials. Such farmers can as well listen to radio programmes on farming in English and are able to interpret them to uneducated farmers in their communities. Formal education is a factor the can influence adoption of an innovation by a farmer and this could influence farmers' preference for quality seed yam. This is because the more enlightened a farmer is, the higher his/her ability to weigh the advantages and disadvantages of an innovation and the more his or her likelihood to take risks (Udoh *et al.*, 2008). Formal education is therefore expected to have positive influence on farmers' preference for quality seed yam.

For demand to be effective, it must be backed by the ability to pay. Income is therefore relevant in making input purchasing decisions. Thus, economists' focus on the demand for products and services entails both the willingness and ability to pay for them. Assa *et al.* (2014) established a positive relation between household income and the share of seed used. Household income was defined as the combined gross income of all the members of a household who are 16 years old and older. It is expected that income of households will have a positive impact on the farmers' preference for quality seed yam.

The amount of land cultivated by a farmer influences the quantity of inputs, including seed that will be required to ensure high productivity (Uhoh *et al.*, 2008). In their study, Uhoh *et al.* (2008) found a negative but insignificant relationship between farm size and adoption of yam minisett technology. Assa *et al.* (2014) found positive effects of household's land size on cost shares of seed. This result is consistent with processes for agricultural intensification.

Thus, as land size increases, farmers use larger quantities of seed and relatively small amounts of fertilizer. Also, farmers with large yam farm size will tend to be market oriented and will be willing to take advantage of innovations to increase output. Farm size is therefore expected to have a positive effect on farmers' preference for quality seed yam.

Information flow among farmers represents a key source of education to farmers on improved varieties, new varieties, market prices as well as farming practices. Membership of a farmers' association provides a platform for farmers to meet, interact and share ideas on their farming activities and their wellbeing. It is expected that membership of an association will have a positive effect on farmers' preference for quality seed yam. Langyintuo *et al*. (2006) established a positive and significant relationship between membership of an association and adoption of improved maize in Zambia.

3. Methodological Approach

The study was conducted in Kintampo, East Gonja, and Afram Plains districts in Ghana. Each of these three districts is located in the top three yam producing regions in Ghana, and distributed in the transition, guinea savanna and deciduous agro-ecology, respectively. Together, the regions contribute about 76 percent of yam production in Ghana (SRID/MoFA, 2016). Five communities were randomly selected from a list of major yam producing communities provided by the District Agricultural Development Units of the District Assemblies in the study locations. Listing of houses and households was conducted to provide sampling frame of yam farmers from which a simple random sampling was used to select twenty-five farmers (25) from each community to respond to the study questionnaire. The questionnaire included a section on demographic characteristics of respondents, farming characteristics, perception about quality of seed yam typically cultivated, and branded choice experiment design on type of certified seed system with the informal seed system as the benchmark. A total of three hundred and eighty (380) yam farmers responded to the survey conducted in August 2015. Figure 1 shows a map of survey locations. The red dots on the map show the locations of the surveyed communities.
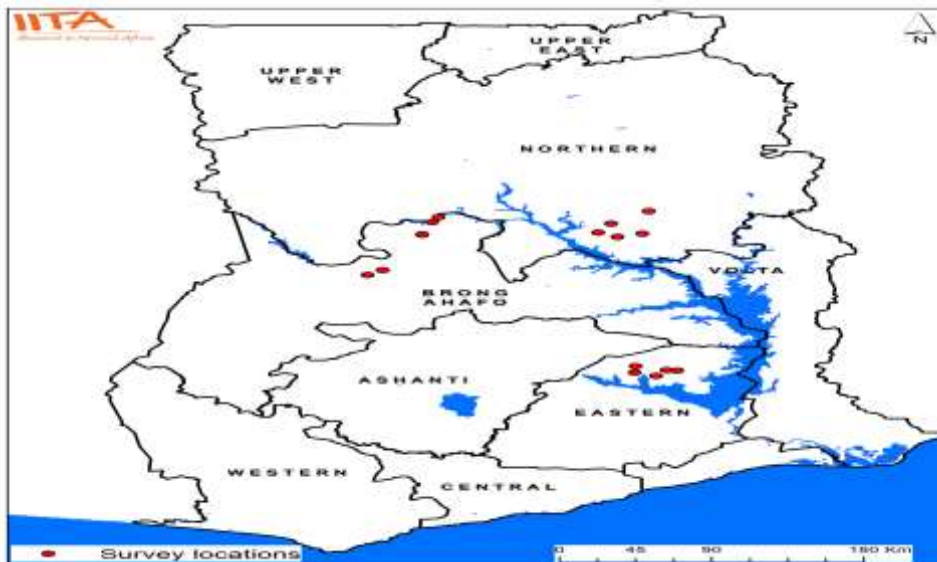
Figure1. Map of survey location. Source: Map produced by IITA GIS Unit

3.1 Assessment of Farmers' Perception about the Quality of Seed Yam

Farmers' perception about the quality of seed yam typically used for cultivation would have implication on their preference for certified seed yam. In the survey, farmers were presented with a set of twelve (12) questions concerning quality characteristics of seed yam typically planted. Each question was measured on a five (5) point Likert scale, with 1=Strongly disagree, 2=Disagree, 3=Undecided, 4=Agree and 5=Strongly agree. The codes were used as weights associated with the level of agreement to the statements presented to the respondents. A mean perception score was calculated by taking the average of the overall score that was obtained by summing up the number of farmers that chose a given level of agreement by the weight/rank position assigned to them (Nguthi, 2007). The expression is given as:

$$C_A = \sum_{i=1}^{5} Freq(A_i)(6-i) \tag{1}$$

Where:
i = Rank position (1, 2 ...5);
CA= the overall score for statement A

3.2 Econometric Model

Farmers' preference for certified seed yam involves a two-stage process. First perception about quality of seed yam obtained from existing sources, and second, whether or not to choose certified seed to overcome yield challenges. This leads to sample selectivity problem because only farmers who perceive less seed quality would prefer certified seed yam, though we need to make an inference about preferences of yam farmers in general. In such situations, models with two-stage regression are employed to correct issues with selection bias resulting from the decision making process. This makes the use of Heckman's sample selectivity probit model appropriate (Maddison, 2006). Following Ndambiri *et al.* (2012), the Heckman's sample selectivity model based on two latent variables is specified as:

$$Y_1 = \delta'x + \varepsilon_1 \tag{2a}$$
$$Y_2 = \theta'z + \varepsilon_2 \tag{2b}$$

where:
x is a k-vector of regressors, possibly including 1's for the intercepts;
z is an m-vector of regressors, possibly including 1's for the intercepts;
ε_1 and ε_2 are the error terms that are jointly normally distributed, independent of x and z, with zero expectations.
Y_1 and Y_2 are the regressands representing preferences for certified seeds and perceptions of the farmers about seed quality, respectively. Although the primary focus is the first model, the latent variable Y_1 is only observed if $Y_2 > 0$. This implies that actual dependent variable is given as:

$$Y = Y_1 \; if \; Y_2 > 0; and \; Y = 0 \; or \; mission \; if \; Y_2 \leq 0 \tag{3}$$

Thus, Y_2 is considered latent, which is not observed but only its sign. This follows that ε_2 can be normalized so that the variance is equal to 1, without any loss of generality. If the sample selection problem is ignored and y regressed on x based on the observed y values, then the resulting ordinary least squares (OLS) estimator of β would be biased, because:

$$E[Y_1|Y_2 > 0, x, z] = \delta'x + rs\frac{f(\theta'z)}{F(\theta'z)} \tag{4}$$

where:
F is the cumulative distribution function of the standard normal distribution,

f is the corresponding density,
s^2 is the variance of ε_1, and
r is the correlation between ε_1 and ε_2. Hence:

$$E[Y_1|Y_2 > 0, x] = \delta'x + rsE\left[\frac{f(\theta'z)}{F(\theta'z)}\Big|x\right] \qquad (5)$$

The last term gives rise to sample selection bias if r is nonzero. Maximum likelihood estimation procedure is used in order to prevent sample selection bias and to obtain estimated parameters that are asymptotically efficient. STATA software13.1 was used for the analysis.

The study estimated Heckman's probit selection and outcome model. Based on literature and intuition, variables included in the model are age of the farmer, gender, number of years of education of household head, yam farming experience, household income, access to extension services, membership to farmer association, household size, seed yam production and size of yam farm.

Heckman's selection probit model

In the selection model, the regressand was a binary variable indicating whether or not a farmer perceived seed yam quality to be low. This is specified as:

$$P_i = \delta x_i + \epsilon \qquad (6)$$

where:

P_i is the perception by the ith farmer that typically used seed yam is of low quality (1 if farmer perceives low seed yam quality and 0, if otherwise);

x_i *is* the vector of explanatory variables of probability of perceiving less seed quality by the ith farmer;

δ is the vector of parameter estimates of the regressors hypothesized to influence the probability of farmer i's perception about seed quality; and

ϵ is the error term.

The linear representation is specified as:

$$P_i = \delta + \delta_1 Age + \delta_2 Education + \delta_3 Experience + \delta_4 Extension + \delta_5 Income + \delta_6 Farm_{Size} + \varepsilon \qquad (7)$$

3.2.1 Heckman's Outcome Probit Model

The dependent variable of this model is binary, indicating whether a farmer prefers certified seed yam or not. The model is specified as:

$$E_i = \delta x_i + \epsilon \qquad (8)$$

where:

E_i is the preference for certified seed yam by the ith farmer (1 if farmer prefers certified seed yam and 0 otherwise);

x_i *is* the vector of explanatory variables of probability of preference for certified seed yam;

δ is the vector of parameter estimates of the explanatory variables hypothesized to influence the probability of farmer *i* to prefer certified seed yam; and

ϵ is the error term.

The linear representation is specified as:

$$E_i = \delta + \delta_1 Age + \delta_2 Education + \delta_3 Experiecne + \delta_4 Extnesion + \delta_5 Income +$$

$$\delta_6 Farm_{Size} + \varepsilon \tag{9}$$

The estimation was done for Pona yam variety and other white yam varieties. Separate models were estimated because Pona yam variety is the most preferred variety on both the local and international market due to its sweet taste. As such, it commands higher price on the market. However, other white yam varieties such as Lariboko, Asana, Dente, and Afebetuy, are close substitute on the market. Although, traders sometimes brand other yam varieties as Pona in order sell to consumers.

Table 1.Variables Definition and a Priori Expectations

Variable	Description/measurement	Expected Sign
Age	Age of head of farmer household in years	±
Education	Educational attainment of head of household in years	+
Experience	Yam farming experience of head of household in years	±
Extension	Access to extension services (dummy-1 if farmer has access to extension, zero otherwise)	+
Income	Log of Income of household in Ghana cedis	±
Farm Size	Log of farm size in hectares	±

4. Results

This section presents the results of the study. It begins with discussion of the results on farmers' perception about quality of seed yam typically used for cultivation. This is followed by discussion of the results obtained from the estimated model.

4.1 Perception of Farmers about Quality of Seed Yam Planted

Table 2 shows the results of an assessment of farmers' response to questions about quality of seed yam used for cultivation. The results show that farmers generally agree that the use of certified seed yam will help to increase output due to its quality (low disease/ pest infestation). This received the highest mean score of 4.5. Also, most farmers agreed that some of the seed yam they plant do not germinate. This recorded a mean score of 4.1. As a result, some farmers resort to treating their seed yam before planting (mean score 4.0). They added that they would not mind paying higher price for seed yam if the quality is assured. This factor recorded a mean score of 3.9. These findings are collaborate with that of Otoo *et al.* (2013). Other details are shown in Table 2.

Table 2. Rank of Perception of Farmers about Quality of Seed Yam

Quality characteristics of seed yam for cultivation	Strongly agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly disagree (1)	Mean score
The use of certified seed yam will help to increase output because of low disease/pest infestation	215(1075)	160(640)	2(6)	2(4)	1(1)	4.5
Some of the seed yam I planted did not germinate	145(725)	185(740)	6(18)	28(56)	16(16)	4.1
*I had to treat my seed yam last season before planting	157(785)	142(568)	7(21)	54(108)	20(20)	4
I would not mind paying higher price for seed yam if the quality is assured	165(825)	109(436)	20(60)	71(142)	15(15)	3.9
*Seed yam that do not germinate are as a result of poor seed quality/disease infestation	86(430)	188(752)	42(126)	45(90)	19(19)	3.7
*Seed size obtained last year were small	44(220)	153(612)	35(105)	144(288)	34(34)	3.3
*Small seed size may be as a result of disease/pathogen infestation	29(145)	88(352)	81(243)	149(298)	33(33)	2.8
*Clear signs of disease/pathogen infestation were observed on some of the seed yam I used for planting	13(65)	44(176)	9(27)	201(402)	113(113)	2.6
The seeds are able to do well under existing climate conditions	6(30)	104(416)	13(39)	178(356)	79(79)	2.4
The seeds are able to withstand pest and diseases (disease resistant)	11(55)	70(280)	8(24)	205(410)	86(86)	2.3
Seed yam I planted last year was disease free	30(150)	71(284)	15(45)	142(284)	122(122)	2.3

Source: Field survey, 2015; * negative statements were recoded accordingly.

4.2 Determinants of Farmers' Perception and Preference for Certified Seed Yam

This section presents the results of estimation of econometric model used in the study. It begins with descriptive analysis of the variables that were used in the model estimation. Table 3 provides the summary statistics of variables that entered the Heckman's probit models.

Table 3. Farmers Characteristics and Their Distribution in Terms of Preferences for Seed Yam

Variable	Pona			Other white yam			
	Certification (n=362)	No-certification (n=18)	Difference (t-value)	Certification (n=20)	No-certification (n=360)	Difference (t-value)	All (N=380)
Age	45.05	50.71	1.8591	44.90	54.20	2.8170**	45.4
Education	3.48	3.68	0.2310	3.50	3.38	-0.1237	3.49
Experience	19.58	22.68	1.1530	19.52	24.38	1.6719	19.79
Income	9,359.797	6,535.20	-0.8470	9399.24	5322.86	-1.1274	9,173.97
Farm Size	2.14	1.56	-1.0322	2.13	1.46	-1.1124	2.10

Note: *** significant at 1% level; ** significant at 5% level; * significant at 10% level

Table 3 shows that the average age of farmers was about 45 years. The results show that farmers who do not prefer certified seed yam were a little older but the differences in age of farmers who prefer certified seed yam and those who do not prefer certified seed yam was significant only in the case of *other white yam* varieties.

Generally, the educational level of the farmers was low, the average number of years of formal education recorded was 3.5 years. The farmers were very experienced in yam production, with an average of about 20 years of yam production experience. The average annual income of farmers was GHC9, 174. The farmers cultivate an average of 2.1 hectares of farmland. Other details are shown in Table 3.

The results of the Heckman's model are also presented in Table 4 and 5 for *Pona* and *other whit yam* varieties, respectively. From Table 4 and 5, the Wald test for independence in the equations (i.e. the perception (selection) and the outcome equation were significant at 5 percent for Pona yam variety (Table 4) and 1 percent in the case of other white yam varieties (Table 5). This shows the appropriateness of the selected mode because the test is a comparison of the independence of the error terms in the selection and outcome equations. Further, the Wald test for zero slope was significant in both estimated models. This indicates that the explanatory variable included in the model jointly explain the dependent variable.

In the case of the *Pona* variety (Table 4), results from the selectivity model shows that educational level of household head, experience, access to extension services, and income influence farmers' perception about the quality of seed yam cultivated. The results from the outcome model show that age of respondents, experience, and income influence the choice preference of certified seed yam.

The variable, age of household head, was negative, but significant at 10 percent level only in the case of the outcome model. This implies that while age might not be a factor influencing farmers' perception about seed yam quality, it is an important factor in determining farmers' preferences for certified seed yam. The results show that the probability of preference for certified seed yam was 0.009 higher among younger farmers than older farmers. This finding contradicts that of Ndambiri *et al.* (2013), Gbetibouo (2009); and Adesina and Forson (1995). These studies found a positive association between age of the household head and adoption of improved agricultural technologies.

The level of education of respondents was positive as expected and significantly related to farmers' perception and preference for quality seed yam. The results show that the probability of farmers perceiving seed quality increases by 0.036 as the level of education increases. This implies that highly educated farmers can distinguish quality seeds better than less or non-educated farmers, other things held constant. A similar significant probability was observed regarding farmers' preference for quality seed yam. Thus, the probability of farmers with some form of formal education to prefer quality seed yam is 0.035 higher than less educated farmers. These findings are consistent with that of Ndambiri *et al.* (2013) and Igoden *et al.* (1990) who observed that education enhances the farmers' ability to receive, process and understand information for making innovative decisions.

Table 4. Heckman's Probit Model Estimated Results of Farmers' Perception and Preferences for *Pona* Certified Seeds

Variable	Perception Model		Outcome Model	
	Coefficient	p-Value	Coefficient	p-Value
Age	-0.007	0.193	-0.009*	0.087
Education	0.038*	0.052	0.036*	0.062
Experience	0.006*	0.065		
Extension	0.145***	0.000		
Income	0.173**	0.019	0.198***	0.009
Farm Size	-0.086	0.454	0.032	0.782
Constant	-1.196*	0.068	-1.303	0.05
Diagnostics				
Wald test for zero slopes	13.76, Prob > chi2 = 0.0081			
Wald test for independent equations	6.47, Prob > chi2 = 0.0110			
Total observations	286			
Censored	147			
Uncensored	139			

Note: *** significant at 1% level; ** significant at 5% level; * significant at 10% level

Experience of farmers was positive as expected. The results show that the probability of farmers to perceive quality of seed yam is 0.006 higher for more experienced farmers as compared to less experienced yam farmers. This is statistically significant at 10 percent level. This finding is consistent with that of Nhemachena and Hassan (2007) who discovered that farming experience enhances the probability of uptake of adaptations because such farmers have better knowledge and information on changes in climatic conditions, crop and livestock management practices.

The study found a positive relationship between access to extension services and farmer's perception about seed yam quality. The result shows that a yam farmer who receives extension service visits had higher probability (0.145) of observing quality of the seed yam used for cultivation than a farmer with limited access to extension services. The result support the findings of Gbetibouo (2009) and Maddison (2006). According to them, farmers' access to information help in decision-making process that lead to adoption of new technologies and adaptation strategies.

The sign of household income was positive as expected, implying that households with high income are more likely to perceive seed quality and prefer certified seeds. The results show that the probability of farmer household with high income to perceive seed quality is 0.173 higher compared to farmers with less household income (both farm and non-farm). This is statistically significant at 5 percent level. The results further show that farmers with high household income are 0.198 more likely to prefer certified seed yam compared to those with less household income. The findings are consistent with that of Knowler and Bradshaw (2007) who observed that farmers' incomes (whether farm or off-farm income) have a positive relationship with the adoption of agricultural technologies. Thus, farmers with high income are better able to afford additional costs associated with adoption of new agricultural technologies.

Regarding the estimated model for the other white yam varieties, a number of variables were also significant. The variable, age of household head is negative but only significant in the outcome model. This shows that age m is important when it comes to preference for certified seed yam. The results show that the probability for younger farmers to prefer certified seeds is 0.009 higher compared to yam farmers who are older.

The educational level of head of household was positive in both models as expected. The results show that educated yam farmers are more likely, probability of 0.04 higher, to perceive seed quality than less educated yam farmers regarding other white yam varieties. Access to extension services was found to increase the probability of farmers to perceive quality seed yam by 0.179, this is significant at 10 percent level.

Household income was found to be a factor influencing farmers' perception and preference for certified seed yam of other seed yam varieties. The results show that farmer households with high income are more likely to perceive seed quality and prefer certified seed yam compared to households with less income. This may be attributed to their ability to afford. Thus, farmer households that can afford quality

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seed are better able to replace the seed used for cultivation when they perceive a reduction in quality and yield as compared to farmer households with less income.

Table 5. Heckman's Probit Model Estimated Results of Farmers' Perception and Preferences for Certified Seeds of *Other White Yam* Varieties

Variable	Perception Model		Outcome Model	
	Coefficient	p-Value	Coefficient	p-Value
Age	-0.009	0.152	-0.009*	0.092
Education	0.04**	0.049	0.037*	0.058
Experience	0.007	0.126		
Extension	0.179*	0.07		
Income	0.176**	0.02	0.177**	0.036
Farm size	-0.091	0.437	0.031	0.823
Constant	-1.177*	0.075	-1.075	0.152
Diagnostics				
Wald test for zero slopes	10.72	Prob > chi2 = 0.0299		
Wald test for independent equations	8.13	Prob > chi2 = 0.0044		
Total observations	286			
Censored	147			
Uncensored	139			

Note: *** significant at 1% level; ** significant at 5% level; * significant at 10% level

5. Conclusions and Recommendations

The study assessed the effect of farmers' perception about the quality of seed yam typically used for cultivation on their preferences for certified seed yam. The study was conducted in 15 communities in three major yam producing districts (Kintampo, East Gonja and Afram Plains districts) in Ghana. The study found that farmers generally agree that the use of certified seed yam would help to improve yield because of minimum to no disease/pest infestation. Farmers indicated that some of the seed they plant do not germinate and observe clear signs of disease/pathogen infestation on some of their seed yam. Results also show that farmers are willing to purchase certified seed yam if the price is about 26% higher than that supplied from the informal system in as much as the quality can be assured.

The study found that formal education, farming experience, access to extension services and household income were factors that influence farmers' perception about quality of seed yam cultivated. Variables such as age, educational level and household income were found to be the important factors that influence farmers' preference for certified seed yam. The results were similar for both Pona and other white yam varieties.

Based on these findings it is recommended that in the quest to produce certified seed yam to boost productivity, there is the need to promote farmer education through increased access to extension services. This will help farmers to determine the quality of seed yam obtained from other sources as well as increase the probability of certified seed yam uptake among farmers.

Acknowledgements

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