

International Journal of Applied Research and Technology
ISSN 2277-0585

Publication details, including instructions for authors and subscription information:

<http://www.esxpublishers.com>

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Savanna Forestry Research Station, Samaru, Zaria

Available online: February 28, 2014

To cite this article:

Fadoyin, A. S., Oyewole, S. O., Ayanrinde, F. A., Majolagbe, M. O. and Erhabor, T. A. (2014). Assessment of Socio-Economic Factor Influencing Promoted Cowpea Triple Layer Bag Farmers in Zamfara State. *International Journal of Applied Research and Technology*. 3(2): 19 – 24.

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Assessment of Socio-Economic Factor Influencing Promoted Cowpea Triple Layer Bag Farmers in Zamfara State.

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Savanna Forestry Research Station, Samaru, Zaria

(Received: 11 February 2014 / Accepted: 25 February 2014 / Published: 28 February 2014)

Abstract

This study investigated those factors which influencing the adoption of promoted cowpea triple layer bag storage system by the farmers in Zamfara State. Data were collected with the aid of structured questionnaire from 40 respondents. The data were analyzed using descriptive statistics and logit regression model. The results showed that the respondents had one form of education or the other. About 95% were married average household size of 10 persons per household. About 93% adopted the innovation. Socio-economic factors influencing adoption of the storage system were age, education, extension contact and membership of cooperative. The study therefore recommends that farmers should form themselves into association because such association will aid in collective soliciting for government assistance, Non-Government Organisations and other funding agencies. Also, more awareness should be created by the extension agents on the importance of this technology, because each year, up to 50 percent of cowpeas in Africa are lost after harvest because of infestations by small insects known as weevils. Coupled with such devastating losses, many farmers don't want to risk storing their cowpeas. Instead, they sell their cowpeas at harvest time when prices are lowest. In the off-season, prices can double or triple. Other farmers try to cope with the pests by treating their harvests with hazardous pesticides. Each year, many people fall ill, and in some cases die, from poisoning.

Keywords: Adoption, Socio-Economic Factors, Innovation, Storage System, Extension Contact

For corresponding author:

E-mail: info@esxnpublishers.com

Subject: 0214-0217

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Introduction

Cowpea (*Vigna unguiculata* L. Walp) is one of the most important and widely cultivated grain legumes in the tropics. Although animal protein has generally been acknowledged by nutritionists to be far better than the grain legume protein. It is therefore more expensive than that of the grain legume. Moreover, the production of animal protein is far lower than the demand for it (IITA, 1989). Livestock is seriously hampered by the incidence of animal diseases, unfavourable climate, water supply, coupled with the high risk associated with livestock production to overcome acute problem of protein shortage in our diet. Also, grain legumes are the major source of cheap protein in Nigeria. Cowpea production is now being emphasized in Nigeria. Cowpea is relatively cheap, acceptable, digestible and nutritionally adequate substitute for animal protein (IITA, 1992). It forms the major source of available protein for human nutrition particularly in developing countries. The various religious taboos associated with certain meal consumption also made cowpea a popular and essential source of protein. Cowpea grain contains about 25% protein and 64% carbohydrate (Bressani, 1985) and therefore has a tremendous potential to the alleviation of malnutrition among resource-poor farmers. Cowpea is a dicotyledonous plant belonging to the family Fabaceae and sub-family, Fabioideae. It is grown extensively in the low lands and mid-altitude regions of Africa (particularly in the dry savanna) sometimes as sole crop but more often intercropped with cereals such as sorghum or millet (Agbogidi, 2010a). World production of cowpea was estimated to be 2.27 million tons of which Nigeria produces about 850,000 tonnes (FAO, 2002; Adaji *et al.*, 2007).

Cowpea is of major importance to the livelihoods of millions of relatively poor people in less developed countries of the tropics (FAO, 2002). Islam *et al.* (2006) emphasized that all parts of the plant used as food are nutritious providing protein and vitamins, immature pods and peas are used as vegetables while several snacks and main dishes are prepared from the grains (Duke, 1981; Bittenbender, *et al.*, 1984). Egho (2009) reported that Nigeria is the 2nd greatest consumer of cowpea in the whole world. Among the legumes, cowpea is the most extensively grown, distributed and traded food crop consumed, more than 50% (Philips and McWalters, 1991; Ogbo, 2009; Agbogidi, 2010a). This is because the crop is of considerable nutritional and health value to man and livestock (Agbogidi, 2010b). They form a major staple in the diet in Africa and Asian continents (Awe, 2008). The seeds make up the largest contributor to the overall protein intake of several also known as black-eyed peas, a protein-rich crop that thrives in West and Central Africa. Well adapted to harsh, arid climates, a staple ingredient in many meals, and the primary income source for millions of African families, the highly prized crop has just one downside: it's as popular among pests as it is among farmers. Each year, up to 50 percent of cowpeas in Africa are lost after harvest because of infestations by small insects known as weevils. Faced with such devastating losses, many farmers don't want to risk storing their cowpeas. Instead, they sell their cowpeas at harvest time when prices are lowest. In the off-season, prices can double or triple. Other farmers try to cope with the pests by treating their harvests with hazardous pesticides. Each year, many people fall ill, and in some cases die, from poisoning.

Materials and Methods

This study was conducted in Tazame village of Bungudu Local Government Area of Zamfara State, Nigeria. It is located in the Savannah region lying between latitude 12°N of the equator and longitude 12°E and 0°. The annual rainfall ranges between 700mm-1000mm, while the temperature fluctuates between 43°C in the hot season and 22°C during the harmattan period. The climate condition of the area ranges from humid with rainfall from May to October, hot season from March to April and harmattan from November to February. Bungudu Local Government Area has a population of 189,783 (Census 1991). Tazame is blessed with large area of arable fertile land. Farming has been the backbone of economic activities of the people of this area. The land supports the cultivation of both cash and food crops. The major crop cultivated in the area includes: sorghum, millet, cotton, groundnut, cowpea, maize and mango. Majority of the farmers operate on small-scale (subsistence farming) agriculture, with farm size fragmented in different locations.

Primary data were collected with the aid of structured questionnaire from 40 respondents in the study area. Data were analysed using descriptive statistics and logit regression model.

Results and Discussion

Results in Table 1 shows that farming activities are predominated by male; this may be due to religious belief, that men are more involved in agriculture than the women in the area. Table 1 further reveals that age of 30 to 39yrs has percentage of (32.5), this implies that age have positive significant role in farming activities. Therefore, adoption of this storage system is higher among the large household than the small-sized household. This may be due to the fact that farmers with large household have many families to cater for. Also, 95% of the respondents were married men while 5% were single. This shows the farming as that of settled minds and that it contributes to household economic stability in one way or the other, Amaechi, (2000). Most of the respondents (72.5%) had Qur'anic school education, 20% had primary education, 7.5% Normadic education, and 80% of them are literates.. Education may not prerequisite to enter into farming, but their productivity could be enhanced by some level of educational attainment. 95% of the respondents adopted the innovation, while 5% did not adopt the technology. The reason for relatively greater adoption of the practice may be that, this innovation avoids infestation of pest and diseases during storage period completely. Studies also revealed that innovations that are compatible with local practices are known to be acceptable to the farmers, (Rogers, 1965; and Lionberger, 1962).

One of the objectives of the study was to determine the extent to which farmers have adopted the technology. Table 2 showed that, 95 percent adopted the technology and 5 did not adopt the new technology. The reason for greater adoption of the technology is because; this practice is economical and environmental friendly to these farmers. Studies (Rogers, 1965; and Lionberger, 1962).

Results presented in Table 3 show the factors that influence the adoption of the innovation in the study area. It was revealed that four out of the seven variables included in the model were significant. These variables were age, education, extension contact and membership of cooperative. Age was positive and significantly influential to the adoption of technology. This implied that as farmers increase in age the probability of adopting this method would also increase. The importance of age lies in its effect on the adoption of innovations and the processing of information. This is evident that, there is a positive relationship between age and adoption behaviour of farmers. Older farmers are more likely to adopt innovation than younger farmers. The coefficient obtained for education is positive and significant at 5 percent level. This implies that the higher the educational level, the more the probability that respondents would adopt this method and vice versa, this is because education enhances the level of understanding. Also, the more educated a farmer, the more the chances that he/she would utilize available opportunity and adopt innovation.

The coefficient obtained for extension contact was positive and significant at 1 percent. The implication of this is that if farmers have more contact with the extension agent. There is probability that adoption would increase. This implied that availability of extension services and information about a particular technology as well as its utilization play important role in determining level of adoption. The coefficient (0.447) for membership of associations was positive and significant at 5% level of probability. Membership of association can provide means of interaction with other farmers and this can also provide avenue or forum through which innovation can be diffused among farmers. Membership of association affords the farmers the opportunity of sharing information on modern farming practices by interacting with other farmers.

Conclusion and Recommendations

The result of this finding revealed that, organising the farmers into association is an essential task as it makes the work easier. Also, such an association will aid in collective bargaining, soliciting government assistance, Non Governmental Organisations and other funding agencies. Generally, this innovation can fit in rural development if modernize, as it helps the farmers increase their incomes by a chance to protect crop infestation during post harvest and storage period. Therefore, triple tied bag provides an airtight seal for long period against pest infestation. Also, adequate attention should be paid to farmers' socio-economic characteristics as these would be significant facilitators of adoption of. Extension agents should be trained to understand the socio-economic characteristics of farmers which influence their level of adoption.

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Tables**Table 1:** Socio-economic characteristics of farmers

Variables	Frequency	Percentage (%)
Gender		
Male	40	100
Female	0	0
Age		
20-29	7	17.5
30-39	19	32.5
40-49	11	27.5
50-59	2	15.0
60 years and above	1	7.5
Marital status		
Married	38	95
Single	2	5
Religion		
Islam	40	100
Christianity	0	0
Others	0	0
Educational level		
Primary	8	20
Secondary	0	-
Tertiary	0	-
Qur'anaic school	19	72.5
Normadic Education	3	7.5

Table 2: Adoption level of the technology

Variables	Frequency	Percentage
Adopters	38	95
Non-adopters	2	5
Total	40	100

Table 3: Factors influencing adoption of the storage system

Variable	Coefficient	Standard error	B/St.Er.
Age	0.063	0.028	2.25**
Education	0.432	0.142	3.04***
Household size	-0.251	0.523	-0.480
Amount of credit received	0.472	0.743	0.635
Membership of cooperative	0.573	0.149	3.846***
Income	0.015	0.063	0.238
Extension contact	0.171	0.023	7.434***

*** = P < 0.01 ** = P < 0.05

* = P < 0.10