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Adoption of improved millet varieties by farmers in Argungu local government area of Kebbi State

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A R T I C L E   I N F O

A B S T R A C T

This research was conducted in Argungu Local Government Area of Kebbi State to assess the adoption of improved millet varieties by farmers. Sixty (60) respondents were purposively drawn from (3) districts: two Villages were selected from each of the districts (Alwasa, Bakaramba, Fakon Sarki, Kamfani, Sauwa, Zazzagawa). Sixty structured questionnaires were randomly administered and the data generated were carefully analyzed using simple descriptive statistics (frequencies and percentages). Result obtained indicates that 73.3% of the respondents used and tested new varieties millet. (Ex-gashua, Ex-Bornu and Sammil 1), 26.7 % did not use the improved varieties of millet. It is therefore recommended that local farmers should be enlightened and trained on the existence and advantages of using improved varieties of millet.

1. Introduction

Nigeria is an agrarian country with about 70% of her over 140 million people engaged in agricultural production (NBS/CBN, 2006) and provides subsistence for two-thirds (2/3) of Nigerians who are low income earners (Usman, 2006). While the Northern part can guarantee the production of cereals such as sorghum, maize, millet, groundnut, cowpea and cotton, the Middle Belt and the South have the potentials to produce root tubers

such as cassava, yam, cocoyam and other crops like plantain as well as maize (Abdullahi, 2003). In addition to crops, the country is also involved in the production of livestock, fisheries, forestry and wildlife. The most important prerequisite for good crop production is the availability of good quality seeds of high yielding varieties, adapted to the growing area, and preferred by the farmers. The quality of seeds alone is known to account for an increase in productivity of at least 10–15%. To achieve this high quality, all the factors in production that will affect viability and genetic purity should be taken into account. The production techniques should be mastered and the environmental conditions (soil fertility and climate) known (Ajeigbe *et al.*, 2008).

Sustenance of high level agricultural production and incomes are not possible without the effectiveness of agricultural research that is relevant to farmers needs coupled with efficient and significant adoption of improved varieties by farmers (IITA, 1992).

World Bank assisted Agricultural Development Programmes have made a remarkable contribution towards the improvement of agriculture. A number of research Institutes were set up to transform traditional farming methods. Most of the farmers in West Africa lack improved seeds and technical knowledge of scientific farming and this has limited the improvement and development of their farms. Some local farmers ordinarily cultivate only small area of land using primitive and inefficient tools. Also lack of knowledge in basic scientific farming methods has led to few yields over the past years. Millet is first among the major food crops grown in the research area. Millet constitutes a considerable percentage in the economy of the people in the area. This reason encourages the interest of the researchers to conduct a research of this kind, with a view to identify problems that are likely to be encountered in production of the variety and look for solutions to the associated problems.

The objective of the study is to determine the awareness and adoption of improved varieties of millet in Argungu Local Government Area of Kebbi State.

2. Materials and methods

An open-ended structured questionnaire was used to generate the survey data from the respondents. Several research questions were asked by the researchers. The questions were:
   a. What are the socio-economic characteristics of the respondents?
   b. What is the major occupation of the respondents?
   c. Are the respondents aware of the improved millet varieties?
   d. If yes, do they adopt the improved varieties?
   e. What is the source of obtaining the improved varieties?
   f. How long have they been using the improved millet varieties?
   g. How do the improved millet varieties performed?
   h. What problems have they encountered in using the improved millet varieties?

2.1. Study area

The study was conducted in Argungu Local Government Area of Kebbi State. The Area is located in the north-western part of Nigeria; it has a population of 955,000 people (Census, 2006). It lies between the latitude 12^0N with longitude 4^0E and 5^0E. The people of the area are predominantly farmers. Crops grown mostly in the area are millet, sorghum and cowpea. The species of animals in the area are cattle, sheep and goats. Fishing is the major occupation of inhabitants. The mean annual rainfall is between 600mm – 900mm/annum and an average temperature of 35^0c to 40^0c. It has a total land mass of 3,514 square kilometers of which 2,334 square kilometers is under agricultural production (Ibrahim, 1996).

2.2. Sampling techniques and sampling size

Purposive random sampling was used to select two villages from each of the three districts in the area, making a total of six villages (Alwasa, Bakaramba, Fakon Sarki, Kamfani, Sauwa, Zazzagawa). Similarly, ten respondents were drawn at random from each of the villages selected, giving a total of sixty respondents.

2.3. Data analysis

The data generated from this study were summarized and analyzed using simple descriptive statistics (frequencies and percentages).

3. Results and discussion

Table 1 revealed that 88.3% of the respondents interviewed were males while 11.7% were females. This can be attributed to the norms and religious beliefs of the people in that area, which restrict women from engaging in outdoor activities. 33.3% of the respondents fall within the age range of 31-40, 26.7% within 14-30, while 23.3% falls within 41-50 and the remaining 16.7% fall within 50 and above. This is in agreement with the findings of Ibrahim (1996) who stated that, we have younger people participating in farming than the older ones. 70% of the respondents were married and 30% of the respondents were single. This agreed with the findings of Ibrahim, (1996) who reported that married people are responsible and capable of decision making, since they have family to take care of. On the level of education 45% of the respondents attended Adult education, 26.6% had Higher education while 16.7% had primary education and 11.7% had secondary education. This implied that majority of the farmers have attended Adult literacy. This means that the more the education the more the tendency to adopt an innovation.

Table 1
Bio-data of the Respondents.

Parameter	Frequency	Percentage
Sex		
Male	53	88.3
Female	7	11.7
Total	60	100
Age (Years)		
14-30	16	26.7
31-40	20	33.3
41-50	14	23.3
50-above	10	16.7
Total	60	100
Marital Status		
Married	42	70
Single	18	30
Total	60	100
Education		
Adult education	27	45
Primary education	10	16.7
Secondary education	7	11.7
Higher education	16	26.6
Total	60	100

Source: Field Survey, 2007

Table 2 showed that 63.3% of the farmers were engaged in farming as their major occupation while 21.7% of the farmers were civil servant, and 11.7% were traders and only 3.3% were engaged in other activities such as weaving, this implied that farming and other activities constituted the major occupation of the respondents.50% of the farmers owned a farm size of about 1-3 hectares, 43.3% owned more than 3 hectares while remaining 6.7% owned less than one hectare. This is due to continuous fragmentation of farmland from generation to generation as observed in the study area.

On the experience and years spent in farming, 46.7% of the respondents had 10-20 years in farming, 36.7% of the respondent had less than 10 years in farming while 16.6% of the respondents had been in farming for more than 20 years. 60% of the respondents used family labor, 20% used temporary hired labor, while 16.7% used communal labor and 3.3% used permanent hired labor. This means that a greater percentage of the respondents used family labor, because it is the common practice among people in traditional settings.

Table 3 revealed that 76.7% of the respondents claimed to have been aware of the extension agents and 23.3% have no contact with extension agents. This means that the extension agent had assisted in creating necessary awareness toward the adoption of improved millet varieties. This is in line with Ibrahim (1996) who said

that shortages of agricultural extension agent can limit the number of farmers that could be reached with improved technologies. 61.7% of the respondents are aware of the Ex-Gashua variety, 23.3% are aware of Ex-Bornu variety and only 15% are aware of other varieties such as Sammil 1, SOSAT C-88 and Zango types. This showed that most of the people in the area had accepted Ex-Gashua and Ex-Bornu because the varieties are promising in terms of disease resistance and high yield. 73.3% of the respondents used and tested the new varieties, while 26.7% have not used it. Despite the fact that they encountered series of problems in its production, yet they admitted that these are very promising than their local variety. This was confirmed by Rowland (1993) who stated that relative advantage of an innovation influences its adoption by its adoption by potential users. 46.7% of the respondents used varieties for 3-6 years while 10% used it for about 6 years and above, and 16.7% of respondents used the varieties for not more than 2 years, and 26.6% of the respondents had not used the improved varieties. This is in line with the report of Aliyu (2002), who stated that there are categories of farmers that do not adopt an innovation.

Table 2
Occupation and farming activities of the respondents.

Parameter	Frequency	Percentage
Occupation		
Farming	38	63.3
Trading	7	11.7
Civil servant	13	21.7
Others	2	3.3
Total	60	100
Farm Size		
Less than 1 hectare	4	6.7
1-3 hectares	30	50
More than 3 hectares	26	43.3
Total	60	100
Duration in farming		
Less than 10 years	27	45
10-20 years	10	16.7
Above 20 years	16	26.6
Total	60	100
Type of labor use		
Family labor	36	60
Permanent labor	2	3.3
Communal labor	10	16.7
Temporary labor	12	20
Total	60	100

Source: Field Survey, 2007

Table 4 revealed that 55% of the farmers obtained their improved varieties from market, 16.7% of the farmers obtained their own from the extension agents and remaining 28.3% obtained their varieties from other sources. 76.7% of the respondent have agreed that improved millet varieties is more promising than the local variety, that is to say it has observable advantage over the local variety, while 23.3% of the respondents disagreed with assertion that improved varieties yield better than the locals varieties. This means that greater percentages of the farmers were convinced with the improved varieties. This is in line with Aliyu (2002), who stated that Farmers are eager to adopt innovations that are reliable and promising. It was also with the assertion of Camara *et al*. (2006), who evaluated the impact of improved varieties of sorghum and millet in Burkina Faso, Cameroon, Chad, Mali, Nigeria and Niger. The study revealed that characteristics of the variety, such as early maturity, disease and drought resistance, and productivity; and "objectives of farmers," such as taste, influenced their adoption of improved sorghum and millet varieties. On problems encountered, 40% of the respondents encountered problems in its production while the remaining 60% had not encountered any problem in the course of production. Some of

the respondents claimed to have problems of early maturing during rainy season. This has affected their yield and it requires more fertilizer the than local variety.

Table 3
Awareness and adoption of improved varieties of millet by the respondents.

Parameter	Frequency	Percentage
Awareness		
Yes	46	76.7
No	14	23.3
Total	60	100
Type of Varieties		
Ex-Gashua	37	61.7
Ex-Bornu	14	23.3
Ex-Riyan	0	0
Ex-Tukunm	0	0
Other	9	15
Total	60	100
Adopted		
Yes	44	73.3
No	16	26.7
Total	60	100
Duration		
Not practice	16	26.6
1-2 years	10	16.7
3-6 years	28	46.7
6-above	6	10
Total	60	100

Source: Field Survey, 2007

Table 4
Source, performance and problems of the new varieties.

Parameter	Frequency	Percentage
Source		
ADP	0	0
Market	33	55
Extension agent	10	16.7
Others	17	28.3
Total	60	100
Better		
Yes	46	76.7
No	14	23.3
Total	60	100
Problems		
Yes	24	40
No	36	60
Total	60	100

Source: Field Survey, 2007.

4. Conclusion

The study showed that not all farmers are actually conservative or reluctant to improved varieties but rather want avert risk and uncertainty that may be associated with the technology. Innovation with high observable

relative advantage like that of improved millet varieties can be easily adopted by farmers. Farmers were also identified to respond very positively to any technology that will enable them boost their production.

References

Abdullahi, A., 2003. Employment creation and opportunities in the agro-allied sub-sector: The case of cassava production. Central Bank of Nigeria (CBN) Bullion Publication, 27(4): 10.

Ajeigbe, H.A., Abdoulaye, T., Chikoye, D., 2009. Legume and cereal seed production for improved crop yields in Nigeria. Proceedings of the Training Workshop on Production of Legume and Cereal Seeds held on 24 January–10 February 2008 at IITA-Kano Station, Kano, Nigeria. Sponsored by the Arab Bank for Economic Development and Reconstruction, and organized by IITA and the National Program for Food Security. 108.

Aliyu, A., 2002. Determination of Adoption of Improved Millet Variety (Ex-Borno). In Dutse Local Government Area of Jigawa State.

Camara, Y., Bantilan, M.C.S., Ndjeunga, J., 2006. Impacts of Sorghum and Millet research in West and Central Africa (WCA): A Synthesis and Lessons Learnt. 16.

Ibrahim A., 1996. The impact of Adoption of Improved Varieties on Rice production. In Argungu Local Government Area of Kebbi State. Unpublished. B. Agric. Project. Department of Agricultural Economics and Extension. Usmanu Danfodiyo University, Sokoto, 10, 34.

International Institute for Tropical Agriculture (IITA), 1992. Ibadan, Annual Report 5– 20.

National Bureau of Statistics/Central Bank of Nigeria (NBS/CBN), 2006. Socjio-Economic survey on Nigeria, NBS, Abuja.

National Population Commission (NPC), 2006. Provisional Census Figure. Abuja Nigeria .

Rowland, J.R.J.,1993. Dry land Farming in Africa. Macmillan, London and Basingstoke. Published in Cooperation with the Technical Centre for Agricultural and Rural Cooperation. 237 – 249.

Usman, N.E., 2006. Agriculture: Vital to Nigerian Economic Development. Paper presented at the forum of Economic Stakeholders on Growing the Nigerian Economy, 2006. This day News Paper, July 25, 2006.