ADOPTION OF YAM MINISETT TECHNOLOGY
BY FARMERS IN NIGERIA - A REVIEW

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ABSTRACT

Nigeria is the highest producer of yam in the whole world. Yam is a staple food crop for many Nigerians. Despite this position of Nigeria in the world's yam production, the problem of seed yam for the cultivation of this all important crop has been a perennial one to yam growers in the country. In order to address the above problem, the National Root Crop Research Institutes (NRCRI) in Nigeria, in collaboration with the International Institute for Tropical Agriculture (IITA), developed the yam miniset technology. This extension technology was transferred to yam growers for adoption through the States Agriculture Development Programmes (ADP). This agricultural review covers such areas as the meaning, importance and factors influencing extension technology adoption, importance of yam production in Nigeria, the yam miniset technology and its advantages over milking, the farmers traditional method of seed yam production.

Meaning of Extension Technology Adoption

Technology adoption is the process of putting into practice an accepted innovation or production package. It is the continual practice of an innovation. Fliegel, (1984) described it as the farmer's decision for or against a science-based production technology. He continued that adoption is a mental process, consisting of several stages. He added that the objective of extension communication is to provide a firm knowledge on which action for adoption could be based by the farmer. Categorizing adopters in terms of earliness or lateness, the first group of farmers to adopt a new technology in any locality, according to Fliegel, (1984) area called the innovators. The second group is the early adopters, the third is the early and late majority, while the last group is the laggards.

Adoption is not a sudden event, but a process which passes through some stages which involves awareness, interest, evaluation, trial and finally adoption. In line with the above, technology adoption is a mental process which an individual goes through from the time he hears of a new idea to the time it is finally accepted by him (Adams, 1982; Williams et al., 1984 and Lucas et al., 1997).

Importance of Extension Technology Adoption in Agricultural Development

In a comparative study of extension services, Ojoko (1994) observed that remarkable agricultural productivity have resulted following the adoption of improved farm innovations by farmers in Nigeria. Some of the countries enumerated by him as having also achieved this remarkable progress are United States of America, Hawaii, Japan, India and Pakistan.

Besides the above, the place of technology adoption and decision-making in agricultural development in Nigeria cannot be over emphasized. Williams (1978), and Uwaka (1983) asserted that adopting extension methods by farmers helped them in gaining managerial skills to operate in a commercial economy and in decision making processes.

Ugbomeh (1992), dwelling on the importance of technology adoption in increased food production observed that, given the pressure of population on land, expansion of land to new areas is not the best alternative. The best alternative, according to him, is the use of new technologies to increase the yield of farms per unit area. He further stated that, "if the farmers could be persuaded to adopt all or most of the technologies in agriculture, production would increase, thereby making farming more lucrative.
and remunerative.”

Factors Influencing Technology Adoption

Agumagu, (1996) stressed that the presence of the extension agent in the rural area does have a catalytic, stimulating and motivating effect on the rural folks. The chain of reaction brought about by his activities in the rural areas often results in the adoption of improved agricultural technologies, which has direct implications for the community, rural and overall development of the nation. This assertion agreed with the earlier studies on adoption rate by Yunis (1993) in Nazarene region of Israel, Ladele (1994) in Ondo State of Nigeria and Iwueke (1994) in South East States of Nigeria.

Stressing the influence of education in adoption, Emah (1990) explained that higher educational level is associated with higher adoption rates.

Dimelu et al. (1994) in a study of factors, affecting contact farmers effectiveness in Nsukka Agricultural Zone of Enugu State of Nigeria, established that the use of contact farmers was important in the transfer and adoption of farm innovations in that area. This confirmed the work of Benor and Baxter (1984) on Training and Visit System of extension that contact farmers were pivotal in the transfer of agricultural technologies, since they perform key roles as the base-line of other farmers.

A farmer who has earlier accepted improved technologies in a given sector of agriculture is likely to accept improved packages on other aspects of the agricultural enterprises (Lucas et al., 1997). This follows that farmers who have earlier adopted improved cassava, maize, cowpea, etc. technologies in the study area have potentials of adopting the yam miniset technology.

The relative advantage of innovation's, complexity, compatibility, visibility, trialability and input availability are essential for its adoption by farmers (Williams et al., 1984; Emah, 1993; Iwueke, 1994; Ekezie and Anthony, 1994). Importance of Yam Production in Nigerian

According to Onwueme and Sinha (1991), yam is of the genus Dioscorea which produces edible tubers. Nigeria is the largest producer of yams in the world, accounting for approximately sixty-eight percent (68%) of the world’s yam. This country produces 27 million metric tons of yam per annum. Nutritionally, yam contains about 70% water, 25% starch, 1-2% protein and traces of sugars and vitamins. Specific vitamins in yam are thiamine, riboflavin, niacin and ascorbic acid. Yams are sources of pharmaceutical compounds such as saponins and sapogenis, which are precursors of cortisone and steroidal hormones (Owolafe, 1995). In Nigeria, yam is important for a number of reasons. It serves as food for man and livestock, ritual material for sacrifices to family gods. Yam is useful in traditional celebrations such as the new yam festival. Yam provides income, employment and prestige for many yam growers.

In yam production, healthy and disease-free sets, treated with relevant agro-chemicals yield best (Zuofa and Onuegbu, 1994). The availability of seed yam for planting is one of the greatest problems in yam production in Nigerian. The Yam Miniset Technology

Yam miniset is the rapid multiplication of seed yams for planting next season. Otoo et al. (1987), describing the minisetteing procedure said it involves the cutting of a mother seed yam weighing between 500-1000 g into several cylindrical pieces, each about 5cm long. Depending on the circumference of the pieces, each is cut longitudinally into two, three, four or more pieces such that each piece has a skin or periderm. Each piece termed a minisett, weighs about 25 g.

Okoli et al. (1982) and Iwueke et al. (1985) reported that with the development of the miniset technology for rapid multiplication of seed yams, farmers have now been offered a reliable method of large scale seed yam production, using sets of about 25 g. This technology has been tested in farmers’ fields
around Nigeria and found useful and effective in production of planting materials for large yam cultivation (Asnani, 1985).

Advantages of Yam Minisett Technology over Milking Technique

Seed yam production through the minisett technology has several advantages over the milking technique. Milking is the farmers' traditional method of seed yam production. The advantages of minisetting over the milking technique are as enumerated.

(i) Rapid seed yam multiplication is enhanced, in a small piece of land in minisettting than as in milking technique.

(ii) Lesser setts of about 25 g are used in producing seed yam in minisett.

(iii) In addition, sprouting in the field is nearly achieved at the same period through minisett technology.

(iv) The farmer has a good control of his production area in a minisett plot.

(v) Less staking materials are required for trelling of vines in minisett method than in milking technique.

(vi) The labour invested in producing seed yam through milking is highly reduced when seed yams are produced through minisett.

(vii) Harvesting of seed yams cultivated through minisetting is easier and faster than that of milking.

(viii) Large scale seed yam production is easier in minisetting than in milking technique.

(ix) Sole production of seed yarn as a business is easily enhanced through minisetting than in milking technique.

(x) According to Hahn et al. (1987), the prospects of mechanization of planting and harvesting of yam is brightened with the introduction of the minisett technology.

REFERENCES