# Factors Influencing the Spread of Cooking Banana Processing Methods in Nigeria

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## Summary

*In collaboration with Shell and Agip Oil companies, the International Institute of Tropical Agriculture carried out a training campaign on the methods of processing cooking bananas (*Musa *ssp., ABB genome) among farmers in Southeast Nigeria. This study examined the factors that have influenced the spread of the processing knowledge from farmers who were initially trained by the institutions. Data were collected from a random sample of 232 respondents using structured questionnaire. Results show that about 47% of farmers who initially received training from institutions on cooking banana processing methods have taught an average of 3 processing methods to about 5 other people. This diffusion level is considered encouraging realising that the crop was entirely new to the people. Among the variables that were significant in shaping the decisions of the respondents regarding spread or non-spread of the processing methods are the level of educational attainment, primary occupation, social status, intensity of training received on cooking banana processing methods, and the degree of adoption of the processing methods.*

## Résumé

**Facteurs influençant la diffusion des méthodes de transformation des bananes à cuire au Nigeria**

*En collaboration avec les compagnies pétrolières Shell et Agip, l'Institut International d'Agriculture Tropicale avait organisé une campagne de formation des paysans du sud-est du Nigeria sur les méthodes de transformation des bananes à cuire. Cette étude est une évaluation du succès de cette campagne en termes de diffusion de la connaissance des méthodes de transformation parmi la population locale. A cet effet, une enquête fut menée auprès de 232 paysans choisis au hasard parmi ceux qui avaient été formés précédemment. Les résultats de l'étude indiquent que 47% des paysans qui avaient été formés ont, en moyenne, enseigné 3 méthodes à environ 5 autres personnes. Les facteurs les plus déterminants dans la transmission des méthodes d'un paysan à l'autre sont le degré d'instruction du paysan, son occupation principale, son statut social, l'intensité de la formation reçue sur les méthodes de transformation ainsi que le degré d'adoption de celles-ci.*

## Introduction

Cooking bananas (*Musa* spp., ABB genome) were introduced into Southeast Nigeria from Asia by the International Institute of Tropical Agriculture (IITA) in the mid-1980s (9). It was meant to serve as a stop-gap strategy in combating the incidence of black sigatoka disease on plantain. Black sigatoka is a fungal leaf spot disease that has suddenly posed a major threat to plantain production in sub-Saharan Africa, reducing yield by 30-50% (14), and in more severe cases, leading to total crop failure. Plantain is among the important food crops in the region, and serves as one of the major staples to about 70 million people. In addition, it constitutes an important source of farm income, particularly for smallholder farmers (7). Apart from being resistant to black sigatoka, disease cooking bananas possess other important attributes, including lodging resistance, drought tolerance, early ratooning capacity, and high bunch yield. Above all, cooking banana has the potential of surviving in areas where plantain and sweet bananas do not, due to their hardiness (16).

On introduction, cooking banana plantlets were rapidly multiplied by *in-vitro* techniques (18) and distributed directly to farmers, or indirectly through non-governmental institutions including States 'Ministry of Agriculture and Agricultural Development Programm, the Shell Petroleum Development Corporation (SPDC) and the Nigeria Agip Oil Company (NAOC).

Results of preliminary studies by Ferris *et al.* (8) and Akele (1) showed that cooking bananas were rejected by farmers. Their reason was the lack of knowledge on how to utilise the cooking banana fruits. Farmers expected cooking bananas to have similar quality characteristics with plantains. Some mistook the cooking banana for dessert banana as the fruit looked like local banana, though fatter. Cooking banana fruits are quite different from plantains in their morphology, physical

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characteristics (fingers size/form, pulp-to- peel ratio, dry matter, etc.), pulp carbohydrate composition (starch and sugar) and pulp texture or firmness of the pulp (3). As a result, cooking bananas have different post-harvest quality characteristics (durability and palatability) compared with plantains. To address this new development, IITA, in collaboration with SPDC and NAOC developed and transferred to consumers and farmers a number of cooking banana processing methods through training workshops and seminars, agricultural shows, food exhibitions, farmers' days and demonstrations.

Since the introduction of these methods to farmers and consumers, no effort has been made to evaluate the success of the training exercise. One of the ways of determining the success of an innovation is to assess the level and rate at which such an innovation spreads among the target population / area (6). Tshiunza *et al.* (17) found that an average of 3 processing methods were adopted by almost half of the farmers who were initially trained; but they did not investigate the spread of the processing methods among the population.

This study examines the spread of cooking banana processing methods among farmers and consumers in Southeast Nigeria. Specifically, the objectives of the study are to assess the level and intensity of diffusion of cooking banana processing methods among the farmers and consumers, as well as to establish the forces that might have influenced the diffusion process.

## Methodology

### Sampling and data collection procedures

The training was carried out among eleven farmer groups/co-operatives. In each group, a list of members who took part in the training was compiled; and a total of 232 respondents were randomly selected. A structured questionnaire was designed and used in the collection of respondent- and technology- related information. Respondent-related information includes age, household status, household size, education attainment, primary occupation, and its social status. Also considered relevant to respondent information is the number of forms of processing cooking banana and plantain, as well as the intensity of cooking banana consumption in the household. Technology-related information were the number of training sessions attended on cooking banana processing methods, the practice or no practice of any of the processing methods taught to the respondent, and the number of processing methods adopted. Information were also obtained on the number of good attributes of the cooking banana products, the proportion of cooking banana products sold in the market, as well as the availability of processed plantain products in the market. Data collection lasted from May 1998 to February 1999. Analysis of data was based on descriptive statistics such as percentages, frequencies and means, while tables were used in presenting results. Factors influencing the spread of cooking banana processing techniques were assessed by means of regression analysis, using the Probit/Logit model.

## Definition of terms

### Processing method

Processing method (recipe) is a sequence of activities carried out in order to bring an agricultural / food product from one form (inferior) to another form (superior) desired by consumers. 'Bluggoe', and 'Cardaba' and 'Fougamou' were the predominant types of cooking bananas found in the surveyed area.

### Diffusion of cooking banana processing method

The diffusion of cooking banana processing method is the teaching of one of several cooking banana processing methods to one or more individuals by the people who were initially trained by the institutions. The level of diffusion is the proportion of the respondents who had taught at least one person, while the number of people and processing methods taught measures the intensity of diffusion.

## The diffusion model

### The theoretical model

The decision of the respondents regarding the diffusion or non-diffusion of the processing methods yield a qualitative dependent variable, and thus its analysis was based on the probit (the standard cumulative distribution function) and logistic (from logit) models. These are popular functional forms usually used in explaining farmers' adoption and diffusion decisions (5, 19). The two models were applied in this study in determining forces that influenced the respondents'/farmers' decisions regarding the diffusion or spread of cooking banana processing methods. Following Aldrich and Nelson (2), the probit model is given by:

$$Y_i^* = F(x_i^! \beta) = \int_{-a}^{(x_i^! \beta)} \frac{1}{\sqrt{2\Pi}} \exp(-s^2/2)\, ds \quad \text{.....(I)}$$

$$For - a < (X_i^! \beta) < a$$

Where: $Y_i^*$ is the probability that the $i^{th}$ farmer/consumer diffuses cooking banana processing method, while X is the n x k matrix of explanatory variables. ß is the k x 1 vector of parameters to be estimated; while s is a random variable distributed as a standard normal deviate, i.e., s is N (0, 1). In other words, the probability of a positive decision (Yi = 1) is the area under the standard normal curve between -$\alpha$ and $X_i^! \beta$. According to Zegeye (19), the larger the value of $X_i^! \beta$, the more likely diffusion is to take place. The parameters of the probit model are estimated through the maximum likelihood methods as follows:

$$L = \prod_{i=1}^{n} \left[F(X_i^! \beta)\right]^{Y_i^*} \left[1 - F(X_i^! \beta)\right]^{1-Y_i^*} \quad \text{.....(II)}$$

where; L is the likelihood function; and n is the number of observations.
The logistic distribution (of logit) is closely associated with the standard normal cumulative function of the probit. According to Aldrich and Nelson (2), the generalized logistic distribution function of the logit model is:

$$L = F(X_i'\beta) = \frac{exp(X_i'\beta)}{[1+\exp(X_i'\beta)]} \quad \text{.....(III)}$$

where $Y_i^*$ represents the probability that the farmer decides to spread or diffuse any of the cooking banana processing methods to others, given certain knowledge of $X_i$, the explanatory variables. From Aldrich and Nelson (2), the corresponding maximum likelihood function L for the estimation of parameters under the logit model is:

$$L = \prod_{i=1}^{n} [\frac{exp(X_i'\beta)}{1+\exp(X_i'\beta)}]^{Y_i^*} [\frac{1}{1+\exp(X_i'\beta)}]^{1-Y_i^*} \quad \text{.....(IV)}$$

Where n is the number of observations.
The significance of the individual coefficients is tested by the ratio of the estimated coefficient and its corresponding standard error (asymptotic t-value). The significance or fit of all or a subset of the coefficients is assessed through the log likelihood ratio test (LRT), which is the Chi-square distributed with k degrees of freedom, where k is the number of parameters in the model less the constant (19), calculated thus:

$$LRT = -2\log\lambda = -2(\log L_{min} - \log L_{max}) \quad \text{(V)}$$

where: $L_{min}$ = log likelihood value for the constant only, and
$L_{max}$ = log likelihood when all variables are included
There is positive relationship between the dependent variable and the explanatory variables if the value of the statistic exceeds the chosen critical value (2). An easy and most useful way of interpreting the logit model, however, is the odd ratios (11). In this case, it defines the probability of diffusion relative to non-diffusion, which, according to Burton *et al.* (5), is given by:

$$\frac{Y_i^*}{1-Y_i^*} = \exp(X_i'\beta) \quad \text{(VI)}$$

Polson and Spencer (13) noted that either the probit or the logit model is valid because neither dominated the other on purely statistical ground. Liao (11) also pointed out that one could move from one set of estimations to the other. He noted that if one multiplies a probit estimate by a factor, one gets an approximate value of the corresponding logit estimate. This factor, according to Aldrich and Nelson (2) is believed to be $p/\sqrt{3} = 1.814$; while Ameniya (4) proposed a trial and error value of 1.6. Commenting, Manyong *et al.* (13) remarked that despite slight differences in coefficients, probit and logit models can be substituted for each other since they lead to the same recommendations. Liao (11), however, pointed out that in cases with an extremely large number of observations and with a heavy concentration of observations in the tails of the distribution, logistic models are more appropriate.

**The empirical model**

Decisions of - or factors influencing- the respondents on whether or not to teach others the knowledge acquired on processing methods were regressed on respondent- and technology- related variables; these variables are defined and presented in Table 1.
Respondent-related variables include age (AGE), household status (HHEAD), number of years of formal education (FEDUC), the primary occupation (OCCUP), household size (HHSIZE), as well as the social status (SSTATUS) of the respondent. Also considered relevant to household variables are the intensity of cooking banana consumption in the household (NUMEATCB), the number of forms of processing cooking banana (TOTALCB) and plantain (TOTALPL). The respective *a priori* expectations of the above variables on the probability of the respondent to teach others any of the processing methods are discussed below. Older and household-head respondents usually have more relations and acquaintances, and thus a greater probability to have more requests and to teach the methods to others. Because of the large number of their members, larger households are also likely to have more relations and friends, and thus greater chances to have more people seeking knowledge on processing methods from them than small-sized households. Educated respondents are likely to diffuse more than non-educated ones; they usually have better understanding of the processing methods and hence more technical skill than non-educated ones; this gives them more confidence and more ability to teach others. Farming, as primary occupation, is expected to negatively affect the decision of spreading the innovation. The majority of farmers are less literate and poor; in most cases, they lack the technical and material requirements to apply some of the processing techniques, thereby limiting their ability to teach others. In the rural communities, most of the titled men/women (e.g. Chiefs, Lolos, Nzes, etc.) normally belong to one or more socio-cultural groupings, they are therefore likely to have more friends and relationships. In most cases, titled men and women are educated and very influent. Titled respondents are therefore expected to spread more the innovation than non-titled. Where respondents have many forms of consuming plantain or cooking banana, the probability of teaching others any of the cooking banana processing methods is expected to be high. The practice by respondents of most of the methods increases the opportunity for others to get exposed to (and get aware of) such innovation. Exposition of people to innovation is of great importance in the adoption / diffusion process. Likewise, the intensity of consuming cooking banana in the household is also likely to increase the probability for others to get aware of- get exposed to- the processing methods.
Technology-related variables include the attendance at agricultural training (TRAINED), the number of training sessions attended by the respondent on processing methods (TRAINING), the number of processing methods adopted by the respondent (NOPREPRD), the practice or no practice of processing methods taught to the respondent (NOTPREP), as well as the number of good attributes of the cooking banana products (ASS-

**Table 1**
**Definition of variables specified in the regression function of the determinants of diffusion of cooking banana processing methods in Nigeria**

| Variables | Type | Description |
|---|---|---|
| Dependent variables | | |
| SPREAD | Binary | Diffusion of cooking banana processing method: 1 (yes) if respondent has taught another person any of the processing methods on which training was received; 0 (no) otherwise |
| Explanatory variables | | |
| Respondent-related | | |
| AGE | Continuous | Age of respondent (years) |
| HHEAD | Binary | 1, if respondent is head of the household; else 0 |
| FEDUC | Continuous | Level of education (No. of years spent in formal education by respondent) |
| OCCUP | Binary | Respondent's primary occupation: 1, if farming; else 0 |
| HHSIZE | Continuous | Respondent's household's size (No. of people eating from the same pot) |
| SSTATUS | Binary | Social status: 1, if respondent is titled; else 0 |
| Technology-related | | |
| NUMEATCB | Continuous | No. of times household has eaten cooking banana in last one month |
| TOTALCB | Continuous | No. of forms cooking banana is mostly eaten by the household |
| TOTALPL | Continuous | No. of forms plantain is mostly eaten by the household |
| TRAINED | Binary | 1, if respondent received training on cooking banana processing methods; 0 otherwise |
| TRAINING | Continuous | No. of times respondent received training on cooking banana processing methods |
| NOPREPRD | Continuous | No. of cooking banana processing methods adopted |
| NOTPREP | Binary | 1, if respondent has not practiced any of the processing methods at all; else 0 |
| ASSGOOD | Continuous | No. of attributes of cooking banana processing methods assessed as good |
| COMPLPDT | Binary | 1, if aware of any plantain product produced commercially; else 0 |
| PROPCBMK | Proportion | Proportion of produced cooking banana products sold (parts out of ten) |

NO. = number

GOOD) according to farmers' assessment. Information was also obtained on the proportion of cooking banana products sold in the market (PROPCBMK), as well as the availability of processed plantain products in the market (COMPLPDT). The respective a priori expectations of the above variables on the probability of the respondent to teach others any of the processing methods are discussed below. Receipt of extension training on new technologies (and its intensity) is known to impact positively on their adoption and diffusion (19). Apart from enabling the recipients be at home with the knowledge, attendance at such training and meetings enables the recipients to have access to more information concerning the need to spread such knowledge and ideas to others. The application of an innovation is, among other things, a demonstration of satisfaction derived from such innovation by adopters, which, naturally is expected to arouse the interest of others, attract them and induce their demand. In the same line, the number of processing methods adopted (adoption is the practice, at least twice, of one or several cooking banana processing methods that were previously taught) is also expected to increase the probability to teach others. An innovation with good market opportunities is usually associated with a high level and intensity of adoption (6); and most probably will have the potential of increasing the demand for and spread of information on it. Where there is potential for the commercial production of plantain products, the demand for knowledge in the processing methods of cooking banana is likely to increase; cooking banana is cheaper and able to complement plantain in the preparation of many products.

## Results and discussion

### Level and intensity of spread of processing methods

One hundred and eight people out of two hundred and thirty two interviewees (about 47%) have taught other people one or more of the methods on which they received training. In other words, almost half of the respondents have been able to spread the innovation to others. All together, the respondents have taught 519 people (Table 2).

**Table 2**
**Distribution of respondents by number of people taught cooking banana processing methods**

| Number of people taught | Distribution of respondents | |
|---|---|---|
| | Number | Percentage |
| 1 – 2 | 45 | 41.7 |
| 3 – 4 | 21 | 19.4 |
| 5 – 6 | 20 | 18.5 |
| 7 – 8 | 7 | 6.5 |
| >10 | 9 | 8.3 |
| 10 | 6 | 5.6 |
| Total | 108 | 519 |
| Range = 1 – 40 | | |
| Mean = 4.8 | | |
| Std = 5.3 | | |

This implies that every respondent who was initially taught by the institutions had taught an average of 2 other people; this average is obtained by dividing the number of people taught (519) by the total number of

respondents (232). Among the diffusers (the diffusers are respondents who have taught others) alone, the figure is 5 (519 divided by 108). This represents a relatively high diffusion rate. In a study of *Mucuna* fallow diffusion in Southern Benin Republic, Manyong *et al.* (12) obtained a ratio of 7 new farmers for every single farmer reached by Sasakawa Global 2000, which they attributed to the important role of farmer–to–farmer horizontal information spread network. Farmer–to–farmer information exchange networks play a crucial role in technology spread among the target group. The number of processing methods taught to other people by the respondents ranged from 1 to 6 with a mean of 3 (Table 3).

The number of processing methods taught to other people is closely related to the average number of methods adopted by the respondents; the number adopted ranged from 1 to 7 with a mean of 3 (Table 4). Farmers are more likely to spread information on innovations they have applied and which gave positive results. In other words, farmers and consumers are not likely to spread to others, information on processing method(s) they have not practiced, or unfamiliar with.

**Table 3**
**Distribution of respondents by number of cooking banana processing methods taught to other people**

| Number of methods taught | Distribution of respondents | |
|---|---|---|
| | Number | Percentage |
| 1 | 19 | 17.9 |
| 2 | 25 | 23.6 |
| 3 | 38 | 35.8 |
| 4 | 15 | 14.2 |
| 5 | 6 | 5.7 |
| 6 | 3 | 2.8 |
| Mean = 2.7 | – | – |
| Std = 1.2 | – | – |
| Total | 106 | – |

**Table 4**
**Percentage distribution of adopters by number of processing methods adopted**

| Number of methods adopted | Distribution of respondents | |
|---|---|---|
| | % of adopters | Cumulative % |
| 1 | 20.7 | 20.7 |
| 2 | 25.0 | 45.7 |
| 3 | 22.6 | 68.3 |
| 4 | 17.1 | 85.4 |
| 5 | 7.9 | 93.3 |
| 6 | 6.1 | 99.4 |
| 7 | 0.6 | 100.0 |
| Mean = 3 | | |

Source: Tshiunza *et al.* (17)

## Determinants of diffusion

The variables together explained about 46% of the variations in the probability of respondent's decisions regarding the spread of cooking banana processing knowledge, with about 88% of right prediction (Table 5). The likelihood ratio test is significantly high, denoting that the variables as a whole strongly influenced the respondent's decision regarding whether to teach other people the processing method(s) or not. However, only 7 variables have strong influence on the probability of spreading the information to others by the respondent (Table 5). They are presented below.

As expected, the level of educational attainment (FEDUC) has a significant and positive relationship with the probability of spreading the knowledge to other farmers/consumers by the respondents. Most authors have reported a strong and positive relationship between the level of educational attainment and adoption / diffusion decisions of farmers (3, 19). Education enhances the farmer's ability to be at home with the information and to spread it to others. The probability of spreading processing knowledge is significantly negative where farming is the primary occupation (OCCUP) of the respondent. In most cases, the practice and adoption of post-harvest innovations usually require a certain degree of literacy; as a result most farmers who are less literate tend to show less enthusiasm towards post-harvest innovations compared to innovations concerning primary production. The probability of teaching any of the methods to others is positively significant with titled respondents (SSTATUS). Most of the titled men and women (e.g. Chiefs/Lolos, Nzes, etc.) in Nigerian rural areas normally have more friends and relationships. In many instances, people look up to them for new ideas and innovations, and their opinions are capable of affecting positively the choice of many farmers/consumers in the area. The theory of demonstration effect in economic development (10) can help in explaining this. When people see their friends/relations of same or higher social standing applying a particular innovation or technology, such people tend to emulate them and thus seek for ideas or instruction regarding the technology. As expected, the probability of spreading the information to others is positive when the respondents are processing cooking banana in more forms (TOTALCB). Using cooking banana in many forms increases the chances of observation by others, which may arouse their interest and demand. On the contrary, where respondents have many forms of consuming plantain (TOTALPB), the probability of teaching others any of the cooking banana processing methods is significantly negative. This may arise from the fact that such respondents may not be practicing most of the methods taught on cooking banana thereby limiting the opportunity for others to get aware of such innovation from them. The intensity of training received (TRAINING) has a positive and significant effect on the decision of the respondents to spread the information to others. Attendance at several training sessions enables the respondents to be familiar with the different steps and ingredients involved in the different processing methods, and hence their ability to teach others. The number of processing methods adopted (NOPREPRD) by the respondent has a strong and positive impact on the probability of teaching other people any of the processing methods. This is in line with *a priori* expectation. Increased adoption of new technologies by farmers is known to impact positively on their spread. This is because an increase in the application of new ideas and

**Table 5**
**Parameter estimates (based on probit and logit/logistic models) of the determinants of spread of cooking banana processing methods**

| Explanatory variables | Coefficients/odd ratios | | | |
|---|---|---|---|---|
| | Probit | | Logit | |
| | Full model | Step-wise | Full model | Step-wise |
| Intercept | -0.364<br>(-0.384) | -0.365<br>(-0.581) | – | – |
| AGE | -0.008<br>(-0.562) | – | 0.985<br>(-0.584) | – |
| HHEAD | -0.273<br>(-0.770) | – | 0.600<br>(-0.823) | – |
| FEDUC | 0.043<br>(1.113) | 0.061<br>(1.756)* | 1.063<br>(0.859) | – |
| OCCUP | -1.126<br>(-2.514)*** | -1.143<br>(-2.673)*** | 0.142<br>(-2.488)*** | 0.192<br>(-2.609)*** |
| HHSIZE | 0.050<br>(0.906) | – | 1.105<br>(0.957) | – |
| SSTATUS | 0.658<br>(1.895)* | 0.683<br>(2.158)** | 3.320<br>(1.803)* | 3.842<br>(2.337)** |
| NUMEATCB | -0.005<br>(-0.253) | – | 0.985<br>(-0.437) | – |
| TOTALCB | 0.076<br>(0.940) | – | 1.149<br>(0.975) | 1.190<br>(1.622)* |
| TOTALPL | -0.214<br>(-2.173)** | -0.187<br>(-2.121)** | 0.691<br>(-2.132)** | 0.869<br>(-1.318) |
| TRAINED | 0.179<br>(1.295) | 0.169<br>(1.459) | 1.343<br>(1.137) | – |
| TRAINING | 0.322<br>(1.566) | 0.331<br>(1.651)* | 1.912<br>(1.624)* | 2.154<br>(2.112)** |
| NOPREPRD | 0.494<br>(3.777)*** | 0.499<br>(4.638)*** | 2.333<br>(3.513)*** | 2.340<br>(4.305)*** |
| NOTPREP | -0.036<br>(-0.080) | – | 0.949<br>(-0.066) | – |
| COMPLPDT | 0.567<br>(1.246) | 0.550<br>(1.338) | 2.792<br>(1.284) | – |
| ASSGOOD | -0.006<br>(-0.085) | – | 1.013<br>(0.356) | – |
| PROPCBMK | 0.004<br>(0.171) | – | 0.974<br>(-0.239) | – |
| Statistics: | | | | |
| No. of observations | 137.000 | 137.000 | 137.000 | 137.000 |
| $Chi^2$ | 79.440 | 75.420 | 79.930 | 65.820 |
| Prob > $Chi^2$ | 0.000 | 0.000 | 0.000 | 0.380 |
| Pseudo $R^2$ | 0.460 | 0.430 | 0.460 | 0.000 |
| Log likelihood | -47.014 | -49.025 | -46.766 | -53.823 |
| % of right prediction | – | – | 87.480 | – |
| Area of right prediction | – | – | 0.911 | – |

Note: Values in parenthesis = t-ratio equivalents; *** significant at P < = 0.01; ** significant at 0.01 < P < = 0.05;
* significant at 0.05 < P < = 0.10

innovations by farmers arouses the interest of others, which most probably induces their demand for them. Again, the increased application of an innovation is, among other things, a demonstration of satisfaction derived from such innovation by adopters, which, naturally is expected to attract others.

## Summary and recommendations

In order to encourage the consumption of cooking banana and sustain its adoption within the Nigerian farming system, IITA, in collaboration with other institutions, organized a training campaign on its processing methods. This study is an assessment of the success of the training exercise in terms of spread of the processing knowledge among farmers. Results of the study show that knowledge on cooking banana processing methods has spread from about 47% of the respondents; each of them has taught about 3 processing methods to about 5 other people. This is encouraging taking note that cooking banana was entirely a new crop to the people. Regression results show that the level of

educational attainment, primary occupation, social status, number of forms of consuming cooking banana and plantain, intensity of training received, and degree of adoption of the processing methods by the respondents are the most significant variables influencing the spread of the processing methods. The study recommends to take into account the educational attainment of the individuals through which the innovation is initially introduced as this has the potential of strongly impacting on its final spread. The organization of – and the attendance by individuals at – several training sessions is also recommended; attendance at several training sessions enables participants to be familiar with the various aspects involved in each processing method and therefore increases the chances of their adoption and spread. The inclusion of "titled men / women" and middlemen (processors) among the individuals to be trained is also of great importance for increased spread of the innovation. Most people who engage in post-harvest activities are not primary producers, but rather, middlemen.

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