

INNOVATIVE PERFORMANCE OF COCONUT FARMERS IN LEYTE AND SOUTHERN LEYTE, PHILIPPINES

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ABSTRACT

The innovative performance of coconut farmers in Leyte and Southern Leyte was determined. The respondents had an average age of 52 years with an average farming experience of 23 years. Their mean educational attainment was 5 years; average number of household members, 6, and an average annual income of ₱5,969.47. Majority were owner-operators and slightly over one-half were part-time farmers. They had an average farm size of 3.29 ha. The respondents adopted an average of 5 recommended coconut production practices and had high adoption scores in selecting the seedlings for transplanting, preparing the seednuts for germination, selecting the planting materials, replanting, laying out the field before planting, and intercropping. The practices which had low adoption scores were: plowing, controlling pests, controlling diseases, and application of fertilizer. Reasons given for non-adoption were: ignorance of the advantage of the practice, not certain of its success, lack of money to buy the farm inputs, and did not know how to do it. Sources of farm information, aspirations in life, perception of coconut farming, attitude towards modernization in coconut farming, annual gross income, size of farm, production credit and expectations from coconut farming were found significantly related to innovative performance. Farmers were beset with many problems, such as low price of copra, low yield, no working animals, poor sharing system, frequent occurrence of typhoons, and presence of rats. Preparing the seednuts for germination and plowing were considered "very simple" to understand and use; intercropping, replanting and selecting the seedlings for transplanting, "simple"; selecting the planting materials, laying out the field before planting and fertilizing, "difficult"; and controlling diseases and pests, "very difficult."

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KEY WORDS: Coconut farmer. Demographic characteristics. Recommended practice. Innovative performance. Implication. Leyte. Southern Leyte.

INTRODUCTION

Coconut is not only important because of its foreign earning but also because of its role in providing livelihood to a sizeable proportion of the country's population. For instance, a recent study showed that inhabitants from Leyte and Southern Leyte derived 21 and 41% respectively, of their major income from coconut (Pascual *et al.* 1976). Coconut made up 45.6% of the region's agricultural output, with 30.6% coming from Leyte (Agricultural Economics, Statistics and Market News Digest, 1975).

In spite of its vital role, coconut production in the region is low, with Central and Eastern Visayas obtaining the lowest yield of only 16 and 19 nuts per tree per year (Agricultural Economics, Statistics and Market News Digest, 1975). The coconut industry in Leyte and Southern Leyte is hampered by several problems such as inadequate care of the plantation and limited technological improvement in production procedures.

Since coconut is one of the primary crops of Leyte and Southern Leyte and research studies about innovative performance of coconut farmers in this area are few, if any, this study was conducted to find out: (1) the socioeconomic and demographic characteristics of coconut farmers in Leyte and Southern Leyte; (2) which of the recommended practices in coconut production were used by the coconut farmers; (3) the reasons for not performing certain recommend-

ed practices; (4) factors related to farmers' innovative performance; (5) coconut farmers' problems related to farming; and (6) complexity of the recommended practices in coconut production.

METHOD

This study was conducted in 32 barrios selected from 6 municipalities of Leyte and 2 municipalities of Southern Leyte, namely: Burauen, Abuyog, Jaro, Javier, La Paz, Inopacan, Silago and Hinunangan. The personal interview method was used to gather the data from 338 respondents who were chosen using the multi-stage sampling technique.

The interview schedule which was a combination of open-ended and close-ended questions was prepared in English and translated to waray-waray and Cebuano.

Frequency counts, percentages, means and standard deviation were used to analyze some of the data.

Innovative performance was determined by counting the number of recommended practices adopted by the farmers. A farmer's score for the practices which were to be performed only once was determined using the following: "not practised" was given a weight of "0" and "practised", "1.0".

To determine the farmer's score for the practices which were to be applied continuously, the following adoption code for each practice was used: 0 - Not practised; 1 - Rarely practised; 2 - Sometimes practised; 3 - Usually practised; 4 Always practised.

Operational definitions and appropriate weights were formulated and assigned, respectively, to "not practised" (1), "rarely practised" (.25), "sometimes practised" (.50), "usually practised" (.75), and "always practised" (1.0).

The respondents were categorized into "high" (2.75-5.00 adoption score) and "low" (0 - 2.50 adoption score) performers prior to the analysis.

The Pearson Product Moment Correlation Coefficient (Guilford, 1965) and the chi-square analysis (Dixon and Massey, 1969) were employed to test the relationships between innovative performance and the variables included in the study.

A complexity rating was constructed by requesting 30 extension workers from the Philippine Coconut Authority and the Bureau of Agricultural Extension and 30 coconut farmers to comment on the 10 recommended practices in coconut production. The frequencies of each response to the practices were tabulated. The rank and correlation of the practices as perceived by the two groups were analyzed using the Spearman's Rank Correlation Method (Guilford, 1965).

After the practices were classified into a gradient ("very difficult", "difficult," "simple," and "very simple"), each practice was given a weight, the simplest having a score of 1 and the most complex, a score of 10.

The 5% level of probability was the level of significance used in all tests.

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents.

The oldest respondent was 78 years old; the youngest, 24, and the overall mean age was 52 years. The farmers had been farming for an average of 24 years; however, their length of farming experiences ranged from 10-58 years. While the mean educational attainment was 6 years, there were college graduates as well as those with no formal schooling. The average number of household member was 6 and of living children, 5. The average annual income which was ₱5,969.47 seemed insufficient to support a family with an average of 6 household members. Majority (72.2%) of the respondents were owner-operators. Of the 68 share-tenant farmers, 40 had landlords who resided inside the municipalities where they were living, and 28 reported a 40-60 sharing arrangement. Slightly over one-half (51.8%) of the respondents were part-time farmers. They had an average farm size of 3.29 ha but harvested only 2,743 nuts/ha/year. Generally, their houses were made of nipa and bamboo. Very few households had pump wells. Most of the households owned radio sets.

The foremost aspiration of the respondents was to send their children to college, and for them to attain this goal they had to work harder to get a good harvest.

Generally, the farmers agreed to all the attitude statements asked them. Highest scores were recorded

in the following statements: "When the farm is infested with pests or diseases, an agricultural expert should be consulted"; "For the future of the nation, every coconut farmer should plant high-yielding coconut variety"; and "Investing money on production inputs will pay off in higher returns." The farmers considered coconut as a superior and versatile crop and disagreed with the saying that "coconut is a lazy man's crop," as may be gleaned from their reaction to the statement, "Coconut is easy to grow," which had the lowest positive score of all the perception statements.

Evidently, the coconut farmer's foremost expectation from their farming was that income from their coconut enterprise could provide them with basic necessities in life such as food and clothing.

Each farmer borrowed an average loan of ₱430.07 from copra buyers. Such credit was used to plant new trees, clean and weed the plantation, harvest the nuts and make copra. Most of the farmers did not avail of the credit facilities in their locality because they did not need credit for their farm operations.

Majority of the respondents sold their copra to copra dealers in their respective places. Over 58% of the farmers found the price of copra unsatisfactory or not commensurate to the high prices of commodities and farm inputs.

The most frequent source of farm information cited was informal personal source, such as the neigh-

bor farmer. Perhaps, this was because farmers had little or no contact with extension agents. Almost one-half (51.2%) of the respondents had no contact with extension agents. Among those who had contact, the majority (71%) indicated a frequency of either once in every two, three, four or six months.

The respondents cited only three government agencies as having helped them in coconut farming: Bureau of Agricultural Extension (BAE), Bureau of Plant Industry (BPI), and Philippine Coconut Authority (PCA). On the kinds of services rendered by these agencies, the findings revealed that out of the 165 respondents, 75.1% were dissatisfied, while only 24.9% were satisfied. Those who expressed satisfaction said that these agencies had helped them in their farm problems, taught them new methods of farming, and helped them increase their production. On the other hand, those who were dissatisfied said that the extension workers of these agencies did not personally survey their fields, were not always in their offices if needed, and seldom came to their barrios to ask their farm problems.

The BAE and the PCA were the two agencies that the respondents would consult first if they had problems about coconut farming in the future, because these agencies had approachable personnel. Findings seemed to indicate that farmers like extension workers who are friendly and accommodating.

not fertilize their coconut trees said that they had no money to buy fertilizer.

Control of insect pests and rats.

Only 33.7% of the respondents practised pest control in their coconut farms. Rats were the most common pests which most of the farmers controlled by mixing rat poison with bait as taught them by the extension workers. Farmers who did not employ any control measure said that they could not afford to buy pesticides.

Control of disease.- All respondents indicated that their trees were infested by diseases. However, only 39% revealed doing something to control these diseases. More than 61% did not know the names of the coconut diseases, while others identified two kinds of diseases, namely, gray leaf spot and coconut leaf blight. Smoking was the only control measure used for these diseases which respondents learned from the extension workers. Respondents who did not control coconut diseases said that they did not know how to control them.

Number of Recommended Coconut Production Practices Adopted by the Respondents.

Farmers varied in their adoption rates from 1 to 8. No one obtained a score of 9 nor a perfect innovative performance score of 10. The biggest group which was equivalent to 87 respondents (25.1%) adopted 6 practices. The mean number of

practices performed was 4.9.

Factors Related to Innovative Performance of Recommended Coconut Production Practices.

Of the 6 variables included in the analysis, 3 had positive significant relationships to innovative performance in such practices as selecting the planting materials, preparing the seednuts for germination, selecting the seedlings for transplanting, laying out the field before planting and replanting. These variables were as follows:

(1) *Expectations from coconut farming.* Farmers who had higher expectations from their farms tended to be more innovative than those with lower expectations.

(2) *Attitude towards modernization in coconut farming.* Farmers with favorable attitudes towards modernization in coconut farming tended to be more innovative than those with unfavorable attitudes.

(3) *Perceptions of coconut farming.* The innovative performance of recommended coconut production practices was higher among farmers who perceived the usefulness/importance of coconut as a crop and coconut farming as an occupation.

The variables which were not significantly related to innovative performance were age, educational attainment, and aspiration in life.

The 7 variables with positive and significant relationship to innovative performance in plowing, intercropping, fertilizing, controlling pests and controlling diseases were as

follows:

(1) *Attitude towards modernization in coconut farming.* Farmers with favorable attitudes towards modernization in coconut farming tended to have higher innovative performance than those with unfavorable attitudes.

(2) *Perception of coconut farming.* Farmers who perceived the usefulness/importance of coconut as a crop and coconut farming as an occupation tended to have higher innovative performance.

(3) *Source of farm information.* The more information contacts the farmers had with information sources such as extension agents, agricultural magazines, radio farm programs, relatives, father, neighbor farmers and other sources, the higher was their innovative performance.

(4) *Aspiration in life.* Farmers with higher aspirations tended to have higher innovative performance.

(5) *Annual gross income.* Farmers who had higher gross income tended to have higher innovative performance.

(6) *Size of farm.* Farmers who cultivated wider farms tended to be more innovative than those with smaller farms.

(7) *Production credit.* Farmers with relatively more credit tended to have higher innovative performance than those with less credit.

Problems Related to Coconut Farming which were Encountered by the Respondents.

The problems encountered by

the respondents were: low price of copra, low yield, presence of rats, no working animals, presence of weeds, thieves, poor sharing system, presence of bats, stray carabaos and frequent typhoons.

Classification of Recommended Practices in Coconut Production According to Complexity Ratings.

Complexity of a practice was defined as the relative degree to which an innovation is difficult to understand and use.

The practices classified according to their complexity ratings were as follows: "Very simple" — preparing the seednuts for germination and plowing; "Simple" — intercropping, replanting and selecting seedlings for transplanting; "Difficult" — selecting the planting materials, laying out the field before planting and fertilizing; "Very difficult" — controlling diseases and controlling pests.

IMPLICATIONS AND RECOMMENDATIONS

1. *Providing the coconut farmers with other gainful occupations.* As revealed by the study, the farmers had low income but had large families. They should therefore be encouraged to supplement their income by means of other gainful occupations like cottage industries utilizing coconut by-products and backyard income-generating projects like poultry, swine, duck and goat raising and gardening. They should also be assisted by agencies

concerned not only in technological training but also in marketing their products.

2. *Providing scholarships to deserving children of coconut farmers.* The most commonly mentioned aspiration expressed by the farmers was to send their children to college. It appears that farmers considered education as a means for social mobility and economic development. Deserving children of these economically disadvantaged coconut farmers can be given incentives to study further by providing them with scholarships. The scholarship program of the Coconut Producers Federation (COCOFED) should be expanded in terms of the number of grantees and the selection process improved so that more children especially those in far-flung areas could avail of such opportunity. Agricultural institutions like the Visayas State College of Agriculture (ViSCA) should, likewise, develop a grants-in-aid loan program for this sector.

3. *Organizing the coconut farmers into a producers' cooperative or association.* The respondents' high-positive scores in attitude towards modernization in coconut farming indicate that they are not encapsulated in their traditional orientations. They would adopt scientific technology if given proper incentives. Perhaps, one of these incentives is to offer them satisfactory price for their copra since the majority of them complained about its fluctuating low price. This factor seemed to affect their innovativeness. Administrators, planners and

other government workers must take this into account. One way perhaps for farmers to command a better price of their products is to organize themselves into a producers' cooperative or association which may, in the long run, eliminate the middleman. This cooperative or association should also extend or grant farmers' credit to minimize borrowing from outside sources like the copra buyers who not only charged high interest rates but also controlled the price of copra. Nevertheless, this may be effective only if there are sufficient technical and educational foundation to assure coconut farmers of the expected benefits in adopting improved farm practices financed through credit, thus, changing the farmers' negative attitudes towards it.

4. *Intensifying the communication-extension services for coconut farmers.* Extension agents specifically catering to coconut farmers should be assigned in coconut-based farming communities. There is a need to improve not only their quality of service but also their scope of activities. Extension agents should have adequate educational preparation and in-service training to update their technical knowledge about the farm innovations they are supposed to disseminate. The training courses should not only include effective extension methods, but should also incorporate subject matter areas which would broaden their leadership ability to work with people. Change agents should also consider the demonstrability and effectiveness of the proposed in-

novation, speculate on its social and economic consequences, and communicate these to the recipient-clientele. One way of doing this, perhaps is by spelling out messages which include references to statements of neighbor farmers who have already adopted an innovation. These adopters could serve as role models to provide the farmers some kind of social support and social security regarding their application of new farm technology.

5. *Conducting massive information campaign.* Based on farm practice adoption, the findings suggest different responses to various agricultural technologies by the coconut farmers. They were most responsive to selection of seedlings for transplanting, preparation of the seednuts for germination and selection of planting materials. They had relatively moderate application of replanting, laying out the field before planting, intercropping and plowing. The recommended practices that had the lowest adopters were control of pest, control of diseases and application of fertilizer. These observations imply that most coconut farmers were not aware of the benefits derived from these farm practices in relation to coconut production. Massive information campaign and extension services of the government, therefore, should not be directed mainly to food crop farmers but to coconut farmers as well to convince them to adopt improved practices in coconut production.

6. *Holding regular training courses in coconut production for*

the young and adult farmers. Findings revealed that the father was the most frequently mentioned source of information in most of the recommended practices. For the recommended practices like application of fertilizer, control of pests and diseases, extension worker topped the list as information source. Perhaps, this was because these three practices seemed "new" to the farmers. The findings also showed that fathers appeared to be very influential in the dissemination of these recommended practices. There is, therefore, a need to conduct training courses in coconut production for the fathers. They should be well-selected for such training activity to ensure the "spread effect." There are factors which may guide in the selection of the trainee farmers. As mentioned earlier, the characteristics or factors that showed significant dependence on adoption of practices were source of information, aspiration in life, attitude towards modernization in coconut farming, annual gross income, size of farm and production credit. In line with this training activity, agricultural institutions in the area, such as the Visayas State College of Agriculture (ViSCA) in cooperation with the Bureau of Agricultural Extension (BAE), Philippine Coconut Authority (PCA) and other agencies and research institutions can provide the leadership role in extension education activities.

7. *Conducting meetings, seminars, demonstrations and production trials.* The non-adopters of the recommended practices answered

"Don't know how to do it" as their foremost reason for not adopting the practices. There is a need for competent extension workers who should exert effort to conduct meetings, seminars, demonstrations and other gatherings for farmers to see how the recommended practices are done. Likewise, production trials should be conducted by agencies like PCA, and ViSCA so that the farmers could observe certain recommended practices. These agencies should teach the farmers about the technical intricacies of the farm innovations, as well as motivate them to apply the acquired information. The extension educators representing these agencies have the advantage of formal training or professional expertise, qualities that are highly valued in an information source by laymen. Teachings done by these people have the advantage of instant feedback compared to the use of mass media because of the

face-to-face communication setting.

8. *Extension educators should cover an area with a reasonable number of farmers.* To be effective, an extension program must be concerned with influencing the farmers. However, efforts in this direction may be futile when one considers the large size of the extension clientele. This study found that respondents had few contacts with extension educators of varied agencies concerned with coconut farming. Perhaps, this was the reason the coconut farmers did not seem to evaluate satisfactorily the extension workers' job performance. The extension agencies should let their men cover an area with a reasonable number of farmers. By doing so, they could visit their clientele on regular schedules and, with the assistance of farmer cooperators, put up demonstration coconut farms in their area of coverage.

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