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A COMPUTERIZED DATA ANALYSIS SYSTEM FOR THE FARM AND HOME BUSINESS RECORD BOOK

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ABSTRACT

This paper seeks to outline a data analysis system for the Farm and Home Management Record Book which was developed to assist farmers in the region. The system is computerized since relatively rapid feed back is necessary in order that farmers may utilize the results of the analysis in farm and home planning and management. The system has been developed using Lotus 123. Templates with formulae have been set up so that once the basic information on expenses and income is put into the relevant columns, there is an automatic calculation of the income and expenses for each enterprise. In addition, there is an automatic calculation of the farm's overall income statement. A similar template has been developed to compute a cash flow statement for farmers. A set of data bases has been created at UWI using dBase3 with the expectation of collecting information from each country for comparative analysis. It is essential to note that this system, while quite advanced, is still in the development stage and as it is used, it is expected that suggestions and comments will be submitted to further improve the system.

INTRODUCTION

With respect of the agricultural sectors in the Eastern Caribbean, there are some basic facts that must be faced and accepted. These are that in each country agriculture is a major source of employment and income, a major source of foreign exchange and a source of food for the population. This situation will remain the same in the foreseeable future. If the sector is carefully directed, it can contribute even more significantly to the improvement of living conditions in the region and the fostering of that independence of spirit which is essential for true development.

Close examination of the agricultural situation, however, reveals many disturbing characteristics which deserve the attention of our professionals. These include:

- Heavy reliance on a few traditional commodities for export;
- Low productivity of most crops in absolute terms compared to commercial producers in other countries, the best producers in the region and on-going supervised field trials;
- Availability of land and land quality are limiting factors;
and

- Market instability and insecurity continue to be a major constraint to agricultural development.

There are also other dimensions to the problems of the agricultural sector. Traditionally, with a few notable exceptions, agricultural production activity is considered an occupation of last resort resulting in human resources with the least amount of training entering the sector. In addition, the Ministries of Agriculture in the region are organized in such a way that the people with the least training are the frontline Extension officers; as more training is acquired, these officers are promoted into higher positions where they may become less accessible to the farmers. The entire situation is a result of the underlying social belief that agricultural production is not really for the educated elite.

However, there are some encouraging signs. Firstly, in spite of the above-mentioned factors, in the Caribbean, we have a long history of food production. Currently our researchers are working on the development of appropriate technological packages to address the problem of low relative productivity. In addition, a considerable amount of research is in process for non-traditional import substitution, although much still remains to be done in terms of on farm testing and the transference of information and skills to the farmer. In anticipation of the changes in world agricultural markets which may occur after the unification of Europe in 1992, there is currently a diversification drive in the eastern Caribbean. Research is being conducted into a range of crops aimed at diversification of the agricultural sector of the region. In the Leewards, emphasis is being placed on fruits and vegetables for the tourist trade, some livestock (sheep and goats) raised on native forages, selected traditional crops and non-traditional exports. In the Windwards, emphasis is on a wider range of food crops for the domestic market, both for local consumption and tourism, traditional exports and in particular non-traditional exports, with small ruminant livestock production integrated within the crop production.

Thus, while the situation in the agricultural sector needs to improve, there are already some measures in place at the policy and implementation levels to advance the development of the sector.

THE CONTRIBUTION OF THE UNIVERSITY OF THE WEST INDIES

The academics of the University of the West Indies (UWI), Faculty of Agriculture, are very much aware of the needs of the agriculture sectors of the Eastern Caribbean and continue to assist where possible in the development and diversification effort. A more visible example of this is the Agricultural Research and Extension Project (AREP) funded by the United States Agency for International Development. This project is jointly run by the Caribbean Research and Development Institute and the UWI, Faculty of Agriculture - Department of Agricultural Extension. This is one of the initiatives which can address some of the problems discussed above. In particular, one component of the project is the improvement of the national and private Extension Services of the Ministries of Agriculture in the region. One of the methodologies chosen is the Farm and Home Management

Methodology which had been introduced in a preceding project--the Caribbean Extension Research Project (CAEP).

As stated in the AREP project document,

"...the UWI staff will continue to work with the Ministries of Agriculture Extension Staff to institutionalize the farm and home management approach, and to analyze farm enterprises with emphasis on record-keeping and decision making techniques."

In order to achieve the above, the Outreach Lecturers are the Farm and Home Management Staff of UWI, Agricultural Extension Department visit the countries of the Eastern Caribbean regularly to train Extension officers in Farm and Home Management Techniques, to sensitize them to the importance of the home in planning and management of the farm, and to monitor the progress of the programme.

Extension officers and farmers are also trained in the use of the Farm and Home Management Business Record Book developed by the officials of the Farm and Home Management Unit of the UWI. This allows farmers to gradually become accustomed to keeping farm records. The book allows for the inputting of records on farm and home inventory, farm planning and activities, expenses and income, household expenditure as well as closing farm and home inventory. Each set of records is in a separate section so that a farmer may keep only the income and expenses record if he wishes or any combination of records which fits his needs. Of course, ideally all the records should be kept.

Records alone have no real value. The value is in what the records tell about the situation of the farm and home system. Thus a computerized data analysis has been developed. This phase of the project has been funded by the Canadian International Agency (CIDA), through Kemptville College of Agricultural Technology, A college of the Ontario Ministry of Agriculture and Food. This system was computerized since this would reduce the time lag between data acquisition, analysis and dissemination of results.

THE DATA ANALYSIS SYSTEM

The basic objective of this system is to provide farmers with information which would enable them to improve their decision-making. This will be accomplished in three ways:

- Individual reports will summarize each farm operation.
- Enterprise summaries will be prepared based on all data available; these will enable farmers to compare their operations with others.
- The interaction of extension officers and farmers will be enhanced by their working on record keeping and projections.

The objective will be achieved through the reports and summaries which will be available to farmers for decision-making. A central database has been established at UWI for analysis of the farm records, preparation of summaries and generation of reports. Extension officers will also be involved in summarizing the individual Farm and Home Management Record Books either manually or on the computer. Information which has been recorded on computer will be summarized and sent to UWI on a diskette to avoid double entry of data. Extension officers may also summarize the data contained in the farmer's Farm and Home Management Business Record Book by using forms provided by UWI. The Extension officer may then enter these data directly on LOTUS, as described above, or may simply send the summary forms to UWI for data entry.

Centralized computer analysis and reports will focus on the Farm Inventory and the Farm Income and Expenses Record sections of the Farm and Home Management Book.

BENEFITS TO AGRICULTURE AND AGRICULTURAL PLANNING

The computerized analysis of farm data gives the Ministries of Agriculture in the region the opportunity to provide farm reports on a timely basis to assist farmers in decision-making. Extension officers will also use these reports as the basis for making appropriate recommendations to farmers.

A core of farmers keeping these records over time could benefit agricultural planning in several ways:

- * More accurate cost of production figures could be obtained for the establishment of price support schemes, credit programmes and other forms of subsidies. Income and expense figures of major individual enterprises could be obtained from several farmers over a number of years.
- * Agronomic responses to new technologies introduced by research and extension could be adequately monitored through information on average yields, reduction in losses, etc., when compared to traditional practices. This could serve as a guide for further research.
- * A database could be gradually developed to complement national agricultural censuses and other national surveys which are conducted about every 10 years. Information such as production trends, labour use, commodity trends, asset profiles, etc., could be derived from these records.
- * Information on quantities and time of harvesting of commodities can be used to develop marketing systems. This could be obtained from the planning schedules.
- * The system could provide a basis for determining comparative advantage for various commodities among CARICOM countries, since all will be using standardized recording and analysis formats.

- * The record keeping books and analysis reports could be institutionalized as prerequisites for loans among agricultural lending agencies in the region.**

Thus the introduction of both the Farm and Home Business Record Book and the computerized data analysis system can provide benefits to farmers, Extension officers as well as assist the planners in the region in policy planning for agricultural development.

CONCLUSION

This data analysis system represents a major step in the UWI's contribution to the development effort in the region. In the attempt to promote the system to Extension officers and Ministry personnel, two training courses have already been held in Dominica and Antigua. Additional training will be carried out as necessary. The officials of the UWI, Agricultural Extension Department look forward to the assistance of the Ministries of Agriculture in the region in the use and development of this system.

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