THE INFORMATION SYSTEM NECESSARY FOR FARMERS IN THE DECISIONAL PROCESS

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Abstract: The decisional process in farms is important because if this process is accurate it gives the opportunity to farmer to achieve its goal regarding the organization of the activities and realization of different revenues. This process presumes the use of some indicators which offer necessary information to farmers to take decisions, but the large number of the indicators, the large number of computations and especially the difficulty of calculation discard the farmers of using them. Therefore, it is necessary to select them and to propose alternatives of calculating the indicators.

INTRODUCTION

In the decisional process farmers need a series of information. Most of this information is offered by indicators. The determination of these indicators supposes knowledge of vast information by the farmer from different domains, as mathematics, statistics, rural economy, management, finance etc. However, the Study No. 11 “The hierarchy of priorities of agriculture and rural development in Romania. The influences of the new reform Common Agriculture Policy”, published in 2004 by the European Institute in Romania, indicates that the education level in the rural area and thus of the farmers is fairly low.

Therefore, we must develop some instruments to facilitate the determination of these indicators and as a consequence, to help farmers to take good decisions based on accurate information from mathematical point of view.

In most of the country with high agriculture level was develop a series of indicators who can offer this information, for example “Farmplan 2.0 XP Expanded”. This is a worksheet developed in MS Office EXCEL program in Canada.

MATERIAL AND METHOD

To develop such application it is necessary to know the most important information that farmers need in order to take decisions about what and how much to cultivate for maximizing their profit.

So, this information must answer some questions, such as:

• What profit may be obtained from a certain culture?
• What technology must be applied to obtain the profit?
• What is the quantity of inputs that a farmer needs to apply the proposed technology and what are their costs?
• Which is the number of agriculture machine needed? Etc.
Other questions may appear along to the previous ones such that the number of questions becomes very large.

To persuade which are the most important information that farmers need in the decisional process, they can use more information sources, such as: literature in the domain, requirements of the institutions who offer agriculture subsidies (in Romania: Agency for Payment and Intervention in Agriculture), requirements of the institution whom purpose is to collect statistics information from agriculture (Network of Accountancy Information in Agriculture – RICA), required information by banks to offer credits, insurance companies, farmers etc.

RESULTS AND DISCUSSIONS

Literature proposes a high number of indicators which offer information to farmers in decisional processes. From these indicators we can specify: the cost of production per unit area, the mean output per unit area, the profit per unit area, the number of workers, the number of agriculture machine, the work productivity, the proportion between actual revenue/actual costs, the internal rate of return etc.

Most of these indicators are complex and their calculation assumes that the user (in this case the farmer) has information from different domains, such as management, statistics, mathematics etc.

An eloquent example is the estimation of the mean output. To calculate this indicator we can use more methods, from these methods we can specify the method based on historic evolution of mean output. This evolution can be described:

- By the absolute inequality using next calculation model:

  \[ T(t_i) = y(1) + (t_i - 1) \Delta_y \quad ; \quad \Delta_y = \frac{y(n) - y(1)}{n - 1} \]

  \( t_i \) - time horizontal for who wants to establish mean output

  \( \Delta_y \) - increase of mean output on the unit area

  \( y(n) \) - the output level in the last year

  \( y(1) \) - the output level in the first year

  \( n \) - number of years considered in calculation

- By the mean indicator

  \[ T(t_i) = y(1) \overline{I}_y^{(t_i-1)} \quad \text{or} \quad \log T(t_i) = \log y(1) + (t_i - 1) \log \overline{I}_y \]

- By trend, this presumes firstly the determination of the theoretic model. Once the theoretic model is established, the determination of mean output means extrapolation of the trend for the specified time.

The Network of Accountancy Information in Agriculture is a service that has as purpose the collection of accounting information necessary for:

a) establishing of the annual come for agriculture exploitation

b) analyzing the economic activities of the exploitation
The date obtained from RICA stay on the base to lay down the reports of the agriculture situation and the vegetable market from the authorities, and the revenue made by the exploitation in Romania, and these reports are presented yearly to the Government and to the Parliament.

RICA proposes calculation of one indicator, often used in EU, gross margin (MB). These are obtained, according to article 9 from The Ordain 512/28 June 2005, regarding the application methodological norms of Government Ordain 67/2004 to establish the national level of the agriculture accountancy information, approved with modifications by the Law 465/2004, based on prices at exploitation’s gate, from which are deducted the specific costs for obtaining this production.

So, gross margin (MB) of one culture represents the difference between gross product (PB) of this culture and the direct proportional expenses (ChDP). The gross margin is calculated per unit area: surface 1 hectar.

\[
MB = PB - ChDP
\]

The gross product (PB) represents amount value of the main output (VPP) and second output (VPS) and specific subsidies (SS).

\[
PB = VPP + VPS + SS
\]

The direct proportional expenses (ChDP) are expenses which vary directly with the changes, in agriculture output dimension (expenses with fertilizers, seeds, fodders etc.). These expenses are also named proportional expenses or variable expenses. These expenses can be from output resorts purchase or from on the one output resorts.

CONCLUSIONS

Only from these two sources (literature and RICA) results a large number of indicators who can help the farmer in the decisional process. But, this large number of indicators and the difficulty to calculate them makes the process harder for the farmers.

Therefore it is necessary to develop an informatics program to calculate the most important indicators, to further help farmers in management decisions.

The determination of these indicators can be realized with the aid of farmers, by testing their opinion. The best method of testing is the survey, which has three main forms:
1) telephonic survey
2) in-person survey
3) mailed survey

The most complex form is the in-person survey. This gives the opportunity to bring more information and gives the opportunity to offer some information in the case that the respondent (farmer) has difficulties in understanding some concepts presented in the questionnaire.

As a final conclusion, this form is the most practical to determinate the indicators that offer the most important information, from farmers point of view, necessary in decisional process from the exploitation.
BIBLIOGRAPHY