INFORMATIC SYSTEM FOR EFFICIENT MANAGEMENT OF CROP FARMS

SISTEM INFORMATIC DESTINAT EFICIENTIZĂRII MANAGEMENTULUI FERMELOR AGRICOLE VEGETALE

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Abstract: *From its beginning until now, informatics technology has taken more and more fields with faster results, cheaper and more efficient. Agriculture is, at least in Romania, is one of the last areas where computing has given way. There are currently a number of applications designed to bring more efficiency in this area. This program was created in order to contribute to this, to improve crop farm management, and to take another step forward in this field.*

Key words: *Informatics, management, agriculture*

INTRODUCTION

Management information system for crop farms is a program developed for analyzing economic and financial activities of vegetable farms and efficient use of production factors to improve business management.

As a basic function, the program generates the framework and the income and expenditure budget for the main crops.

MATERIAL AND METHOD

In terms of construction, an informatics system includes input data of the system (inputs), constants system (information taken from lists and tables) and output data of the system (outputs or reports).

In this case the input data are the information entered by the user system, such as: data identification, farm characteristics, type of crop,

production area and production system, agricultural utilized surface, rates, prices, etc.

The system constants are the classifications system, internal tables and connection tables of the program.

The output are reports which the system generates after charging the input data and constants, as defined above, based on specific algorithms design of each module.

RESULTS AND DISCUSSIONS

For better understanding the functioning of the program, must be presented its components and modules and the relationship between them.

Thus, the first module is called "**Production Design**", the module which is achieved by introducing user data, data that are integrated with the crop technologies and allow calculating the budgets per hectare and per farm. The components of this module are: surface, production structure, production system, tariffs, prices, subsidies, etc. (Figure 1)

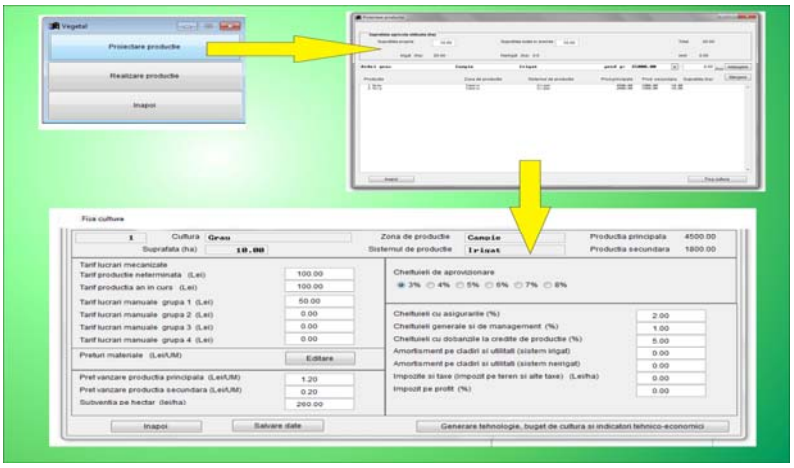


Figure 1 – Module „Production Design"

All the basic elements listed above are related to production technologies and budget in order to allow the economic projection.

Table 1

Elements correlation with the technologies

Input data	Constants	Technologies sections
Tariff for agriculture work	Agricultural work Tractor type / agricultural machine Mechanic hours	Mechanics works
Tariff for manual work Contributions percentage	Human hours/work	Manual work
Inputs prices	Inputs quantities	Materials and supplies

Table 2

Correlations with the budget elements

Input data	Calculated date thru technology	Budget sections
Principal production price Secondary production price Subsidies Principal production level Secondary production level		Production value
Supplying expenditures percentage Assurance expenditures percentage	Materials and supply expenditures Mechanic work expenditures Irrigation expenditures	Variable expenditures
Management and general expenditures percentage Rates expenditures percentages Redemption value	Manual work expenditures	Fixed expenditures

The second module "**Production achievemen**t" is the module with which you keep track of farm expenses and income through a simplified form of a log book and using the principles of accounting. This assumes the introduction by the user of each invoice and distribution direct on expenses or through management transition.

What will go into inventory represent the specific consumption of each product, respective the costs of achieving production, the program allowing the distribution of each consumer for each type of crop selected in the estimate module. In this way there are underlines the monthly and yearly technological consumption for each crop and for the total holding. What goes directly to the expenditures represents the elements give in the

consumption in the moment of its buying and will be distributed directly in technology or budget (Figure 2)

Table 3

Some of the elements from the Income and expenditures file

Expenditures and income categories	Description	Elements necessary to be introduced
Fuel costs – other cars	There are introduced the costs of fuels to power cars, etc. used in other purposes than production	Value
Water costs – others than irrigation	There are introduced the costs with water in other purposes than production	Value
Costs with works and services for third parties	There are introduced the costs with the work and services for third parties other than those with mechanical work and supplying	Value
Other costs with labor	There are introduced the costs with salary and holding contributions for staff other than those who provide the mechanic and manual work	Value
Others costs with taxes	There are introduced taxes except the profit and income taxes	Value
Other costs	All other costs which are not in the above categories	Value
Costs with mechanic work provided by third parties	If some or all farming operations are performed by third parties than these are recorded distinct and there are distributed by crops and hectares	Value
Labor costs for mechanical works	Place of salary costs and contributions for those who performed the mechanical work	Value
Expenditure on fuel - agricultural equipment	Place purchase costs of petrol and / or diesel to power agricultural equipment	Name Quantity Value
Agricultural equipment depreciation expenses	There is calculated and entered the redemption agricultural equipment according to the degree and period of use	Name Quantity Value
Expenditure on fertilizers (nitrogen, phosphorus, potassium)	Place fertilizer costs, distributed by crops and per hectare	Name Quantity Value
Expenditures for organic fertilizer	Place organic fertilizer costs, distributed by crops and per hectare	Name Quantity Value
Expenditure on other materials	Raw materials and supplied costs are introduced which are not found in other categories	Name Quantity Value
Expenses phyto-sanitary measures (pesticides, herbicides, etc..)	Costs of phyto-sanitary measures like pesticides, herbicides, etc.., distributed by crops and per hectares	Name Quantity Value

Expenditures and income categories	**Description**	**Elements necessary to be introduced**
Seed and seed costs	These expenses are entered and allocated separately based on whether the culture even if the purchase is made through a single invoice	Name Quantity Value
Irrigation water costs	If there is a possibility of identifying these costs, their records are kept in this category. If there is paid a water bill in the household, it introduces the cost of water above	Value
Labor costs for manual work	Place unit wage costs and contributions for those who performed the manual work	Value
Depreciation expenses and utility buildings	There is calculated and entered the depreciation according to the degree and period of use	Value
Expenditure taxes	Place the amounts paid to state and farmland tax or income tax	Value
Primary production income	Place main production revenue by selling	Quantity Price Value

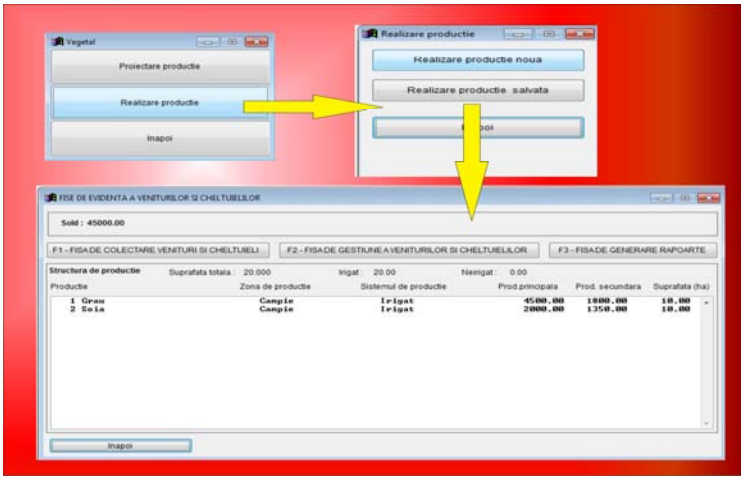


Figure 2 – The module „Production realization"

CONLUSIONS

- The program is structured in two modules: the estimation and realization module;
- To carry out the estimation, there has been used crops technology and the income and expenses budget, as basis elements for recording and managing all technical and economic items within a farm,

needed in the production flow. There have been created almost 120 technology framework for a number of over 27 cultures;

- estimation module allows the projection of production for a whole year;
- Production realization module there have been selected a number of categories of expenditure to meet budget revenue and expenditure structure and technology, yet respecting accounting records typology.

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