

ABSTRACT

The fundamental objectives of agriculture, as an important branch of national economy, under new conditions concerning the integration into the European structures, are stopping the actual decline, gradual straightening and conditions for farmers, in concordance with the natural, economic and human potential of Romania, for insuring food safety and creating farming societies for international economic exchanges.

The quantitative and qualitative increase of vegetal and animal production is possible only by capitalizing the national productive potential and promoting systems of ecological agriculture, stimulating the growth of farmers' performance and the competitiveness of Romanian agro-food products on internal and international market.

This growth may take place if we take into account the buildings for vegetable production - greenhouses, and for animal husbandry - sheds for dairy cow breeding, by bringing them to the standards of developed countries.

In other countries, the evolution of productive farming constructions in the latest decades has known an impressive rate, once with the development of the industry of building materials, the increase in the biological potential of planting material, materialized by a diversity of performance varieties and hybrids; the long-term increase of the economic-financial efficiency is also necessary, in order to regain investments and to continue the productive process in greenhouses. Romania used to be one of the countries with developed agriculture, but after 1989, major changes took place in this field, too.

In Iași County, the evolution in the construction of protected areas has known a decline after 1989. If at the beginning of the investigations related to this scientific approach (1977), greenhouses covered 44 ha, at the end of 2006, only two ha of greenhouses were found. The number of animals and poultries, resulting, implicitly, in the diminution of the number of buildings for animal sheds, registered a similar decline. After 1989, these buildings have been degraded and few of them remained functional.

In Iași County, the family farms own 94.74% of the total number of swine, 97.14% of the number of cattle and 98.25% of the total number of sheep. From local statistics, we have found out that during 1989 ÷ 2005, the cattle stock was diminished by 52.18 %.

The aim of this work was to analyze the situation of productive farming constructions - greenhouses and animal sheds - on the territory of Iași County, from the economic efficiency point of view. The work has studied, from the construction point of view, nine societies, of which five horticultural societies (Dancu Greenhouses, Vlădiceni Farm, S.C.

Agroind S.A. Ciurea, “V. Adamachi” Didactic Station of Iași and S.C. Legume S.A. Pașcani) and four animal breeding societies (S.C. Agroservice S.A Păcurari, Agricultural Research and Development Station of Podu Iloaiei, Research Station for Cattle Breeding of Dancu and S.C. Agrocomplex S.A. Lunca Pașcani).

The **Dancu Greenhouses** and their branch, the **Vlădiceni Farm**, have known a similar unfavorable evolution during the studied period, 1997 ÷ 2001. An important factor, which led to the bankruptcy of the two societies in 2001, was practicing a selling price lower than the production cost for the produces obtained in greenhouses, resulting in losses and debts. As concerns the economic efficiency of the productive constructions from these societies, we have found that:

- the indicators *the value structure of productive constructions* and *the insurance index of productive constructions*, during 1997÷2001, had slight variable values;
- *the specific investment* has registered a decreasing evolution at the Dancu Greenhouses and a positive one at the Vladiceni Farm;
- *the mechanization index of main works* and *the total productivity index* had a constant value on the entire period of study;
- at the Vladiceni Farm, a variable evolution of the indicator *time of restoring the value of productive constructions* was found (because of the variation in the value of cumulated losses); at the Dancu Greenhouses, this indicator has registered increasing negative values;
- *the economic efficiency coefficient of the productive constructions* had an ascending evolution at both societies; in 2001, the values were almost three times higher than in 1997;
- for both societies, the indicator *the efficiency index of productive constructions* had a descending evolution, being almost 16 times lower in 2001 than 1997.

S.C. Agroind S.A. Ciurea - another studied horticultural society - has ceased its activity in 2001, too, because of the people claiming the lands on which greenhouses were built. From the construction point of view, the greenhouses from this society were functional; moreover, practicing the selling price over the production cost and the good management have resulted in getting profit during the period this investigation was carried out.

Indicators *the mechanization index of main works* and *the total productivity index* had constant values during 1997-2001, because of the mechanized works used in greenhouses and the cultivation of a constant area.

Indicators *the value structure of productive constructions* and *the specific investment* had decreasing evolutions, because of the variation of production resulted from greenhouse activity, and update of the values of society's fixed assets.

The recovery time of the value of productive constructions and *the duration of repaying the expenses for productive constructions* maintained almost the same values during the studied period.

At the “**Vasile Adamachi**” **Didactic Station**, an oscillating evolution of the financial situation during 1997 ÷ 2006 was found. The causes were practicing selling prices below the values of the production ones at the beginning of investigated period, capitalizing the allowable area below the maximum potential, because of restoring the subsoil disinfections systems and defective functioning of greenhouse closing elements. Flowers represented the weight of the activity in greenhouses.

As concerns the indicators of the economic efficiency, we have found:

- constant maintaining of *the structure of the value of productive constructions*, which is natural for a budgetary institution (not operating amortizations), and of *the mechanization index of main works* (the same number of mechanized works was carried out in greenhouses);
- the descending evolution of *the specific investment*, in concordance with the evolution of yield value;
- maintaining unchanged the values of the *total productivity index*, excepting 2005, when the cultivation of only half of the greenhouse area resulted in its diminution by almost 50 %;
- oscillating values of the indicator *the recovery time of the value of productive constructions* until 2001, and successive increases, caused by the profit increase;
- a 3.6 times increase at the end of the period of *the economic efficiency coefficient of the productive constructions*, as a result of yield increase;
- insignificant variations of the indicator *the duration of repaying the expenses for productive constructions*.

S.C. Legume S.A. Pașcani has cultivated a various range of horticultural produces, which were capitalized at a higher price than the cost one. The good management and marketing, practiced by this society, have determined favorable economic results, during 1997 - 2005. The indicator *the value structure of productive constructions* had the maximum value in 1997. Subsequently, it diminished, being maintained at a quasi-constant value, because of updating the value of productive constructions. The variation of the value of production and profit has determined descending evolutions of *the specific investment* and *the recovery time of*

the value of productive constructions. The total productivity index had a constant value, because of constant maintaining of the cultivated area. *The mechanization index of main works* has increased since 1999, once with the extension of mechanization in the production process.

The recovery time of the value of productive constructions has diminished, in 2001 being half of the value registered in 1997. *The economic efficiency coefficient of the productive constructions* and *the efficiency index of productive constructions* had ascending values in the studied period, required by the values of total production and, respectively, of the registered profit. According to the obtained incomes and the value of productive constructions, during the nine years of observations, *the duration of repaying the expenses for productive constructions* has continuously diminished, reaching a value of 12 times lower in 2005.

The study on the efficiency of productive constructions from studied societies has allowed the identification of solutions for improving the economic results from farms. From the construction point of view, the heat independence for the best temperature control is pointed out within structures, under financially advantageous conditions and superior capitalization of allowable spaces, by making solariums with advanced technologies and building materials.

For the optimum necessary of productive constructions, the influence of the number of modules has been studied in these societies in relation with their sizes. For instance, the variant with modules of 6.60 x 60.00 m was superior as concerns the necessary of building materials in comparison with greenhouses having sizes of 6.00 x 66.00 m. The superiority of the variant of small length and large opening greenhouses is also shown financially. The costs for setting up the foundation of prop pillars, of ditches for intermediary pillars and transparent surfaces (which finish the construction) being lower, the system works - the same for the built area of 5148 m² -do not influence the differentiation of module costs.

At **S.C. Agroservice S.A. Păcurari**, during the studied period (1997 ÷ 2001), the number of housed animals has decreased, expenses exceeded incomes, and, therefore, losses resulted in society failure. The analysis of the economic efficiency pointed out the following aspects:

- indicators *the structure value of productive constructions* and *specific investment* have evolved ascending, doubling their value at the end of the studied period;
- *the mechanization index of main works* has diminished, being settled at the minimum value, during 1998-2001;
- *the total productivity index* has diminished by almost three times in the last 5 years, expressing that housing places were not occupied at the capacity foreseen by the project;

- *the time of restoring the value of productive constructions and the efficiency index of productive constructions* have registered the highest variations during the studied period, because of the highest losses registered by the society.

The **Agricultural Research and Development Station of Podu Iloaiei** was investigated during 1997 ÷ 2004, a time interval when the number of housed animals in the society has continuously diminished. The feature of these years was registration of losses, determined by the almost double level of expenses, compared to incomes. The dairy cow breeding was not a profitable activity within the society; the last dairy cow heads of the society were sold in February 2005. The indicators of the economic efficiency have reflected this fact. *The structure of productive constructions* had the same value. *The specific investment and the insurance index for productive constructions* have increased, because of updating the values of productive constructions and the other fixed assets, related to the inflation index.

The total productivity index has diminished once with the decrease of animal stocks. *The time of restoring the value of productive constructions and the efficiency index of productive constructions* have registered values, which showed that sheds were no longer useful if we take into account the initial project.

The Research Station for Cattle Breeding of Dancu is a society with a long-term activity of dairy cow breeding. Although the number of cattle found in the society has significantly decreased during 1997 ÷ 2005, the society had an oscillating evolution. We may notice the registered income, which resulted in getting profit. This is the only society (from the studied ones), at which *the structure of productive constructions* has registered values over 100%, as a result of updating the value of fixed assets from the society.

The following indicators have also registered increases: *the specific investment and the insurance index for productive constructions*. The values of *animal denseness* and of *the total productivity index* have varied because of the variation in the number of animals from the society. *The time of restoring the value of productive constructions and their efficiency index* have varied according to the values of fixed assets from the society.

S.C. Agrocomplex S.A. Lunca Pașcani is the society that has registered the best economic effects. During 1997 ÷ 2005, the ratio between expenses and incomes was favorable to profit. As concerns the number of animals, the same diminution was noticed as in the case of the other studied societies.

The results on the analysis of economic efficiency have shown that the structure of productive constructions registered the same maximum value for the studied period.

A similar situation was registered by *the insurance index for productive constructions* and *the mechanization index*. *The specific investment* had an ascending evolution, due to updating, in connection with the inflation index of the value of productive constructions and fixed assets of the society. *The total productivity index* has registered values showing overpopulations (1997 ÷ 2001), followed by slight diminutions. *The index of construction economic efficiency* has also registered variations, reaching the zero value in 2005.

The analysis of economic results from animal breeding societies allowed the identification of solutions for making efficient the activity of animal breeding. The most important solutions are: repairing the animals sheds, by adopting performance working technologies and building materials, according to the new regulations of the European Union; applying the latest breeding technologies, recommended by scientific research, in the animal sheds, which have influence on shed sizes. For unpopulated sheds, their destination must be changed.

As concerns the optimization of sheds, necessary for animal breeding farms, three variants of different capacities (15, 25 and, respectively, 50 heads) are proposed.

The way of foddering (trailer tractor), animal housing (head to head) and dejection evacuation (hydraulic) require a width of 10.50 m for sheds, indifferently of their capacity. Therefore, adopting different lengths for housing places results in shed areas of 330 m² for the module made of 15 heads, 440 m² for the module made of 25 heads and, respectively, 550 m² for the module made of 50 heads.

For the analysis of the most economic variant, we had in view both necessary construction and system works. The system works do not include connecting to commodities, because on the territory of a farming society there are also buildings that do not represent the object of this study, but certainly need these connections.

The detailed analysis of costs necessary for building these types of sheds shows that the specific investment has comparable values, of 210 €/m² for sheds of 15 heads, 206.8 €/m² and 205.88 €/m² for sheds of 25 and 50 heads.

The distribution of investment/head of forage cow - 5536.68 € in case of the shed with 15 housing places, 4331.47 € for the variant with 25 heads and of 2695.08 € in case of the shed with 50 housing places - pointed out the superiority of the latest variant.