ECONOMIC EFFICIENCY IN TOMATOES PRODUCTION IN GREENHOUSES
EFICIENTA ECONOMICA IN PRODUCTIA DE TOMATE IN SERE

POPESCU A.

REZUMAT

Acest studiu a avut ca scop aprecierea evolutiei eficientei economice in cultura de tomate in spatii protejate in cadrul unei firme cu capital privat din apropierea capitalei. Firma dispune de 4 ha de sere, dar ponderea culturii de tomate in suprafata cultivata este in prezent doar de 38,75 %. De fapt suprafata cultivata cu tomate s-a redus in ultimii ani in favoarea extinderii culturii de flori, care ca si tomatele sint o sursa importanta de venituri pentru cultivatori. Reducerea suprafetei in cultura tomatelor a fost compensata de cresterea gradului de intensivizare prin utilizarea de soiuri mai performante si aplicarea de tehnologii moderne. Astfel, printr- un management stiintific al productiei s-a cautat mentinerea productiei totale de tomate la acelasi nivel de la un an la altul, prin cresterea productiei medii cu 53,33 %. Cresterea pretului la input-urile necesare a condus la cresterea costului la unitatea de suprafata de cca doua ori si a costului unitar de productie cu 33 %. Cresterea cererii de tomate si a pretului pe piata acestui produs cu 31 % a influentat favorabil veniturile firmei care s-au dublat intr-un interval de trei ani. In anul 2002, firma a obtinut 41.818 USD venit la ha din care daca scadem cheltuielile de productie aferente, rezulta un profit de 4.815 USD. Rata medie a rentabilitatii inregistrate de firma in cultura de tomate este de 13 % in perioada 2000-2002 pentru care s-a elaborat studiul. In concluzie, producerea tomatelor in sere este o activitate profitabila. Pentru a mentine o eficienta economica ridicata , in conditiile diminuarii suprafetei cultivate trebuie ca productia medie sa creasca prin aplicarea de tehnologii moderne intensive , bazate pe utilizarea unor soiuri cu potential genetic ridicat.

CUVINTE CHEIE : cultura tomatelor, sere, eficienta economica

ABSTRACT

This study aimed to appreciate the evolution of economic efficiency in tomatoes production in greenhouses within a private firm situated next to the capital. The firm owns 4 ha greenhouses and the weight of tomatoes crop in the cultivated area is just 38.75 %. In fact, during the last three years, the tomatoes cultivated surface has been diminished in favour of flowers production which, like tomatoes production is an important income source for any producer. The reduction of the tomatoes cultivated area was compensated by the increase of intensification grade using new high performance hybrids and modern technologies. Thus, the scientific production management has been looking for maintaining the total production at the same level from a year to another by an increased average tomatoes yield by 53.33 % . The continuous increase of farm input price has doubled the cost per surface unit and increased the cost per tomatoes kilogram by 33 %. The increase of tomatoes demand and of market price by 31 % have had a positive influence on the farm incomes which has doubled during the last three years. In the year 2000, the company has obtained USD 41,818 income/ha of which subtracting the related production cost we can easily get USD 4,815 profit/ha. The average profit rate recorded by the firm is 13 % in the period 2000-2002, when the study was made. As a conclusion, tomatoes production in greenhouses is a good deal. To keep a high economic efficiency, under the diminishing of the cultivated area, the producers have to increase average tomatoes production by using high performance technology based on high economic value hybrids.

KEY WORDS: tomatoes production, greenhouses, economic efficiency

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INTRODUCTION

Tomatoes production in greenhouses is a profitable activity, despite that it is also a very costing one. The price of fertilisers, fungicides, water and energy, glass and seeds is continuously going up due to the high inflation rate in Romania. Under these conditions, many producers are obliged to reduce tomatoes cultivated area and to increase average production, if they would like to get the same total production from a year to another. In this way, production costs could be better managed. This paper is a study case concerning economic efficiency in tomatoes production in greenhouses belonging to a private company where the total production was kept at the same level, by increasing average production under the reduction of cultivated area.

MATERIAL AND METHOD

The study refers to the last three financial years 2000-2002. The farm evidence has been used for collecting information. The farm is well endowed with the corresponding equipment for making high quality works . The greenhouses surface is 4 ha, of which, only 1.55 ha are cultivated with tomatoes . The farm is utilising a special heating system and the corresponding humidity is assured by a system of irrigation by aspersion and dripping. Within the farm it is applied an intensive tomatoes production system requiring high costs, that is high performance technologies based on high value hybrids. The tomatoes culture is achieved into two cycles : the 1st one from the end of January till June and the 2nd one from the second decade of July to the middle of November. The farm is also producing the seeding material, but the tomatoes seeds are supplied by Unisem Commercial Company. The farm buys important amounts of fertilisers, fungicides etc from various suppliers such as Stedesa, Azomures, Aectra, Ecochem and Rhone-Poulenc Companies. In order to appreciate the evolution of economic efficiency of farm activity during the last three years, the following aspects have been taken into account: the evolution of cultivated area, average tomatoes production, total production, total production costs of which materials costs, labour, work in process and other costs, incomes. Then the main indicators characterising economic efficiency have been determined according to the known formulas : profit, profit rate, cost per hectar and per tomatoes kilogram, income per hectar, profit per hectar and per tomatoes kilogram, costs /1,000 incomes and incomes/1,000 costs. All financial indicators are expressed in USD.

Table 1: Cultivated Area, Average Yield and Total Tomato Production
Tabulata 1: Suprafata cultivata, productia medie si totala de tomate

Indicator	M.U.	2000	2001	2002
Cultivated area Suprafata cultivata	ha	2.35	1.75	1.55
Average Tomato Production Productia medie de tomate	t/ha	60.00	77.00	92.00
Total Tomato Production Productia totala de tomate	t	141.00	134.75	142.60

RESULTS AND DISCUSSION

The cultivated area decreased from 2.35 ha in the year 2000 to 1.55 ha in the year 2002, that is by 34 %.

The average yield increased from 60 t to 92 t/ha , that is by 53.33 % during the last three years. As a result **the total tomatoes production** has remained almost at the same level of 141-142 t/year. (table 1). **The production costs** have increased from USD 42,593 in the year 2000 to USD 57,355 in the year 2002, that is by 34.65%. The share of materials is very high 47 % of the total production costs. Within the material costs 17 % is represented by cost related to fertilisers, fungicides supply, 60 % represents costs for thermic agent supplied by Radet, 9.5 % represents costs related to glass supplied by Gerom , and 4.2 % represents cost for buying seeds from Unisem. The share of labour costs is around 12 %. Others costs representing indirect costs (phone calls,

electricity, storage rent , interests) are still very high representing 21 % of the total production costs. (table 2). **The farm incomes** have increased from USD 48,808 in the year 2000 to USD 64,818 to the year 2002, that is by 32.8 % along the whole studied period. As a result, **the farm profit** has increased from USD 6,215 in 2000 to USD 7,463 in the year 2002, that is by 20 %. **The profit rate** has recorded a slight decrease from 14.59 % in 2000 to 13.01 % in 2002, however it has remained at the same level in average 13 %. **The cost/tomatoes kg** has gone up by 33 %, reaching USD 0.402 in the year 2002, while the cost per surface unit has increased by 2 times reaching USD 37,003 in the final year of analysis. Tomatoes market price has had a positive influence on the farm incomes , besides the influence of production level.

Table 2: Structure of Production Costs
Tabulata 2: Structura cheltuielilor de productie

Cost Item Elementul de cheltuieli	2000		2001		2002	
	USD	%	USD	%	USD	%
Production Costs of which: Cheltuieli de productie , din care:	42,593	100.0	47,441	100,0	57,355	100,0
Materials Materiale	19,039	44.7	21,775	45.9	27,186	47.4
Labour Forta de munca	5,665	13.3	5,930	12.5	7,341	12.8
Work in process Productia neterminata	9,370	22.0	9,013	19.0	10,782	18.8
Others Alte cheltuieli	8,519	20.0	10,723	22.6	12,073	21.0

Table 3: The Main Indicators of Economic Efficiency
Tabulata 3: Principalii indicatori ai eficientei economice

Indicator	M.U.	2000	2001	2002
Incomes Venituri	USD	48,808	53,435	64,818
Total Expenses Cheltuieli totale	USD	42,593	47,441	57,355
Profit	USD	6,215	5,994	7,463
Profit rate Rata profitului	USD	14.59	12.63	13.01
Tomato Cost/kg Costul unitar al tomatelor	USD/kg	0.302	0.352	0.402
Cost/ha	USD/ha	18,125	27,109	37,003
Tomato Price Pretul tomatelor	USD/ha	0.346	0.396	0.454
Income/ha Venit/ha	USD/ha	20,769	30,534	41,818
Profit/kg	USD/kg	0.044	0.044	0.052
Profit/ha	USD/ha	2,644	3,425	4,815
Costs/1,000 Incomes Cheltuieli la 1.000 USD venituri	USD	873	888	885
Incomes/1,000 Costs Venituri la 1.000 USD cheltuieli	USD	1,146	1,126	1,130

As a result **the farm income/ha** was 2 times higher in the year 2002 in comparison to the one recorded in the year 2000. **The profit/ha** has reached USD 4,815 in 2002 and **the profit/tomatoes kg** USD 0.052. In order to get USD 1,000 , the farmer spends USD 885 . In other words, for USD 1,000 costs, the farmer gets USD 1,130 income.(table 3).

CONCLUSION

1. The farm has recorded high performance in tomatoes production every year. While the cultivated surface has been reduced, the increase of average production has assured the total production at the same level from a year to another.
2. For the same production level, total costs were higher and higher from a year to another due to the inflation rate, deeply affecting the input costs.
3. Incomes coming from marketable tomatoes are enough high to cover the production costs and to assure a high profit , under 13 % average profit rate.
4. Tomatoes production in greenhouses could be a good business for any producer assuring high incomes and profit in the course of the year.

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