ECONOMIC ASPECTS OF THE APPLICATION OF INTEGRATED PLUM CROP PROTECTION SCHEMES IN BIHOR COUNTY

ASPECTE ECONOMICE ALE APLICĂRII SCHEMELOR DE PROTECȚIE INTEGRATĂ LA CULTURA PRUNULUI ÎN JUDEȚUL BIHOR

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***Abstract**: The current paper presents some of the economic aspects of applying integrated protection schemes in fruit growing, with reference to the fruit growing pool Oradea, improving the modern and ecological integrated protection strategy of plum crops against pathogens and diseases, in the climatic condtions of Bihor county.*

***Key words:** plum, production, gross margin*

INTRODUCTION

The plum tree, a fruit tree species, with old resonances, is one of the core fruit crops, occupying the second place, after apple crops. Considered the tree of life or hope, we encounter it from the plains up to the sub-Carpathian hills and sometimes even foothills, adapting very easy to different environmental conditions. The plum tree is attacked by significant number of diseases – viruses, bacterioze and mycosis. Simultaneous presence of multiple pathogens increases the negative effect of the attack, seriously affects production and tree life.

Using an appropriate integrated protection schemes for plum trees can lead to an increased economic efficiency, i.e. to a maximization of total revenue and minimization of production costs.

Plum is a labour-intensive crop. Labour costs are the major cost factor. It is thus important to analyse labour input and to determine which cultivars and production forms are the most efficient. Labour costs

significantly affect the gross margin and internal rate of return. The gross margin per hour is somewhat lower in growing than for other fruit crops. The gross margin per hectare, however, is about the same for plums as for apples.

MATERIAL AND METHOD

The experiments were performed in the orchards of a private farm near Oradea, Bihor county. Results of the experiments were obtained by testing the plum tree variety Stanley. Collecting data, proccesing, analysis and interpretation of the data were the work methods used in this study.

RESULTS AND DISCUSSIONS

Climatic contrasts, frost, heat, drought and excess moisture, frequent phenomena in Bihor county, damage the trees and directly favors the frequency and intensity of disease. Among the diseases most strongly influenced by the contrasts of climatic factors, we remnd: plum pox, bacterial destruction, monilioza, mildew, verticilioza and red staining.

Plum pox potyvirus, sin. Sharka virus, sin. Prunus virus 7, sin. Annulus Pruni(PPV), is the worst virus for stone fruits with large fruit: plum, apricot, peach from Oradea area. Affected trees have lower production, variable, depending on varietal susceptibility and decline earlier.

For the year 2010 three alternatives of protection were applied: a low budget alternative (BR), an alternative with fertilizer (ING) and one alternative with specific area treatment (TSZ).

Based on the obtained data, an income and expence budget was drawn up (Table 1) and the main indicators of economic efficency for the plum crops were calculated (Table 2).

Table 1

Income and expences budget for plum crops, 2010

Calculated per hectare

INDICATORS	U.M	Alternatives		
		Alternative I (BR)	Alternative II (ING)	Alternative III (TSZ)
1	2	3	4	5
A PRODUCTION VALUE	lei	5135	6948,5	9347

A_1. Of which, main production	lei	4745	6168,5	8177
B (+) SUBSIDIES	lei	400	400	400
C (=) GROSS PRODUCT	lei	5535	7348,5	9747
D (-) OVERALL EXPENCES	lei	6004,3	6786,7	9116,3
D1. Of which, for main production	lei	6004,3	6786,7	9116,3
I. VARIABLE COSTS	lei	3699,4	4206,9	6320,7
1.Expences with prime matter and materials	lei	2017,6	2499,9	4104,1
Seeds and planting material	lei	0	0	0
Chemical and organic fertilizer	lei	431,6	744,9	782,6
Pesticides	lei	994,5	799,5	2437,5
Other materials	lei	591,5	955,5	884
2. Mechanical works costs	lei	1512,7	1537,9	2047,5
3. Irrigation costs	lei	0	0	0
4. Supply costs	lei	70,9	70,9	70,9
5. Temporary labor costs	lei	0	0	0
6. Insurances	lei	98,28	98,28	98,28
II. STATIONARY COSTS	lei	2304,9	2579,8	2795,5
Own mechanical works costs	lei	0	0	0
- Permanent labor costs	lei	2124,2	2399,1	2614,8
- General and management costs	lei	110,5	110,5	110,5
- Interest expenses on loans	lei	41,6	41,6	41,6
- Depreciation for buildings and utilities	lei	28,6	28,6	28,6
E. (=) TAXABLE INCOME	lei	-869,3	161,8	230,8
(-) Taxes	lei	x	x	x
F. (=) NET INCOME + subsidies	lei	-469,3	561,8	630,8

Using a system of technical and economic indicators, the comparative analysis of the three schemes presented above highlights the advantages and disadvantages of each one. The main indicators, which reflect the economic efficiency of the production activity and allow the orientation towards the alternative that ensures a positive gross margin and profit, are calculated in table 2.

Analyzing the data from table 2, we conclude that the gross margin using the second scheme(ING) is with 1306 lei(71,1%) higher than the margin using the first one(BR) and the margin, using the third alternative(TSZ), is with 1590,7 lei(86,7%) higher than using the first one(BR). Also, comparing the second(ING) and third(TSZ) alternatives, we conclude that the gross margin, in the third alternative(TSZ), is with 284,7 lei(9,1%) higher.

Analyzing the profit ratio, we established that the highest profit was registered using the fertilizer scheme(8,3%) followed by the specific area treatment alternative(6,9%), while the low budget scheme recorded a negative profit ratio (-7,8%).

Table 2

Economic efficiency indicators analyssis of plum crops, per hectare

Specification	UM	Alternative		
		Alternative I (BR)	Alternative II (ING)	Alternative III (TSZ)
Primary production obtained	kg/ha	5000	6500	8500
Gross product	lei/ha	5535	7348,5	9747
Variable costs	lei/ha	3699,4	4206,9	6320,7
Stationary costs	lei/ha	2304,9	2579,8	2795,5
Overall costs	lei/ha	6004,3	6786,7	9116,3
Gross profit	lei/ha	-469,3	561,8	630,8
Cost per unit of production	lei/kg	1,20	1,04	1,07
Gross margin	lei/ha	1835,6	3141,6	3426,3
Gross profit ration	%	-7,8	8,3	6,9

Source: onw calculations

CONCLUSIONS

The analysis of the three protection schemes show close rezults for the fertilizer alternative and specific area treatment alternative, where fruit production is at it highest and the profit ratio and gross profit are at their highest values. Using the low budget protection scheme, we recorded a negative profit ratio and gross profit, meaning that, by exploitation of the production the current costs aren't covered.

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