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

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

R. ŞTIRBU[1], M. DRĂGHICI[1]

[1]University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania; Faculty of Management, Economic Engineering in Agriculture and Rural Development; tibi_iancu@gmx.de

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 apple crops against pathogens and diseases, in the climatic condtions of Bihor county.*

Key words*: apple, production, gross margin*

INTRODUCTION

Apple crops occupy significant areas in Bihor county, being invaded by a large amount of deseases, which have a negative impact on orchards and fruit production, along with other technological, economical and social factors.

Pathogen evolution is conditioned, in a great extend, by cilmatic factors. The degree of attack is also conditioned by the interplay of varietal susceptibility and infection pressure. Climatic variations, from one year to another, damages the trees and favors deseases.

Choosing the right protection scheme can only improve the economic efficiency of apple crops.

Inefficiency is not just a result of the amount of inputs used. Factors such as timing of irrigation and fertilization and environmental factors have also an effect on efficiency.

Apple crop has important social and economic effects in the survey area.

MATERIAL AND METHOD

The experiments were conducted in the fruit orchards of a private farm near Oradea, Bihor county. The results were obtained by experimenting with the apple breed Golden. Gathering data, processing, analyzing and interpretation of this data were the work methods used in this paper.

RESULTS AND DISSCUSSIONS

The practice of fruit growing, along with personal observations, from the test area, shows that apple crops are attacked by a significant number of deseases (especially fungi) and pests. The most severe fungi, which were subject to chemotherapy during the experiment, are: mildew, scab and monilioza. The main pests countered were: apple worm, Cydia Pomonella, flower ladybug, Anthonomus and the San Jose louse.

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 apple crops were calculated (Table 2).

Table 1

Apple crops income and expences budget, 2010

Calculated per hectare

INDICATORS	U.M	Alternative		
		Alternative I (BR)	Alternative II (ING)	Alternative III (TSZ)
1	2	3	4	5
A. PRODUCTION VALUE	lei	9295,0	10432,5	17594,2
A_1. Of which, the main production	lei	9295,0	10432,5	17594,2
B (+) SUBSIDIES	lei	400,0	400,0	400,0
C (=) GROSS PRODUCT	lei	9695,0	10832,5	17994,2
D (-) OVERALL EXPENCES	lei	8904,8	9869,7	14153,5

D_1. Of which, expences with the main production	lei	8904,8	9869,7	14153,5
I. VARIABLE COSTS	lei	5015,4	5368,3	8504,0
1.Costs with prime matter and materials	lei	2857,7	3107,3	4986,4
- Seeds and planting material	lei	0,0	0,0	0,0
- Chemical and organic fertilizers	lei	431,6	596,7	955,5
- Pesticides	lei	1074,1	1074,1	1995,0
- Other materials	lei	1352,0	1436,5	2035,9
2. Third party mechanical works costs	lei	1960,1	2063,4	3320,1
3. Irrigation costs	lei	0,0	0,0	0,0
4. Supply costs	lei	170,3	170,3	170,3
5. Temporary labor costs	lei	0,0	0,0	0,0
6. Insurances	lei	27,3	27,3	27,3
II. STATIONARY COSTS	lei	3889,3	4501,5	5649,5
- Own mechanical works costs	lei	0,0	0,0	0,0
- Permanent labor costs	lei	3535,7	4147,9	5295,9
- General and management costs	lei	188,5	188,5	188,5
- Interest expenses on loans	lei	115,7	115,7	115,7
- Depreciation for buildings and utilities	lei	49,4	49,4	49,4
E. (=) TAXABLE INCOME	lei	390,2	562,8	3440,7
(-) Taxes	lei	0,0	0,0	0,0
F. (=) NET INCOME + subsidies	lei	790,2	962,8	3840,7

Table 2

Apple crop analysis of economic efficiency indicators per hectare

Specifications	UM	Versions		
		Version I (BR)	Version II (ING)	Version III (TSZ)
Production obtained	kg/ha	11000	12800	20200
Gross product	lei/ha	9695	10832,5	17994,2
Variable costs	lei/ha	5015,4	5368,3	8504
Stationary costs	lei/ha	3889,3	4501,5	5649,5
Overall costs	lei/ha	8904,7	9869,8	14153,5
Gross profit	lei/ha	790,3	962,7	3840,7
Unit cost of production	lei/kg	0,81	0,77	0,70
Gross margin	lei/ha	4679,6	5464,2	9490,2
Gross profit ratio	%	8,9	9,8	27,1

Source: own calculations

Profitable and unprofitable activities in a farm are identified by calculating the economic efficiency indicators and comparing the efficiency and profitability of there activities.

A very important indicator is the gross margin. This specific indicator reflects the economic efficiency of the production activity and is expressed in lei/unit of production. To decide which version is the most efficient, economicaly speaking, the farmer must compare the gross margins and chose the one that assures a positive margin and profit.

By analysing the data in table 2, we conclude that the gross margin of the second alternative(ING) is with 352,9 lei (7,03%) higher than the margin of the first one(BR) and the margin of the third protection scheme(TSZ) is with 3488,6 lei(69,55%) higher than the one of the first(BR). Also, comparing the second(ING) with the third alternative(TSZ), we conclude that the gross margin of in the third case is with 3115,7lei(58,41%) higher.

The highest profit ratio was recorded using the specific area treatment method, 21,7%.

CONCLUSIONS

From the comparativ analysis conducted on the three options above, we conclude that, for this farm, all three alternatives are profitable because they have a positive gross margin and lead to profit. The integrated protection scheme and the ecological agrotechnical work are economically efficient if they are correlated with the area specific climatic factors.

REFERENCES

1. **AMZAR V., BRANISTE N.**, *Cultura marului,* Editura S.C. Geea, Bucuresti, 2000
2. **COJOCARU C.**, *Analiza economico-financiară a exploataţiilor agricole şi silvice* – Editura Economică, Bucureşti, 2000
3. **MEVLÜT GÜL**, *Technical efficiency and productivity of apple farming in Antalya province of Turkey*, Pakistan Journal of Biological Science 8(11), 1533-1540, 2005