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ESTABLISHMENT FOR BREAKEVEN POINT IN ORGANIC FARMS WHOSE SURFACE IS LESS THAN 5 HECTARES

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Abstract

Organic agriculture is economically viable, respond the exigencies demand for healthy food and high quality is an agriculture which guarantees the protection and enhancement of natural resources in the long term and forward them unaltered future generations. The paper aims to establish breakeven in organic farm with surface less than five hectares farm which benefits from substantial financial compensation. We considered that the relevant calculation method is the calculation of profitability using gross margin calculating for each type of activity on the farm. In the absence of this support the activity in ecological system production would not be profitable one.

Key words**:** *organic farm, breakeven*

INTRODUCTION

Organic agriculture is a method of production that accounts for traditional knowledge of farmers and which integrates scientific progress, social trends and responding to the needs of the specific environment and at the same time, providing quality products to consumers from everywhere. [8]

The main objective of organic agriculture is to protect the biosphere and Earth's natural resources excluding the use of chemical fertilizers, pesticides synthetic and herbicides, prevention methods play an important role in combating pests, diseases and weeds.

The principles underpinning organic agriculture are universal, but the techniques used are adapted to the climatic conditions, the resources and local traditions.

Organic agriculture becomes a production method that require capacity of observation and reflection.

Organic agriculture is economically viable, respond the exigencies of the application for healthy food and high quality is an agriculture which guarantees the protection and enhancement of natural resources in the long term and forward them unaltered future generations.

Based on the sustainable agricultural production systems that organic farming aims to ensure production of food items on agricultural holdings by reducing inputs, particularly pesticides and chemical fertilizers.

The reason that organic production capacities increase is represented by advantages that shall submit for agricultural producer. [5]

Organic agriculture has the following disadvantages: low production, high production cost, disadvantages that can be compensated by a higher price. [3, 4]

For our country organic agriculture objectives are: increasing the surface and create new internal market for organic products with a potential contribution priority to the needs society and food safety and a clean environment; contribution to the promoting sustainable rural economy with employment in rural areas and increasing interest in rural areas.

Organic agriculture has developed particularly after European Union integration in view of the need to align legislative requirements. [9]

Thus the number of operators in organic farming increased 355.9% in 2012 compared to 2006, the largest increase was recorded for the area cultivated with vineyards and 294 ha in 2006 to 7781.33 ha in 2012 followed by

arable crops from 4560 ha in 2006 to 174,643.95 ha in 2012, while pastures and hayfields increased from 51,200 hectares in 2006 to 105,835.57 ha in 2012. [10,11]

The paper aims to establish breakeven in organic farm with surface less than five hectares farm which benefits from substantial financial compensation.

MATERIALS AND METHODS

We considered that the relevant calculation method is the calculation of profitability using gross margin calculating for each type of activity on the farm.

Gross margin is the essential economic indicator that reflects the economic efficiency of the production activity, as expressed in lei / unit of production (hectare arable land, animal head, etc.).

Knowing farm income and variable costs, gross margin can be calculated by subtracting all variable costs of production related revenues one production unit; relationship for calculating the gross margin is:

Gross margin = Revenue - Variable costs

At the level of a farms which performing many activities (with several branches of production) by summing all the gross margins of all branches of production, total gross margin is obtained.

Usually, it provides a complex image of the profitability of the farm; but, for the image to be complete, this requires correlation of total gross margin with the amount of fixed costs.

According to economic dictionary the profit is a surplus obtained by selling products over the cost of production. [1]

The profit is absolute size of profitability. Obtaining profit it is essential for the activity unfolding because it provides sources of investment and fosters introducing scientific and technical progress.

Interests us in the analyzed unit:

Gross profit = Total revenue - Total expenses (lei)

Net profit = Net income-tax / profit (lei)

Profitability is an economic category complex, which reflects in a synthetic form entire efficiency economic activity of a farm. In conditions of market economy, the profitability is extremely important. [7]

Profitability rate is the relative size of profitability that reflects the results of all stages of activity [2] and ensures resources to increase economic activity.

$$\textbf{Gross profit rate} = \frac{\text{gross profit}}{\text{total expenses}} \times 100$$

$$\textbf{Net profit rate} = \frac{\text{net profit}}{\text{total expenses}} \times 100$$

Breakeven - reflects the dimension of the activity to which the revenue from the sale of products are equal to expenditures the profit is zero.

In conclusion, the breakeven point is the point where the operating revenues cover operating expenses and result of exploitation is zero. After this threshold operating activities becomes profitable.

This paper refers to the farm in organic agriculture system with surface between 0.3 and 5 ha, because amount of the financial support is differentiated as follows:

-1180 lei, which is the equivalent to 270 euro financial compensation amounts awarded in 2013, compared to 2012, of operators enrolled in organic agriculture - vegetal sector with holdings ranging from 0.30 - 5 ha, inclusive.

-845 lei, which is the equivalent to 192 euro financial compensation amounts awarded in 2013, compared to 2012, of operators enrolled in organic agriculture - vegetal sector with holdings ranging from 5.1 - 20 ha, inclusive.

SC AMOLEG SRL, Ţăndărei town, Ialomita is subject to control for organic agriculture and has the following structure cultures:

Table 1. Crop structure

Crop structure	Unit A	
	ha	%
Wheat	1.03	22.6
Corn	2.12	46.3
Sunflower	1.42	31.1
TOTAL	4.57	100

Source: SC AMOLEG SRL, own calculation

At the farm level have been calculated revenues, expenditures and the economic efficiency indicators of crops, namely wheat, corn and sunflower, according to table 1.

RESULTS AND DISCUSSIONS

To establish the break-even on farms with surface less than five hectares and ecological activity was took into account a farm that meets these conditions.

Table 2. Revenues for wheat

No.	Specification	Quantity (kg)	Unit price (lei/kg)	Value (lei)
1.	**Gross Product**			
1.1.	Gross product from sold productions	2100	0.8	1680
1.2.	Subsidies	-	-	1180
1.3.	**Gross product total**	**-**	**-**	**2860**

Source: Own calculations

Table 3.Analysis of the structure of production costs for wheat

No.	Specification	Value (Lei)	Structure %
2.1	**Variable expenditure**, d.c .:	**2360**	**90**
	- Seed	700	27
	-Fertilizers - livestock manure	650	24
	- Herbicides	-	-
	- Fungicides	-	-
	- Insecticides	-	-
	- Irrigation Water	-	-
	-Mechanical works by third parties	560	21
	- Insurance	-	-
	-Other administrative expenses	330	13
	- Seasonal workers (weeding)	120	5
	- Expenditure supply	0.2	
2.2	**Fixed expenditure,** d.c**.:**	**255**	**10**
	- Permanent workforce	210	8
	- General expenses	45	2
	- Interest rate	-	-
	- Amortization	0.14	-
	- Lease	-	-
2.3	**Expenditure total**	**2615**	**100.0**

Source: Own calculations

The crops efficiency from economically is proven trough gross margin comparison of different activities, in our case, different crops.

Farmers will have to turn to those cultures which assure a positive gross margin, profit and give up increase to the crops with negative gross margin, leading to financial losses.[6]

Wheat crop in this situation it proves profitable agricultural activity without making a profit exceptional, although ensuring a positive gross margin, according table 2, 3 and 4.

The culture should be maintained to allow the a judicious crop rotation system and ensure coverage of autumn crops at least 20% of the total area of arable land on the farm, cross-compliance condition.

Table 4. Analysis of economic efficiency indicators per hectare wheat

No.	Specification	Value (Lei)
1.	Gross Product	2860
2.	Variable costs	2360
3.	Gross margin	500
4.	Fixed Expenses	255
5.	Gross profit	245
6.	Total expenditure	2615
7.	Gross profit rate (%)	9.3
8.	Income tax	39.2
9.	Net profit	205.8
10	Net profit rate (%)	7.8

Source: Own calculations

Corn crop in this situation it proves a profitable agricultural activity because it provides a positive gross margin and profit per unit of cultivated area, according to table 5,6 and 7.

Table 5. Revenues for corn

No.	Specification	Quantity (kg)	Unit price (lei/kg)	Value (lei)
1.	**Gross Product**			
1.1.	Gross product from sold productions	3200	1	3200
1.2	Subsidies			1180
1.3	**Gross product total**	-	-	4380

Source: Own calculations

Table 6. Analysis of the structure of production costs for corn

No.	Specification	Value (Lei)	Structure %
2.1	**Variable expenditure**, d.c .:	**3540**	**89**
	- Seed	800	20
	- Fertilizers - livestock manure	500	13
	- Herbicides	-	-
	- Fungicides	1200	30
	- Insecticides	-	-
	- Irrigation Water	-	--
	- Mechanical works by third parties	600	15
	- Insurance	-	-
	-Other administrative expenses	310	8
	-Seasonal workers (weeding)	130	3
	- Expenditure supply	0,18	-
2.2	**Fixed expenditure,** d.c.**:**	**450**	**11**
	- Permanent workforce	400	10
	- General expenses	50	1
	- Interest rate	-	-
	- Amortization	0,09	-
	- Lease	-	-
2.3	**Expenditure total**	**3990**	**100.00**

Source: Own calculations

Table 7. Analysis of economic efficiency indicators per hectare corn

No.	Specification	Value (Lei)
1.	Gross Product	4380
2.	Variable costs	3540
3.	Gross margin	840
4.	Fixed Expenses	450
5.	Gross profit	390
6.	Total expenditure	3990
7.	Gross profit rate (%)	9,8
8.	Income tax	62,4
9.	Net profit	327,6
10	Net profit rate (%)	8,2

Source: Own calculations

Table 8. Revenues for sunflower

No.	Specification	Quantity (kg)	Unit price (lei/kg)	Value (lei)
1.	**Gross Product**			
1.1.	Gross product from sold productions	1400	1,3	1820
1.2.	Subsidies	-	-	1180
1.3	**Gross product total**	**-**	**-**	**3000**

Source: Own calculations

The culture of sunflower it proves in this situation the most profitable agricultural activity because it provides the increased gross margin and the highest return per unit of land area, according to table 8, 9 and 10.

Table 9. Analysis of the structure of production costs for sunflower

No	Specification	Value (Lei)	Structure %
2.1	**Variable expenditure**, d.c .:	**1880**	**86**
	- Seed	450	21
	-Fertilizers - livestock manure	400	18
	- Herbicides	-	-
	- Fungicides	-	-
	- Insecticides	-	-
	- Irrigation Water	-	-
	- Mechanical works by third parties	600	24
	- Insurance	-	-
	-Other administrative expenses	310	14.5
	-Seasonal workers (weeding)	120	5
	- Expenditure supply	0,9	-
2.2	**Fixed expenditure,** d.c.**:**	**310**	**14**
	- Permanent workforce	250	10.5
	- General expenses	60	3.5
	- Interest rate	-	-
	- Amortization	0,12	-
	- Lease	-	-
2.3	**Expenditure total**	**2190**	**100.0**

Source: Own calculations

Table 10. Analysis of economic efficiency indicators per hectare sunflower

No.	Specification	Value (Lei)
1.	Gross Product	3000
2.	Variable costs	1880
3.	Gross margin	1120
4.	Fixed Expenses	310
5.	Gross profit	810
6.	Total expenditure	2190
7.	Gross profit rate (%)	37
8.	Income tax	129.6
9.	Net profit	680.4
10	Net profit rate (%)	31

Source: Own calculations

Comparative analysis of the profitability of cultures.

To decide which culture is more economically efficient to farm, the farmer must compare gross margin between different cultures. In perspective he will be oriented to those crops which ensures a positive gross margin and

profit and give up to those that have negative gross margin and lead to financial losses.

Table 11. Influence of structure of the gross margin per farm crops

Culture	Area		Gross margin Lei/ha	Gross margin /activity	%
	Ha	%			
Wheat	1.1.03	2.2.6	500	515	13.2
Corn	3.2.12	4.4.6.3	840	1780.8	45.8
Sunflower	5.1.42	6.3.1.1	1120	1590.4	41
TOTAL	4.57	100		3886.2	100

Source: Own calculations

Analyzing the structure of crops on the gross margin is observed low share of total farm gross margin of wheat. Maintaining culture is required from the cross-compliance requirements, which do not allow the cultivation of sunflower two years consecutive on the same soil and provide coverage of at least 20% of the area of of autumn crops. The farmer will need make the most efficient this culture. Another solution may be represented by replacing this culture with other crops autumn which have sales prices more attractive (rape, barley beer).

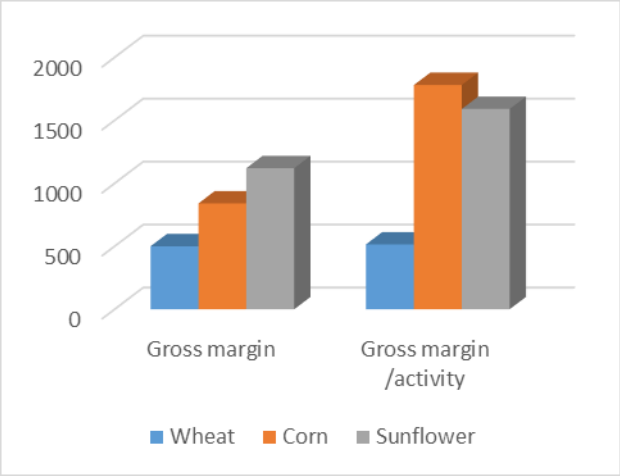

Fig.1.The gross margin in the farm

Although the most gross margin per hectare is obtained from sunflower, per activity, the highest gross margin has corn crop due to larger surface.(figure 1)

CONCLUSIONS

Following the results obtained it is found that this farm certified organic has a profitable activity, surpassing break even, so each culture and total unity.

The profitability activities is due to the financial support given to subsidize organic agricultural activities. Without this support the production activity would not be a profitable, because they yields obtained are much lower than in the intensive system production, and also the selling price of organic products has declined significantly in recent years.

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