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INFLUENCE OF DIRECT PAYMENT SCHEMES ON THE REVENUE OBTAINED IN THE CONVENTIONAL AND ECOLOGICAL FARMING SYSTEM – PRODUCTION YEAR 2016–2017

ABSTRACT

The 2014–2020 Common Agricultural Policy provides a more “general” and “more integrated” support, in the sense that a new way of organizing direct payments has been introduced for a “fairer” and “greener” application. Direct payments for the conventional and organic farming system for the production year 2016–2017 refer to the payment schemes that can be accessed by active farmers. In order to demonstrate their degree of influence on incomes obtained from different crops, the constructive normative method and the qualitative analysis of the information on the agricultural policy measures are used. The results obtained show that in the absence of direct payments, a loss of income in crop production may result, loss that is offset by the financial support that significantly contributes to maintaining the cultivated areas into production. The analysis carried out contributes to a better knowledge of the support forms and allows for an overall view in diagnosing the state of the various economic processes and phenomena that contribute to obtaining agricultural incomes.

Key words: payment schemes, income, conventional agriculture, organic farming, agricultural policy.

JEL Classification: O12, P50, Q18, Q57.

1. INTRODUCTION

The total amount required for the application of direct payment schemes in the production year 2016–2017 was 1.574 billion EUR (Government’s Decision 701/2017), for the national transitional aid (NTA) 4,030.540 thousand EUR and for the coupled support (CS) 110,826.5 thousand EUR (Decision no. 208/2017).

This study attempts to determine the degree of influence of direct payment schemes, coupled support (CS) and national transitional aids (NTA) on conventional and organic farming revenues. Direct payments, according to Ordinance no. 3 of 2015 are *mechanisms to support farmers*. *Conventional agriculture* benefits from the Single Area Payment Scheme, through Pillar 1 – EAFG funds, redistributive

payment, payment for agricultural practices beneficial for climate and the environment, payment to young farmers, plus coupled support for soybean, rice, hemp, sugar beet, potato, early potatoes, etc., as well as the national transitional aids (NTA 1 – all crops, NTA 3 – hemp, NTA 4 – hops, NTA 5 – tobacco, NTA 6 – sugar beet).

Organic agriculture benefits both from direct payments and from subsidies for organic farming, paid from European funds allocated under EAFRD. The subsidies for organic farmers are included under Measure 11 – Organic Farming and are paid through the Agency for Payments and Intervention in Agriculture (APIA). Measure 11 promotes the application of organic farming practices by providing financial support for both conversion to organic farming methods and for maintaining the organic farming practices, through sM 11.2 that is the object of this study.

2. STATE OF KNOWLEDGE

USDA defines net agricultural income as “the revenue remaining after all factors of production are paid”. Growth of farm earnings forecasts still keeps lower crop prices. For example, the 2017 earnings forecast for livestock products increased by 8.4%, while forecasts for cash receipts in crops increased by only 0.3% (Kuethe T. and Hubbs T., Sanders D., (2017)).

Farm incomes are proportionally the most dependent on subsidies (that represent 15–20% of total revenue). The high percentage of direct payments can be attributed to agricultural practice, with relatively large areas of land and lower added value. This does not necessarily mean that the output is not effective in terms of both capital investment and labour, but that added value is low compared to direct support. Finally, direct payments represent the lowest percentage of total revenue (close to 2.8%) (Kuethe T. and Hubbs T., Sanders D., (2017)).

In this context, are agricultural subsidies bad or good? Is there really a benefit for granting agricultural subsidies or are these a burden for decision-makers? There are pros and cons on this matter. Granting subsidies determines farmers to grow those crops that are eligible for subsidies. This affects the variety and diversity of agricultural products on the market, which ultimately is against the goal to reduce agricultural imports.

On the other hand, there are crops that are cultivated in certain favourability areas and are eligible for subsidies, which discriminates farmers who are specialized in agricultural crops that are not eligible for subsidies. In addition, planting the same crop on the same area over a long period could affect crop rotation and the environment. Considering the downward trend in prices, we tend to think that agricultural subsidies directly affect the selling price and supply of products. Without subsidies, prices and supply would continue their natural course –

anticipated by market fluctuations. What about the consumer? Although everyone buys food, consumers pay twice: once for the product and once for subsidies. (Michalek J.J., & quot; *Subsidies in the World Trade Organization & quot; Reflets et perspectives de la vie économique*). However, agricultural subsidies help farmers to produce more and do this consistently, to ensure sufficient and more than sufficient production for all types of foodstuffs.

As regards the future of the Direct Farm Payment Scheme, the proposals for the new CAP reform refer to “more sustainable direct payments, more equitably distributed and targeted to active farmers, simplification of financial management, introducing new tools to help farmers cope with price and revenue volatility, such as increased competitiveness and development in rural areas”. The aim is to transform CAP into a more equitable (within and between Member States) and more environmentally friendly policy, while ensuring a simple, competitive and efficient policy (*Cork 2.0 Conference on Rural Development, December 2016*).

3. MATERIAL AND METHOD

For the purpose of this study, farm incomes are evaluated using the value of the main production obtained by multiplying farm price by the average yield.

$$I = Q_i \times p_i$$

The difference between the value of the main production and the main production costs leads to the calculation of taxable income.

Production costs represent values resulting from the determination of the inputs of mechanization works, manual works and raw materials, according to the crop technological datasheets, for the production year 2016/2017.

The *obtained income* is taxed at a rate of 16%, resulting in *net income*, plus the amount of subsidies, resulting in *net income + subsidies* (subsidies: Pillar I payments – for conventional agriculture + pillar II – for organic farming).

Income variability is determined using the data set, calculated at average yield levels, for 11 crops grown under conventional farming system (CONV) and 10 crops under organic system (ECO).

The assessment of revenue is made considering two cases: case 1: net income (without subsidies) and case 2: net income + subsidies. The degree of direct payments influence on the obtained revenue was determined by calculating their weight in net income + total subsidies.

The research method used in this paper is the *constructive normative method for the design of the income analysis variants*, as well as of the degree of influence of direct payment schemes granted in the agricultural year 2016–2017.

4. RESULTS AND DISCUSSIONS

According to the importance of the research topic, we specify that the overall objective of the scientific approach is to highlight the results concerning the relative changes in income (also determined by the different production levels). The results generate questions. Should the direct payment system be adjusted or not? In this respect, we want to establish links and associations between the production activity, the economic-financial indicators (taxable income, net income, rate of return, etc.) and the efficiency of the activity, all with the aim of highlighting the degree of influence of subsidies on the net revenue obtained.

Income variation in the conventional WHEAT crop (CONV)/organic (ECO). *Case 1: net income* – an income loss between 370.3 RON/ha and 81.6 RON/ha (CONV) and 455.2 RON/ha and 743.7 RON/ha (ECO) is estimated. *Case 2: net income + subsidies* – income losses are offset by subsidies. The contribution of subsidies to earning income for the wheat crop determines values of income from 400.1 RON/ha to 688.9 RON/ha (CONV) and from 1286.1 RON/ha to 997.8 RON/ha (ECO) (Table 1, lines 8 and 9).

Conventional farming (wheat): the share of direct payments in net income + subsidies is 196.6% (for the yield level of 4 t/ha) and 111.8% (for the yield level of 6 t/ha). *Organic farming (wheat)*: the share of total subsidy (sM 11.2 + direct payments) in net income + subsidies is 135.4% (for 2.5 t/ha) and 174.5% (for 4 t/ha) (Table 2).

Table 1
Income variation in WHEAT

Crt.no.	Indicators	U.M	Conventional farming		Organic farming*	
			4.0	6.0	2.5	4.0
1	Average yield	t/ha	4.0	6.0	2.5	4.0
2	Selling price	RON/to	672	672	838	838
3	A. Value of main production	RON	2688	4032	2095	3352
4	Subsidies	RON	770.4	770.4	1741.3	1741.3
5	B (–) Main production costs	RON	3128.8	4129.1	2636.9	4237.3
6	C (=) Taxable income	RON	–440.8	–97.1	–541.9	–885.3
7	C.1 (–) Taxes and fees	RON	–70.5	–15.5	–86.7	–141.7
8	D (=) Net income	RON	–370.3	–81.6	–455.2	–743.7
9	D.1 (=) Net income+ total subsidies	RON	400.1	688.8	1286.1	997.8
10	D.2 (=) Net income+ sM 11.2*	RON	X	X	515.7	227.2
11	D.3 (=) Net income+ direct payments	RON	400.1	688.8	315.2	26.7
12	E. Taxable income rate	%	–14.1	–2.4	–20.6	–20.9
13	F. Net income rate	%	–11.8	–2.0	–17.3	–17.6
14	F.1 Net income rate + total subsidies	%	12.8	16.7	48.8	23.5
15	F.2 Net income rate + sM 11.2*	%	X	X	19.6	5.4
16	F.3 Net income rate + direct payments	%	12.8	16.7	11.2	0.6

Source: Author's calculations.

Table 2

Influence of different support forms on incomes obtained from the WHEAT crop

Conventional farming			Wheat 4 t/ha		Wheat 6 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			400.1	89.8	688.8	154.7
Support measures 2016	RON	euro	Subsidy influence on incomes			
Direct payments	770.4	172.98	192.6%		111.8%	
Organic farming			Wheat 2.5 t/ha		Wheat 4 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			1286.1	288.8	997.8	224.0
Support measures 2016	RON	euro	Subsidy influence on incomes			
Total subsidy	1741.3	391.98	135.4%		174.5%	
sM 11.2*	970.9	218	75.5%		97.3%	
Direct payments	770.4	172.98	59.9%		77.2%	

Source: Author's calculations.

Income variation in the conventional BARLEY crop (CONV)/organic (ECO). *Case 1: net income* – an income loss from 225 RON/ha to 359 RON/ha (CONV) and 119.6 RON/ha (ECO) is estimated. *Case 2: net income + subsidies* – the contribution of the subsidies to income, in the case of barley crop, results in obtaining positive income values ranging from 545.4 RON/ha to 411.4 RON/ha (CONV) and from 1764.8 RON/ha to 1621.7 RON/ha (ECO) (Table 3, lines 8 and 9).

Conventional farming (barley): the share of direct payments in net income + subsidies is 141% (for the yield 4 t/ha) and 187% (for the yield 6 t/ha). *Organic farming (barley)*: the share of the total subsidy (net of 11.2 + direct payments) in net income + subsidies is 98.7% (for 2.5 t/ha) and 107.4% (for 4 t/ha) (Table 4).

Table 3

Income variation in BARLEY

Crt.no.	Indicators	U.M	Conventional farming		Organic farming*	
1	Average yield	t/ha	4.0	6.0	2.5	4.0
2	Selling price	RON/to	845	845	965	965
3	A. Value of main production	RON	3380	5070	2412.5	3860.0
4	Subsidies	RON	770.4	770.4	1741.3	1741.3
5	B (-) Main production costs	RON	3647.9	5497.4	2384.5	4002.4
6	C (=) Taxable income	RON	-267.9	-427.4	28.0	-142.4
7	C.1 (-) Taxes and fees	RON	-42.9	-68.4	4.5	-22.8
8	D (=) Net income	RON	-225.0	-359.0	23.5	-119.6
9	D.1 (=) Net income+ total subsidies	RON	545.4	411.4	1764.8	1621.7
10	D.2 (=) Net income+ sM 11.2*	RON	X	X	994.4	851.3
11	D.3 (=) Net income+ direct payments	RON	-42.9	-68.4	793.9	650.8
12	E. Taxable income rate	%	-7.3	-7.8	1.2	-3.6

Table 3 (continued)

13	F. Net income rate	%	-1.2	-1.2	1.0	-3.0
14	F.1 Net income rate + total subsidies	%	15.0	7.5	74.0	40.5
15	F.2 Net income rate + sM 11.2*	%	x	x	41.7	21.3
16	F.3 Net income rate + direct payments	%	15.0	7.5	33.3	16.3

Source: Author's calculations.

Table 4

Influence of different support forms on incomes obtained from the BARLEY crop

Subsidy influence on incomes						
Conventional farming			Barley 4 t/ha		Barley 6 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			545.4	122.5	411.4	92.4
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Direct payments	770.4	172,98	141,3%		187,3%	
Organic farming			Barley 2.5 t/ha		Barley 4 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			1764.8	396.3	1621.7	364.1
Support measures 2016	RON	euro	Influence degree of subsidies on incomes			
Total subsidy	1741.3	391.98	98.7%		107.4%	
sM 11.2*	970.9	218	55%		59.9%	
Direct payments	770.4	172.98	43.7%		47.5%	

Source: Author's calculations.

Income variation in the conventional MAIZE crop (CONV)/organic (ECO). *Case 1: net income* – an income loss from 85.3 RON/ha to 467.7 RON/ha (CONV) and from 416 RON/ha to 560.6 RON/ha (ECO) is estimated. *Case 2: net income + subsidies* – the contribution of subsidies to incomes for the maize crop results in positive income values from 685.1 RON/ha to 302.7 RON/ha (CONV) and from 1325.3 RON/ha to 1153.9 RON/ha (ECO) (Table 5, lines 8 and 9).

Conventional farming (maize): the share of direct payments in net income + subsidies is 112.45% (for 5 t/ha) and 254.5% (for 7.5 t/ha). *Organic farming (maize)*: the share of total subsidy (net 11.2 + direct payments) in net income + subsidies is 131.4% (for 3.5 t/ha) and 147.5% (for 5 t/ha) (Table 6).

Table 5

Income variation in MAIZE

Crt.no.	Indicators	U.M	Conventional farming		Organic farming*	
			5 t/ha	7.5 t/ha	3.5 t/ha	5 t/ha
1	Average yield	t/ha	5.0	7.5	3.5	5.0
2	Selling price	RON/to	705	705	863.0	863.0
3	A. Value of main production	RON	3525.0	5287.5	2589.0	4315.0
4	Subsidies	RON	770.4	770.4	1741.3	1741.3

Table 5 (continued)

5	B (-) Main production costs	RON	3626.6	5844.3	3084.3	4982.4
6	C (=) Taxable income	RON	-101.6	-556.8	-495.3	-667.4
7	C.1 (-) Taxes and fees	RON	-16.3	-89.1	-79.2	-106.8
8	D (=) Net income	RON	-85.3	-467.7	-416.0	-560.6
9	D.1 (=) Net income+ total subsidies	RON	685.1	302.7	1325.3	1153.9
10	D.2 (=) Net income+ sM 11.2*	RON	X	x	554.9	410.3
11	D.3 (=) Net income+ direct payments	RON	685.1	302.7	354.3	209.8
12	E. Taxable income rate	%	-2.8	-9.5	-16.1	-13.4
13	F. Net income rate	%	-2.4	-8.0	-13.5	-11.3
14	F.1 Net income rate + total subsidies	%	18.9	5.2	43.0	23.2
15	F.2 Net income rate + sM 11.2*	%	X	x	18.0	8.2
16	F.3 Net income rate + direct payments	%	18.9	5.2	11.5	4.2

Source: Author's calculations.

Table 6

Influence of different support forms on incomes obtained from the MAIZE crop

Subsidy influence on incomes						
Conventional farming (CONV)			Maize 5 t/ha		Maize 7.5 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			685.1	153.8	302.7	68
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Direct payments	770.4	172.98	112.45%		254.5%	
Organic farming (ECO)			Maize 3.5 t/ha		Maize 5 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			1325.3	297.6	1153.9	259.1
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	1741.3	391.98	131.4		147.5	
sM 11.2*	970.9	218	73.3		82.2	
Direct payments	770.4	172.98	58.1		65.2	

Source: Author's calculations.

Income variation in the conventional RICE crop (CONV)/organic (ECO). *Case 1: net income* – represents losses worth 1040 RON/ha (ECO). *Case 2: net income + subsidies* – contribution of subsidies to income, in the case of the rice crop, determines positive values of income, ranging from 3014 RON/ha (CONV) to 2749 RON/ha (ECO) (Table 7, lines 8 and 9).

Conventional farming (rice): the share of the total subsidy (coupled support + direct payments) in net income + subsidies is 92.4% (for the yield level of 6 t / ha). *Organic farming (rice)*: the share of the total subsidy (coupled support + CM 11.2 + direct payments) in net income + subsidies is 137.5% (for 4.5 t/ha) (Table 8).

Table 7
Income variation in RICE

Crt. no.	Indicators	U.M	Conventional farming	Organic farming*
1	Average yield	t/ha	6,0	4,5
2	Selling price	RON/to	1474	2015
3	A. Value of main production	RON	8844	9255
4	Subsidies	RON	2819.1	3790
5	B (-) Main production costs	RON	8611.1	10463.7
6	C (=) Taxable income	RON	232.9	-1238.7
7	C.1 (-) Taxes and fees	RON	37.3	-198.2
8	D (=) Net income	RON	195.6	-1040.5
9	D.1 (=) Net income+ total subsidies	RON	3014.7	2749.5
10	D.2 (=) Net income+ coupled subsidies	RON	2244.3	1008.2
11	D.3 (=) Net income+ sM 11.2*	RON	x	-69.6
12	D.4 (=) Net income+ direct payments	RON	966.0	-270.1
13	E. Taxable income rate	%	2.7	-11.8
14	F. Net income rate	%	2.3	-9.9
15	F.1 Net income rate+ total subsidies	%	35.0	26.3
16	F.2 Net income rate+ coupled subsidies		26.1	9.6
17	F.3 Net income rate + sM 11.2*	%	x	-0.8
18	F.4 Net income rate + direct payments	%	11.2	-2.6

Source: Author's calculations.

Table 8

Influence of different support forms to incomes obtained from the RICE crop

Influence of subsidies on incomes				
Conventional farming (CONV)			Rice 6 t/ha	
NET INCOME + total subsidies			RON	euro
			3014.7	676.9
Support measures 2016	RON	Euro	Influence of subsidies on incomes	
Total subsidy	2819.1	632.98	92.4%	
Coupled Support	2048.7	460	67.1%	
Direct payments	770.4	172.98	25.2%	
Organic farming (ECO)			Rice 4.5 t/ha	
NET INCOME + total subsidies			RON	euro
			2749.5	617.3
Support measures 2016	RON	Euro	Influence of subsidies on incomes	
Total subsidy	3790	850.98	137.5%	
Coupled Support	2048.7	460	74.5%	
sM 11.2*	970.9	218	35.3%	
Direct payments	770.4	172.98	28%	

Source: Author's calculations.

Income variation in the conventional SUNFLOWER crop (CONV)/organic (ECO). *Case 1: net income* – positive income results were found for the sunflower crop, with values from 87 RON/ha to 1117 RON/ha (CONV) and from 57 RON/ha to 70.7 RON/ha (ECO). *Case 2: net income + subsidies* – the contribution of subsidies to incomes leads to even higher incomes. The values range from 857.4 RON/ha to 1187.4 RON/ha (CONV) and from 1798.3 RON/ha to 1812 RON/ha (ECO) (Table 9, lines 8 and 9).

Conventional agriculture (sunflower): the share of direct payments in net income + subsidies is 89.8% (for the yield level of 2.5 t/ha) and 40.8% (for the yield level of 4.0 t/ha). *Organic farming (sunflower)*: the share of total subsidy (coupled support + sM 11.2 + direct payments) in net income + subsidies is 96.8% (for 2.0 t/ha) and 96.1% (for 3.5 t/ha) (Table 10).

Table 9

Income variation in SUNFLOWER

Crt. no.	Indicators	U.M	Conventional farming		Organic farming*	
			2.5	4.0	2.0	3.5
1	Average yield	t/ha	2.5	4.0	2.0	3.5
2	Selling price	RON/to	1290	1290	1360.0	1360
3	A. Value of main production	RON	3225	5160	2720.0	4760.0
4	Subsidies	RON	770.4	770.4	1741.3	1741.3
5	B (-) Main production costs	RON	3121.5	3830.2	2652.1	4675.9
6	C (=) Taxable income	RON	103.5	1329.8	67.9	84.1
7	C.1 (-) Taxes and fees	RON	16.6	212.8	10.9	13.5
8	D (=) Net income	RON	87.0	1117.0	57.0	70.7
9	D.1 (=) Net income+ total subsidies	RON	857.4	1887.4	1798.3	1812.0
10	D.2 (=) Net income+ sM 11.2*	RON	x	x	111.0	1041.6
11	D.3 (=) Net income+ direct payments	RON	857.4	1887.4	99.8	841.1
12	E. Taxable income rate	%	3.3	34.7	2.6	1.8
13	F. Net income rate	%	2.8	29.2	2.1	1.5
14	F.1 Net income rate + total subsidies	%	27.5	49.3	67.8	38.8
15	F.2 Net income rate + sM 11.2*	%	X	x	4.2	22.3
16	F.3 Net income rate + direct payments	%	27.5	49.3	3.6	18.0

Source: Author's calculations.

Table 10

Influence of different support forms on incomes obtained from the SUNFLOWER crop

Influence of subsidies on incomes						
Conventional farming (CONV)			Sunflower 2.5 t/ha		Sunflower 4.0 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			857.4	192.5	1887.4	423.8
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Direct payments	770.4	172.98	89.85%		40.81%	

Table 10 (continued)

Organic farming (ECO)			Sunflower 2.0 t/ha		Sunflower 3.5 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			1793.8	403.8	1812.0	406.8
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	1741.3	391.98	96.8 %		96.1 %	
sM 11.2*	970.9	218	54 %		53.6 %	
Direct payments	770.4	172.98	42.8 %		42.5 %	

Source: Author's calculations.

Income variation in the conventional RAPESEED crop (CONV)/organic (ECO). *Case 1*: the *net income* had positive values ranging from 10 RON/ha to 19 RON/ha (CONV) and 1812.1 RON/ha (ECO). *Case 2*: net income + subsidies – income values increased from 781 RON/ha to 790.3 RON/ha (CONV) and from 1656.5 RON/ha to 3553.4 RON/ha (ECO) (Table 11, line 8 and line 9).

Conventional farming (rapeseed): the share of direct payments in net income + subsidies is 98.6% (for 2.5 t/ha) and 97.5% (for 3.5 t/ha). *Organic farming (rapeseed)*: the share of total subsidy (coupled support + CM 11.2 + direct payments) in net income + subsidies is 105.1% (for 1.7 t/ha) and 49.0% (for 4 t/ha) (Table 12).

Table 11

Income variation in RAPESEED

Nr. crt	Indicators	U.M	Conventional farming		Organic farming*	
1	Average yield	t/ha	2.5	3.5	1.7	4.0
2	Selling price	RON/to	1491	1491	1718	1718
3	A. Value of main production	RON	3727.5	5218.5	2920.6	6872
4	Subsidies	RON	770.4	770.4	1741.3	1741.3
5	B (-) Main production costs	RON	3714.8	5194.8	3021.5	4714.7
6	C (=) Taxable income	RON	12.7	23.7	-100.9	2157.3
7	C.1 (-) Taxes and fees	RON	2.0	3.8	-16.1	345.2
8	D (=) Net income	RON	10.6	19.9	-84.8	1812.1
9	D.1 (=) Net income+ total subsidies	RON	781.0	790.3	1656.5	3553.4
10	D.2 (=) Net income+ sM 11.2*	RON	x	x	886.2	2783.1
11	D.3 (=) Net income+ direct payments	RON	781.0	790.3	685.6	2582.5
12	E. Taxable income rate	%	0.34	0.5	-3.3	45.8
13	F. Net income rate	%	0.29	0.4	-2.8	38.4
14	F.1 Net income rate + total subsidies	%	21.0	15.2	54.8	75.4
15	F.2 Net income rate + sM 11.2*	%	X	x	29.3	59.0
16	F.3 Net income rate + direct payments	%	21.0	15.2	22.7	54.8

Source: Author's calculations.

Table 12

Influence of different support forms on incomes obtained from the RAPESEED crop

Influence of subsidies on incomes						
Conventional farming (CONV)			Rapeseed 2.5 t/ha		Rapeseed 3.5 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			781	175.4	790.3	177.5
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Direct payments	770.4	172.98	98.6%		97.5%	
Organic farming (ECO)						
NET INCOME + total subsidies			Rapeseed 1.7 t/ha		Rapeseed 4.0 t/ha ha	
			RON	euro	RON	euro
			1656.5	371.9	3553.4	797.9
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	1741.3	391.98	105.1%		49.0%	
sM 11.2*	970.9	218	58.6%		27.3%	
Direct payments	770.4	172.98	46.5%		21.7%	

Source: Author's calculations.

Income variation in conventional SOYBEAN crop (CONV)/organic (ECO). *Case 1: net income* – losses from 521 RON/ha to 480 RON/ha (CONV) and 837 RON/ha (ECO). *Case 2: net income + subsidies* – income values increase to 1325 RON/ha (CONV) and from 1938 RON/ha to 2838 RON/ha (ECO) (Table 13, lines 8 and 9).

Conventional farming (soybean): the share of total subsidy (coupled support + direct payments) in net income + subsidies is 140.6% (for 3 t/ha) and 136.2% (for 4.5 t/ha). *Organic farming (soybean)*: the share of total subsidy (coupled support + CM 11.2 + direct payments) in net income + subsidies is 143.2% (for 1.5 t/ha) and 97.8% (for 3.5 t/ha) (Table 14).

Table 13

Income variation in SOYBEAN

Crt.no.	Indicators	U.M	Conventional farming		Organic farming*	
			3 t/ha	4.5 t/ha	1.5 t/ha	3.5 t/ha
1	Average yield	t/ha	3.0	4.5	1.5	3.5
2	Selling price	RON/to	1335	1335	1698	1698
3	A. Value of main production	RON	4005	6007.5	2547.0	5943.0
4	Subsidies	RON	1805.2	1805.2	2776.1	2776.1
5	B (-) Main production costs	RON	4625.3	6579.1	3543.7	5868.5
6	C (=) Taxable income	RON	-620.3	-571.6	-996.7	74.5
7	C.1 (-) Taxes and fees	RON	-99.2	-91.5	-159.5	11.9
8	D (=) Net income	RON	-521.1	-480.2	-837.3	62.6
9	D.1 (=) Net income+ total subsidies	RON	1284.1	1325.0	1938.9	2838.7
10	D.2 (=) Net income+ coupled subsidies	RON	513.8	554.6	197.6	1097.4
11	D.3 (=) Net income+ sM 11.2*	RON	x	x	133.6	1033.5

Table 13 (continued)

12	D.4 (=) Net income+ direct payments	RON	249.3	290.2	-66.9	833.0
13	E. Taxable income rate	%	-13.4	-8.7	-28.1	1.3
14	F. Net income rate	%	-11.3	-7.3	-23.6	1.1
15	F.1 Net income rate+ total subsidies	%	27.8	20.1	54.7	48.4
16	F.2 Net income rate+ coupled subsidies		11.1	8.4	5.6	18.7
17	F.3 Net income rate + sM 11.2*	%	x	x	4.0	17.6
18	F.4 Net income rate + direct payments	%	5.4	4.4	-1.9	14.2

Source: Author's calculations.

Table 14

Influence of different support forms on incomes obtained from the SOYBEAN crop

Influence of subsidies on incomes						
Conventional farming (CONV)			Soybean 3.0 t/ha		Soybean 4.5 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			1284.1	288.3	1325.0	297.5
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	1805.2	405.33	140.6%		136.2%	
Coupled support	1034.8	232.35	67.1%		78.1%	
Direct payments	770.4	172.98	25.2%		58.1%	
Organic farming (ECO)			Soybean 1.5 t/ha		Soybean 3.5 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			1938.9	435.3	2838.7	637.4
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	2776.1	623.3	143.2%		97.8%	
Coupled support	1034.8	232.35	53.4%		36.5%	
sM 11.2*	970.9	218	50.1%		34.2%	
Direct payments	770.4	172.98	39.7%		27.1%	

Source: Author's calculations.

Income variation in the conventional AUTUMN POTATO crop (CONV)/ organic (ECO). *Case 1: net income* had positive values from 3367 RON/ha to 8126 RON/ha (CONV) and 3066 RON/ha (ECO). *Case 2: net income + subsidies* – income values increase from 4137 RON/ha to 8896 RON/ha (CONV) and 4808 RON/ha (ECO) (Table 15, lines 8 and 9).

Table 15

Income variation in AUTUMN POTATOES

Crt.no.	Indicators	U.M	Conventional farming		Organic farming*
1	Average yield	t/ha	30.0	40.0	18.0
2	Selling price	RON/to	880	880	1200.0
3	A. Value of main production	RON	26400	35200	21600.0
4	Subsidies	RON	770.4	770.39	1741.3

Table 15 (continued)

5	B (-) Main production costs	RON	22391.0	25526.1	17949.0
6	C (=) Taxable income	RON	4009.0	9673.9	3651.0
7	C.1 (-) Taxes and fees	RON	641.4	1547.8	584.2
8	D (=) Net income	RON	3367.5	8126.1	3066.8
9	D.1 (=) Net income+ total subsidies	RON	4137.9	8896.5	4808.1
10	D.2 (=) Net income+ sM 11.2*	RON	x	x	4037.7
11	D.3 (=) Net income+ direct payments	RON	4137.9	8896.5	3837.2
12	E. Taxable income rate	%	17.9	37.9	20.3
13	F. Net income rate	%	15.0	31.8	17.1
14	F.1 Net income rate + total subsidies	%	18.5	34.9	26.8
15	F.2 Net income rate + sM 11.2*	%	x	x	22.5
16	F.3 Net income rate + direct payments	%	18.5	34.9	21.4

Source: Author's calculations.

Conventional farming (autumn potato): the share of direct payments in net income + subsidies is 18.6% (for 30 t/ha) and 8.7% (for 40 t/ha). *Organic farming (autumn potato):* the share of total subsidy (coupled support + sM 11.2 + direct payments) in net income + subsidies is 36.2% (for 18 t/ha) (Table 16).

Table 16

Influence of different support forms on incomes obtained from AUTUMN POTATO crop

Influence of subsidies on incomes						
Conventional farming (CONV)			Potatoes 30 t/ha		Potatoes 40 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			4137.9	929.1	8896.5	1997.5
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Direct payments	770.4	172.98	18.6%		8.7%	
Organic farming (ECO)			Potatoes 18 t/ha			
NET INCOME + total subsidies			RON	euro		
			4808.1	1079.6		
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	1741.3	391.98			36.2	
sM 11.2*	970.9	218			27.1	
Direct payments	770.4	172.98			20.2	

Source: Author's calculations.

Income variation in the conventional SUGAR BEET crop (CONV)/organic (ECO). *Case 1: net income* had value losses of 605 RON/ha (CONV) and 455.2 RON/ha and 879 RON/ha (ECO). *Case 2: net income + subsidies – income* values increased from 3287 RON/ha to 5158 RON/ha (CONV) and from 4124 RON/ha to 4185 RON/ha (ECO) (Table 17, lines 8 and 9).

Table 17

Income variation in SUGAR BEET

Crt.no.	Indicators	U.M	Conventional Farming		Organic farming*	
1	Average yield	t/ha	40.0	70.0	30.0	45.0
2	Selling price	RON/to	149.7	149.7	178.0	178.0
3	A. Value of main production	RON	5988.0	10479.0	5340.0	8010.0
4	Subsidies	RON	3892.4	3892.4	4863.3	4863.3
5	B (-) Main production costs	RON	6708.3	8971.4	6219.1	8817.0
6	C (=) Taxable income	RON	-720.3	1507.6	-879.1	-807.0
7	C.1 (-) Taxes and fees	RON	-115.3	241.2	-140.7	-129.1
8	D (=) Net income	RON	-605.1	1266.4	-738.4	-677.9
9	D.1 (=) Net income+ total subsidies	RON	3287.3	5158.8	4124.9	4185.4
10	D.2 (=) Net income+ coupled support	RON	2111.7	3983.1	1978.3	2038.9
11	D.3 (=)Net income+ sM 11.2*	RON	X	X	232.5	293.0
12	D.4 (=)Net income+ direct payments	RON	165.3	2036.7	32.0	92.5
13	D.5 (=)Net income+ NTA 6	RON	-199.8	1671.6	-333.1	-272.6
14	E. Taxable income rate	%	-10.7	16.8	-14.1	-9.2
15	F. Net income rate	%	-9.0	14.1	-11.9	-7.7
16	F.1 Net income rate + total subsidies	%	49.0	57.5	66.3	47.5
17	F.2 Net income rate + coupled support	%	31.5	44.4	31.8	23.1
18	F.3 Net income rate + sM 11.2*	%	X	X	5.2	4.4
19	F.4 Net income rate + direct payments	%	2.5	22.7	0.5	1.0
20	F.5 Net income rate + NTA 6	%	-3.0	18.6	-5.4	-3.1

Source: Author's calculations.

Conventional farming (sugar beet): the share of total subsidy (coupled support + direct payments + NTA 6) in net income + subsidies is 118.4% (for the yield level 40 t/ha) and 75.5% (for the yield level 70 t/ha). *Organic farming (sugar beet):* the share of total subsidy (coupled support + sM 11.2 + direct payments + NTA 6) in net income + subsidies is 117.9% (for 30 t/ha) and 116.2% (for 45 t/ha) (Table 18).

Table 18

Influence of different support forms on incomes obtained from the SUGAR BEET crop

Influence of subsidies on incomes						
Conventional farming (CONV)			Sugar beet 40 t/ha		Sugar beet 70 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			3287.3	738.1	5158.8	1158.3
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	3892.4	873.98	118.4%		75.5%	
Coupled support	2716.8	610	82.6%		52.7%	
Direct payments	770.4	172.98	23.4%		14.9%	
NTA 6	405.3	91	12.3%		7.9%	

Table 18 (continued)

Organic farming (ECO)			Sugar beet 30 t/ha		Sugar beet 45 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			4124.9	926.2	4185.4	939.8
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	4863.3	1091.98	117.9%		116.2%	
Coupled support	2716.8	610.0	65.9%		64.9%	
sM 11.2*	970.9	218	23.5%		23.2	
Direct payments	770.4	172.98	18.7%		18.4%	
NTA 6	405.3	91.0	9.8%		9.7%	

Source: Author's calculations.

Income variation in the conventional HEMP crop (CONV)/organic (ECO). *Case 1: net income* – had a loss of 596.2 RON/ha for the yield level of 45 t/ha (CONV). Hemp had positive income values for 65 t/ha (CONV) and also for the organic yields. *Case 2: net income + subsidies* – income values increased from 1211.5 RON/ha to 2113 RON/ha (CONV) and from 2940 RON/ha to 3709 RON/ha (ECO) (Table 19, lines 8 and 9).

Table 19

Income variation in HEMP

Crt. no.	Indicators	U.M	Conventional farming		Organic farming*	
1	Average yield	t/ha	45.0	65.0	35.0	55.0
2	Selling price	RON/to	186.0	186.0	200.0	200.0
3	A. Value of the main production	RON	8370.0	12090.0	7000.0	11000.0
4	Subsidies	RON	1807.7	1807.7	2788.6	2778.6
5	B (–) Main production costs	RON	9079.7	11726.1	6818.8	9892.4
6	C (=) Taxable income	RON	–709.7	363.9	181.2	1107.6
7	C.1 (–) Taxes and fees	RON	–113.6	58.2	29.0	177.2
8	D (=) Net income	RON	–596.2	305.6	152.2	930.4
9	D.1 (=) Net income+ total subsidies	RON	1211.5	2113.3	2940.8	3709.0
10	D.2 (=) Net income+ coupled support	RON	X	x	1123.1	1901.3
11	D.3 (=)Net income+ sM 11.2*	RON	312.4	1214.2	1060.8	1838.9
12	D.4 (=)Net income+ direct payments	RON	174.2	1076.0	922.6	1700.8
13	D.5 (=)Net income+ NTA 3	RON	–467.4	434.4	280.9	1059.1
14	E. Taxable income rate	%	–7.8	3.1	2.7	11.2
15	F. Net income rate	%	–6.6	2.6	2.2	9.4
16	F.1 Net income rate + total subsidies	%	13.3	18.0	43.1	37.5
17	F.2 Net income rate + coupled support	%	X	x	23.5	26.0
18	F.3 Net income rate + sM 11.2*	%	3.4	10.4	15.6	18.6
19	F.4 Net income rate + direct payments	%	1.9	9.2	13.5	17.2
20	F.5 Net income rate + NTA 3	%	–5.1	3.7	4.1	10.7

Source: Author's calculations.

Conventional farming (hemp): the share of total subsidy (coupled support + direct payments + NTA 3) in net income + subsidies is 149.2% (for the yield level 45 t/ha) and 85.5% (for the yield level of 65 t/ha). *Organic farming (hemp)*: the share of total subsidy (coupled support + sM 11.2 + direct payments + NTA 3) in net income + subsidies is 94.8% (for 35 t/ha) and 74.9% (for 55 t/ha) (Table 20).

Table 20

Influence of different support forms on incomes obtained from the HEMP crop

Influence of subsidies on incomes						
Conventional farming			Hemp 45 t/ha		Hemp 65 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			1211.5	272.0	2113.3	474.5
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	1807.7	405.9	149.2%		85.5%	
Coupled support	908.6	204	75%		43%	
Direct payments	770.4	172.98	63.3%		36.5%	
NTA 3	128.7	28.9	10.6%		6.1%	
Organic farming			Hemp 35 t/ha		Hemp 55 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			2940.8	660.3	3709.0	832.8
Support measures 2016	RON	euro	Influence of subsidies on incomes			
Total subsidy	2778.6	623.98	94.8%		74.9%	
sM 11.2*	970.9	218	33.1%		26.2%	
Coupled support	908.6	204	31%		24.5%	
Direct payments	770.4	172.98	26.3%		20.8%	
NTA 3	128.7	28.9	4.4%		3.5%	

Source: Author's calculations.

Income variation in conventional HOPS (CONV). *Case 1: net income* – had a loss of 418.3 RON/ha (CONV). *Case 2: net income + subsidies* – income values increased from 4890 RON/ha to 8705 RON/ha (CONV). Hops are not grown under organic farming system (Table 21, lines 8 and 9).

Table 21

Income variation in HOPS

Crt.no	Indicators	U.M	Conventional farming	
1	Average yield	t/ha	1.5	2.0
2	Selling price	RON/to	13200	13200
3	A. Value of main production	RON	19800	26400
4	Subsidies	RON	5309.1	5309.12
5	B (-) Main production costs	RON	20297.9	22356.3
6	C (=) Taxable income	RON	-497.9	4043.7
7	C.1 (-) Taxes and fees	RON	-79.7	647.0

Table 21 (continued)

8	D (=) Net income	RON	-418.3	3396.7
9	D.1 (=) Net income+ total subsidies	RON	4890.9	8705.8
10	D.2 (=)Net income+ coupled support	RON	1853.1	5668.1
11	D.3 (=)Net income + NTA 4	RON	1849.1	5664.0
12	D.5 (=)Net income + direct payments	RON	352.1	4167.1
14	E. Taxable income rate	%	-2.5	18.1
15	F. Net income rate	%	-2.1	15.2
16	F.1 Net income rate + total subsidies	%	24.1	38.9
17	F.2 Net income rate + coupled support	%	9.1	25.4
18	F.4 Net income rate + direct payments	%	9.1	25.3
19	F.5 Net income rate + NTA 4	%	1.7	18.6

Source: Author's calculations.

Conventional farming (hops): the share of total subsidy (coupled support + direct payments + NTA 4) in net income + subsidies is 108.6% (for the yield level 1.5 t/ha) and 61% (for the yield level 2 t/ha) (Table 22).

Table 22

Influence of different support forms on incomes obtained from HOPS crop

Influence of subsidies on incomes						
Conventional farming			Hops 1.5 t/ha		Hops 2 t/ha	
NET INCOME + total subsidies			RON	euro	RON	euro
			4890.9	1098.2	8705.8	1954.7
Support measures 2016	RON	Euro	Influence of subsidies on incomes			
Total subsidy	5309.1	1192.1	108.6%		61%	
Coupled support	2271.4	510	46.4%		26.1%	
NTA 4	2267.3	509.091	46.4%		26%	
Direct payments	770.4	172.98	15.8%		8.8%	

Source: Author's calculations.

5. CONCLUSIONS

For the production year 2016–2017, for the crops analyzed in the study, income losses were found in wheat, barley, maize, rice, soybean, sugar beet and hops. Sunflower, rapeseed, hemp and autumn potatoes are profitable for the forecast yield levels.

The income losses were compensated by subsidies. The influence of subsidies on the obtained income is different, according to the level of yields and the selling prices. The higher the income obtained, the smaller the influence of subsidies on income. The profitability rates of the net income + subsidies vary from one crop to another, ensuring crop profitability increase. As regards the organic crops, although

the selling prices are higher than for conventional crops, the income levels are limited by lower yields.

The payment schemes applied, subject to certain conditions, to certain yield levels, which are applied in the crop production sector, provide the active farmer with an income. In the absence of these benefits, certain farmers would have to give up this activity, while others would thrive due to the competitive advantage on the market.

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