

RESEARCHES REGARDING THE INCREASE AND MODERNIZATION OF THE MEAT PROCESSING CAPACITIES BY USING THE FUNDS OFFERED THROUGH THE NATIONAL RURAL DEVELOPMENT PROGRAM IN THE NORTH WEST DEVELOPMENT REGION

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Abstract

To implement the Common Agricultural Policy (CAP) in the Member States, the European Agricultural Fund for Rural Development (EAFRD) was created by the European Union. The EAFRD finances the National Rural Development Program (PNDR), which in order to reach the priority objectives of Romania decides the financing lines. The National Program for Rural Development deals with the provision of non-reimbursable funds from the Government of Romania and the European Union for the development of rural areas in Romania. The increase and modernization of the meat processing capacities through the use of the funds offered by NRDP have as an objective the increase of the added value of the agricultural products of animal origin (meat processing). Sub-measure 4.2 ("Support for investment in the processing / marketing and / or development of agricultural products") is concerned with the modernization and creation of processing units and the introduction of new technologies in this field. The purpose of this paper is to analyze the situation of investments in meat processing units in the North-West Development Region of Romania, between 2015-2018, where 9 projects were financed (eligible value of 24,413,529 euros), representing 22% of the total, of 42 projects financed at national level (eligible value of 98,084,071 euros), by sub-measure 4.2, of the National Rural Development Program 2014-2020. From the correlation of the amounts invested (eligible value) from the counties of this area with the value of the total agricultural production (the live weight of the animals destined for slaughter), it follows that the projects were done randomly, independently of the animal agricultural production.

Key words: eligible value, processing meat, financing, project, measure, live weight.

INTRODUCTION

The European Union, through the Common Agricultural Policy, offers a complex system of rural development interventions and increased flexibility, allowing, with the help of the rural development plan, the design of a financial package according to the national specific, based on the principle of subsidiarity [3].

The aim of the CAP is to support the rural areas of the EU and to face the many economic and social challenges by developing their own rural development programs based on European mechanisms [4].

Adjustments to European Union standards have led to substantial disappearances of investments in meat processing. These factors

make companies more vulnerable to bankruptcy [2].

After the date of accession to the European Union, some financial support can be used through the use of structural funds and all the best available techniques suggested by the EU will be implemented to modernize the meat industry [5].

The simulations show that a grant scheme can promote compliance and can contribute to a modernization of the industry in the exporting country, but its marginal efficiency is diminished [8].

Subsidies for investments should increase the economic results of the supported companies and increase their competitiveness [9].

The import of unprocessed meat is increasing, also the consumption of meat per capita is

increasing, but also the companies in the field of meat processing are increasing [11].

Export support and its promotion represent a very good method for sustainable development, also for Romania's economic development and integration into the complex system of international relations [1]. A study conducted in Poland shows that for the development of meat companies, cooperation with scientific research and development institutions and investments in human capital must be achieved [10]. Also, the production of raw materials (pork, beef, sheep and goat meat, poultry meat) influences investments in meat processing units. Domestic pig production must be sufficient to cover domestic consumption, pig farmers must be supported to increase their production. In case the farmers are not supported, the imports from the western countries will increase, due to their overproduction.[7]. Following the analysis of pork production trends, a forecast was made between 2015-2020, which resulted in a decrease in pork production at EU level and an increase in pork production in Romania [6].

MATERIALS AND METHODS

In this article, a study was conducted on the production of animals intended for slaughter (cattle, pigs, sheep and goats, poultry) and investments in meat processing units carried out by sub-measure 4.2 of the National Rural Development Program, between 2015-2018. The North-West Region of Romania was analyzed (Bihor, Bistrița-Năsăud, Cluj, Maramureș, Satu-Mare, Sălaj counties) where the number of projects and the amounts invested in the meat processing units were investigated, but also the potential their development regarding the production of

animals intended for slaughter. From the selection reports published by the Agency for Financing Rural Investments, the data regarding the financing of the projects were taken.

The situation of the production of animals destined for slaughter took from the database of the National Institute of Statistics.

In order to highlight the correlations between animal agricultural production – the live weight of the animals for slaughter (x) and the number of projects (y) and animal agricultural production – the live weight of the animals for slaughter (x) and the total eligible value (y) the following equation was used:

- the equation for the correlation coefficient:

$$r = \frac{\sum(x_i - \bar{X})(y_i - \bar{Y})}{\sqrt{(\sum(x_i - \bar{X})^2)(\sum(y_i - \bar{Y})^2)}}$$

where:

\bar{X} and \bar{Y} - are the averages for samples, average (matrix1) and average (matrix2).

In the analysis, the values of the correlation coefficient (r) and of the coefficient of determination will be presented (R²).

RESULTS AND DISCUSSIONS

In the North West region of Romania, 9 projects were financed, representing a percentage of 22% of the total of 42 projects from all over Romania, through sub-measure 4.2 of the PNDR 2014-2020, in the meat processing units in 2015 -2018. (Table 1).

In Cluj county there were 5 funded projects, in Satu-Mare county there were 2 funded projects, and in Bihor county 2 funded projects, while in Bistrita-Nasaud, Maramures and Salaj counties there was no funded project (Table 1).

Table 1. Number of projects funded in the North-West Region, between 2015-2018

Year	County						Total	National Total
	Bihor	Bistrița Năsăud	Cluj	Maramureș	Satu-Mare	Sălaj		
2015	0	0	0	0	1	0	1	4
2016	0	0	0	0	0	0	0	8
2017	2	0	2	0	0	0	4	18
2018	0	0	3	0	1	0	4	12
Total	2	0	5	0	2	0	9	42

Source: Own calculation.

The total amount invested (the eligible value) at national level in the meat processing units, in the period 2015-2018, by submeasure 4.2 of the National Rural Development Program 2014-2020 is 98,084,071 euros, while in the North-West Region were invested 22,413,529 euros (eligible value), representing 23% of the total amount at national level (Table 2).

The eligible value from Cluj county is 13,290,386 euros, and the public value is

6,658,938 euros, being the county with the most funded projects and the highest amount invested by this measure. In Bihor county we have an eligible value of 5,616,143 euros and a public value of 2,807,958 euros, and in Satu-Mare county we have an eligible value of 3,507,000 euros and a public value of 2,342,000 euros. In Bistrița-Năsăud, Maramures and Salaj counties there were no projects financed by this measure (Table 2).

Table 2. The value of the projects financed in the North-West Region, between 2015-2018 [€]

Year	Value [€]	Bihor		Bistrița - Năsăud		Cluj		Maramureș		Satu-Mare		Salaj		Total Eligible Value	Total Public Value	Total National Eligible Value	Total National Eligible Value
		Eligible	Public	Eligible	Public	Eligible	Public	Eligible	Public	Eligible	Public	Eligible	Public				
2015	Eligible	-	-	-	-	-	-	-	-	650,000	-	-	-	650,000	-	2,185,556	-
	Public	-	-	-	-	-	-	-	-	-	325,000	-	-	-	325,000	-	1,092,778
2016	Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27,066,427	-
	Public	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,439,399
2017	Eligible	5,616,143	-	-	-	3,999,790	-	-	-	-	-	-	-	9,615,933	-	41,183,117	-
	Public	-	2,807,958	-	-	-	1,999,896	-	-	-	-	-	-	-	4,807,854	-	18,969,048
2018	Eligible	-	-	-	-	9,290,596	-	-	-	2,857,000	-	-	-	12,147,596	-	27,648,971	-
	Public	-	-	-	-	4,659,042	-	-	-	1,999,000	-	-	-	6,658,042	-	15,589,513	-
Total	Eligible	5,616,143	-	-	-	13,290,386	-	-	-	3,507,000	-	-	-	22,413,529	-	98,084,071	-
	Public	-	2,807,958	-	-	6,658,938	-	-	-	2,342,000	-	-	-	11,790,896	-	48,090,738	-

Source: Own calculation.

The live weight of the cattle destined for slaughter, in the North-West Region was increasing during the analyzed period, in 2015 there were registered 25,227 tonnes live weight, and in 2018 the value reached 30,237 tonnes live weight. The live weight of the pigs intended for slaughter was increasing, in 2015 there were 67,172 tons live weight, and in

2018 the value reached 74,274 tons, in the North West Region. And in the case of sheep and goats there were increases, in 2015 there were 12,707 tons live weight, and in 2018 there were 14,256 tons live weight. The live weight of the birds destined for slaughter was 49,241 tons live weight in 2015, and in 2018 it reached 64,029 tons live weight (Table 3).

Table 3. Animal agricultural production – live weight of the animals for slaughter – cattle, pigs, sheep and goats, poultry

Animal product categories	Development region and counties	Measure Units	Years			
			2015	2016	2017	2018
Cattle	Bihor	Tonnes live weight	2329	4501	5538	6941
	Bistrița-Năsăud		7617	7998	6754	6288
	Cluj		3787	4756	5700	5551
	Maramureș		5674	6335	4656	5882
	Satu-Mare		3479	3606	2840	3459
	Salaj		2341	2347	2006	2115
	North-West Region		25,227	29,543	27,494	30,237
Pigs	Bihor	Tonnes live weight	16,961	31,208	26,861	24,096
	Bistrița-Năsăud		8678	9046	9175	8922
	Cluj		10,071	10,040	10,314	8538
	Maramures		10,299	10,215	10,593	10,397
	Satu-Mare		12,115	11,944	13,087	14,464
	Salaj		9048	9323	9767	7857
	North-West Region		67,172	81,779	79,797	74,274
Sheep and goats	Bihor	Tonnes live weight	2183	2239	2371	2866
	Bistrița-Năsăud		2246	2382	2186	2489
	Cluj		2590	3103	2877	3734
	Maramureș		1535	1613	1528	1590
	Satu-Mare		1605	1764	1610	1544
	Salaj		2548	1891	1848	2034
	North-West Region		12,707	12,992	12,420	14,256
Poultry	Bihor	Tonnes live weight	15,483	20,702	24,741	22,862
	Bistrița-Năsăud		1441	1634	2123	1826
	Cluj		8597	7355	14,435	15,457
	Maramureș		1410	1285	1920	1672
	Satu-Mare		20,396	16,231	16,488	20,532
	Salaj		1914	1694	1555	1676
	North-West Region		49,241	48,901	61,262	64,029

Source: <http://statistici.inse.ro:8077/tempo-online/#/pages/tables/inse-table>, Accessed on Dec.10, 2019.

The total live weight of animals intended for slaughter (cattle, pigs, sheep and goats, poultry), in the period 2015-2018, in the counties in the North-West Region was as follows: in Bihor county 211,788 tonnes live

weight, Bistrița-Năsăud county 80,805 tonnes live weight, Cluj county 116,905 tonnes live weight, Maramures county 76,604 tonnes live weight, in Satu-Mare county 145,164 tonnes

live weight, and in Salaj county 59,964 tonnes live weight (Table 4).

Table 4. Live weight of the animals for slaughter – cattle, pigs, sheep and goats, poultry – in 2015-2018

Animal product categories	Bihor	Bistrița-Năsăud	Cluj	Maramureș	Satu-Mare	Sălaj
	Tonnes live weight					
Cattle	19,309	28,657	19,794	22,547	13,384	8809
Pigs	99,126	35,821	38,963	41,504	51,610	35,995
Sheep and goats	9659	9303	12,304	6266	6523	8321
Poultry	83,788	7024	45,844	6287	73,647	6839
Total live weight of the animals for slaughter	211,882	80,805	116,905	76,604	145,164	59,964

Source: Own calculation.

Table 5. Development region and counties, total live weight of the animals for slaughter, the number of projects, the total eligible value

Development region and counties	Total live weight of the animals for slaughter	The number of projects	The total eligible value [€]
Bihor	211,882	2	5,616,143
Bistrița-Năsăud	80,805	0	0
Cluj	116,905	5	13,290,386
Maramureș	76,604	0	0
Satu-Mare	145,164	2	3,507,000
Sălaj	59,964	0	0
North-West Region	691,324	9	22,413,529

Source: Own calculation.

Between animal agricultural production – the live weight of the animals for slaughter and the number of projects there is a correlation coefficient of 0.22, respectively a reduced

dependence on the two variables. The correlation coefficient R2 has the following values: 0.56, 0.57, 0.99, 1.00 for polynomial functions of degree 2, 3, 4 and 5 (Fig.1). It turns out that there is a correlation between the two variables, but no mathematical model can be recommended for use, so the number of projects in each county of the North West Region does not depend on the animals intended for cutting in each county, the projects being accessed randomly.

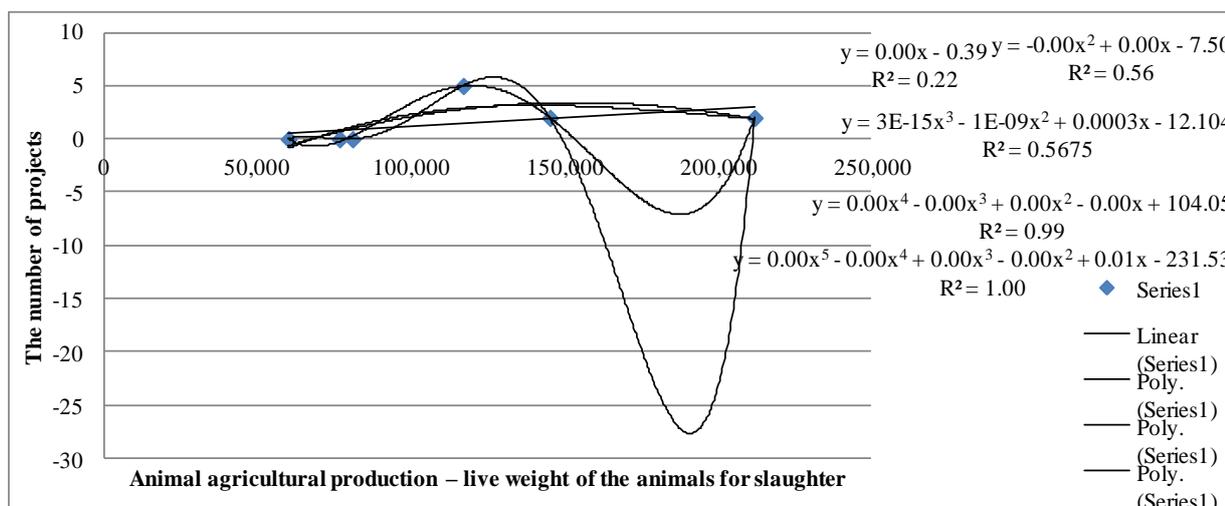


Fig. 1. Correlation Between animal agricultural production – the live weight of the animals for slaughter and the number of projects

Source: Own design.

Between animal agricultural production – live weight of the animals for slaughter and the total eligible value there is a correlation coefficient of 0.21, respectively a reduced dependence on the two variables.

The correlation coefficient R2 has the following values: 0.44, 0.48, 0.99, 1.00 for polynomial functions of degree 2, 3, 4 and 5 (Fig. 2).

It turns out that there is a correlation between the two variables, but no mathematical model can be recommended for use, so the eligible value invested by sub-measure 4.2 from each county of the North West Region does not depend on the animals destined for cutting in each county, the projects being accessed randomly.

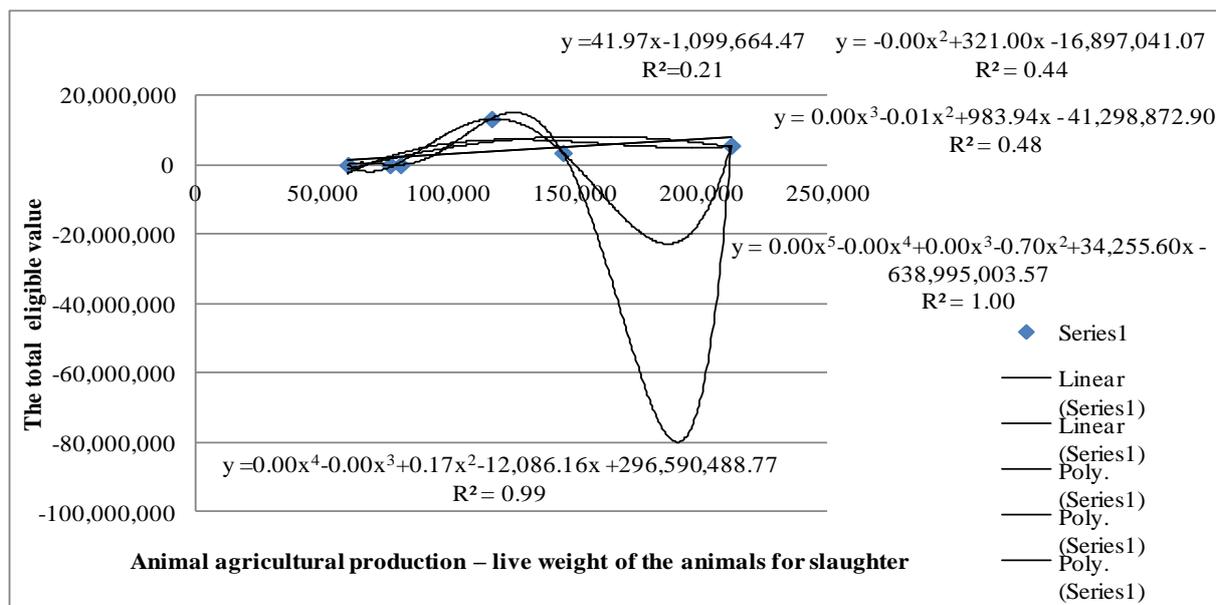


Fig. 2. Correlation between animal agricultural production – the live weight of the animals for slaughter and the total eligible value
 Source: Own design.

CONCLUSIONS

In the North West region of Romania, 9 projects were financed, representing a percentage of 22% of the total of 42 projects from all over Romania, through sub-measure 4.2 of the PNDR 2014-2020, in the meat processing units in 2015 -2018.

In the period 2015-2018, 22,413,529 euros (eligible value) were invested in the North-West Region of Romania, representing 23% of the total amount invested (eligible value) at national level of 98,084,071 euros, through sub-measure 4.2 of the 2014-2020 NRDP. From the correlation of the amounts invested (the eligible value) from the counties of this area with the value of the total animal production (live weight of the animals destined for slaughter), it follows that the projects were randomized, independently of the animal agricultural production (the live weight of the animals destined for slaughter).

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