

## **ANALYSIS OF THE EFFICIENCY OF INTERMEDIARY CONSUMPTIONS FROM AGRICULTURE IN NATIONAL AND EUROPEAN CONTEXT**

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### **ABSTRACT - Analiza eficienței consumurilor intermediare din agricultură în context național și european**

Scopul urmărit în această lucrare este investigarea principalilor indicatori care reflectă nivelul și tendințele eficienței activității economice din agricultură sub impactul transformărilor care s-au produs în această ramură și în economia națională în perioada postdecembristă și având în vedere statutul României de stat membru al Uniunii Europene. Prin ponderea pe care o deține în economia națională (agricultura participă la formarea Produsului Intern Brut în proporție de 5,7%, comparativ, de exemplu, cu Germania unde această valoare este de 1%), dezvoltarea acesteia este într-o măsură mai mare dependentă de agricultură, comparativ cu alte țări. Este și rațiunea pentru care considerăm dezvoltarea agriculturii printre cele mai importante priorități ale actualei perioade, ca suport pentru relansarea dezvoltării economiei naționale. În ce măsură agricultura evoluează în direcția dorită, dacă aceasta reprezintă un factor de stimulare a dezvoltării economiei naționale și de apropiere de nivelul atins de agricultura altor țări europene sunt întrebări ale căror răspunsuri depind de nivelul și evoluția eficienței activității economice.

### **ABSTRACT - Analysis of the efficiency of intermediary consumptions from agriculture in national and European context**

The objective of this work is the investigation of the major indicators reflecting the level and trends of the efficiency in agricultural economic activity, under the impact exerted by the changes occurred in this field and in the national economy during the post-Revolution period, with consideration on the Romania's status as European Union member state. With agriculture's proportion in the national economy (agriculture participates to Gross Domestic Product formation in a proportion of 5.7%, compared with Germany for example, where this value is 1%), the development of this depends much more on agriculture compared with other countries. This was the reason why we consider that agricultural development is one of the most important priorities at the moment, as support for the refreshment of the national economy development. Does agriculture evolve in the right direction, does it represent a factor that stimulates the national economy development or that approaches the level reached by agriculture in other European countries – these are questions whose answers depend on the level and evolution of the economic activity efficiency.

**Cuvinte cheie:** eficiență, consumuri intermediare, producție, valoare adăugată brută

**Keywords:** efficiency, intermediary consumptions, production, gross value added

## **INTRODUCTION**

Intermediary consumptions represent the consumptions of economic goods, excepting the fixed capital, used to produce other goods. In agriculture, such goods are: biological material, chemical and organic fertilizers, insecticides and fungicides, fuels and lubricants, water and electric energy, forage, veterinary medicines and other raw matter and materials. Some of them are achieved from the agricultural production; the others are supplied by non-agricultural fields.

In Romania's agriculture, the intermediary consumptions, in real terms, have recorded a slight decline that started before 1989 and got more significant during the following years.

Romania provides inputs in a small amount, because of the lack of capital. The capital represents a major factor limiting the increase of agricultural production. The agricultural structures' character of subsistence and the lack of capital-developing resources, at the moment in Romania, produce a blockage in the technical and technological holding modernization.

**MATERIAL AND METHOD**

In the assessment of the macroeconomic efficiency of agricultural activity, an important role is played by the analysis of the relationship between yield and gross value added, compared with the intermediary consumptions, respectively GVA per 1 ha of agricultural area used.

To determine these indicators, we used data taken from the European Commission statistics (Eurostat); successively, we processed and observed on these data in order to draw conclusions.

**RESULTS**

During the last 20-30 years, Romanian agriculture has recorded a significant decrease of intermediary consumptions. The consumptions of fuels, chemical and natural fertilizers, and the other consumptions necessary for agriculture are below the level required by the good results in this field. In table 1, we present some significant data regarding the final consumption of chemical fertilizers in Romania and in the other European Union-member countries.

**Table 1: Chemical fertilizers used in Romania and EU**

Countries	Chemical fertilizers (kg s.a. / arable ha)	RO:UE	Cereal yield (kg/ha)	RO:UE
<b>EU</b>	<b>151</b>	<b>1:4.3</b>	<b>4820</b>	<b>1:1.5</b>
Belgium	..	..	8740	1:2.6
Denmark	130	1:3.7	6150	1:1.8
Germany	220	1:6.3	6490	1:1.9
Ireland	545	1:15.6	6900	1:2.1
Greece	148	1:4.3	3540	1:1.1
Spain	161	1:4.6	2170	1:0.6
France	215	1:6.1	6980	1:2.1
Italy	169	1:4.8	5380	1:1.6
Luxembourg	..	..	5630	1:1.7
The Netherlands	370	1:10.6	8380	1:2.5
Austria	149	1:4.3	6150	1:1.8
Portugal	115	1:3.3	2040	1:0.6
Finland	134	1:3.8	3420	1:1.0
Sweden	99	1:2.8	4980	1:1.5
Great Britain	306	1:8.7	7220	1:2.2
Czech Republic	120	1:3.4	4750	1:1.4
Estonia	32	1:0.9	2690	1:0.8
Cyprus	157	1:4.5	1130	1:0.3
Latvia	27	1:0.7	2800	1:0.8
Lithuania	66	1:1.9	2940	1:0.9
Hungary	109	1:3.1	5530	1:1.7
Malta	88	1:2.5	..	..
Poland	108	1:3.1	3230	1:0.9
Slovenia	..	..	6030	1:1.8
Slovakia	86	1:2.5	4480	1:1.3
Bulgaria	47	1:1.3	3390	1:1
<b>Romania</b>	<b>35</b>	<b>1:1</b>	<b>3320</b>	<b>1:1</b>

Source: Calculated according to FAO Statistics Division

Crop fertilization is a factor of major influence on yield level. It is known that we cannot obtain big and safe yields without fertilization, even on the most fertile soils. The experiences performed in our country and abroad as well proved that the maximal yields that can be obtained without fertilization are 2500-3000 kg/ha (OTIMAN P.I., 2002). Consequently, the chemical and organic fertilization is a necessity, a condition to have constancy in the agricultural production.

The data in this table explain the causes of the disproportion between the mean yields from Romania and the EU countries. Moreover, if we mention that the most EU countries use annually the entire amount of organic fertilizers as solid manure or liquid, than we obtain another support for yield level, especially in cereals and pastures.

The amount of chemical fertilizers used in the Romanian agriculture has been reduced, during 1989-2008, for about three times; in 2008, we used 36 kg active substance per 1 ha of arable land compared with 78 kg in 1989. The amount of natural fertilizers has been reduced in the same way, as effect of livestock reduction. As a result, the available soil nutrients and land's productive capacity decreased, as well.

**Table 2: Efficiency of intermediary consumptions in Romania's agriculture**

Years	Production (mil. Euro)	Intermediary consumption (mil. Euro)	Gross value added – GVA (mil. Euro)	Production per 1 Euro intermediary consumption	GVA per 1 Euro intermediary consumption
1998	9783.76	4631.33	5152.43	2.11	1.11
1999	7780.06	3560.39	4219.66	2.18	1.18
2000	8067.10	3850.11	4216.99	2.09	1.09
2001	10707.14	4998.23	5708.90	2.14	1.14
2002	10100.69	4902.73	5197.96	2.06	1.06
2003	10761.85	5108.41	5653.44	2.10	1.10
2004	13654.44	6462.18	7192.26	2.11	1.11
2005	12853.03	6664.07	6188.96	1.93	0.93
2006	14365.42	7348.03	7017.39	1.95	0.95
2007	14312.26	8047.12	6265.15	1.78	0.78
2008	18216.75	9837.91	8378.84	1.85	0.85
2009 (e)	15161.26	8302.49	6858.77	1.83	0.83

(e) estimated value

Source: Calculated according to EUROSTAT – online help „Economic Accounts for Agriculture”

A similar reduction may be observed on the amounts of insecticides, fungicides and herbicides. The main cause of the reduction of fertilizers and other chemical substances is represented by the increase of prices, under the lack of financial resources for purchase.

The efficiency of intermediary consumptions' utilization in the Romanian agriculture, expressed by yield and gross value added reported to the intermediary consumption, has recorded a decrease in both cases and it is presented in table 2.

The intermediary consumptions from the Romanian agriculture represent another sensible point, deviated from normality, in comparison with the situation available in the advanced states. In order to assess correctly the level of intermediary consumptions and their economic efficiency, it is necessary to compare them with the situation in the EU and in the member states.

**Table 3: Efficiency of intermediary consumptions in the European Union agriculture (2008)**

Countries	Agricultural production (mil. €)	Intermediary consumption (mil. €)	Gross value added (GVA) (mil. €)	Intermediary consumption / production %	Production per 1 € Intermediary consumption -euro-	Intermediary consumption per 1 ha agr. area used (€)	GVA per 1 ha agr. area used (€)
EU-27	381212	228898	152314	60.04	1.66	1326	882
EU-15	315900	188265	127635	59.59	1.67	1510	1024
BE	7485	5480	2005	73.21	1.36	3987	1458
DK	9090	7571	1519	83.28	1.20	2843	570
DE	49852	34299	15553	68.80	1.45	2025	918
IE	6114	4494	1620	73.50	1.36	1085	391
GR	11011	4947	6064	44.92	2.22	1213	1487
ES	43183	19200	23983	44.46	2.24	771	963
FR	69211	41919	27292	60.56	1.65	1525	993
IT	47641	21614	26027	45.36	2.20	1695	2042
LU	330	219	111	66.36	1.50	1673	848
NL	24013	16021	7992	66.71	1.49	8369	4174
AT	6691	3812	2879	56.97	1.75	1195	902
PT	7037	4943	2094	70.24	1.42	1423	603
FI	4568	3544	1024	77.58	1.28	1546	446
SE	5005	3656	1349	73.04	1.36	1145	422
UK	24670	16544	8126	67.06	1.49	1025	503
CZ	4764	3552	1212	74.55	1.34	1009	344
EE	668	446	222	66.76	1.49	491	244
CY	648	347	301	53.54	1.86	2376	2061
LT	2302	1561	741	67.81	1.47	589	279
LV	1044	748	296	71.64	1.39	421	166
HU	7825	5211	2614	66.59	1.50	1232	618
MT	136	80	56	58.82	1.70	7744	5421
PL	21838	13895	7943	63.62	1.57	897	514
SI	1106	696	410	62.92	1.58	1423	838
SK	2270	1649	621	72.64	1.37	851	320
BG	4494	2608	1886	58.03	1.72	854	618
RO	18217	9838	8379	54.00	1.85	715	609

Source: Calculated according to EUROSTAT – online help „Economic Accounts for Agriculture”

## CONCLUSIONS

By analyzing the data in table 3, we may draw the following conclusions:

- The percentage of intermediary consumptions in the final agricultural production ranges between 44.46% in Spain and 83.28% in Denmark. 12 of the EU-15 countries have percentages that are superior to the Romanian one, and three of them are inferior. Of the other member states, only one country has a percentage that is inferior to the Romanian one (Cyprus).
- Regarding the economic efficiency expressed by final agricultural production reported to intermediary consumptions (respectively, final agricultural production obtained per 1 euro), 12 countries (from EU-15) achieve levels that are reduced compared with Romania, and three – superior levels. The best efficiency is obtained by Spain (2.24 euro production per 1 euro intermediary consumptions), and the smallest one is obtained by

Denmark (respectively 1.20/1 euro). Of the new member states, only Cyprus overtakes the level of this indicator obtained in Romania.

The situation in Romania is very similar with the EU mean in terms of intermediary consumptions' percentage in the agricultural production, and also regarding the proportion GVA/intermediary consumption.

The gaps appear and they are very big if we analyze the level of intermediary consumptions per unit of surface used and compared with the level of final agricultural production and with the obtained gross value added.

Because Romania has intermediary consumptions per ha of only 715 euro, it is overtaken by all the old EU member states and by the new ones, as well, excepting Latvia, Lithuania and Estonia. The intermediary consumptions per ha are bigger with 11.7-fold in The Netherlands, 5.6-fold in Belgium, 4-fold in Denmark and 2.8-fold in Germany than in Romania. EU-15 allocates, for the intermediary consumptions, a mean value that is 2.1-fold bigger than Romania. The value added per ha is also remarkably bigger than in Romania: 6.8-fold in The Netherlands, 3.3-fold bigger in Italy, 2.4-fold in Belgium and Greece and 1.6-fold bigger in France; the EU mean is 1.7-fold bigger. The big gaps between Romania and the EU member states regarding the mean production and the gross value added rely especially on much bigger intermediary consumptions. This comparison is also available in the case of the new member states, because Romania is overtaken by almost all the EU countries when we speak about the gross value added per ha, excepting the Baltic countries.

The unfavourable situation from Romania, in terms of intermediary consumptions per ha, presents the advantage of having a „cleaner” soil, favourable for the development of the ecologic agriculture; this would represent a real chance for the advancement of Romania in the hierarchy of countries from such an important field, from an economic and social viewpoint.

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