

THE COMPARATIVE ECONOMIC ANALYSIS OF PRODUCTION ACTIVITIES IN THE AGRICULTURAL SECTOR OF THE REPUBLIC OF MOLDOVA

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Abstract

The article describes the economic analysis of production activities performed in the agricultural vegetal sector of the Republic of Moldova. To this end, one has focused from the very beginning on the necessity to elaborate and calculate the economically argued budgets of agricultural plant growing. Thus, in our investigations, we considered the principle of economic argumentation of incomes and costs in the agricultural units calculating the gross profit coming from the cultivation of 45 agricultural plants in the vegetal sector of the country. There has been elaborated for each culture three variants of budgets centered on the application of the recommended technology, harmonized technology for big and medium agricultural units and the harmonized technology in the peasant (farmer) households.

INTRODUCTION

The rapid transition to the market economy has generated essential changes in the agriculture of the Republic of Moldova. The privatization in this sector had determined to a great extent the emergence of new land owners who had to carry out their activity based on economic principles, but at the same time lacking sufficient knowledge and practical grounding needed for that. Thus, the restructuring and development of agriculture based on private property and market economy requirements, impose radical transformations in the system of exploitation, labor process organization, observance of cultivation technologies and property management in agriculture, that has to ensure the formation of the necessary type of specialist and elaboration of respective solutions. The changes taking place in the economy must have an influence as well in the improvement of the informational, methodological and advisory support relating to the activities of agricultural producers and entrepreneurs, in order to increase the economic efficiency of production and obtained incomes.

MATERIAL AND METHOD

With a view of a clear picture of the possibilities of practicing of production activities in the vegetal sector of the republic, one has focused from the very beginning on the necessity to elaborate and calculate the economically argued budgets of agricultural plant growing. Thus, in our investigations, we considered the principle of economic argumentation of incomes and costs in the agricultural units calculating the gross profit (marginal contribution) coming from the cultivation of 45 agricultural plants in the vegetal sector of the country. The budgets of economic argumentation of the plant growing sector activities were elaborated for three variants of activity:

I variant – economic argumentation of incomes and costs for agricultural cultures applying the recommended technology of cultivation.

II variant – argumentation of incomes and costs for agricultural cultures in the big and medium agricultural enterprises.

III variant – argumentation of incomes and costs for agricultural cultures in the peasant (farmer) households.

For those three variants of planning of the income and costs budgets for plant growing and economic reasoning of agricultural activities, the primary information (applied norms, performed operations, prices and costs etc.) has been selected on the basis of the questionnaires filled in by agricultural producers of different organizational and juridical forms and various production sizes from the three development zones of the country (north, centre and south). The information was systematized and processed and then integrated into the income and cost budgets of the vegetal sector's agricultural plants.

RESULTS AND DISCUSSIONS

In the Republic of Moldova agriculture continues, traditionally, to be the main sector of the national economy with a 15,1% quota in GDP, 60% of exports and 34% of the active population of the country employed in this sector. Nevertheless, the current dynamics of the agricultural development is characterized by a pronounced instability, inadequate quality, low productivity, low incomes and lack of some well-defined priorities in the promotion policies of the agrifood sector.

Despite the major role of agriculture in the country's economy, the highest poverty levels are registered mainly in this sector. The basic cause of income decreasing in agriculture lies in the relative price evolution and the low sector's productivity growth. The current production structure reflects the preponderant subsistence feature of domestic agriculture.

The low actual efficiency of the agricultural sector derives from the poor link with the sale markets and the reduced competitiveness level of domestic agricultural products. The real incomes of agricultural producers reduced because of the constant agricultural production prices (or even decreased) and increased input prices. Depressed prices for agricultural products could be explained by the quality/standard deficiencies on the one hand as well as the difficulty to penetrate with the production on new advantageous markets. This state of things is determined by a number of inefficiencies of interconnected markets forming together a vicious circle hardly to face. The agricultural production means markets as well as the agricultural products markets are poorly developed maintaining their prices at a low level, while input prices are growing much faster. Given that most of the agricultural inputs are imported, Moldavian farmers are facing world prices when buying production means, not being able to receive the same prices when marketing their agricultural production.

At present, the success of agriculture and farmers of one small and open country, like Moldova, is determined to a great extent by the adjustment to the international quality standards and systems. The modernization of the autochthonous quality management, agrifood product harmlessness and plant and animal health systems is absolutely necessary for keeping the access to the profitable market segments in the Newly Independent States, as well as for obtaining and increasing the access on new markets through diversification, mainly on the large European Union market.

The modern market infrastructure ensures an efficient instrument of agricultural products value adding and acts as an essential component in the development process of the product value chains. In Moldova there is a keen necessity of increased storage capacities, particularly refrigerating storehouses and warehouses with controlled atmosphere, appropriate purveyance spots, instantaneous cooling equipments and packaging houses dealing with post-harvesting treatment, gradation, sorting and packaging of horticultural products. The private sector has to act as the motive power for such kind of investments and the state must support it to the maximum through coherent policies and ensuring of necessary public goods.

Agrifood processing industry constitutes another essential mechanism of agricultural product value adding. Most agricultural processing enterprises, mainly those small and medium, are facing difficult constraints in many fields, including the technological, financial, logistical and marketing one. If a sufficient number of enterprises manage to overcome these constraints and to develop rapidly, then this trend could become the dynamic element of the agricultural sector.

The main idea is simple: the rural poverty reduction will be a sustainable process only if it is oriented towards the market that means the developing of a competitive agricultural sector, especially on the export markets. When local supply satisfies the global demand and domestic agrifood products are able to compete on international

markets, then the Moldavian agriculture will become a profitable business on condition that the value chain is strongly based on long term partnerships. Increased agricultural incomes will promote the development of non-agricultural activities in rural areas, since the population will create a demand for various products and services and will be able to pay for them. Thus, inevitably, the flow of the labor force from agriculture to other sectors of the national economy will take place. The great possibilities of non-agricultural employment in rural areas and the increase of the agricultural activities profitability will stimulate the most productive producers to remain in agriculture, thus enhancing the efficiency of the sector and ensuring its growth. The development namely of non-agricultural fields on the basis of a competitive and profitable agricultural sector represents a way of development and sustainable growth of the country.

Every economical activity must harmonize and observe the following rule: the born costs (effort) must be recovered through the obtained incomes (effect). So, the economic activities have to be managed in the most efficient and friendly to environment way, by developing a sustainable agriculture and recording of positive results from the operational activity.

The market economy conditions make the agricultural producers to redirect their activity by practicing the activities that frame and observe the following important aspects: quality and productivity, implementation of modern and intensive technologies, development of value chains by products, combining high value agriculture with the subsistence one, development of marketing infrastructure, association by interests in professional organizations and cooperation for promotion and penetration on new advantageous markets etc. Moldavian agriculture will revitalize and develop only in the case when agricultural producers will comply with and practice a sustainable agriculture for all sectors.

The globalization of the world economy and the technical and scientific progress offer new possibilities to increase agricultural output at the level of various branches. For Moldova, the accomplishment of this task could be achieved through the orientation with priority to the production and export of high value agrifood products, given the proximity and demand of some most profitable modern markets, mainly those from Europe. However, the transformation of the agrifood sector into a modern, efficient and competitive one requires important investments and the implementation of intensive and advanced technologies.

In the Republic of Moldova local producers grow a wide variety of agricultural cultures. At present, the entrepreneurs are oriented to the development of high-value agriculture (HVA), that is represented to a great extent by horticultural products (fruits, vegetables, table grapes and their value added derivates). At the same time, agricultural enterprises practice widely the production and processing of the cereal (wheat, barley etc.) and technical group of cultures (sugar beet, oil-bearing plants etc.). Technical plants are cultivated on 1/5 of the area under crops that

Table 1. Totalizing the results with regard to the economic substantiation of agricultural plant growing

Nr.	Specification of agricultural crops	Economic argumentations for agricultural plant growing								
		Recommended technology			Agricultural enterprises			Peasant (farmer) households		
		Sales incomes, lei	Sales costs, lei	Gross profit, lei	Sales incomes, lei	Sales costs, lei	Gross profit, lei	Sales incomes, lei	Sales costs, lei	Gross profit, lei
1	Winter wheat	15 360,00	9 886,75	5 473,25	10 547,20	7 033,78	3 513,42	6 869,33	5 903,34	965,99
2	Winter barley	11 800,00	8 534,30	3 265,70	8 000,40	5 815,66	2 184,74	5 548,67	5 137,43	411,24
3	Oats	8 360,00	6 841,39	1 518,61	6 416,30	5 333,70	1 082,60	4 576,08	4 491,59	84,49
4	Rye	9 632,00	7 080,87	2 551,13	6 988,80	5 181,80	1 807,00	5 340,67	4 985,89	354,78
5	Buckwheat	18 000,00	8 039,89	9 960,11	12 870,00	5 949,24	6 920,76	9 262,50	4 845,55	4 416,95
6	Peas bean	11 445,00	7 709,55	3 735,45	8 763,60	6 012,82	2 750,78	5 668,00	4 647,26	1 020,74
7	String beans	18 175,00	8 486,06	9 688,94	13 376,80	7 238,63	6 138,17	8 602,83	6 064,38	2 538,46
8	Horse beans	26 310,00	14 435,42	11 874,58	26 310,00	11 365,82	7 401,98	11 474,08	9 045,29	2 428,79
9	Maize grains	12 000,00	7 452,67	4 547,33	9 225,00	6 318,57	2 906,43	6 638,10	5 071,58	1 566,52
10	Sorghum	11 200,00	6 304,90	4 895,10	8 464,00	5 576,80	2 887,20	5 693,33	5 120,93	572,40
11	Sunflower	14 400,00	11 236,66	3 163,34	11 412,00	9 236,04	2 175,96	5 730,00	5 135,44	594,56
12	Soy bean	13 387,50	10 052,04	3 335,46	9 524,25	7 337,78	2 186,47	4 972,50	4 379,72	592,78
13	Sugar beet	33 000,00	19 604,98	13 395,02	22 343,20	14 156,26	8 186,94	12 712,33	9 208,38	3 503,96
14	Tobacco	67 200,00	43 455,44	23 744,56	55 230,00	37 395,55	17 834,45	34 300,00	28 533,19	5 766,81
15	Rape seed	18 000,00	9 679,23	8 320,77	11 440,00	7 113,65	4 326,35	6 466,67	5 004,85	1 461,82
16	Green peas	22 400,00	14 922,77	7 477,23	16 864,00	11 797,32	5 066,68	10 320,00	8 960,51	1 359,49
17	Early potato	121 000,00	75 150,57	45 849,43	94 820,00	62 656,61	32 163,39	51 608,33	41 591,60	10 016,73
18	Late potato	128 000,00	92 418,90	35 581,10	95 616,00	76 041,16	19 574,84	51 733,33	47 353,67	4 379,66
19	Tomato (grown up through seeds)	161 000,00	58 534,37	102 465,63	111 688,00	43 499,77	68 188,23	60 221,67	32 560,36	27 661,30
20	Tomato (grown up through transplants)	161 000,00	73 022,38	87 977,62	111 688,00	57 687,48	54 000,52	60 221,67	45 708,55	14 513,11
21	Cucumber (grown up through seeds)	137 500,00	49 812,77	87 687,23	104 250,00	40 501,41	63 748,59	50 208,33	29 733,75	20 474,58
22	Mild pepper (grown up through transplants)	155 000,00	69 288,56	85 711,44	117 490,00	61 284,32	56 205,68	68 716,67	55 521,39	13 195,28
23	Aubergine (grown up through transplants)	120 000,00	63 352,38	56 647,62	90 720,00	55 358,66	35 361,34	56 800,00	47 339,97	9 460,03
24	Onion (grown up through seeds)	140 000,00	74 791,53	65 208,47	72 600,00	53 796,65	18 803,35	41 333,33	39 483,79	1 849,54
25	Garlic	144 000,00	70 094,26	73 905,74	97 680,00	58 426,03	39 253,97	61 800,00	47 406,36	14 393,64
26	Carrot (grown up through seeds)	108 250,00	40 713,20	67 536,80	81 187,50	33 725,20	47 462,30	40 413,33	25 579,57	14 833,77
27	Red beet (grown up through seeds)	97 000,00	45 948,97	51 051,03	69 258,00	38 654,35	30 603,65	38 961,67	32 379,90	6 581,77
28	Early cabbage (grown up through transplants)	140 000,00	47 732,52	92 267,48	99 200,00	44 927,85	54 272,15	54 333,33	40 400,76	13 932,57
29	Headed cabbage (grown up through seeds)	96 000,00	39 586,59	56 413,41	61 920,00	30 892,11	31 027,89	35 900,00	27 521,18	8 378,82
30	Cauliflower (grown up through transplants)	150 000,00	54 853,45	95 146,55	116 000,00	49 517,66	66 482,34	61 666,67	44 762,05	16 904,62
31	Melon (grown up through seeds)	60 000,00	33 287,67	26 712,33	47 400,00	29 909,63	17 490,37	26 833,33	18 677,63	8 155,70
32	Water melon (grown up through seeds)	75 000,00	34 384,25	40 615,75	54 300,00	29 491,56	24 808,44	34 750,00	27 455,35	7 294,65
33	Vegetable marrow (grown up through seeds)	60 000,00	35 633,92	24 366,08	44 760,00	30 715,00	14 045,00	23 800,00	20 795,59	3 004,41
34	Apples (intensive technology)	137 500,00	76 237,39	61 262,61	85 800,00	49 779,18	36 020,82	46 291,67	32 755,90	13 535,77
35	Apples (common technology)	68 750,00	47 103,53	21 646,47	50 215,00	34 955,24	15 259,76	28 600,00	24 915,38	3 684,62
36	Plums	76 000,00	53 196,12	22 803,88	53 770,00	38 006,39	15 763,61	33 883,33	28 760,64	5 122,70
37	Peaches	104 250,00	41 678,44	62 571,56	74 643,00	30 824,72	43 818,28	39 035,83	21 172,32	17 863,51
38	Cherry	108 750,00	47 984,06	60 765,94	74 965,00	33 672,82	41 292,18	40 177,08	21 351,40	18 825,68
39	Sour cherry	75 000,00	41 018,00	33 982,00	53 250,00	29 446,74	23 803,26	28 854,17	19 055,92	9 798,25
40	Nut	45 000,00	13 454,15	31 545,85	30 400,00	9 756,32	20 643,68	17 166,67	6 509,37	10 657,29
41	Gooseberry	89 500,00	51 343,32	38 156,68	62 023,50	35 765,96	26 257,54	37 366,25	22 705,17	14 661,08
42	Raspberry	97 600,00	53 059,86	44 540,14	66 368,00	37 330,15	29 037,85	41 073,33	23 380,60	17 692,73
43	Strawberry	145 000,00	59 886,02	85 113,98	94 395,00	39 673,18	54 721,82	57 818,75	26 155,29	31 663,46
44	Technical grapes	30 000,00	25 010,92	4 989,08	24 270,00	20 444,19	3 825,81	15 450,00	14 794,73	655,28
45	Table grapes	72 000,00	39 304,51	32 695,49	53 160,00	31 028,31	22 131,69	30 700,00	20 953,63	9 746,37

brings approximately 1/3 out of all incomes from the plant growing sector.

In this article the accent has been put on the systematization and generalization of the information in a table in order to be able to compare the economic advantages and disadvantages of growing those 45 agricultural cultures practiced in the Republic of Moldova through the prism of

incomes and expenses and, not in the last turn, of the gross profit obtained from the operational activity.

Based on the presented data, we can conclude that for the three variants of agricultural plant growing the producer applies different levels of intensity, that is explained by the financial means consumed per area unit and, at the same time, the economic results coming out from the operational

Table 2. Comparative analysis of economically argued budgets for agricultural crops growing

Nr.	Specification of agricultural crops	Deviations ("+" or "-") of the recommended technology by comparison with:					
		Agricultural enterprises			Peasant (farmer) households		
		Sales incomes, lei	Sales costs, lei	Gross profit, lei	Sales incomes, lei	Sales costs, lei	Gross profit, lei
1	Winter wheat	4 812,80	2 852,97	1 959,83	8 490,67	3 983,41	4 507,26
2	Winter barley	3 799,60	2 718,64	1 080,96	6 251,33	3 396,87	2 854,47
3	Oats	1 943,70	1 507,69	436,01	3 783,92	2 349,80	1 434,12
4	Rye	2 643,20	1 899,07	744,13	4 291,33	2 094,98	2 196,35
5	Buckwheat	5 130,00	2 090,65	3 039,35	8 737,50	3 194,34	5 543,16
6	Peas bean	2 681,40	1 696,73	984,67	5 777,00	3 062,29	2 714,71
7	String beans	4 798,20	1 247,43	3 550,77	9 572,17	2 421,68	7 150,48
8	Horse beans	0,00	3 069,60	4 472,60	14 835,92	5 390,12	9 445,79
9	Maize grains	2 775,00	1 134,10	1 640,90	5 361,90	2 381,08	2 980,82
10	Sorghum	2 736,00	728,11	2 007,89	5 506,67	1 183,98	4 322,69
11	Sunflower	2 988,00	2 000,62	987,38	8 670,00	6 101,22	2 568,78
12	Soy bean	3 863,25	2 714,25	1 149,00	8 415,00	5 672,32	2 742,68
13	Sugar beet	10 656,80	5 448,72	5 208,08	20 287,67	10 396,60	9 891,06
14	Tobacco	11 970,00	6 059,89	5 910,11	32 900,00	14 922,25	17 977,75
15	Rape seed	6 560,00	2 565,58	3 994,42	11 533,33	4 674,38	6 858,95
16	Green peas	5 536,00	3 125,45	2 410,55	12 080,00	5 962,26	6 117,74
17	Early potato	26 180,00	12 493,96	13 686,04	69 391,67	33 558,98	35 832,69
18	Late potato	32 384,00	16 377,75	16 006,25	76 266,67	45 065,23	31 201,44
19	Tomato (grown up through seeds)	49 312,00	15 034,60	34 277,40	100 778,33	25 974,01	74 804,32
20	Tomato (grown up through transplants)	49 312,00	15 334,90	33 977,10	100 778,33	27 313,83	73 464,50
21	Cucumber (grown up through seeds)	33 250,00	9 311,36	23 938,64	87 291,67	20 079,01	67 212,65
22	Mild pepper (grown up through transplants)	37 510,00	8 004,24	29 505,76	86 283,33	13 767,17	72 516,16
23	Aubergine (grown up through transplants)	29 280,00	7 993,72	21 286,28	63 200,00	16 012,41	47 187,59
24	Onion (grown up through seeds)	67 400,00	20 994,89	46 405,11	98 666,67	35 307,74	63 358,93
25	Garlic	46 320,00	11 668,23	34 651,77	82 200,00	22 687,90	59 512,10
26	Carrot (grown up through seeds)	27 062,50	6 988,00	20 074,50	67 836,67	15 133,64	52 703,03
27	Red beet (grown up through seeds)	27 742,00	7 294,62	20 447,38	58 038,33	13 569,07	44 469,26
28	Early cabbage (grown up through transplants)	40 800,00	2 804,67	37 995,33	85 666,67	7 331,76	78 334,91
29	Headed cabbage (grown up through seeds)	34 080,00	8 694,48	25 385,52	60 100,00	12 065,41	48 034,59
30	Cauliflower (grown up through transplants)	34 000,00	5 335,78	28 664,22	88 333,33	10 091,40	78 241,94
31	Melon (grown up through seeds)	12 600,00	3 378,04	9 221,96	33 166,67	14 610,04	18 556,63
32	Water melon (grown up through seeds)	20 700,00	4 892,69	15 807,31	40 250,00	6 928,90	33 321,10
33	Vegetable marrow (grown up through seeds)	15 240,00	4 918,92	10 321,08	36 200,00	14 838,34	21 361,66
34	Apples (intensive technology)	51 700,00	26 458,21	25 241,79	91 208,33	43 481,50	47 726,83
35	Apples (common technology)	18 535,00	12 148,29	6 386,71	40 150,00	22 188,15	17 961,85
36	Plums	22 230,00	15 189,73	7 040,27	42 116,67	24 435,49	17 681,18
37	Peaches	29 607,00	10 853,72	18 753,28	65 214,17	20 506,12	44 708,05
38	Cherry	33 785,00	14 311,24	19 473,76	68 572,92	26 632,66	41 940,26
39	Sour cherry	21 750,00	11 571,26	10 178,74	46 145,83	21 962,08	24 183,75
40	Nut	14 600,00	3 697,83	10 902,17	27 833,33	6 944,78	20 888,55
41	Gooseberry	27 476,50	15 577,36	11 899,14	52 133,75	28 638,15	23 495,60
42	Raspberry	31 232,00	15 729,71	15 502,29	56 526,67	29 679,26	26 847,40
43	Strawberry	50 605,00	20 212,85	30 392,15	87 181,25	33 730,73	53 450,52
44	Technical grapes	5 730,00	4 566,73	1 163,27	14 550,00	10 216,19	4 333,81
45	Table grapes	18 840,00	8 276,21	10 563,79	41 300,00	18 350,88	22 949,12

activity differ considerably by the amount of sales incomes and the obtained gross profit.

Furthermore, one has suggested performing the comparative analysis of the three variants applying the growing technologies for 45 agricultural crops. The goal of this analysis lies in elucidating more explicitly and emphasizing the deviations (positive economic effects), as well as making conscious the entrepreneurs with regard to the assessment and detailed analysis of the value chain at the stage of production of agricultural products and the reorientation of activities in point of technology and intensity.

The comparative analysis of the data from the three variants of economically argued budgets for the vegetal sector activities demonstrates a true law: together with the argued increase of production consumptions (intensity level) the economic efficiency and the results from the operational activity grow as well. At the same time, high value agricultural crops make possible to achieve an increased profitability and a more rational use of production factors.

CONCLUSIONS

1. Under the market conditions, agricultural producers are facing a range of drawbacks in the entrepreneurial activity. The most pronounced constraints of the country's agricultural sector development are the human resources, market infrastructure, innovation and competitiveness, as well as the business and investment climate.

2. Based on the data presented in this article, we state that the entrepreneurs practicing an intensive agriculture and growing high value agricultural crops record increased economic results and take root and comply easier to the requirements and the functioning mechanism of the market economy. These producers are oriented to the implementation of commercial agriculture (oriented to the growing necessities of the market and final consumers).

3. A main condition of farmers' compliance to the requirements of the market economy presumes the implementation of the following activities:

- ✓ development of the sustainable and friendly to environment agriculture;
- ✓ introduction of intense and modern plant growing technologies;
- ✓ combining the high value agriculture with the subsistence one;
- ✓ increasing quality production and rising agricultural crop productivity per unit area;
- ✓ development of products value chains through investments in the marketing infrastructure;
- ✓ association by interests of agricultural producers into professional organizations and cooperation to promote and penetrate new advantageous markets.

4. Under the market conditions, agricultural entrepreneurs must observe the following rule - applying agricultural practices friendly to the environment as a compulsory component of the sustainable agriculture in order to ensure

not only high outputs, but also to optimize the system as a whole one, to maintain the productivity in the long run. It is important for the national food security maintenance to be combined with the avoidance of water and soil pollution, wasting of the natural resources base. Sustainable agriculture combines harmoniously the three components: economic, social and ecological one.

5. The activity in the frame of the sustainable agriculture has to rely, firstly, on the utilization of natural processes, biological resources and renewable ones of the household and, only secondly – on the procured resources.

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