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EXPERIENCE OF EFFICIENT USE OF LAND IN CONDITIONS OF UNSUSTAINABLE FARMING

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Abstract. *This article emphasizes theimportance of agriculture in ATU Gagauzia and the peculiarities of the natural potential of the region, including the causes of unsustainable farming. The experience of six agricultural enterprises of ATU Gagauzia in the production of grain in 2017 is described, and indicators of wheat production in three enterprises of the southern zone of the republic, which achieved the highest yields in 2016-2018, are given. Estimated economic indicators characterizing the return of land in the industry are graphically presented. In addition, comparative indicators of cereal production in general, sunflower, grapes and fruits in neighboring Cimislia, Cahul, Cantemir, Taraclia regions and ATU Gagauzia for comparison are presented on average for 2015-2017. These data are presented in the graphs for better clarity.*

Keywords:*land, agriculture, productivity, grain, wheat, sunflower, fruit, grapes.*

JEL Classification: Q13, Q15
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Formulation of the problem. Agriculture is one of the main branches of the ATU Gagauzia, the agricultural sector forms the basis of the processing industry, which constitutes 85% of the sector. The agricultural sector provides about 20% of the production of goods, works and services in the region. Crop production is the main direction of agriculture in autonomy. This conclusion is not only due to the area of occupied land and the contribution of crop production to food supply of the population, but also due to its role in the development of livestock and a significant part of the food industry [1, p. 6]. During the years 2010 - 2016 agricultural production in the ATU Gagauzia amounted on average 920 million lei, including in agricultural enterprises 642.4 million lei, or 69.9%.

Gagauzia has a relatively favorable natural potential for the sector and, above all, land resources. Its development in combination with certain agrotechnical and organizational decisions led to the strengthening of the region's agroeconomy.

Crop production is strongly affected by frequent droughts. There is an insignificant level of afforestation in the region, water resources are limited, and part of the land is subject to water and wind erosion of the soil. In this regard, it is important to emphasize that the ATU Gagauzia is located in the epicenter of the unstable agriculture zone of the republic. That is why in autonomy there are significant fluctuations in crop production. Under the conditions of risky (unsustainable) farming, the use of land resources in time is of an unstable, cyclical nature, which reflects the peculiarity of the potential of natural resources. In this regard, the gross yield and productivity of agricultural crops are unstable with characteristic drops and rises [2, p.73].

Analysis of recent research. In crop production, an important condition for ensuring high production efficiency is to obtain high yields of the products produced, i.e. fuller use of the potential of land productivity and biological potential of plants. Modern agrarian science is looking for new ways to improve the efficiency of agricultural production. In this sense, the works of Pavlik V.P. [3, p. 61-63] and Shpikulyak O.G., Materynska. O.A. [4, p. 31-33], propose a new approach for evaluating product efficiency and a rationale for its growth factors.

Issues of the stability of land use results are analyzed in the economic literature from different positions. In particular, in publications of A. Rasskazova and R. Zhdanova was introduced a concept of economic efficiency of sustainable land use [5, p.23-25], S. Siptits examines the problems of combining the efficiency and sustainability of the agro-food systems functioning [6, p.56-59] , while I. Romanenko and N. Evdokimova analyze sustainability and efficiency of the location of crop production, which ensures a high degree of utilization of the bioclimatic potential of the territory [7, p.60-63]. The studies of Altukhov A.I. are also considered important [8, p.2 -11]. In them, the author

examines the modern approach to assessing the effectiveness of product sales and provides a rationale for its growth factors.

Among Moldavan authors, a particular mention should be made onthe works of the doctorshabilitat of economics A. Stratan, V. Doga and E. Timofti, who, in their research, developed and offered their versions of the economic mechanism for increasing the efficiency of agriculture based on the rational use of land [9; 10; 11]. Studies of great importance wereconducted by Professor D. Parmakli and Doctor of Economics L. Todorich, aimed, respectively, at studying the problems of sustainability of agricultural production and assessing the level of stability of land productivity in the regions [12].

The purpose of this article is to confirm the real ways for increasing land productivity in conditions of unsustainable farming in the region and, on this basis, to provide teachers and students of higher educational institutions, as well as industry experts, with information on positive land use practices in neighboring economic entities

Summary of the main results of the study. It should be noted that in many respects the economy of agriculture in the region, and, consequently, the economy of the whole autonomy, is determined by the state of the efficiency of crop production, in which grain crops play a key role. About 2/3 of agricultural land is allocated annually to their share, which confirms the respective specialization of the region, as well as the significance of these crops for the economy of the industry.

Despite the difficult weather conditions, land users of agricultural enterprises of the region, who are skillfully using scientifically based crop rotations, as well as modern scientific achievements in production for over the past 10 years, have achieved positive dynamics in the production and sale of crops. However, there is a huge difference in the efficiency of land use in the region, being the main type of production. Thus, in 2017, for the agricultural enterprises cultivating grains in an area of more than 300 hectares, the yield indicators have changed in Ceadir-Lunga region from 25.6-28,7 centners per hectare to 63.5–66.9 t/ha, which is 2.3–2.5 times higher. A similar difference in land productivity was observed in Comrat and Vulcanestiregionss.

Given examples of the most productive use of land in six relatively large enterprises of the autonomy:"Agro-Sadîm" Ltd, "Celepen-Agro" Ltd,"Doksancom"Ltd and CAP "Eniiga" (Comrat region), "Cumnuc-Agro" Ltd (Ceadir-Lunga region) and "Ghevlandri" Ltd (Vulcanesti region). Indicators of grain production in these entities are presented in Table 1.

Table 1. Indicators of grain production in some enterprises of the ATU Gagauzia for 2017

Nameofenterprise	Area, ha	Grossyield, t	Yield, q/ha
Agro-Sadîm Ltd	793	3815	48,1
Celepen–Agro Ltd	1524	6414	42,1
CAP Eniiga	913	4080	44,7
CumnucAgro Ltd	1251	5712	45,7
Ghevlandri Ltd	993	4403	44,3
Doksancom Ltd	234	1203	51,4
Total	5708	25677	44,9
On average ATU Gagauzia	57807	211500	36,6

Source: 29-CAI forms for 2017

The area of cultivation of grain crops in selected enterprises is 5708 hectares, or 10% of all crops of wheat, barley, peas, corn and other grain crops of the autonomy. As data in Table 1 shows, the yield of grain from one hectare of crops in these enterprises is 8.3 centners higher. If we take the yield indicators in these farms as standard values, the grain shortage in the autonomy is 4,853 million tons, worth 149.9 million lei. In other words, the development of modern technologies of cultivation of grain crops, improving the quality and timeliness of technological operations will allow to increase by more than ¼ the return of land in the industry. These data indicate the presence in the region of huge reserves for increasing production of leading crops. They can be observed on the Figure 1.

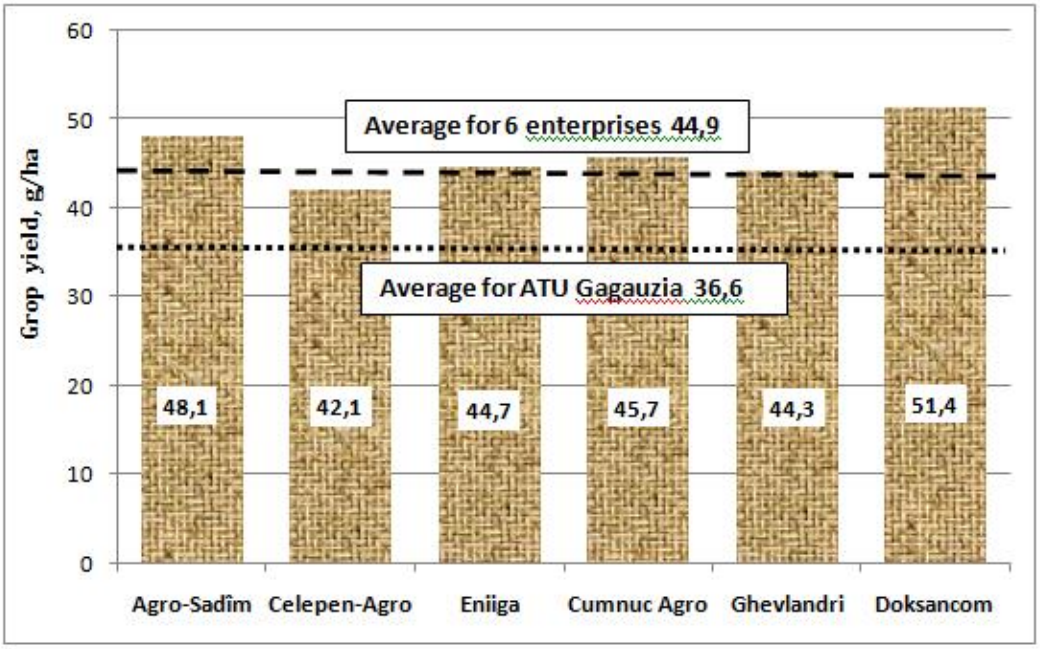

Fig. 1. Indicators of grain crop yields in some enterprises of the ATU Gagauzia for 2017
Source: elaborated based on data from table 1

The experience of growing crops in the southern zone, the zone of unsustainable farming, confirms the existence of these reserves. This can be concluded if we analyze the production of the leading food crop - winter wheat for 2016-2018 at agricultural enterprises of the Cahul region ("IriCarmen" Ltd. and "Elita Alexanderfeld" Ltd) and "Agrogled" Ltd. of the Taraclia region (table 2).

Table 2. Dynamics of wheat yield in some enterprises of the southern zone of the Republic of Moldova for 2016-2018

Name of entreprise	Year	Area, ha	Gross yield, t	Yield, q/ha
"Iri Carmen" Ltd. (Cahulregion)	2016	1046	46191	44,2
	2017	934	51480	55,1
	2018	950	43700	46
	On average	977	47124	48,2
„Elita Alexanderfeld" Ltd. (Cahul region)	2016	975	48117	49,3
	2017	1092	56374	51,7
	2018	1090	50467	46,3
	On average	1052	51653	49,1
"Agrogled" Ltd. (Taraclia region)	2016	4306	228248	53
	2017	4588	259555	56,6
	2018	4520	237300	52,5
	On average	4471	241701	54,1
Total	2016	6327	322556	51
	2017	6614	367409	55,5
	2018	6560	331467	50,5
	On average	6500	340477	52,4

Source: statistical Form 29 АПК for 2016-2017 years and operational data of enterprises for 2018 year

The difference between the average yield of these three enterprises and the average value of the ATU Gagauzia is 18.3 t/ha (55,5 – 37,2 t/ha). It should be noted that the area of cultivation of

winter wheat in these enterprises constitutes more than 20% of the total area of wheat autonomy. Thus, this once again confirms the existence of real reserves for increasing land productivity in the region. Figure 2 illustratesthesereserves.

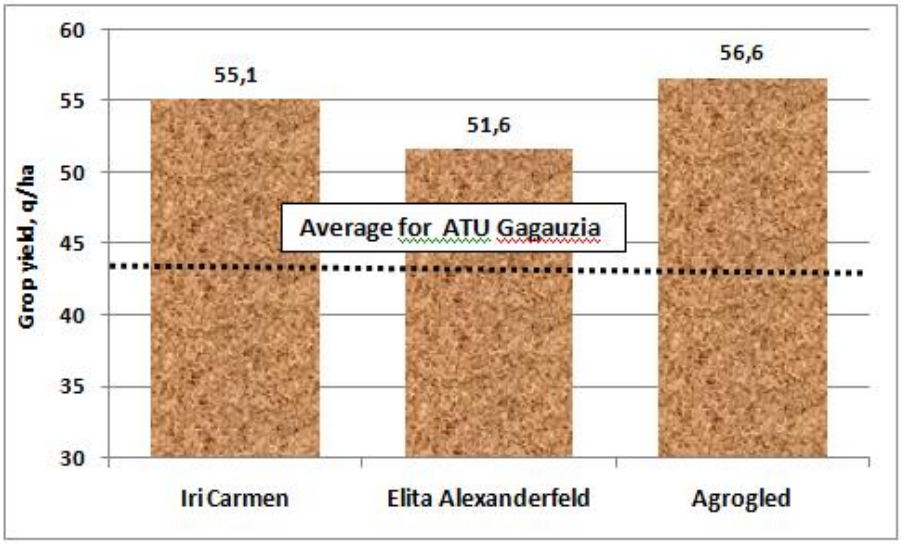

Fig. 2. Wheat yield indicators in some enterprises of the Southern zone of the Republic of Moldova for 2017

Source: elaborated based on the data form table 2

Table 3 and Figures 3–6 present summary indicators of the production of grain crops, sunflower, fruit and grapes, which were formed on average for 2015–2017 in Cantemir, Cahul, Taraclia and Cimislia regions and in ATU Gagauziafor a comparison.

Table 3. Summary indicators of crop production in the southern regions on average for the years 2015-2017
(*ATU Gagauzia given for comparison*)

Name of region	Area, ha	Gross yield, t	Yield, q/ha
Total grain			
Cimislia	14584	48790	33,4
Cahul	26603	88653	33,3
Cantemir	11689	41761	35,7
Taraclia	17074	63838	37,4
On average	**69950**	**243042**	**34,7**
ATU Gagauzia	*44896*	*143177*	*31,8*
Sunflower			
Cimislia	8908	19252	21,6
Cahul	12593	26494	21,0
Cantemir	7189	15991	22,1
Taraclia	9396	20491	21,7
On average	*38086*	*82228*	*21,6*
ATU Gagauzia	*24043*	*49408*	*20,3*
Fruits			
Cimislia	233	1092	50,6
Cahul	761	3179	41,0
Cantemir	911	6902	75,2
Taraclia	444	497	14,0
On average	**2349**	**11670**	**49,7**
ATU Gagauzia	*1739*	*14719*	*85,6*

Name of region	Area, ha	Gross yield, t	Yield, t/ha
Grapes			
Cimislia	997	6398	62,6
Cahul	3696	31802	86,1
Cantemir	2201	18477	84,1
Taraclia	2773	10758	40,5
On average	**9667**	**67435**	**69,8**
ATU Gagauzia	*3115*	*22223*	*72,5*

Source: data from the agricultural departments of the respective regions

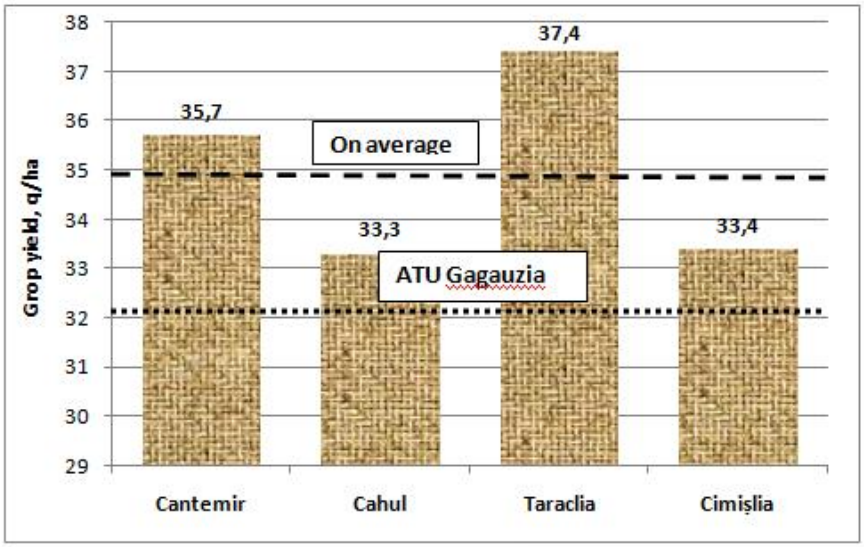

Fig. 3.Indicators of grain yield in southern areas on average for 2015-2017
(*ATU Gagauzia given for comparison*)

Source: elaborated based on data from table 3

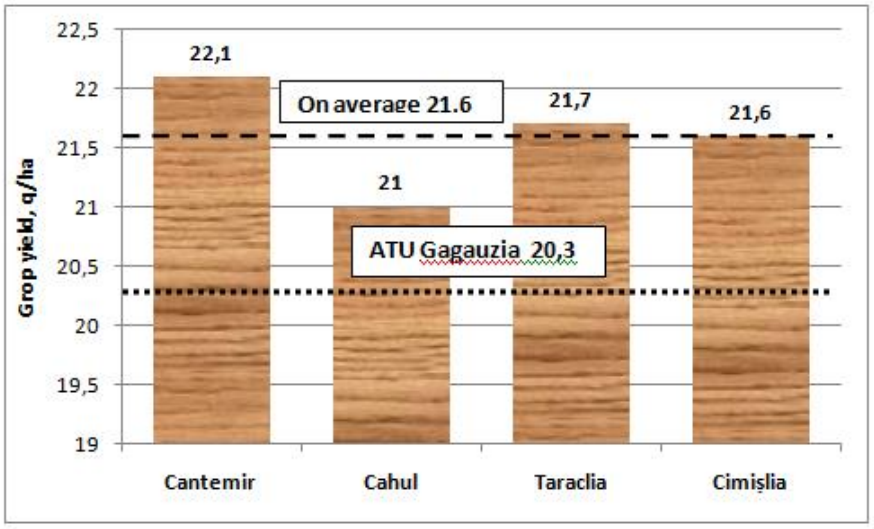

Fig. 4. Indicators of sunflower yield in southern areas on average for 2015-2017
(*ATU Gagauzia given for comparison*)

Source: elaborated based on data from table 3

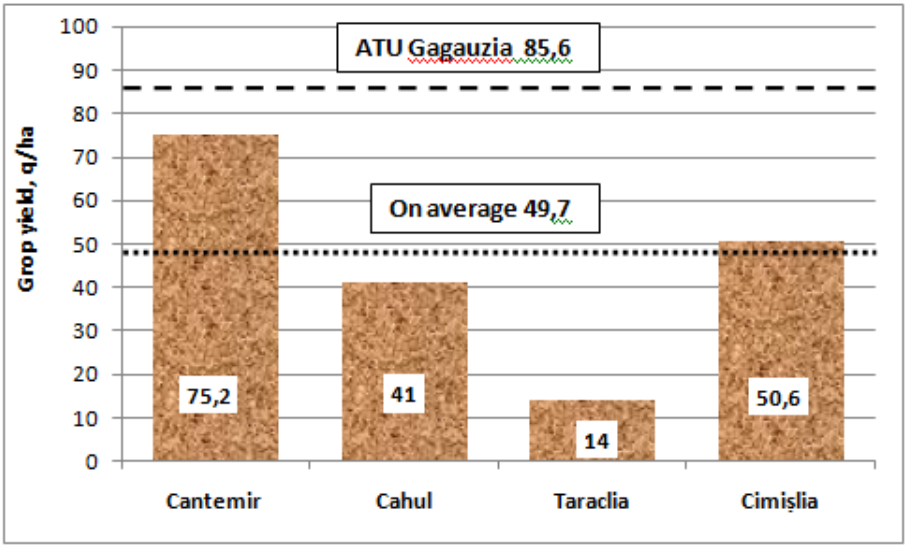

Fig.5. Indicators of fruit yield in southern areas on average for 2015-2017
(*ATU Gagauzia given for comparison*)
Source: elaborated based on data from table 3

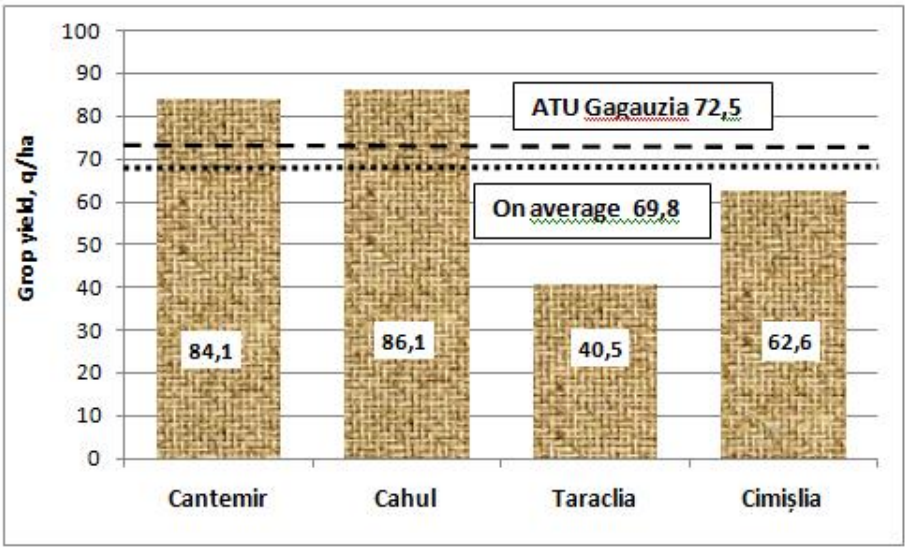

Fig.6. Indicators of grape yield in the southern areas on average for 2015-2017
(*ATU Gagauzia given for comparison*)
Source: elaborated based on data from table 3

Thus, in order to achieve a substantial increase in land productivity in agriculture, it is no longer necessary to go somewhere far for experience. It is near, as today many enterprises of the region have already mastered the most modern technologies of growing agricultural products. We have shown the availability of best practices on the example of grain production. It is worth reminding that quite a lot of enterprises in all regions of the southern zone of the country managed, to achieve high yields by today's standardsunder the same climatic conditions. Moreover, these achievements were provided not on insignificant or irrigated areas, but on fields occupying 2/3 of the whole arable land. Moreover, it should be noted that the mentioned enterprises were also able to achieve high yields of sunflower. And grain crops and sunflowers in the south of the country occupy more than 3/4 of arable land.

REFERENCES:

1. Пармакли Д.М., Дудогло Т.Д., Кураксина С.С., Тодорич Л.П., Яниогло А.И Продуктивность земли в сельском хозяйстве (экономическая теория и хозяйственная практика), Комр. гос. ун-т., н-и центр «Прогресс».- Комрат НИЦ «Прогресс» . 2017 (Tipogr.«Centrografic») .- 242 p.
2. Дудогло Т.Д. Управление земельным потенциалом региона: вопросы теории, методики, практики (монография). – Комрат : Б. и., 2017 (Tipogr. "Centrografic"). – 167 с..
3. Павлик В.П. Проблемиефективногоуправління сільскогосподарскими підприествами. Економіка АПК № 11- 2015.
4. ШпикулякО.Г.,Материнська О.А. Ефективністьвиробництва зерна сільскогосподарськими підприемствами: теретико- методологічний аспект. Економіка АПК № 12- 2014.
5. Рассказова А., Жданова Р. Основные понятия экономической эффективности управления устойчивым землепользованием // Международный сельскохозяйственный журнал №1 2017, с.23-25.
6. Сиптиц С. Методы проектирования эффективных и устойчивых вариантов размещения сельскохозяйственного производства // Международный сельскохозяйственный журнал № 6 2017, с.56-59.
7. Романенко И.А., Евдокимова Н.Е. Ценологический подход при анализе устойчивости размещения сельского хозяйства по регионам России // Международный сельскохозяйственный журнал № 6 2017, с.60-63.
8. Алтухов А.И., Совершенствование организационно-экономического механизма устойчивого развития агропромышленного производства//// Экономика сельскохозяйственных и перерабатывающих предприятий, №7 – 2016, с.2-11).
9. Stratan Alexandru. Moldovan agri-food sector dilemma: east or west? In: Economics of agriculture, Belgrade, Year 61, Nr.3 (553-828), 2014, p.615-632.
10. Doga V. ,Bajura T si altii. 1 Strategia de dezvoltare a sectorului agroalimentar in perioada anilor 2006- 2015 Economie si deyvoltare rurala imdrp n 2 ,4,p.74.
11. Timofti E., Popa D. Eficienţa mecanismului economic în sectorul agrar. Monografie. Chişinău : Complexul Editorial al IEFS, 2009, 343 p.
12. Пармакли Д., Тодорич Л. Проблемы экономической устойчивости сельскохозяйственных предприятий Республики Молдова (монография). – Комрат: Б.и.,2013 (Tipogr- centrigrafic). -207с.

REFERENCES:
(translated)

1. Parmacli, D. M, Dudoglo T. D., Curacsina, S. S., Todorici L. P., Ianioglo A. I., Productivity of Land in Agriculture (Economic Theory and Management Practice), Comrat State University, Scientific Research Centre "Progress" – Comrat SRC "Progress", 2017 (Tipogr. «Centrografic») – 242 pp.
2. Dudoglo T. D., Management of Land Potential of a Region: Theory Questions, Methods and Practice (Monograph), - Comrat: B. i. 2017 (Tipogr. "Centrografic"). – 167 pp.
3. Parvlik, V. P. Problems of Efficient Management of Agricultural Enterprises, Economika APK № 11 - 2015
4. Schpikulyak O. G., Materinska O. A. Efficiency of Wheat Production at Agricultural Enterprises: Theoretical and Methodological Aspects, Economika APK № 12 - 2014
5. Rasskazova A., Zhdanova R., Main Concepts of Economic Efficiency of Stable Land Use // International Agricultural Journal, №1 2017, pp. 23-25
6. Siptits, S., Methods of Designing Efficient and Stable Options of Positioning of Agricultural Production // International Agricultural Journal, № 6 2017, pp. 56-59.

7. Romanenko I. A., Evdokimova N. E., Price-Based Approach at Analysis of Stability of Positioning of Agricultural Enterprises across the Regions of Russia // International Agricultural Journal, № 6 2017, pp. 60-63.
8. Altukhov, A. I. Perfection of Organisational and Economic Mechanism of Stable Development of Agro-Industrial Production /// Economics of Agricultural and Processing Enterprises, №7 – 2016, pp. 2-11.
9. Stratan, A., Moldovan Agri-Food Sector Dilemma: East or West? In: Economics of agriculture, Belgrade, Year 61, Nr.3 (553-828), 2014, pp.615-632.
10. Doga V., Bajura T. et al. Development Strategy for Food Production Sector in Years 2006-2015, Rural Economics and Development, IMDRP Nr. 2, p. 74
11. Timofti E., Popa D., Efficiency of Economic Mechanisms in Agricultural Sector, Monograph, Chisinau: Editing Complex IEFS, 2009, 343 pp.
12. Parmacli, D., Todorici L., Problems of Economic Stability of Agricultural Enterprises in Republic of Moldova (Monograph) – Comrat: B. I., 2013 (Tipogr- centrigrafic) – 207 pp.

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