

INVESTMENT PROCESS AND ACTUAL TECHNICAL PROVIDING
OF MOLDAVIAN AGRICULTURE

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The investment process in rural areas of Moldova, especially – in agricultural sector of the national economy, in last decades is under considerable strain caused by permanent lack of financial resources on agribusinesses enterprises and almost symbolic financial aid from the state. As a result, large parts of agricultural land remain unprocessed years in a row, which is why both farmers and entirely national economy suffer essential economic losses. Given the fact that the possibilities of state financial assistance in the agricultural sector in our country are limited, in this article we propose alternative ways to overcome the crisis, argued from the ecological point of view and acceptable from economic considerations of villagers. The purpose of the study is to identify obstacles on the way of carrying out the investment process in rural areas of the country, establishing ways to overcome the deep and long lasting crisis both in the investment activity and efficiency of the agro-industrial sector of the Republic of Moldova entirely. As a basic source of information for the article there were used different information collections of "General Agricultural Census 2011 in Moldova". As a basis of the research methods there were used analysis and synthesis, comparison, trend identification methods, dynamic lines and their analysis, etc. According to the established goal, the main results of the carried out investigations are expected as rational and efficient use of tens of thousands of hectares of agricultural land which, beginning from the first stage of reforming of the agricultural sector and ending with today, remain outside of the application process, simultaneously being removed from their market circuit and converted into fallow areas.

Keywords: investments, farmland, market circuit, alternative energy sources, agricultural machinery, forestry crops, orchards of nuts etc.

Procesul investițional în spațiul rural al Republicii Moldova, în special în sectorul agrar al economiei naționale, în ultimele decenii este supus unor presiuni considerabile, cauzate de lipsa permanentă a surselor financiare în conturile întreprinderilor agricole și ajutorul financiar, aproape simbolic, din partea statului. Drept consecință, o bună parte a terenurilor agricole, ani la rând, rămân neprelucrate (pârlogite), din care cauză atât producătorii agricoli, cât și economia națională în întregime suferă de pierderi economice esențiale. Reieșind din faptul că posibilitățile statului de asistență financiară privind sectorul agrar sunt limitate, în prezentul articol sunt propuse variante alternative de depășire a situației de criză, argumentate din punctul de vedere ecologic și acceptabile din considerentele economice ale locuitorilor satelor. Scopul cercetării îl constituie identificarea piedicilor pe calea desfășurării procesului investițional în spațiul rural al țării, stabilind căile de depășire a situației de criză profundă și de lungă durată atât în ceea ce privește activitatea investițională, cât și sporirea nivelului de eficiență a ramurii agro-industriale a Republicii Moldova în întregime. În calitate de sursă informațională de bază au fost folosite diferite culegeri informaționale ale „Recensământului General Agricol 2011 în Republica Moldova”. Drept metode de bază ale cercetărilor efectuate au servit: analiza și sinteza, metoda comparației, metodele identificării trendurilor, dinamicii și analiza acestora etc. Conform scopului stabilit, rezultatele principale ale investigațiilor efectuate sunt așteptate sub forma utilizării raționale și eficiente a suprafețelor agricole în mărime de zeci de mii de hectare, care, începând cu prima etapă a reformării sectorului agrar și terminând cu ziua de astăzi, rămân în afară procesului de utilizare, concomitent fiind eliminate din circuitul lor de piață și transformate în suprafețe de pârloagă.

Cuvinte-cheie: investiții, terenuri agricole, circuit de piață, surse energetice alternative, tehnică agricolă, culturi silvice, livezi nucifere etc.

Инвестиционный процесс в сельской местности Республики Молдова, и в первую очередь, в аграрном секторе национальной экономики, в последние десятилетия сталкивается с большими

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трудностями, вызванными постоянной нехваткой финансовых средств на счетах сельхозпредприятий и почти символической финансовой помощью со стороны государства. В результате, значительная часть сельскохозяйственных угодий остаётся из года в год необработанной, в связи с чем как фермеры, так и национальная экономика в целом, несут существенные экономические потери. Учитывая тот факт, что возможности государственной финансовой помощи сельскохозяйственному сектору ограничены, в настоящей статье предлагаются альтернативные варианты для преодоления кризисной ситуации, обоснованные с экологической точки зрения и экономически приемлемые для сельских жителей. Цель исследования состоит в выявлении препятствий на пути осуществления инвестиционного процесса в сельских районах страны, установлении путей преодоления глубокого и продолжительного кризиса, как в отношении инвестиционной деятельности, так и относительно повышения эффективности агропромышленного сектора Республики Молдова в целом. В качестве основного источника информации использовались различные данные из серии публикаций "Общая сельскохозяйственная перепись 2011 года в Республике Молдова". В качестве основных методов были использованы методы анализа и синтеза, сравнения, методы выявления тенденций динамических рядов и их анализа, а также другие методы экономических исследований. Основным результатом проведенных исследований должно стать рациональное и эффективное использование земельных участков сельскохозяйственного назначения площадью в десятки тысяч гектаров, которые, начиная с первого этапа реформирования аграрного сектора и заканчивая сегодняшним днем, остаются не использованными, исключены из рыночного оборота и превратились в запущенные заросли сорняков и кустарников.

Ключевые слова: инвестиции, земли сельскохозяйственного назначения; рыночный оборот; альтернативные источники энергии, сельскохозяйственная техника, лесные культуры, ореховые сады и т.д.

JEL Classification: E2, O13, Q13, Q14, Q15, Q16, R14, Q42.

UDC: 338.434(478)

Introduction. As the result of the mass privatization of agricultural lands, finalized in mid-2000, a new tendency has emerged in the agrarian sector of the Republic of Moldova, which is poorly analyzed by the local economists and public authorities. It is envisaged by the drastic decrease of the number of the workers, occupied in agriculture, but also in other agrarian fields such as fishing, forestry, hunting etc.

Statistical data shows that in the post-privatization period the number of persons, employed in the agrarian sector, decreased from 766 thousand persons (2000) to 381 thousand persons (2016) or by 50.3%. At the same time there was a radical division of agricultural workers into two large groups: the first group – land ownership, respectively – the ownerships of agricultural business; the second group – employed workers (workers in labor, employees). It should be emphasized, that the second group of agricultural workers suffered the most during the post-privatization years, currently accounting for approximately 50.0 thousand persons or one employed worker on a land area of 42.2 ha farm.

Obviously, such a big shrinking of agrarian workers should be replaced by new agricultural techniques, involving modern plant cultivation technologies (animal care) etc., by attracting massive investment to replace the live labor of permanently shrinking agricultural workers.

Equally necessary is the state contribution under the form of increasing agricultural subsidies, specifically for investment purposes, in order to increase the productivity of farmers' work, the number of which diminishes with the passing of the day, giving the fact, that the necessity in the food products, conversely, is increasing or, as the case may be, remains at the same level. Hence, that is the actuality of the topic addressed, the profound analysis and the appropriate assessment which will allow the elaboration of the reasoned recommendations regarding the technical and technological insurance of the agricultural activity, based on the private property on the means of production.

The degree of scientific approach to the topic. The investment activity in rural area and especially in the agro-food economic branches is an important object of the scientific researches both in the Republic of Moldova and abroad. Along with the quantitative aspects of this activity there are studied the main directions of investments, sources of money origin, state participation in the investment activity of agrarian operators etc. The detailed analysis of the bibliographic sources regarding the dimensions and forms of materialization of investments in the agrarian sector demonstrates both the wide diversification of the directions and forms of implementation of the investments as well as the active participation of the

state bodies in the development of the investment activity.

The lack of own investment sources, for example, so specific for agricultural enterprises in the Republic of Moldova, is equally specific for other countries with the comparable level of economic development. The real possibilities for making investments from own sources of agricultural enterprises are estimated at 1/3 of their total volume in several European countries, including in the Republic of Moldova [1].

According to the data of the National Bureau of Statistics as a consequence of the lack of own money sources and the extremely low subsidy level of the agricultural branches from the state, the total debt of the economic agents in agriculture, forestry and fishing on 01.01.2016 reached 13,9 bln. lei MD, which far exceeds the market value of all agrarian assets [2, p. 334]. From the total number of agricultural enterprises, which presented the statistical reports for the year 2015 (3168 units), 1457 or 46.0% completed the year with losses [2, p. 332].

Namely because of the deplorable financial situation of the agrarian sector, as other authors point out "... this branch is increasingly unattractive for the population due to the low level of employees in agriculture. Thus, in 2014, according to the region of residence, it is found that the average monthly salary of an employee in agriculture accounts for about 65% of the average monthly salary in economy" [3].

So, the negative consequences of poverty are felt in both the living force and the materialized force, both of them have been the main factors of functioning of the indigenous agricultural sector.

The results obtained. According to the situation at the beginning of 2015, the contribution of the agricultural sector (agriculture, forestry, fishing and hunting) to the gross domestic product of the Republic of Moldova achieved the level of 13.1%. It has to be mentioned that an approximately equal share of agricultural sector in the country's GDP last time was manifested almost 10 years ago – in 2006. It was the last year before the economic and financial crisis of 2007-2008 began.

Taking into consideration that in 2008-2009 (the years of the beginning of the above mentioned crisis) the share of agriculture in national GDP was reduced to 8.8 and even 8.5 percent correspondingly, we can appreciate the results of 2014 as a great achievement for agrarians.

The net value of agricultural production this year reached 27.3 billion lei, of which the crop sector amounted to – 17,3 bln. lei and livestock sector – 9.4 bln. lei. It is also to be noted, that there was a considerable increase in investment in long-term tangible assets of the agricultural sector. Their record figure for 2014 – 2.3 billion lei or 26.0 percent more compared to the previous year, has installed confidence and optimism in the future of the agricultural branch of national economy.

However, due to the adverse weather conditions, as well as difficult economic, political, demographic etc., considerations, the next year, namely – 2015 acted as a year of considerable reduction of both the volume of gross product and the volume of investment in the agricultural sector, which was reduced this year by more than 530 mil. lei or 22.8 percent over the previous year. It has to be noted, that the share of investment in long-term farm assets was virtually permanently lower than the weight of this area of economic activity in the total GDP of the country.

As a result, there is a constant process of decrease of intensification of the agricultural sector, which constitutes the main labor creator in rural area.

As a general assessments, but less optimistic, we have to mention, that in recent years virtually every second of the agricultural enterprises, from those submitted financial reports, have shown a lack of profits and, respectively, generating essential losses.

As it was already mentioned, the total debt on 01.01.2015 of the agrarian sector has increased to 11.6 billion lei, while on 01.01.2016 – was up to 13.9 billion lei, which is almost 100 percent in comparison to the gross value added of this sector for that year (2015).

From another perspective, the average investment, calculated per hectare of the agricultural land is not so high as only 1025 lei / ha in 2014 and only 788.9 lei / ha in 2015 [2].

The final results of the General Agricultural Census (GAC) published recently, have established that the total number of tractors, which are the main source of energy in the agricultural sector, based on the date of the GAC (March, 2011) constituted only 24 695 units (without districts on the left bank of river Dniester and Bender city) [4].

Remembering, that at the beginning of the 90th of the previous century, the Moldovan agriculture had more than 51100 tractors, that is 2.07 times more than over two decades after (table 1).

Table 1

**Agricultural machines and equipment existing under property
as on March 1, 2011 and utilized in agricultural sector**

Types of agricultural machines and equipment	Utilized property machines and equipment in agricultural sector	Machines and equipment existing under property as on 1 March 2011		
		total	aged 10 years and over	share of total, %
Tractors of all types, of which	23381	24695	19092	77
- Crawler	2004	2392	2120	89
- Wheeled	21377	22303	16972	76
Mini-tractors	965	1090	449	41
Trucks	6260	7604	6788	89
Combines and harvesters of all types	2854	3000	1997	67
Seeders and planters	8915	8431	5436	65
Mechanical cultivators	12154	12045	8198	68
Plows for tractors	13882	13782	9736	71
Machinery and equipment for irrigation	712	773	266	34
Milking machines and aggregates	164	191	69	36
Machinery for sprayer and application of treatments	2445	2627	1374	52
Other agricultural machinery and equipments	8497	9382	6214	66

Source: "Thematic study on equipping farms of Moldova with agricultural construction, technical means and equipment", National Bureau of Statistics of the Republic of Moldova, GAC, 2011, p. 81.

As experts from the National Bureau of Statistics of the Republic of Moldova have noted, a major share of the existing agricultural machinery is the equipment with a history of 10 years and older.

But really a major problem for indigenous modern agriculture is that rather limited amount of the agricultural and technological machinery serves as the technical basis for an extremely large number of agricultural farms. Also, based on data of GAC in 2011 we have found out that the number of those holdings at the time of the census was 902 214 units of which 3446 units – corporative farms (legal entities) and 898 768 units – unincorporated farms (so called – household farms).

Obviously, agricultural holdings with legal entity are now major producers of commodity production that means – production for the sale to the market, irrespective of whether it is considered internal or external market.

The average area of a farm with a legal personality is 369.3 ha, while its organizational forms and physical dimensions (absolute and/or weighted average) are shown in the table 2 (figure 1).

Table 2

Farms with legal personality in Moldovan agriculture

Type units	Total units (number)	Surface (area), ha		including agricultural temporary non-utilized area	
		Total	on average at one enterprise	surface, ha	average weight, % (share of total)
1. Agricultural cooperatives	204	148737,1	729,1	9,87	0.01
2. Joint stock companies	158	52788,2	334,1	1763,93	3.34
3. Limited liability companies	1986	694868,67	349,9	9250,46	1.35
4. State enterprises	89	18430,04	207,1	1250,2	6.78
5. Other type of holdings	1009	357841,99	354,7	1229,31	0.34
Total agricultural holdings with juridical status	3446	1272666,01	369,3	13503,77	1.061

Source: General Agricultural Census, National Bureau of Statistics of the Republic of Moldova, vol.1, p.44-45.

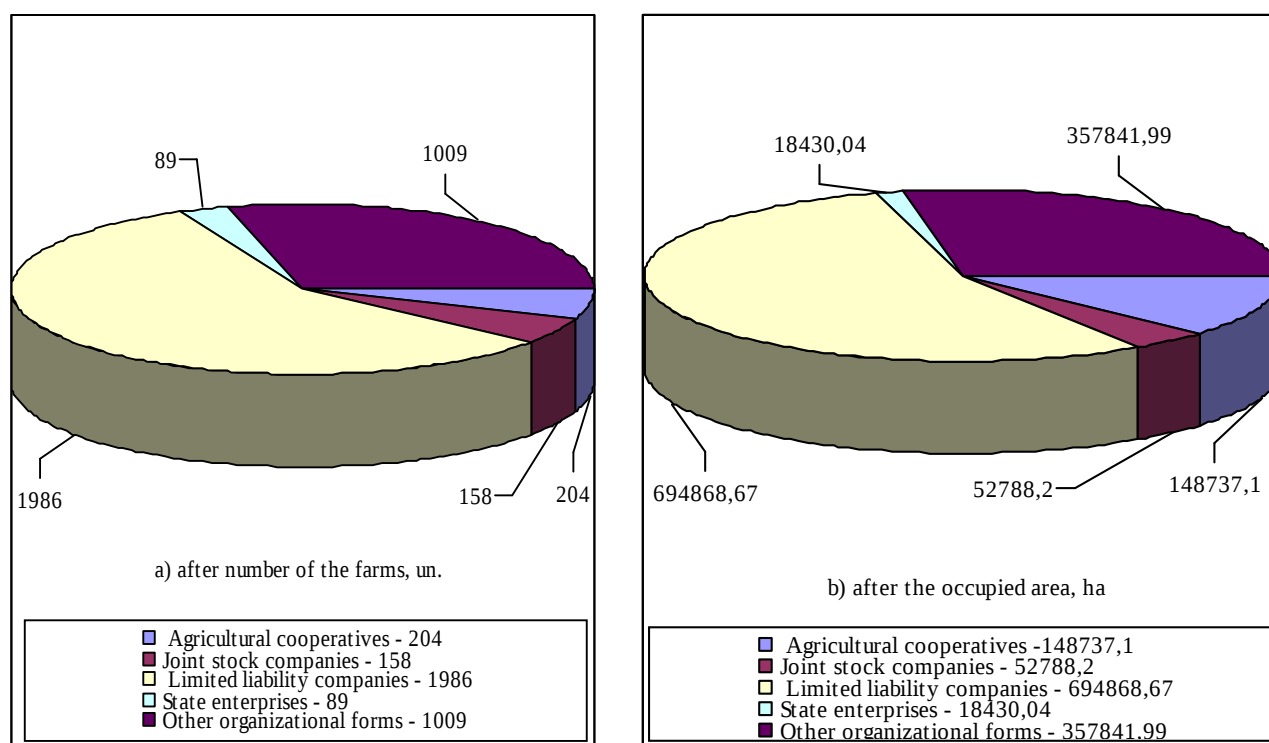


Figure 1. Farm structure: (a) number of holdings and (b) land occupied

Source: Elaborated by author on the base of General Agricultural Census, National Bureau of Statistics of the Republic of Moldova, vol.1, p. 44-45.

Although almost all agricultural enterprises are private (excepting state enterprises), farms with legal personality do not process practically every year, as statistics show, more than 13 500 hectares, which constitutes 1.06 percent of all surface, available for them.

However, the biggest unprocessed surfaces are recorded in the unincorporated farms, presented by:

- households of rural areas – 498 800 units with total area of 160 500 hectares;
- households with land plots around the house and in the field – 361 900 units, total agricultural area – 640.0 thousand hectares;
- farms with land only in a field – 38.0 thousand units with total area – 170 400 ha.

In total, the unincorporated farms, as it is clear out of the presented above material, have farmland in the amount of 970 900 hectares, which constitutes 43.1 percent of the total area comprised of GAC in 2011.

Census data show, that 44 500 ha or 4.6 percent of the area of those holdings, have been declared by their owners as unprocessed and unused surfaces [4, p. 44-45]. At the same time, from the above mentioned sources we can state, that the total area of unprocessed agricultural land at the data of census for all forms of agricultural holdings, has constituted more than 58 970 ha. If it will be recalculated to the gross volume of agricultural production in 2015, we will receive that unused land area (for example) was able to provide its owners a surplus of income at 641.5 mil. lei (current prices).

As the main cause of unprocessed agricultural land, years in a row, overwhelming majority of participants in the census process called lack of equipment, primarily the lack of tractors, plows, seeders, combines etc.

Analyzing the data of table 1, we find out, that on 01.03.2011 a tractor of the average capacity at 80 horsepower was projected to compile 96.4 ha of agricultural land annually, which is $3 \div 4$ times more than comparable analog of a tractor load capacity in the most industrialized countries. From another point of view, an average capacity of traction tractor should ensure qualitative and timely processing of farm land for 38.6 agricultural enterprises. It's difficult even to imagine such a big volume of work for every tractor's unit.

Let's not forget that in rural areas in our time practically nothing has left from previously existing businesses, specialized at services of mechanization, as were (during the years before the reform)

associations of "Agrotehnica", "Agrochimie", "Agromelioration" etc. At present virtually all existing capacities of agricultural machinery, automobiles, irrigation facilities etc., are owned by concrete agribusinesses enterprises which have – as the first task, the processing of own agricultural land. Only after completion of plowing, sowing, watering, harvesting etc. of their owned fields, these agro businesses enterprises are able to help its neighbors, but given that the right time to perform agricultural works is really strictly limited, usually those lands remain fallow.

It is important to note, that in the initial version of the report "Preliminary results for General Agricultural Census 2011", the unused land area was evaluated at approximately 247.0 thousand ha or 4.2 times more than in the final report [6].

Lack of a proper mechanical performance is reflected by the fact that their volume, fixed by the National Bureau of Statistics, year after year remains at the same level, being only 527 mil. lei or 1.94 percent in comparison to the gross agricultural product (y. 2015). In some districts, for example, the initial variant of the above mentioned statistical report as unprocessed and unused agricultural land were indicated:

- Hancesti district: 19 thousand ha or 20.4%;
- Calarasi district: 13 thousand ha or 31.7%;
- Ialoveni district: 14 thousand ha or 25.9%;
- Cahul district: 27 thousand ha or 23.1%, etc.

In the case, that the initial version of the report from 2011 General Agricultural Census was more objective and truly reflected the existing situation in the agriculture, the sector's losses because of non-used agricultural land are even greater.

Along with the lack of investment, above reflected situation is aggravated because of the lack of markets for a big part of agricultural products and even more important – labor shortages in the agricultural and rural area in its entirety.

As it was already mentioned, the number of hired workers in agriculture is steadily decreasing, reaching to the end of 2015 the figure of 49 200 pers. or just one person into account at the 42-43 ha of agricultural land.

If at the beginning of the process of reformation of the national economy the total number of workers in the agricultural sector (year 2000) amounted to 766 000 people (including the left side of the r. Dniester), then at the beginning of 2016 the total number of agricultural workers decreased to 381.0 thousand pers., from which the number of hired workers was only 49.2 thousand person (without Transnistria).

So far, the lack of investment from one side and, consecutively, precarious technical equipment of agrarian sector from the another side, and the loss of considerable part of foreign and even internal market plus massive emigration of workers from rural areas, primarily from the agriculture, have constituted the principal factors on the sharp need to continue reforms of this sector.

Conclusions and recommendations. At the basis of the carried out analysis, local agrarian sector in the process of adaptation to the harsh conditions of the market economy, has not devoid of essential shortcomings and gaps. As negative phenomena arising from the results of economic reforms in last two decades, the mass emigration of workers (mainly specialists), lack of investment and slow growth in the labor productivity can be called essential dimensions of unprocessed agricultural lands.

As practical recommendations of efficient functioning of the agricultural sector, which can be considered as key components of the continuing reforms process, there has to be reprofiling of unused agricultural lands through:

- planting forest crops endowed with a high level of accumulation of wood in order to use them as an alternative energy source;
- planting of nuts orchards;
- partial re-cultivation of unused farmland, endowed with high level of reliability and their return in agricultural circuit through domestic land market, encouraged their market transactions with more transparency, publicity etc.

It has to be mentioned, that the owners of the agricultural currently unused land, not only need technical help from authorized state bodies (primarily – Ministry of Agriculture and Food Industry, Agency of Land Relations and Cadastre), but also they need an essential financial aid. It has to be taken into account the need of ensuring the respective owners with forest and / or nuts plant seedlings, which

must be centrally organized, using the financial capacities of Agency for Payments and Intervention in Agriculture (APIA).

It is worth to be mentioned, that according to the effectuated investigations so nut crops and products of processing of forestry plants (pellets, briquettes, wood mass in other geometric shapes) along with extensive domestic market, can serve as an important group of goods for export, which will ensure not only active substitution of import energy sources, but also a palpable compensation of money, spent for this import.

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