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## THE IMPACT OF THE IMPLEMENTATION OF AGRARIAN REFORMS ON THE DEGREE OF DIVERSIFICATION OF AGRICULTURE IN THE REPUBLIC OF MOLDOVA

### ABSTRACT

The paper presents an analysis of the correlation between structural reforms and the level of diversification of the agricultural sector of the Republic of Moldova. During the last five decades of the state's existence, political, social and economic changes had and continue to have a significant impact on the evolution of the national agricultural sector. The transition from the planned economic system to market economy triggered economic and social factors that essentially contributed to the reconfiguration of priorities in the economic activity of local agricultural entrepreneurs. In turn, the given action significantly changed the diversity of cultivated crops, favouring the emergence of the limited specialisation phenomenon.

The given analysis highlights the quantitative and qualitative changes in the structure of cultivated fields in the reference period (1980–2023), the evolution of options towards certain types of crops depending on the existing circumstances, the current level of economic efficiency and diversification of agriculture, the economic vulnerabilities faced by the national agricultural sector.

**Key words:** agricultural sector, diversification, agricultural crops, efficiency.

**JEL Classification:** Q13; Q15; Q17; R1; R11.

### 1. INTRODUCTION

Due to the geographical, pedological and climatic peculiarities, the agriculture of the Republic of Moldova has the ability to cultivate a large variety of agricultural crops, a fact that attributed a major importance to this sector in the consolidation of the national economy.

Throughout the 20<sup>th</sup> century and in the beginning of the 21<sup>st</sup> century, the promoted policies, reflected through different agricultural and production systems, directly influenced the variety of agricultural crops within the structure of

cultivated land. From a historical point of view, this time interval can be divided into three periods that reflect the significant impact of agricultural reforms on the degree of diversification of crop species in the production circuit.

Thus, the interwar period (1918–1939) is characterised by a low diversification of cultivated crops, giving preference to cereal crops. The post-war period (1945–1990) is marked by a wide branching of the given sector. In this period, substantial progress was made in the development of the horticultural sector, industrial crops and aromatic plants.

The transition from the planned economic system to the market economy, initiated in 1991, triggered a deep process of stagnation in the sector. Currently, the agriculture of the Republic of Moldova is a poorly developed sector, insufficiently diversified and vulnerable both to external geopolitical factors and to the influence of climate change.

## **2. STATE OF KNOWLEDGE**

The agricultural sector of the Republic of Moldova is subject to an extensive restructuring process. The purpose of this reform is the implementation of economic, social and technological elements – components of a true sustainable agriculture. However, the achievement of these objectives is hindered by a number of factors, such as: low labour productivity, outdated technological production system, very high production costs, low level of competitiveness of domestic agricultural production on foreign markets. The accumulation of these factors considerably limits the area of action of domestic entrepreneurs, limiting their agricultural activity only to the production of a limited number of agricultural products with a low economic value.

As a result, the national agricultural sector is currently characterised by an insufficient diversification of both the system in general and the number of agricultural crops with increased economic value.

## **3. MATERIAL AND METHOD**

When preparing the present paper, general research methods (empirical and theoretical methods) were used, and the analysis of statistical data reflecting economic indicators from the agrarian field of the Republic of Moldova was applied. Primary documents represented by specialised literature, as well as secondary documents (statistics by field) were used as sources for the research. The information provided by the National Bureau of Statistics of the Republic of Moldova and relevant international organisations was used.

#### 4. RESULTS AND DISCUSSION

Diversification in agriculture represents the development of conceptual solutions aimed at strengthening existing agricultural enterprises by offering new income opportunities. Diversification of the activities of agricultural enterprises in a market economy makes it possible to reduce the risks of unreasonably high costs and a flexible response to the change in the structure of demand, maintaining the organisation's potential and production capacity. A characteristic of agricultural diversification is the ability to adapt to the changing conditions of agricultural market and even to influence it (Dalisova and Stepanova, 2018). The possibility of using innovative, resource-saving technologies, the integrated use of land resources, production capacities and the potential of enterprises lies at the basis of the diversification of agricultural production.

An essential factor in the development of this process is the increase in the variety of species of agricultural crops with a high economic value. Crop diversification is an important tool for food security, income growth, efficient use of natural resources, sustainable development and ecological improvement (Tüzöl and Öztekin, 2020).

The evolution of the national agricultural sector in the period from the 20<sup>th</sup> century to the beginning of the 21<sup>st</sup> century, reflected through the lens of the diversification process, can be differentiated into three distinct periods: the inter-war period; the post-war period; the post-Soviet period.

The inter-war period is characterised by an underdeveloped agriculture, low productivity and yields and a narrow range of agricultural crop species. The structure of cultivated land is dominated by cereal crops such as winter wheat, rye and maize. This fact was due both to the low variety of food products in the population's diet and to the limited potential to produce other agricultural crops.

The given system made it possible to obtain a quantity of agricultural products that would allow meeting the population's food needs, but the contribution of this sector to the development of the economy in that period was quite low.

The post-war period is defined by a major relaunch of the Moldovan agricultural sector. The establishment of collective farms and the intense mechanisation of technological operations allowed the transition to a higher level of development of the agricultural sector. The simultaneous development of the processing industry and the food industry, of the animal husbandry sector, created major premises for the diversification of cultivated agricultural species.

According to the data of the National Bureau of Statistics, in 1980, the total agricultural land area was 1,839 thousand ha, of which 842 thousand (45.8%) were occupied by cereals of the first and second group, industrial crops – 373 thousand ha (20.3%), vegetables – 125 thousand ha (6.8%), fodder crops – 500 thousand ha (27.2%), perennial plantations – 434 thousand ha (Table 1). In this period, the areas cultivated with legumes, rapeseed, sugar beet, tobacco, oil crops and essential oil crops represented about 1/4 of the total sown area.

Due to the introduction of fodder crops into the agricultural circuit, it was possible to develop and observe scientific rotations, a fact that led to a significant increase in productivity. Together with the application of other agrotechnical measures, in the period 1980-1990, the global average annual harvest constituted: cereals – 2 504.6 thousand tonnes, sugar beet – 2 428.3 thousand tonnes, sunflower seeds – 249.3 thousand tonnes, tobacco – 107.6 thousand tonnes, potatoes – 389.3 thousand tonnes, vegetables – 1 289 thousand tonnes, fruits and berries – 999 thousand tonnes (NBS, 1991). In this period, the agricultural sector contributed by approximately 25% to the consolidation of the global social product, being surpassed only by industry (58%).

In this period, food production per 100 ha of agricultural land exceeded four times the average level of the USSR, Moldova ranking 6<sup>th</sup> in all 15 Soviet republics. In Transnistria (10% of agricultural land in the given region), more than 40% of vegetables and 30% of fruits intended for commercialization on the USSR market were produced (Șelari, 2022).

It is a conclusive example that demonstrates the positive effect of agricultural diversification on the economic efficiency of the sector.

The beginning of the post-Soviet period is characterised by the transition from the centralised economic system to the market economy and radical reforms in all the sectors of national economy.

But the agricultural sector experienced the most dramatic transition. The initial attempt to preserve the former collective farms significantly worsened the economic condition of national agriculture. Later on, the redistribution of agricultural land and of the patrimony of these entities was carried out, with the former members of the respective collective farms becoming the owners. As a result, more than 600 thousand people, obtained land ownership titles by the beginning of 2001, and more than 700 thousand hectares of agricultural land were divided into land quotas with areas of not less than one hectare and a half. Even more serious was the redistribution of fixed and productive means, which, at that time, were in a state of advanced degradation. These factors led the new owners, or agricultural producers, to limit the crop assortment, giving preference to cereals or industrial crops, such as: autumn or spring wheat, barley, maize, sunflower.

Despite all the state interventions in the given sector to diversify the species of cultivated crops, the given tendency has been maintained and is still valid (Table 1).

The data reflected in the given table confirm the lack of flexibility of the sector in terms of crop diversification. In this period, the areas under cereal crops expanded massively. Even without the Transnistrian region, this group occupies half of the total agricultural land available at the moment. Annually, autumn and spring wheat is cultivated on an average area of 350 thousand ha, the global harvest representing 1–1.2 million tonnes, which exceeds twice the domestic demand.

Table 1

Area of arable land occupied by the main agricultural crops (thousand ha)

	1980*	1990*	2000**	2010**	2023**
<b>Sown area, total</b>	<b>1 839</b>	<b>1 733</b>	<b>1 527</b>	<b>1 460</b>	<b>1 583</b>
<b>Cereals and legumes, total</b>	<b>842</b>	<b>746</b>	<b>988</b>	<b>920</b>	<b>964</b>
autumn and spring wheat, total	340	287	373	328	370
grain maize, total	392	258	442	416	488
<b>Industrial crops, total</b>	<b>373</b>	<b>295</b>	<b>330</b>	<b>388</b>	<b>517</b>
sunflower, total	170	134	228	252	388
sugar beet, total	107	82	63	26	11
<b>Potatoes, vegetables and legumes, total</b>	<b>125</b>	<b>132</b>	<b>125</b>	<b>77</b>	<b>70</b>
<b>Forage crops, total</b>	<b>500</b>	<b>560</b>	<b>85</b>	<b>75</b>	<b>31</b>
<b>Fruits, apples and walnuts, total</b>	<b>178</b>	<b>234</b>	<b>137</b>	<b>116</b>	<b>138</b>
<b>Vine, total</b>	<b>256</b>	<b>201</b>	<b>149</b>	<b>145</b>	<b>116</b>

\*The data include 266 thousand ha of agricultural land in the Transnistrian region.

\*\* Agricultural areas in the Transnistrian region are excluded.

Source: Author's calculations based on data from the National Institute of Statistics.

Maize – the most accessible crop to grow for most farmers, became ubiquitous in all agricultural households after the land reform, doubling the total cultivated area compared to the early 1990s. With a global average annual harvest of 1.7–2 million tonnes, it also exceeded domestic demand by 1.5–2 times.

The industrial crop with the greatest expansion in the crop structure is sunflower. In the year 2023, 388 thousand ha were cultivated – double the area compared to the Soviet period. This year, the global harvest reached a record of 1.1 million tonnes of seeds. At the same time, the areas cultivated with sugar beet and tobacco – crops with a high economic value, have been reduced each year, the risk of being completely excluded from the structure of cultivated crops being imminent.

At the same time, there is a significant reduction of agricultural land cultivated with vegetables, these crops having one of the highest economic values. A similar trend can be seen in the group of fodder crops, such as: silage maize, alfalfa, clover, peas, fodder beet. These species are gradually disappearing from the national agrotechnical landscape.

In the given context, it can be stated that the agricultural sector of the Republic of Moldova is currently dominated by an excessive production of cereal crops, such as wheat and maize, followed by sunflower and rapeseed. This fact gives the sector a narrow specialisation, since the global production of the respective crops exceeds twice the domestic demand, and the surplus is exported as raw material at very low prices. At the same time, in the context of the geopolitical crisis in the region, the domestic market is invaded by grain production from Ukraine, a fact that reduces the selling price even more.

The given situation reflects how inefficient the agricultural system based on a narrow diversification of cultivated crops is, and clearly demonstrates the prospects and importance of cultivating crop species with high economic value.

However, the current state of the agricultural sector very little corresponds to these desires, a fact that is fuelled by the following considerations:

- The cereal and industrial crop production surplus is exported as raw material, at a price equal to or lower than production costs;
- Due to low productivity, cereal and industrial crops have a higher production cost compared to those grown in Ukraine or Romania, thus reducing the ability to compete on European markets;
- The share of cereal and industrial crop products of Moldovan origin is insignificant on the world market, therefore the level of income obtained from the production of these products cannot be influenced by domestic producers;
- The dominance of cereal and industrial crops in the structure of cultivated land significantly reduces the efficiency of subsidies granted to domestic farmers by the state;
- The limited number of crops makes it impossible to practice crop rotation, and this fact leads to the development of monocropping, having as consequence the strong degradation of soil structure.
- The systemic cultivation of a limited group of agricultural crops conditions the increased use of one type of phytosanitary products and synthetic fertilisers, and as a result the level of soil and groundwater pollution increases;
- Monocropping requires the application of only one type of mechanised work, a fact that results in high soil degradation;
- Non-observance of rotations contributes to the increase of diseases and pests, it increases the loss of soil moisture, and therefore the quantity and quality of production is significantly reduced.

Diversification of agriculture represents a series of actions that includes both the production of agricultural crops with a high added value and the implementation of innovative production technologies, an approach to qualitative and flexible management, the development of genuine logistics chains of supply, the transfer from traditional to sustainable agriculture, based on the conservation of ecological systems. And this leads to the production of food in sufficient quantities and quality; conservation of natural resources; landscape management: agricultural holdings are those that manage agricultural land, while conserving high-value habitats and biodiversity; animal welfare; economic viability: agricultural holdings generate sufficient income to be viable (Agro-business, 2010).

## 5. CONCLUSIONS

In conclusion, the revitalisation of the national agricultural sector can only be carried out by connecting the entire system of economic and technological processes to the standards of the European Union, and one of the elements that

needs to be implemented is the diversification of agriculture, including the increase of the variety of valuable agricultural crops in the structure of agricultural land.

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