

# Economic Indicators for Sustainable Development of Bulgarian Agricultural Sector - 1990-2007

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## ABSTRACT

## Original research paper

The above conclusions give us grounds to assess that the agricultural sector in Bulgaria is reducing its economic role in the national economy by slowing down its growth. The problem with the downward trend in the overall indicators in absolute terms is the result of interrelated reasons within the sector – structural, market, production, land resource and investment, which leads to inefficiency and low competitiveness. This is sufficient grounds to accept the hypothesis that the agricultural sector is economically inefficient and uncompetitive and is a problem for the development of the economy as a whole and to assess it as economically unsustainable.

**Keywords:** Sustainable development, Sustainability, Agriculture, Economic indicators, Bulgaria.

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## Introduction

The most convincing evidence of the sustainability of an agricultural system is its long-term positive results. Even with their limitations, they provide the only valid empirical basis by which we can assess sustainability (Agrarian Reports, 2001 and 2008).

The sustainable agrarian sector seeks to achieve a balance in three target dimensions with multiple sub-objectives. In terms of economic activity, it must be competitive and efficient, contribute to an economically viable society and provide consumers with healthy and affordable food produced to generally accepted standards. In the ecological dimension, it must ensure environmental protection and wise use of natural resources, contribute to the conservation and

conservation of landscapes, wildlife and cultural values, pay maximum attention to animal welfare.

In addition, in the social dimension, it must create a positive social climate, including alternative employment, equality between different social groups, safe working conditions, the maintenance of local communities and ensure prosperity and justice at the expense of future generations. Generally speaking, the sustainability of the agrarian sphere should be seen as maintaining a certain balance between economic, social and environmental goals. The achievement of such a balance requires periodic assessment of the individual dimensions of sustainability through a system of indicators, to establish their direction over time and to seek means to adjust them according to the basic principles of sustainability.

## Materials and Methods

The indicators are grouped into three groups - economic, social and environmental. Against each indicator the role it performs according to the methodology of the DPSIR model is indicated. Since often a selected indicator can possess more qualities - for example, to simultaneously describe a state and characterize a driving force, it can be placed in different places in the upper frame. Thus, against some indicators we will point out possibly more than one position, with the one we take leading in our analysis in the first place.

According to the available statistics, we aim to look at the indicators for a 10-year period to cover the time from 1998-2007

The assessment of the agricultural sector at macroeconomic level could outline some more important problems related to the direction of development, define the causes that give rise to them and indicate the relevant measures and policies to correct their future development.

## Results and Discussion

The agricultural sector, like any economic activity, is an open and dynamic system, but functioning at a high level of risk, under constant pressure from various internal and external factors and, above all, operating in an unsustainable global climate system. In such conditions, it is difficult to strike a balance between the three dimensions of sustainability. Moreover, achieving sustainability entirely at the expense of the capacity of the system itself is almost impossible, at least due to external pressures. Therefore, the sustainability of the agricultural sector should rather be seen as the result of internal efforts to maintain a balance at the level of individual production structures, purposefully supported by society as a whole. And for EU member states, this also means a commitment of the scale of the Community, expressed by the Common Agricultural Policy, which accounts for a major part of the subsidies spent in the EU.

Economic indicators in the considered DPSIR model can be grouped into indicators to assess the general economic situation of the agricultural sector and the state of labour, land and capital; indicators to analyse the effectiveness of their use; and indicators to assess investment activity in the agricultural sector, as an important force for change. By examining general economic trends, one can get an idea of what impact the sector has on well-being and from there, albeit indirectly, on the social dimension of sustainability. Moreover, tracking in addition some of the main structural and production indicators can reveal how resources are used, such as land, and hence link to environmental sustainability. Data from official Bulgarian and foreign statistical sources were used for the assessment.

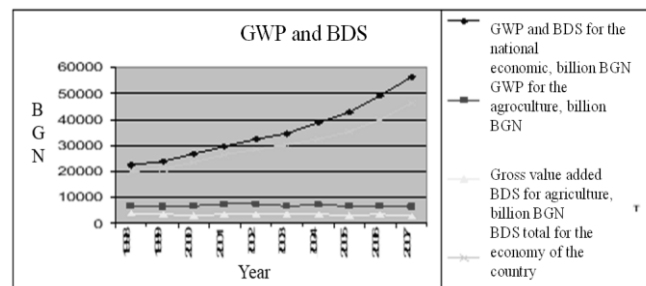
### 1.1.1. Gross Domestic Product and Gross Value Added

One of the main requirements for the economic sustainability of the agricultural sector is to produce a

sufficient amount of quality products to meet the needs of the population and improve its well-being. Although the gross domestic product of the sector is not the only measure of well-being, it gives an idea of the direction of development of the sector and its impact on economic growth for the country as a whole.

By tracking the state of the industry for the period studied (1998-2007), a general decline in the indicators gross domestic product (GDP) and gross value added (BULGARIAN STATE STANDARD) is found (Graph 1).

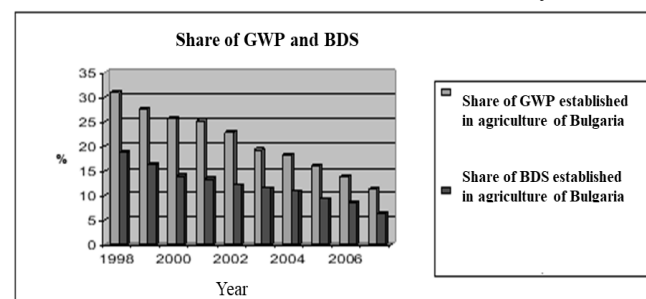
Graph AI. 1. Gross domestic product and gross value added respectively for the agricultural sector and total for the national economy.



Source: MAF

For this period, the share of GDP of the agricultural sector in the national total decreased from 26.5% on average for the first three years to 11.4% at the end, which is mainly due to faster growth in the other sectors of the economy. This trend can be positive and expected if one considers the structure of GDP in developed countries. But it alone gives us no idea whether the agricultural sector is developing economically sustainably or not. However, a deeper analysis shows that it for the period has a hesitant to start, to a downward unsustainable trend at the end. If the average size, for the period is 6908.34 million Lv /BGN/. The maximum of 7491.4 million BGN is in 2001, and the minimum of 6398.1 in 2007. There is a decrease of 14.4% compared to the maximum and by 7.1% compared to the average GDP for the sector.

Graph AI. 2. Share of GDP created in the agricultural sector in GDP for the country, share of BULGARIAN STATE STANDARD created by the agricultural sector in the BULGARIAN STATE STANDARD for the country.



Source: MAF

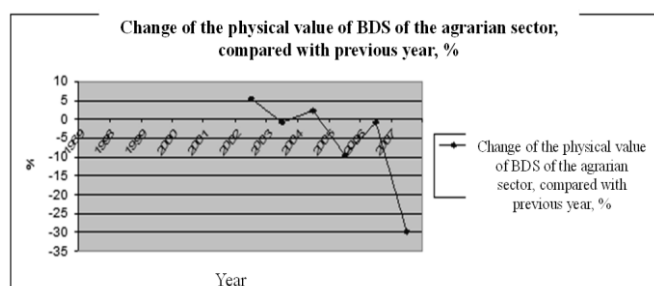
Thus, against the backdrop of the upward growth of the national economy, the agricultural sector develops unsteadily with a downward fluctuation greater than the average statistical risk (taking into account the standard impact of

weather conditions – about 3 points). This is a sign of economic or productive unsustainability due to causes within the sector.

The indicator of gross value added (BULGARIAN STATE STANDARD) created in agriculture (Graph 2) is another measure that gives an idea of the role of the agricultural sector in the national economy. For the period 1998-2006 under review, there is an unsustainable downward trend, with the share of BULGARIAN STATE STANDARD in the agricultural sector of 18.8% at the beginning decreases to 6.2% at the end of the period, respectively compared to the total indicator for the country. (Graph 2) This is due to a decline in the subsectors that provide raw materials of plant and animal origin, on which the level of value added in manufacturing industry further depends.

Fluctuations in the dynamics of GDP and BULGARIAN STATE STANDARD in the agricultural sector can be both from internal reasons for the sector and from external influence caused by changes in climatic and meteorological conditions. The latter are adversely affected by the extensive type of production, which is unable to counteract the uncertainty of external factors. And evidence of the prevailing extensive type of production in our country is the dynamics of the physical volume of the BULGARIAN STATE STANDARD in the agricultural sector for the last six years (Graph AI. 3. ). It shows a clearly fluctuating downward trend, highly dependent on natural and climatic factors and which is inherent in extensive agriculture.

Graph AI. 3. Physical volume of BULGARIAN STATE STANDARD



Source: MAF

For example, sustainability becomes highly vulnerable to crop production when there are no countermeasures inherent in intensive agriculture, such as hydromelioration, timely protection against enemies, timely access to information, etc. The two groups of reasons determine each other in terms of economic sustainability as those that are internal are crucial.

Therefore, the decrease in the absolute and relative size of GDP and BULGARIAN STATE STANDARD of the agricultural sector compared to the corresponding values for the total for the economy of the country indicates a lagging behind of the sector and a further loss of position in the economy as a whole. The absolute decline in the BULGARIAN STATE STANDARD also means that the

sector not only lags behind, but also retains the overall growth of the economy, becoming a problematic sector.

The downward rate of change of GDP and the BULGARIAN STATE STANDARD in agriculture against the backdrop of macroeconomic stability and growth of the national economy is a sign of the presence of structural and production problems within the sector, which are the result of a complex of interrelated reasons, which we will look at below.

Therefore, the policy applied should be aimed at solving these problems. One of the many countermeasures could be, for example, targeted investment actions improving modernisation and increasing productive efficiency. An example are the measures under Axis 1 of the Rural Development Program aimed at increasing economic growth in the agricultural sector and improving access to the global market.

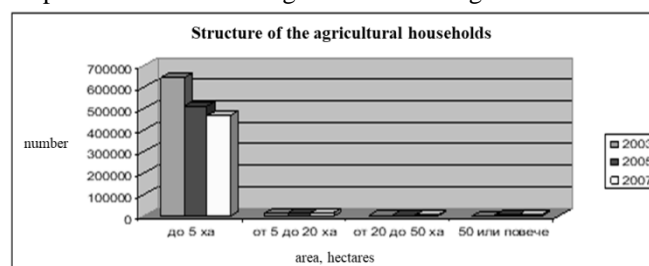
### 1.1.2. Structure of agricultural holdings

According to a number of authors Agricultural Report, (2008), Bashev H., (2006), Hadjieva V., (2008), Kaneva et al. (2005) to which we join, the specific structure of the agricultural sector is a significant obstacle to reaching a higher level of sustainability and increasing production capabilities. The distinguishing characteristics of this structure boil down broadly to the following:

- a very small number of large farms holding 3/4 of the utilized agricultural area and a majority of small farms using a small share of it;
- predominant number of non-market and semi-market-oriented farms;
- small average size and fragmentation of the land used;
- a high share of non-specialised holdings and a decrease in the number of specialised holdings;

According to the Ministry of Agriculture and Food (Agricultural Reports, 1999-2008) about 95% of agricultural holdings are of small size (up to 5 ha), which for the period 2003-2007 they manage between 15 and 10 % of the utilised agricultural area (UAA) and those of 50 ha or more size are only 1.3 % or 6190 farm units. As of 2007, 0.8 % of farms managed on average more than 100 ha and accounted for a total of 78 % of the UAA. (Graph II4.) Therefore, we have a well-defined polarized structure in terms of land use.

Graph AI 4. Structure of agricultural holdings



Source: MAF

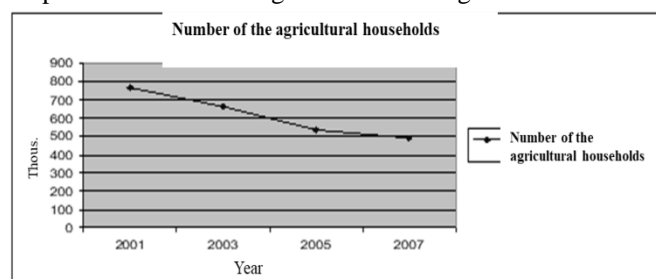
An assessment of the market orientation of existing farms shows that the number of farms producing for self-

sufficiency or having a semi-subsistence orientation is predominant. For example, in 2005. Only 3.6% of the existing 534,600 farms were purely commodity, 18.6% semi-subsistence and 77.8% self-sufficient (Scientific Advisory Council on Agriculture, 2008).

A characteristic feature of semi-subsistence and self-sufficient farms is the production of production mainly for own consumption and a small part for the market. They are low efficient, poorly competitive, with a low level of investment activity and high vulnerability to various risks. However, some changes in market relations could lead to the potential of these structural units being revealed. Thus, solving problems, such as creating working market structures; creating conditions for access to sufficient market information; elimination of incorrect pressure from traders and resellers of agricultural products; overcoming the low technological, educational and investment level; facilitating access to subsidies under structural programmes and bank loans, etc., would enable this category of farms to increase their production potential and become market ones. The efficacy of a policy to improve the structure of agricultural holdings requires, however, the precise establishment of their structure and the specific survey of agricultural production methods and resource use on farms. Therefore, the improvement of the legal framework, such as the example of Draft Law on the Census of Agricultural Holdings in the Republic of Bulgaria in 2010 are also possible answers for a change in a positive direction.

### 1.1.3. Number of agricultural holdings

Graph AI 5. Number of agricultural holdings



Source: MAF

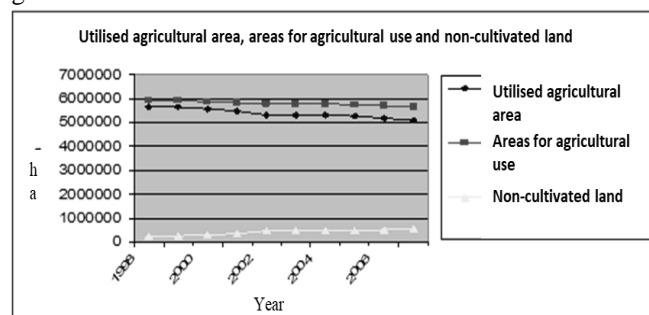
Structurally, another well-defined trend stands out in the agricultural sector in our country. The number of agricultural holdings for the period 2001-2007 decreased from 768,800 units to 493,140. (decrease of 64 % over the period considered). (Graph II 5. ) This means that slightly more than a third of farms cease their activities because they cannot adapt to changing conditions and move to a higher level of sustainability. At first glance, although it is a loss of production potential, the decrease in the number of farms at least implies the consolidation of land among other business units. This is confirmed by the observed trend of increase in the number of farms falling into higher groups. For example, from an average of 7.2 ha of cultivated land in 2001, falling per business unit to 10.4 ha in 2007. It is a major obstacle to more effective and etc.

In order to detail the assessment of the sustainability of the agricultural sector, we must add to the problems of domestic agriculture the fragmentation of the land used, especially as a result of the way ownership of it was restored. Inefficient market mechanisms regarding the purchase and sale as well as the lease of land for agricultural purposes cannot overcome the existing difficulties, which makes the issue of introducing a land tax and the adoption of a law on comamassations particularly relevant. Thus, through market and regulatory levers, the structure of deserted, low-productive, abandoned, unmaintained and economically unconditioned land can be optimized. Some of them could be directed to the needs of some activities of multifunctional agriculture, carbon offset schemes related to climate, investment projects in the field of renewable energy sources, etc.

### 1.1.4. Utilised agricultural area

An underestimated attitude towards land as a factor of production is a direct cause that generates instability. The trends of decrease in utilized agricultural area, agricultural areas and arable land, at the expense of the increase in the share of abandoned, deserted and uncultivated land, have a negative impact and lead to a contraction of production other things being equal.

Graph AI 6. Utilised agricultural area, areas for agricultural use and non-cultivated land



Source: MAF

Agricultural areas for the period 1998-2007 decreased by 257267 ha by 4.4% . (Graph II 6.) The impact of individual causes is difficult to measure, but they are probably related to the cessation of business, a change in the status of lands for the needs of construction, or irretrievably lost lands due to their degradation.

The reduction of the agricultural areas used for the same period is about 8%. The reasons are similar as in the agricultural areas and lead to a loss of comparative advantage in many areas of plant production for which our country has suitable natural and climatic conditions and long-standing production traditions, especially in vegetable production and perennials.

The trend in uncultivated land is very unfavourable, doubling to 5501 16 ha, reaching 9.7% of the agricultural land area for 2007 This means that almost a tenth of the available potential is not used, which also affects the



reduction of the overall economic indicators - GDP and BULGARIAN STATE STANDARD(Graphs II1.).

If the fragmentation of agricultural land is the result of the way in which ownership of it was restored, then its continued preservation in this state is primarily the result of other causes. They are associated with a lack of political will for change, with a presumption not to interfere with already "adapted" structures of stewardship and specialization of production to the established status quo, undeveloped market relations, etc. Through the use of market and regulatory levers, the process of its consolidation could be given a boost by creating conditions for the return to production of the economically abandoned land.

Economic sustainability also depends on the specialization of farms, which in our country is developing in an unfavorable direction. Half of the farms are still unspecialized, although their number is reduced by over 110 thousand. units for the period 2001-2007 (Koteva et al. 2008). The number of specialized farms decreases, as for those with permanent crops it is by 33%, occupied with vegetables - by 25% and ruminants - by 22%. A one-sided production structure and uneven development of individual subsectors are formed. In the areas with agricultural purpose in our country, the leading share is occupied by cereals and oilseeds. In 2007 59.2% (or 2518431 ha) of the UAA is occupied with them). *Agricultural and Economic Conjuncture (BANSIC)*, (2007).

For the period 1998-2007 cereals and oilseed areas are decreasing, with a total reduction in the total area of cereals and oilseeds of 377 086 ha compared to 1998 Agricultural Reports, (1999-2008). However, cereals continue to give a monocultural character to agriculture in our country. Areas under permanent crops decreased by 45% in the period 1998-2007, those of vegetables and flowers by 63%. Fallow land or temporarily excluded land due to lack of economic interest increased by 2.3 times and occupied in 2007 5.7% of the UAA. This speaks of a land use irrationality which, together with a one-sided production structure, adversely affects the environmental and economic dimension of sustainability.

As an opportunity to respond in the context of indicator 1. 5. We can point to the implementation of actions for the utilization of unused arable land and strengthening specialization to achieve better economic results in the agrarian sphere. This can be achieved, for example, with the support of the Rural Development Programme 2007-2013.

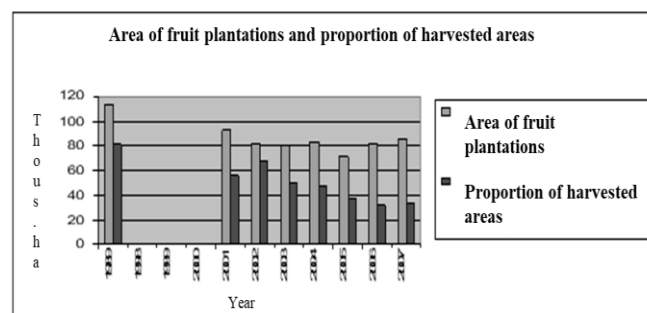
### 1.1.5. Structure of FTAs in the agricultural sector

The state of fixed assets in the agricultural sector is another indicator characterizing its sustainability. The depreciated structure of technical resources; the reduction in livestock on agricultural holdings; reduction of occupied areas; The deterioration of the quality of the durable settlements are just some of the examples of negative pressure on production and reduced competitiveness of agriculture in our country.

### (a) Area of fruit plantations

The areas occupied by fruit trees decreased compared to 1989. and from 112.4 thousand. ha reached 84.5 thousand. Ha. (Graph AI 7. ) This process takes on a negative impact even more, given the decline in harvested areas - from 80.7% harvested in 1989. , in recent years a constant fraction of about a third has been reached. This is due, on the one hand, to the depreciation or scrapping of many of the orchards. Neglect or abandonment reduces their economic importance in agriculture. On the other hand, poor market conditions, low technical security and lack of labor, the extensive nature of production and lack of protective barriers make it often economically unprofitable to harvest itself.

Graph AI 7. Area of fruit plantations and proportion of harvested areas



Source: MAF

Another characteristic negative trend(Bulgarian Survey for Monitoring the Agricultural and Economic Conjuncture (BANSIC, (2007)in fruit growing, we observe in the restructuring and targeting of fruit species with lower capital and resource intensity, and resistant to irrigated conditions, such as plums, cherries, sour cherries. And the deteriorating conditions require a special policy.

After 2005, there was an increase in orchards of 13014 ha. The areas with young and unplanted fruit plantations /0 - 4 years/ in 2007. It occupies about 8.8 thousand. hectares, which is 4% of all areas, but this is not enough to compensate for the overall decline of 1/4 in areas compared to 1989 and the fall in the quantities produced.

According to the Ministry of Agriculture and Food /MAF/ of Republic of Bulgaria Agrarian Reports,(2001 and 2008), for example, fruit production in 2000. amounted to 276 000 tonnes and in 2007 104559 (decrease 2.6 times). Confirmation of unsustainability in fruit production can also be reported through the foreign trade balance.Thus, we will establish the transformation of the country into a net importer of fruits, which is an extremely negative fact for the industry, against the backdrop of the traditions in fruit growing of the recent past and its export potential.

As possible answers for an increase in perennials, we can point to a policy of directed investment in this subsector. The lease of vacant state land for a period of 25 years or more on advantageous terms, including a four-year grace period, for the establishment of orchards is an exemplary measure to enhance investment activity in this direction.

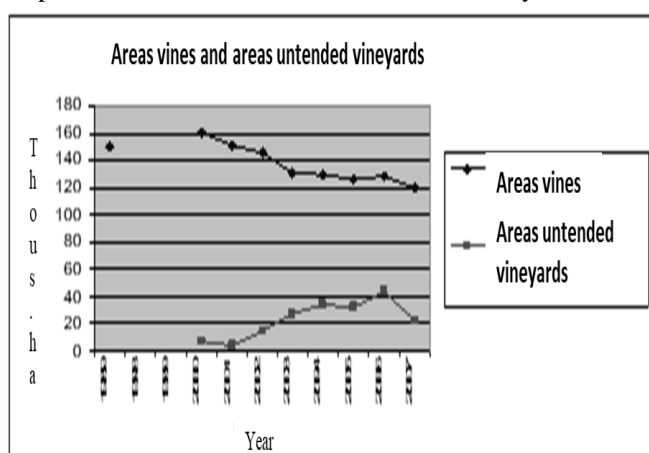
The collapse in the processing industry has hit fruit growing hard. Thus, measures such as supporting the functioning of processing plants will also have an indirect positive impact on fruit and vegetable production.

**(b) Area of vineyards and (b. 1) Proportion of non-maintained vineyards outside holdings to all vineyards**

Similar to fruit growing, similar problems are experienced by viticulture - a decrease in occupied areas and an increase in unmaintained vineyards outside farms.

Compared to 2000, the areas under vines in 2007 fell by 25% to almost 120 000 ha. (Graph II8.) Tracking the share of unmaintained vineyards outside farms to all vineyards, the average percentage share for the period 2000-2007 was 17.95%. In parallel, for the same period, there is also a negative trend of increasing the total area of unmaintained vineyards outside farms by 4. 2 times.

Graph AI 8. Areas vines and areas untended vineyards



Source: MAF

According to the data for 2007, the young and non-fruitful vineyards are 13% of all areas with vineyards, and only the newly planted in the same year - 3% of all, but this can not yet compensate for the deteriorated quality indicators of the old vineyards. According to MAF data, a large percentage of them have a deteriorating age structure and older than 20 years. (in 2000 -72%, in 2004 - 65%), in poor agrotechnical and phytosanitary condition. There is a trend of better management of vineyard varieties with a higher purchase price, showing the impact of market conditions.

As with fruit growing, we can talk about insufficient rates of elimination the harmful consequences of depreciation of this FTA. Analyzing the subsector, in 2006 the Ministry of Agriculture and Forestry identified the main problems related to the cultivation of vineyards, namely:

–The aging of the majority of available vineyards and the lack of sufficient technological care to produce more and better quality wine grapes;

– The costly creation of vines and their slow returns;

–The strong fragmentation of the massifs and agricultural land between many heirs, which makes it difficult to build new plantations and apply correct and modern cultivation technologies;

– Weak market and lack of organizations of producers of wine grapes on the ground, which hampers market mechanisms in production.

Problems hindering the reaching of the so-called "Vineyard potential" of Bulgaria from 153 thousand. Ha. (78.4% of this figure is the area under vines for 2007).

Therefore, improvement measures should be aimed in this direction. The intensification of investment processes should be the result not only of the efforts of the state, but also of farmers and potential Bulgarian and foreign entrepreneurs. The demand for other incentives for production, such as new internal and external markets for the community, also acquires relevance. Strengthening the role of the state in the marketing of national production and advertising of quality products of agriculture and processing industry under the brand "Map in Bulgaria" around the world. The accession of our country to the EU provides new opportunities for this.

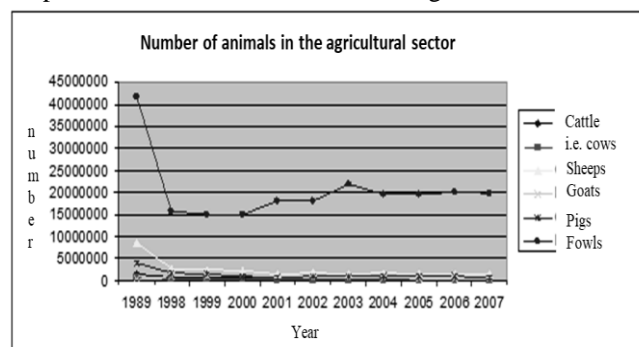
We must mention what was done under the Sapard program for the renovation of MDA in viticulture, which has had a positive effect, but in general, as with fruit growing, we can talk about insufficient rates of positive change.

**(c) Number of animals in the agricultural sector (c. 1) Cattle; (c. 1. 1) Cows; (c. 2) Sheep; (c. 3) Goats; (c. 4) Pigs; (c. 5) Birds total**

We also observe instability in livestock breeding, comparing data from 2007 With those of 1989 (National Statistic Institute). The number of cattle decreased 2.8 times (including cows -1.9 times), sheep -5. 6 times, pigs - 4.6 times, birds - 2 times and only the number of goats increased by 15 %.

However, the contraction in the production of animal products is not only expressed by the negative change in the number of animals. This process is accompanied by low productivity (for example, the average annual milk yield per cow for the country in 2007 is 3319 liters according to the Agricultural Report 2008, while the same average for the EU 25144 is 5888 liters) and low quality of production(National Statistic Institute).

Graph AI 8. Number of animals in the agricultural sector



Source:MAF

Assessing the economic sustainability of the agricultural sphere is a process that must take into account not only the quantity of production produced, but also its qualitative

dimension at all stages of the production cycle. For this reason, high quality of production is a necessary condition for production sustainability.

The reasons for poor quality can be found in many factors, such as deteriorating housing conditions, unbalanced nutrition, difficult veterinary care and animal selection, non-application of modern technologies for breeding and realization of the genetic potential of animals, the presence of a risk of increasing morbidity, etc.

The number of farms (respectively cows) categorized into different groups for 2007 depending on how well they meet the zoohygienic and veterinary requirements and produce cow's milk, according to Regulation 853/2004/EC, is an example of uncertainty in a qualitative dimension in animal husbandry.

Thus, according to this categorization, in Group 1, 1499 farms with 61903 cows meet the above requirements. Group 2, which meets the requirements for buildings and equipment, but the cow's milk produced does not meet the specified quality indicators, includes 1201 farms with 21391 cows. And in Group 3, farms that do not meet the requirements for buildings and equipment and quality of milk fall 266557 cows, according to our calculations. Thus, 76.2% of the number of all cows in Bulgaria are from the third group and do not meet the mandatory standards in force in other countries of the community, and those from the first are only 17.7%. These data indicate a high production risk, with strict compliance and enforcement of requirements laid down in the European regulatory framework.

According to estimates by the producers' associations, the dairy sector alone needs EUR 35 million. Eur to reach milk quality standards. For example, 81% of holders with dairy cows do not have milking installations (National Statistic Institute).

Another example of the presence of quality problems and increased production instability in the agricultural sphere is the decrease in the number of slaughterhouses meeting European zoohygienic and veterinary requirements in 2007. In numerical terms the decrease compared to 2006 is the following:

- in slaughterhouses for red meats, it is by 17.4% (from 92 to 76 pieces)
- in slaughterhouses for white meats, the decrease is by 23.3% (from 30 to 23 pieces)

According to the DNC, as of 31. 12. 2007 only 103 out of 585 (or 17.6%) of all existing dairy and meat processing enterprises meet the requirements of the European legislation and have adapted to them, while the rest use the extended transitional period (in force until 31. 12. 2009 ) for adaptation.

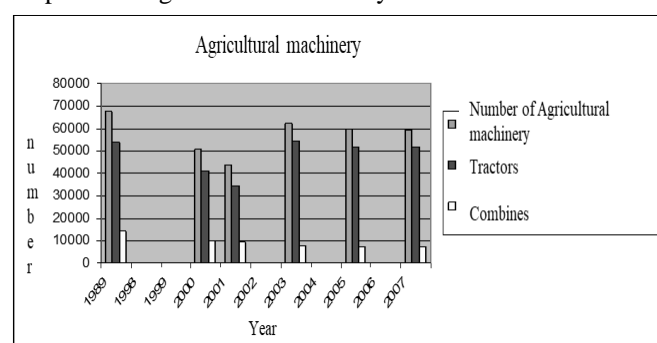
As a result of these complex processes, agriculture no longer produces enough quality meat, milk and dairy products to satisfy the internal market despite the favorable natural conditions. For example, unused alpine pastures are a prerequisite for the development of sheep breeding, which is

greatly reduced, however, compared to its pre-change capabilities.

Using the experience of different research institutes for economically and environmentally sound production may be essential for increasing production. But the policy applied should be aimed not only at increasing the quantity, but also at the quality of production. A possibility in this regard is measure 121. Modernization of agricultural holdings from the Rural Development Program 2007-2013. Compliance with mandatory quality standards, licensing and enhanced control as well as increasing criminal liability for their neglect are also measures to improve the quality side.

#### (d) Number of agricultural machinery - tractors and combine harvesters

Graph AI 9. Agricultural machinery



Source: MAF

The technical factor in agricultural production is also a significant cause of instability in the agrarian sphere. The current state of the art available, which, in addition to having almost halved since the late 1980s (Graph AI 9.), does not meet quantitatively and qualitatively the needs of modern sustainable agriculture.

The number of tractors in 2007 was 51630, 2023 less than in 1989, and of combine harvesters in 2007 decreased by 6746 to 7469.

According to available data for the period 2003-2007 (Scientific Advisory Council on Agriculture, 2008), it is clear that most of the registered equipment is older than ten years. In wheeled tractors, on average about 85% fall into this group; in tracked tractors about 97%; in the case of coupling, mounted and stationary machinery and tractor trailers, about 82-85%; combine harvesters 88%; silage harvesters and other self-propelled machines-95%.

This is the reason to characterize agriculture with a predominantly depreciated, presumptive, with high maintenance costs and energy-inefficient equipment (Agricultural Report, 2008).

This deteriorated structure has an impact on a low level of productivity and prolongation of technological processes and helps to reduce the efficiency and competitiveness of the industry and further exacerbates the problem of underinvestment, which we will discuss later. Judging from the statistical data in JSC 2008, the level of safety and roadworthiness of agricultural machinery, we also find a large

percentage of non-compliance and risk according to the above criteria.

From 10,000 controlled machines in 2007, 883 was imposed a compulsory administrative measure "Stop from work", such as technically malfunctioning, unsafe and unpassed annual technical inspection (GTR) machines (8.83% of all).

The share of registered agricultural machinery passed through the GTP in 2007 is respectively for wheeled tractors 66%, for combine harvesters 67.5%, for attachments 58%, from which we will make the following assumptions: or only about 2/3 of the available equipment is used in the cited year, and the rest is not used, which indicates inefficiency or besides the registered technique, passed an annual technical inspection, another one is used, which indicates a potential danger from the use of unregistered "risky" agricultural machinery MAF148 has found in recent years a growth of both newly registered agricultural machinery (new, purchased second-hand or not registered so far) and the number of new equipment (about 25% of the newly registered). The latter fact shows despite the growth, the still weak trend of modernization of agriculture with brand new technique.

To illustrate in more detail the problem with the low state of energy security of Bulgarian agriculture and the insufficient number of agricultural machinery and the need for modernization, we will point out that in our country per 1 decare of cultivated area there are 98.55 hp against 250-460 hp in the countries of Western Europe (Ivanov, B., 2008). A fact that needs to be given serious attention.

The main reason for the unsustainable state of technical capital is insufficient modernization. It is a function of investments that we can qualify as insufficient and not meeting the needs of the industry. Thus, the search for a possible answer to the problems related to technical capital is associated with an increase in the level of investment activity.

Access to credit is one of the main problems hindering the development and modernization of agricultural holdings in Bulgaria. Despite some improvements in lending such as longer repayment periods, lower interest rates and lighter pledge requirements, the majority of semi-subsistence and small-scale farms, which are a majority of farmers in Bulgaria, cannot meet the banks' requirements for granting credit. The low economic efficiency of these farms further makes the demand for borrowed capital from them undesirable due to the risk of low return on investment in the presence of many adverse market conditions.

Therefore, as more real and practically applicable to improving the technical state of agriculture, we consider measures such as the already mentioned measure 121. Modernisation of agricultural holdings, as well as 112. Establishment of farms of young farmers.

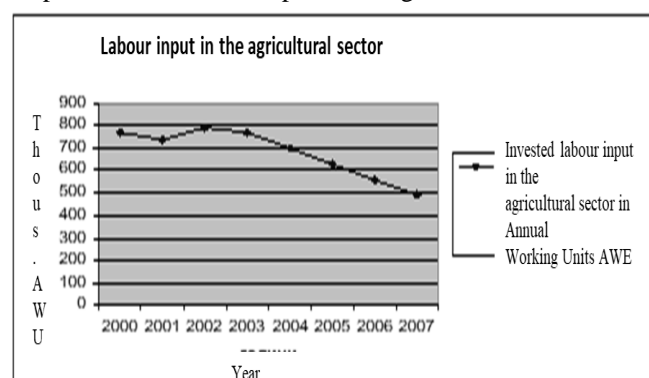
State aid for modernisation, in our opinion, should be directed more strongly at semi-subsistence, small and medium-sized farms also because larger production units manage to be more innovative and more capable, because of

their more solid investment potential than small, small producers (Ivanov, B., 2008).

### 1.1.6. Labour input in an agricultural sector, measured in Annual Work Units – AWU (for the period 2000-2007)

As seen in Graph AI 10, labour input measured in annual work units decreases. The maximum is in 2002 and has a value of 791.6 thousand AWUs, and reached a minimum in 2007, amounting to 494.4 thousand AWU.

Graph AI 1. 10. Labour input in the agricultural sector

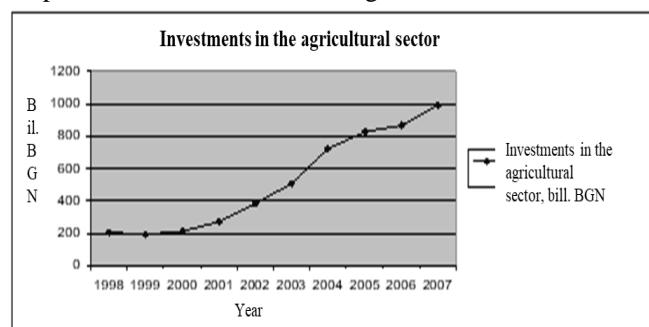


Source: MAF

The decrease in labour input in 2007, compared to the beginning of the period is 36%. However, in order to draw general conclusions about the efficiency of labour input in agriculture, we need complementary indicators. Such as labour productivity, which we are about to consider in the next second group of economic indicators. A decrease in the amount of labour input combined with low labour productivity (which we will see later) is a sign of inefficiency of the use of human capital in the industry. This is contrary to the concept of sustainable development.

### 1.1.7. Investments in the agricultural sector

Graph AI 10. Investments in the agricultural sector



Source: NSI

For the period 1998 - 2007 Investments in the agricultural sector increased in absolute terms almost 5 times, reaching an amount of EUR 991.1 million. BGN at the end of the period. (Graph AI 10. ) The share of investment in the agricultural sector in total investment varies within 2.0-5.6%. If we compare the above data with the steady trend of

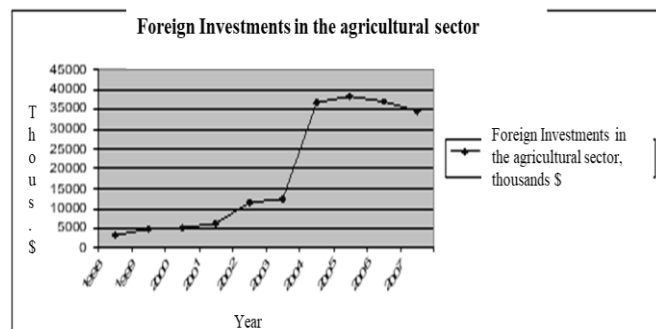


decreasing the share of GDP for the sector in the total GDP for the country, we have reason to say that they are not enough and have not given impetus to reverse the downward trend. (The issues of investment and tangible fixed assets will be analysed in more detail in the third group of economic indicators.)

### 1.1.8. Foreign investments in the agricultural sector

For a ten-year period, according to the NSI, foreign investment increased 11 times to 34,538.33 thousand \$.

Graph AI 11. Investments in the agricultural sector

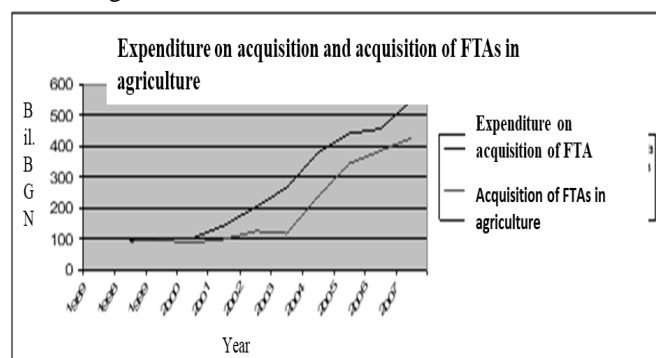


Source: NSI

But after 2004. , there has been a slower growth rate that has been declining since 2005. , a signal of the lack of interest of foreign investors. This fact is mainly caused by the low return in the sector and high risk, as well as the presence of more attractive for investment sectors in the national economy, such as construction and services.

### 1.1.9. Expenditure on acquisition and acquisition of FTAs in agriculture

Graph AI 12. Expenditure on acquisition and acquisition of FTAs in agriculture



Source: NSI

For the period 1998-2007 ( Graph AI 12.), we see an increase in acquisition costs and acquired FTAs amounting to 4.7 times and reached a level of EUR 427.1 million. Lv. for acquired FTAs. From the already analyzed structure of some fixed tangible assets we can say that despite their absolute increase, the rate of increase only partially eliminates their negative characteristics.

### 1.1.10. External trade balance

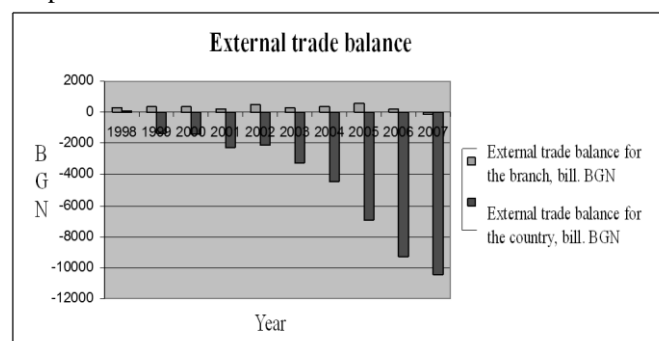
For the period 1998-2007 The foreign trade balance of the industry is positive, except for the last year 2007 This is a

good factor against the backdrop of the negative foreign trade balance of the country. But judging from the statistics on the structure of imports and exports, as well as from the data on manufactured products, we observe the transformation of the country from a net producer into a net importer of products for which we have had traditionally market advantages, such as fruits and vegetables, dairy products, various types of meat.

The analysis of the foreign trade balance shows a third significant negative point - exports are shrinking assortment, with several agricultural products forming a large part of exports (meats, cereals and industrial crops - oil and striped sunflower, wheat, barley, corn, tobacco and tobacco products, milk and dairy products).

As will be established later, in crop production, yields in these products are characterized by low values and variability, long.

Graph AI 13. External trade balance



Source: MAF

For the period 2001-2006. , imports of fresh and frozen meats in total increased almost threefold - of pork three times, of beef and veal four times, of poultry 1.7 times, of milk and dairy products- an increase of twofold. Imports of crop production also follow the above increasing trends. Fruit imports, for example, exceed exports seven times. In vegetables, the average annual import is between 50-90 thousand. tons, which turns the country from a major exporter in the recent past, in a net importer of almost all vegetable (Slavova, Ya. (2008).

An important point that should be addressed when assessing sustainability and on which the foreign trade balance depends is external competition. As it is known since the beginning of 2007 with its membership of the EU, a market in the country became part of the Community's internal market. In this way, the competitiveness of domestic production is put to the test. (Also in this aspect, a strategic analysis should be made of the effects of cheap imports from Turkey and Macedonia on the development of the industry.) Thus, a low competitiveness of agriculture will become a factor that will greatly hinder the discovery of the true potential of the industry. In this context, the quality requirements of production are also a point to pay attention to.

One of the frequently discussed and interpreted topics is that of the market of agricultural products and goods in the

former Soviet republics, which our country had conquered in the past and lost with the transition process. The topicality of the topic, in the face of potential exports, must be taken into account. Therefore, in our opinion, the development of the agrarian sphere and the demand for markets in the medium and long term should take into account all such opportunities. The certification of contractors according to European safety standards may in the future return some of the lost markets, for example, in Russia, which is already a fact for some products such as dairy, red wines, etc.

### 1.1.11. Efficiency of resources used

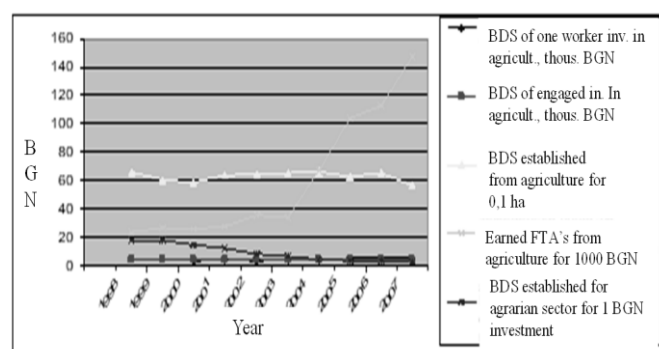
**This part groups economic indicators giving an idea of the extent to which the resources used meet the performance requirements.**

(a) BULGARIAN STATE STANDARD of one AWU labour input in agriculture This indicator measures the efficiency (productivity) of labour input, in the face of a unit of AWU. As can be seen from Graph AI 14. BULGARIAN STATE STANDARD (in the agricultural sector) per AWU of labour input grew and reached in 2007, (after a fall of 3.8% over the previous year) a value of 5860. 84 for AWU. This growth relative to the initial period (2000) is due to the decrease in the number of AWUs labour input in agriculture. Despite growth in labour productivity, the value of this indicator remains stable 5.2 times lower than the EU 27 average EUROSTAT.

(b) BULGARIAN STATE STANDARD per person employed in agriculture

Compared to the beginning of the period, the BULGARIAN STATE STANDARD per person employed in agriculture has decreased by 16% and reaches a value of BGN 3,969. This is a very important point, because with basic indicators, such as labor productivity, capital intensity and land use rate, production problems of the economic sustainability of the agrarian sphere can be revealed.

Graph AI 14. BULGARIAN STATE STANDARD per person employed in agriculture; BULGARIAN STATE STANDARD created by the agricultural sector per 1 decare of utilized agricultural area; Acquired tangible fixed assets per 1000 BGN GDP created in the sector; BULGARIAN STATE STANDARD created in the agricultural sector at BGN 1 Investment



Source: NSI, author's calculations

Labour intensity in the agricultural sector is far from the EU-27 average, where it is 4. 5 times lower (according to 2007 data) (Graph II 14.).

Increasing the educational and qualification level of the employed; the technologisation of agricultural production and the partial exclusion of low-productive manpower; Optimization of labor resource management in the industry are some examples of applicable measures to improve labor productivity or replace it with more efficient means of production. According to the Rural Development Programme, the highest contribution to labour productivity will be provided by measures related to investments in tangible assets, such as measure 121. Modernisation of agricultural holdings, measure 123. Adding value to agricultural/forestry products, measure 311. Diversification to non-agricultural activities, measure 312.

Support for the creation and development of microenterprises), as they will generate an increase immediately after the support is provided. For the measures generally related to training (Vocational training as well as Advisory services, Support for young farmers), the expected contribution is lower as they represent an "investment in the future". Optimally applied, measure 141. Supporting our semi-market farms can also have extremely beneficial effects on labor productivity. If it is applied only as additional support for low-income farmers, its impact will be negligible (both on labor productivity and on economic growth). If instead it is focused on economically promising units, it can provide opportunities to transform at least part of micro-farms into viable enterprises, and so the positive effects of implementing the measure will be much more significant (Program for development of the rural areas 2007-2013).

(c) BULGARIAN STATE STANDARD created by the agricultural sector per 1 ha of utilized agricultural area

BULGARIAN STATE STANDARD, created by the agricultural sector per hectare of utilized agricultural area, decreased tentatively from BGN 667.66. at the beginning of the period (1998 – 2007), reaching BGN 566.4. at the end. (1,2008,58) The decrease is by 15.2% and speaks of inefficiency in land use in the agricultural sector.

(d) Acquired tangible fixed assets per BGN 1000 GDP created in the sector

The acquired tangible fixed assets (FTAs) in the sector are growing (Graph AI 14. ), but the overall decline in the BULGARIAN STATE STANDARD (Graph AI 1. ) deepens the capital intensity and inability of the sector to eliminate negative production trends. This shows that the FTA structure is not optimal and insufficient in size in those subsectors that are of decisive importance.

A comparison of the values of the similar indicator for the economy as a whole also indicates a lag in terms of acquired FTAs in agriculture by other sectors of the national economy. The decrease in the acquired tangible fixed assets and the deterioration of the overall economic performance in

the agricultural sector show that agriculture is in urgent need of modernization.

Without more effective state assistance, the trend of outdated and depreciated FTAs will be maintained and will increase the capital intensity of the industry. A more flexible system of preferential financing, tax and depreciation allowances are some of the proposals for this.

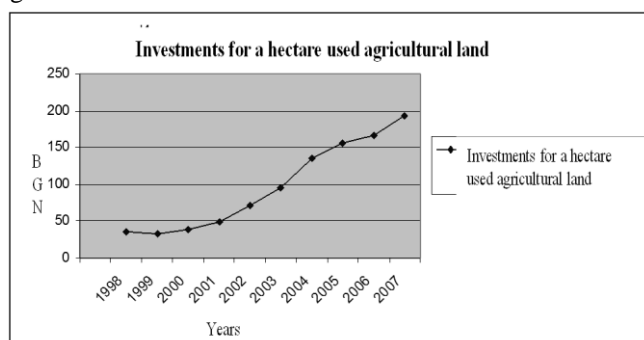
(e) BULGARIAN STATE STANDARD established in the agricultural sector at BGN 1. Investment

Gross value added created in the agricultural sector at BGN 1. investment decreased dramatically (Graph AI 14. ), falling 6.4 times at the end of the period. This shows the inefficiency of the investments made and is a sign of productive unsustainability as a result of insufficient financial resources, which requires new approaches to political solution of the problem.

(f) Investment per hectare of land used in agriculture

The lower graph clearly shows the rate of increase of investments per 1 ha of utilized agricultural land almost five times for the period. But if we combine this conclusion with the trends of decrease in utilized agricultural land and the decrease in gross value added for the industry, the question is raised not only of quantity, but also of the "quality" of investment. In this case, insufficient to induce real growth in the agricultural sector.

Graph AI 15. Investments per hectare of land used in agriculture



Source: MAF

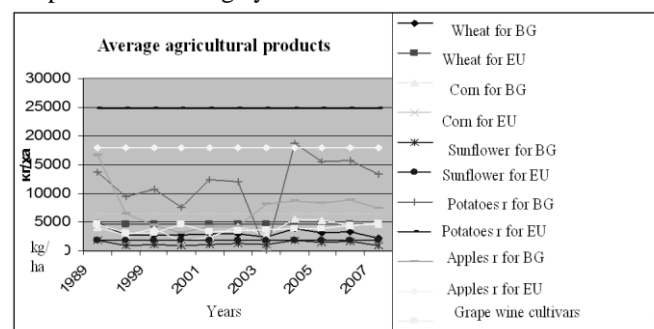
(g) Average crop yields

An unfavourable trend is also observed in terms of land productivity, as traced by declining average yields for wheat, grain maize, sunflower, apples and grapes of wine varieties for the period 1998-2007 (Graph II 16.) Because sustainable agriculture is also a balance of economic efficiency with environmental acceptability, the economic performance in agriculture of the communist period is not such a qualitatively sustainable measure. The many damage done to nature at that time required an up-to-date benchmark. That is why we have added to the graph in addition to the data for 1989. and averages for the period 2005-2007 for the EU25.

Average yields are without exception lower than the EU 27 average. Particularly noticeable are the differences in the average yields of apples - by 2.5 times decrease for the period

under review compared to 1989. and 4 times lower than the EU 25. This is not accidental, given that apple production, for example, is an intensive process and is characterized by higher resource and capital intensity. Non-compliance with production activities, such as regular spraying against diseases and pests due to lack of funds, has a negative impact on yields. This is evidenced by the general estimate of MAF153, according to which the main reason for low and variable yields is the extensive nature of production and varying soil - climatic conditions.

Graph AI 16. Average yields

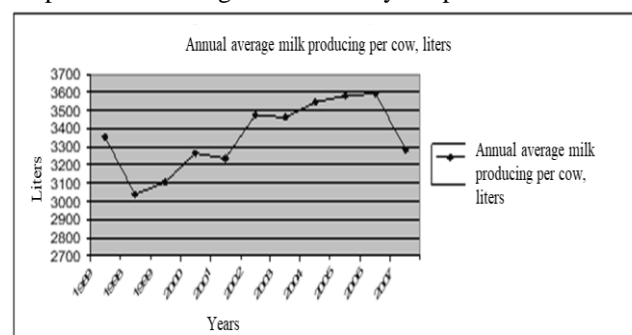


Source MAF, NSI, Eurostat

As already mentioned earlier, the analysis of the dynamics of change of the physical volume of the BULGARIAN STATE STANDARD, created in the agricultural sector, also gives grounds to find a markedly extensive production and a higher dependence of production on climate change. Thus, eliminating the risk of negative change becomes an important step for the sustainability of the agrarian sphere. Irrigated agriculture is one example of a way of counteraction. It will be discussed in a little more detail in the section on environmental indicators.

(h) Average annual milk yield per cow

Graph AI 17. Average annual milk yield per cow



Source: MAF

The average level of annual milk yield per cow for the period 1998-2007 is 3358 l. and is almost comparable to that of 1989. In 2007 there was a decrease of 8. 8% over the previous year, contrasting with the upward overall trend. The comparison with the data for the EU27 for 2007, where the average milk yield per year per cow is about 5200-5500 l. , shows a lag behind the notions of modern dairy farming.

The unfavourable condition of the areas used, back with low productivity, moves the agricultural sector away from

economic sustainability. The result is unstable production and uniform satisfaction of the needs of the population, which affects well-being. Along the chain to the consumer, the sector now provides only 18-20% of consumer demand for beef and veal on the domestic market, 55-60% for pork, increasing imports of milk and dairy products to 20-22 thousand. and on fruit up to 150 thousand. which exceeds 7 times exports. The situation is similar with the different types of vegetables, which we have already mentioned and whose imports are between 50-90 thousand. t, whereas for most of them years ago the country was a net exporter.

Assessing the economic sustainability of the agricultural sphere must take into account not only the quantity of production produced, but also its qualitative dimension at all stages of the production cycle. Although the high quality of production is a necessary condition for economic sustainability in our country, an unfavorable trend is emerging, which is particularly noticeable in livestock breeding and the production of meat, milk and dairy products.

Characterising the links between deteriorating economic performance and well-being, one should bear in mind this feature that trends take place in conditions of contracted consumption, sometimes even below the recommended health requirements for nutrition, which affects the social dimension of sustainability. The analysis of the annual consumption of the most important food products per capita in Bulgaria shows that the consumption in 2006 compared to 1989. has seriously decreased. For meat of 68.7 kg, it shrank to 26.5 kg per year, compared to the EU average in 2005. from 89.5kg. ; consumption of milk and dairy products for 2007 decreased from 240 to 120 l, against an EU average of 320-340l; of vegetables - twice. ; of fruit - nearly three times. This not only affects production, but also negatively affects other social aspects of well-being, such as morbidity and life expectancy.

As a result of the analysis of the second group of indicators, we can assess the effectiveness of the use of production resources as low and take into account the lagging behind of the agricultural sector at sectoral level in this sense from the other sectors of the national economy, from the average efficiency values in the other EU countries and what was reached before the beginning of the transition period (1989). Therefore, the efficiency of the agrarian sector as a whole is contrary to the economic principles of sustainable agriculture.

### 1.1.12. Investments

The last group of economic indicators concerns investment and investment activity in the agricultural sector. The accession of the Republic of Bulgaria to the EU has set new requirements for our agriculture. One of them is the achievement of economic sustainability in harmony with ecological and social balance.

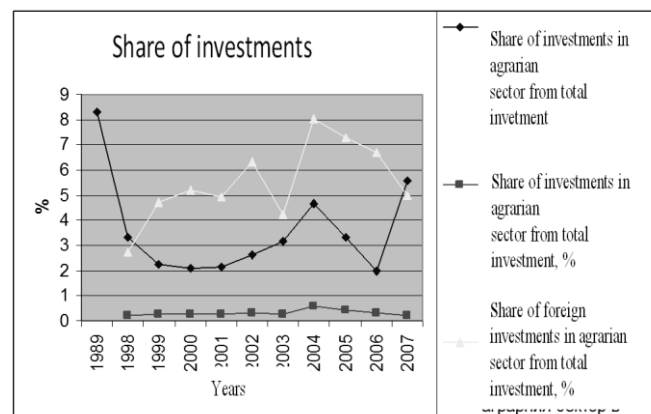
Through investment, as an instrument for maintaining the trinity of sustainable development, we strive to ensure the balance between the different dimensions.

In an economic context, investments must ensure the solution of structural, market, production, resource and other problems. Is this the case in the agricultural sector? The preservation of low productivity in the agricultural sphere, the capital-intensive and labor-intensive level of production, the insignificant modernization of the sector, which we have already mentioned, are some of the mentioned requirements on which we have non-compliance and divergence with the principles of sustainability. For further detail, we look at the indicators below.

#### (a) Share of investment in the agricultural sector

For the period 1998-2007, the share of investments in the agricultural sector in total investments varies between 2 and 5.6% (Graph AI 18. ). The maximum reached was in 2007, but nevertheless remained below the 1989 level. , amounting to 8.3%. The declining GDP and the BULGARIAN STATE STANDARD for the agricultural sector (Graph AI 1. ) show that the share of investments in agriculture is still low and does not meet the needs of the industry for qualitative change.

Graph AI 18. Share of investment



Source: NSI

The part of foreign investment in the agricultural sector in total foreign investment is also variable. The maximum level reached was 0,58 % in 2004. and then marks an overall decrease to reach its 1998 value of 0.2%. This trend indicates an outflow of foreign investment in agriculture.

Against the backdrop of total investments, we can find a pronounced "unattractiveness" and low interest in investment of foreign capital in the agricultural sector. The share of foreign investment in the agricultural sector in the total investment for the industry (Graph AI. 18) is variable, with a pronounced decline after 2004.

Against the backdrop of other areas of the national economy, such as construction and services, where foreign investment plays a much more significant role, agriculture is "lost" below the 2004 maximum of 8%.

The answer to change the negative trends in the above indicators is the measures to increase investment activity. This can be done in two ways - from internal and external sources for the sector, such as entrepreneurial income and profit reinvestment, tax and accounting preferences, full

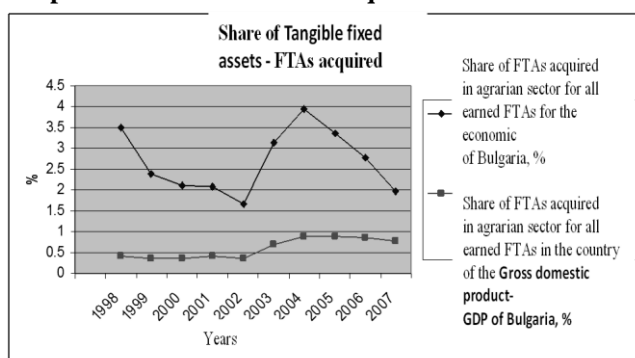


absorption of direct payments and national co-payments, market support funds, funds for rural development, development of projects financed by the structural and cohesion funds of the European Union, intensifying the role of commercial banks in granting loans to the agrarian sphere, etc.

Strengthening the control by state institutions over the effective and intended use of European subsidies and post-investment monitoring, the exercise of a punitive function, in case of non-compliance with the prescriptions can also indirectly intensify investment processes.

**(b) Share of acquired FTAs in the agricultural sector in all acquired FTAs for the country's economy.**

**Graph AI 19. Share of FTAs acquired**



Source: MAF

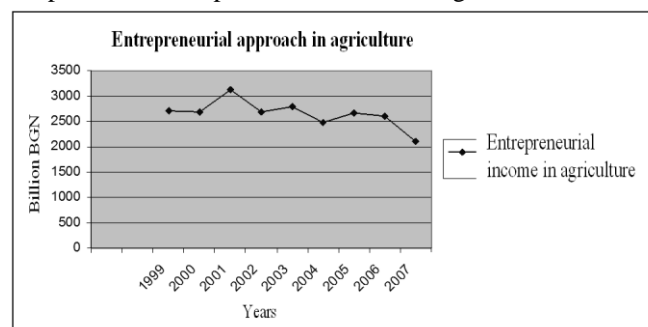
The share of acquired FTAs in the agricultural sector in all acquired FTAs for the country's economy varies between 1.7-3.9% (Graph AI 19.) and has seen a decline in its value since 2004. The overall decrease is mainly due to the outpacing rate of growth of FTA of the economy compared to that in the agricultural sphere. The low level of acquired FTAs has a negative impact on the productivity of the sector and helps to shape its predominantly extensive and capital-intensive character.

**(c) Share of acquired FTAs in the agricultural sector in the country's GDP**

The above conclusions also apply to this indicator. (Graph AI 19.) The share of acquired FTAs in agriculture is below 0.9%. Trend of lagging growth of acquired FTAs in the sector against the background of GDP growth for the country's economy.

**(d) Entrepreneurial income in farming**

**Graph AI 20. Entrepreneurial income in agriculture**



Source: MAF

This indicator takes into account a trend of contraction. Compared to 1999 (BGN 2712.6 million) in 2007 The net reduction amounted to 22% and reached a value of EUR 2,109.6 million. due to complex reasons. Deterioration can also be interpreted as limiting the possibility of its use as an investment instrument. Increasing the efficiency and competitiveness of agriculture will have a beneficial impact on entrepreneurial income in agriculture and therefore measures aimed at the agrarian sphere will indirectly have a positive effect on it.

**(e) The role of State Fund Agriculture in the investment process**

The role of State Fund Agriculture as an instrument for state budget financing is studied for the period 2005-2007. According to MAF153 data, the resources allocated under short-term support schemes for the respective years are respectively EUR 92.5 million. Lv; 72.5 million Lv; 72 million their respective share in all investments over the years is 11.2%; 8.4%; 7.3%. There is an absolute and relative decline, indicating a decrease in the role of budget financing under the short-term schemes of the State Fund Agriculture. If we consider the efficiency in the absorption of these financial resources for the period, (Table AI 1.) expressed in the percentage of absorption of allocated resources by all, there is an inefficiency in absorption ranging between 2.2 and 8.5% of the allocated resources, and in subsidies and loans - a variation between 23.8 and 79.05%, which indicates an inefficient use of the financial potential, Especially when it comes to loans.

**Table II 1. Financial resources under the short-term schemes of State Fund Agriculture for the period 2005-2007**

Kind	2005 r.	2006 r.	2007 r.	% change (since 2006)
Resource allocated, BGN , incl.	92 500 000	72 500 000	72 000 000	- 0,69
-subsidy	60 000 000	60 000 000	32 000 000	- 46,67
-credit	32 500 000	12 500 000	40 000 000	+ 220%
Utilized resource, BGN , incl.	83 460 232	60 220 334	37 668 524	- 37,45

-subsidy	58 680 304	57 177 513	29 285 360	- 48,78
-credit	24 779 928	3 042 821	8 383 164	+175,5
Percentage of absorption, incl.	90,2%	83,1%	52,3%	
-subsidy	97,8%	95,3%	91,5%	
-credit	76,2%	24,3%	20,95%	
Number of contracts concluded	20 859	23 528	8 596	-63,47

Source: MAF

With regard to the long-term financial instruments for support, in the face of investment loans from the State Fund Agriculture, capital subsidies and interest subsidies (Table AI 2.) there is also a fluctuation in the allocated funds for the period 2005-2007, with a downward trend in livestock financing, leading to an imbalance in sectoral financing, reaching from 1:5 to 1:13 in favor of crop production, which we also use as an indicator in what direction the priorities are directed, i.e. plant production.

MAF significantly facilitated access to credit. They have agreed with many commercial banks for preferential treatment of beneficiaries under various programs. The expected amounts of support are accepted by the banks after

confirmation by the SFA as an additional guarantee for pre-financing of the approved projects. However, this process was mainly aimed at large production units, because they benefited most from the various support programmes in the agricultural sphere.

The role of budget financing is extremely important for the investment environment in the agrarian sphere for another reason as well. The state has the right to supplement with its own budget funds the amounts allocated for direct payments by the EU. Thus, through additional budget financing, agrarian policy can direct additional cash flows to needy subsectors of agriculture.

Table II 2. Financed/refinanced investment projects in 2005, 2006 and 2007

Investment program	Financed/refinanced, BGN		
	2005	2006	2007
1. "Livestock" – through TB	7 440 453	6 556 849	2 388 390
– via TB	3 437 990	2 996 139	1 918 050
– Direct credit	4 002 463	3 560 710	470 340
2. "Crop production"	34 238 668	44 857 714	29 643 596
– via TB	18 851 289	26 822 996	23 952 735
– Direct credit	15 387 379	18 034 718	5 690 861
3. "Technique"	32 323 760	43 704 170	26 326 952
– via TB	14 904 362	38 898 585	25 117 627
– Direct credit	17 421 398	4 805 585	1 209 325
Total:	74 004 881	95 118 733	58 358 938
Refinancing of SAPARD projects	26 576 570	13 948 405	
Total:	100 581 451	109 067 138	58 358 938
Capital subsidy	5 358 605	5 726 008	5 763 096
Interest subsidies	6 312 671	9 566 966	10 419 092

Source: MAF

But on the other hand, the limited budgetary capabilities of the country, as well as the lack of a coherent policy in our country, aimed at a real and comprehensive solution to all the accumulated problems in agriculture and the related processing industry, also narrow the investment opportunities.

As a real response to improve the investment climate, State Fund Agriculture and

#### (f) SAPARD Programme

The SAPARD program is one of the eloquent examples of increasing investment activity. The amount of Community co-financing under all annual financing agreements signed for the period 2000 to 2006 amounts to EUR 444 748 370. The total budget of the Programme, including national co-financing, is EUR 592 961 125. Investments in agricultural holdings supported by the Programme for the period 2001-

2006 amount to approximately EUR 111 million of public investment, attracting an additional EUR 134 million of farmers' own funds. Investments in the food industry supported by the Programme for the same period amount to nearly EUR 100 million of public investment, while attracted are EUR 120 million. EUR 10 of processors' own resources (Program for development of the rural areas 2007-2013).

Thus, only investment activity by measure. "Investments in agricultural holdings" of the SAPARD program for the period 2001-2006 account for about 14% of all investments in the agricultural sector, indicating its significant role as a source of funding (co-financing). It has contributed to the "modernization of production, its specialization and consolidation, to increasing productivity, yields and productivity, the quality of agricultural products, improving working conditions, increasing incomes, protecting the environment; the attraction of highly qualified young staff and the creation of new modern enterprises for processing agricultural products" (Program for development of the rural areas 2007-2013).

Despite the impetus given by the SAPARD Program to the agricultural sector in Bulgaria, it could not solve all the accumulated problems mentioned in the analysis so far.

## Conclusions

Analysing the group of selected economic indicators at the sectoral level, we can draw the following conclusions for the agricultural sector:

- a general deterioration in economic performance; industry slowing down the general development of the national economy;
- predominant type of extensive and unstable production and uniform satisfaction of the needs of the population for food products and raw materials for the processing industry; prevailing one-sided production structure;
- degraded farm structure expressed in terms of a polarised structure in terms of land use; the predominant number of non-market and semi-market-oriented farms; small medium size and patchiness of land used;
- a high proportion of nonspecialised holdings and a decrease in the number of specialised holdings;
- reduction in the number of all holdings;
- the underestimated treatment of land as a factor of production, expressed by a reduction in utilised agricultural area, agricultural areas and arable land, at the expense of an increase in the share of abandoned, wasted and uncultivated land;
- the depreciated structure and insufficient technical resources, as well as a large percentage of non-compliant safety equipment; reduced livestock on agricultural holdings; reduction of occupied areas and deterioration of the quality of the permanent settlements; reduced quality of meat and milk production;
- reduction in the amount of labour input;
- low labour productivity and high labour intensity;

- insufficient investments and ineffective influence on increasing production and low investment activity;- low level of foreign investment;
- high capital intensity and lagging FTA growth in the sector, against the backdrop of the national economy;
- turning the country into a net importer and losing comparative advantage;
- one-sided export structure;
- inefficient land use and low profitability from it;
- low average yields and low average productivity compared to EU averages;
- contracted consumption of agricultural products;
- need to strengthen the support of the state;
- recognises the important role of the SAPARD programme as an engine towards higher levels of sustainability but incapable of addressing the accumulated problems;
- according to the DPSIR methodology, economic problems at the industry level can be defined as referring mostly to the analytical phases "Driving forces" and "State" and partly "Response".

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