

COMPETITIVE ADVANTAGES OF BULGARIAN SUNFLOWER INDUSTRY AFTER THE ACCESSION INTO THE EUROPEAN UNION

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Abstract

After the accession to the EU the oilseed crops, especially sunflower and rapeseeds, are becoming promising and advanced sector in Bulgarian agriculture. They account for more than 20% of total agricultural output and dominate in structure of Bulgarian export. Bulgaria and Romania are the largest sunflower seed producers in the EU, with sunflower yields increasing twice over the past ten years. The results in the sector are good starting point for a debate over its competitiveness and efficiency. The aim of the study is to analyze the competitive advantages of Bulgarian sunflower industry and to outline opportunities and challenges for post 2020 period. The sector is observed in terms of production, consumption and trade. Several of the commonly used indicators for the evaluation of competitive advantages have been applied such as the Relative index of export advantages – RXA, the Relative trade advantage – RTA and Related competitiveness – RC. The results show that sunflower seed will continue to dominate in Bulgarian agricultural structure regardless the dynamic of international prices and production. The difficulties in Bulgarian livestock are reflecting the sector and causing dependence on export and foreign trade.

Key words: competitiveness, CAP, efficiency, sunflower industry, Bulgaria

INTRODUCTION

After the accession to the EU sunflower and rapeseeds, are becoming promising and advanced sectors in Bulgarian agriculture. They account for more than 20% of total agricultural output and dominate in structure of Bulgarian export. On one hand the sunflower is used for a well-balanced crop rotation with the cereals (wheat, maize, etc.) therefore it could be grown on large areas. On the other hand the sunflower is a relatively dry resistant crop, which in combination with the significant irrigation problems, which occurred in Bulgaria during the transition period (Penov *et al.*, 2003), is a great advantage [16].

In recent years, the harvested area of sunflower seed in Bulgaria is about 6 million dca, which places it as the second most important crop right after the wheat. The significance of the sunflower is closely related to its export potential. The dynamics in the recent years is starting point for a debate over the competitiveness in the sector.

The aim of the study is to analyze the competitive advantages of Bulgarian

sunflower industry and to outline the challenges and the opportunities for the post 2020 period.

The study is structured in three main parts as follows: First section of the paper represents the theoretical background, materials and methods applied in the study. Second part outlines the production potential and the competitive advantages of the sunflower seed. Finally, some important conclusions concerning the competitive advantages of Bulgarian sunflower industry and some recommendations for the further development of the subsector are highlighted in the third part of the paper.

MATERIALS AND METHODS

The data is collected by FAO Database and Ministry of agriculture, food and forestry in Bulgaria for the period 1961-2016 [6, 7, 15].

In the scientific world the competitiveness has many definitions and dimensions. According to Latruffe (2014) agricultural competitiveness is defined as “the ability of an agricultural firm (including a farm) to face competition and to be successful” [12].

Competitiveness may be considered in the context of a domestic markets (in which case firms, or sectors, in the same country are compared with each other) or in an international context (in this case, comparisons are made between firms in different countries) (Keogh et.al. 2015) [10]. Kuneva and Angelova (2017) apply mathematical approach to analyze the links between subsectors and competitiveness [11]. Georgiev and Roycheva (2017) use new institutional approach for measuring the adaptation of Bulgarian agriculture [8]. Due to the complexity of the concept in theory and practice, no consensus has been reached on competitiveness definition and measurements (Latruffe, 2014) [12].

In agricultural sector the methodology of the study is based on the methodological framework proposed by Aleksiev (2012) [1]. First empirical study in the area of relative competitive advantages (RXA) is presented by Liesner (1958) [13]. Balassa (1965) [3] proposes an advanced measure of RXA which is among the most widely used indicator of competitiveness:

$$RXA = (X_{ii} / X_{it}) / (X_{nj} / X_{nt}) \quad (1)$$

Where X represents exports, i is a country, j is a commodity (or industry), t is a set of commodities (or industries), and n is a set of countries (Balassa, 1965) [3].

In many aspects, however, its use is limited and problematic (Benedictis and Tamperi, 2001; Hinloopen and Marrewijk, 2001) [4, 9]. The indicator observes only the export potential rather than trade balance.

Vollrath (1991) [17] modified the Balassa index and develops three alternatives for assessing the competitiveness. These indicators are called logarithmic relative advantage (lnRCA), the relative trade advantage (RTA), and the revealed competitiveness (RC).

The difference between the coefficients RXA and RMA is the relative trade advantage (RTA), commonly used indicator of comparative advantages:

$$RTA = RXA - RMA \quad (2)$$

The indicator Revealed competitiveness (RC) compares RXA and RMA in a logarithmic form (Vollrath, 1991) [17]:

$$RC = \ln RXA - \ln RMA \quad (3)$$

RESULTS AND DISCUSSIONS

The analysis of variations of sunflower production in the country could be divided into three main stages. The first period (1985-1989) could be characterized by significant fluctuations through the years and slow increase in the production. The aforementioned variations are due to the mutual effect of extensive and intensive factors. The main reasons for the insignificant average growth (around 9%) are related to the low comparative biological and technological advantages of sunflower production compare to other crops and the traditional use of animal fat in Bulgaria.

The dynamics in harvested area, yields and production for the period 1985-2017 are presented in Figure 1.

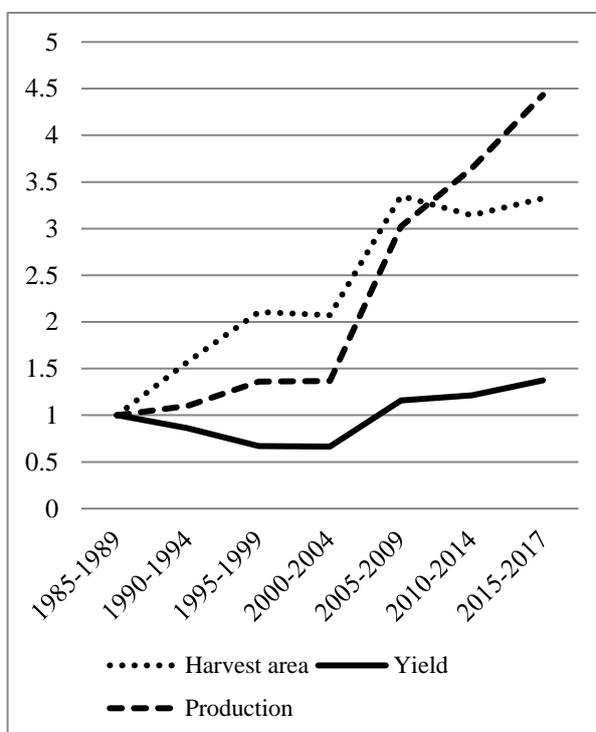


Fig. 1. Dynamics in harvested area, yields and production 1985-2017 (1985=1)
 Source: Own calculation based on FAO [6].

The second stage is associated to the process of market transformations and the agricultural reform. In this period (1991-2000) is observed a significant increase in sunflower production due to the rapid expansion of the harvested area and the changes of agricultural specialization. The above-mentioned extensive factors compensate the decrease in the average yield. Therefore the increase of production in this period is over 40%. The observed variations in yields and production are determined not only by changes in weather conditions, but also by technological constraints during the transition period.

The production of sunflower in the pre-accession period and the EU membership is growing rapidly. Therefore, Bulgaria becomes one of the main producers and exporters of sunflower seed. The financial support of the CAP allowed the rapid technological development of sunflower industry.

Therefore, the production of sunflower in the last fourteen years increases nearly 3.5 times and the average annual growth is almost 10%, which causes significant increase in the export.

Figure 2 presents information for major sunflower producers in the past half century.

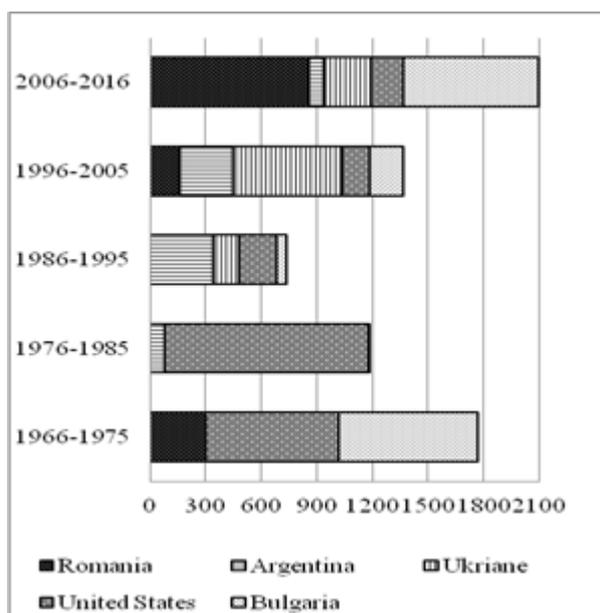


Fig. 2. Export of selected group of countries 1966-2016 (in thousand tonnes)

Source: Own calculation based on FAO [7].

*The data in Ukraine is available after 1992.

Due to the relatively high ecological plasticity of the sunflower, it is grown in large number of countries. During the analyzed period, the total sunflower seed production in the world has increased significantly and reached over 45 million tonnes. The development of world sunflower production however, is characterized by substantial regional changes, caused by the agricultural policy revisions over the years. Aforementioned reforms are determined by natural factors and also by consumers' preferences and the economic conditions.

The countries could be divided into two groups. The first group has expanded sunflower production over the past 30 years (Bulgaria and Romania). The second group includes countries that changed their policy (The USA and Argentina). In the first decades, this group also expanded the area and increased the production of sunflower seed. In 1979, nearly 22% of world production was concentrated in the USA. On the other hand, in 1999 Argentina provides 24% of sunflower seed production. These countries changed their policies and decreased both the harvested area and the production. This could be explained with the influence of the "green revolution" and the difficulties associated with the fight against diseases, pests and weeds. There are some changes in the consumer behavior over the years in this group of countries. Therefore, the sunflower oil is replaced by olive oil, corn oil and other more quality oils. At the beginning of the new century, the sunflower production is concentrated in Europe, with the largest producers in the Black Sea region.

The trends in the export of sunflower seed in the biggest producers show substantial variations. During the 70's and 80's the USA and Argentina played major role in export of sunflower. By contrast, after 1990 Bulgaria and Romania increased their export potential in parallel with the decline in the export quantity in the USA and Argentina.

The export structure of Argentina has changed in favor of the rapeseed production, while the USA increased the domestic consumption. Bulgaria and Romania are among the biggest

exporters in the world. In 2013, Bulgaria takes first place based on the indicator. The increase in export in Bulgaria is raising concerns about the future development of the sector and its high dependence on export.

Dynamics of production and domestic consumption of sunflower in Bulgaria determines the export potential. There are significant changes for the analyzed period of fifty-five years (Table 1).

In the first three decades of the period the sunflower production is growing gradually. The main reasons are associated with the technological development of the production processes. However, essential changes in the export quantity and its share are not observed. This trend is caused by the needs of the food processing industry and the forage production. The main priorities of Bulgarian trade policy during the 80's are associated with the export of high value products and decrease in the export of primary products and raw materials. Therefore the export of livestock products is stimulated.

Table 1. Share of the export in production of sunflower 1961-2016 (%)

Periods	Sunflower	Sunflower seed	Sunflower oil
1961-1970	14.25	22.98	14.24
1971-1980	7.25	4.15	22.14
1981-1990	6.78	4.21	17.29
1991-2000	15.88	20.87	10.92
2001-2010	32.85	48.74	28.43
2011-2016	53.32	67.35	39.15

Source: Own calculation based on FAO and Ministry of agriculture, food and forestry [7, 15].

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export of primary products and raw materials. Therefore, the export of livestock products is stimulated.

There are significant changes in the trends and political priorities in the beginning of the transition period (Zlatinov, 2018) [18]. The harvested area and production are increasing as well as the share of the export of sunflower and sunflower oil. In the recent years over 60% of the sunflower production is exported. The changes of the trade policy, the decline in the sectors of livestock, fruit and vegetable production and the influence of the innovative technologies led to serious increase in sunflower seed export (Manolova, 2009; Atanasov and Popova, 2010; Dochev, 2016) [14, 2, 5]. This trend has not only positive but some negative dimensions related to the high dependency on the export. The changes in the share of the export show significant variations in Bulgarian international specialization. Bulgaria is exporting primary products and raw materials, while main sectors with export traditions (viculture, fruit and vegetables etc.) are experiencing severe problems.

The dynamics of the comparative advantages in sunflower seed in the past 55 years are outlined by Balassa index (Fig. 3).

The results indicate that there are two stages of the development of sunflower comparative advantages in Bulgaria. In the first three decades (1961-1990) the comparative advantages of the country are declining. The main reasons are related to the policy perspective during the planned economy, which restricted export of raw materials and stimulated domestic consumption. In the past twenty-six years (1991-2016) due the increased production potential and the reduction of domestic consumption, the comparative advantages of the country in international trade are increasing.

Despite the serious problems in agriculture during the transition period and the production decline, sunflower prices on the world markets encourage its exports. In the last period the expansion of the harvested area and production led to a significant increase in the export. Therefore the Balassa index has the highest values.

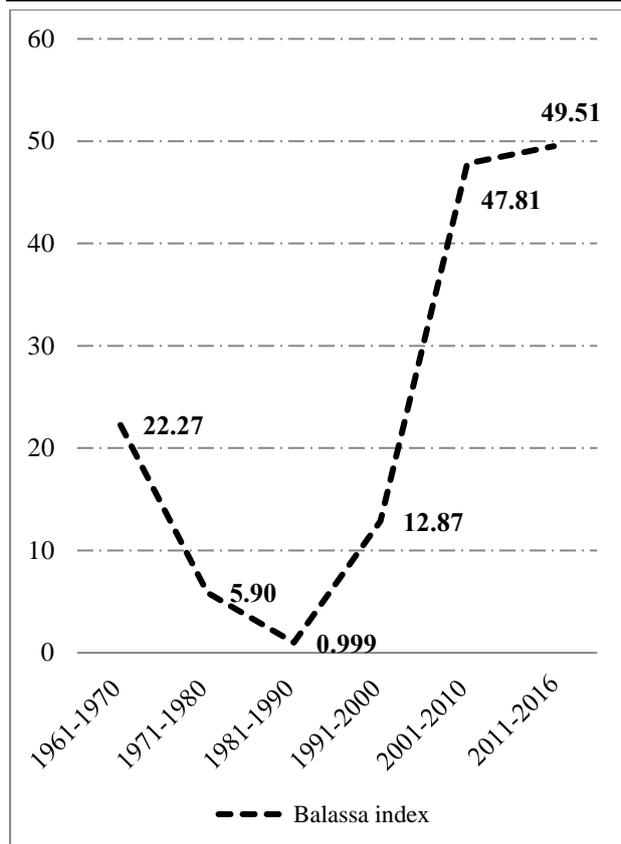


Fig. 3. Balassa index (1961- 2016).
 Source: Own calculation based on FAO. [7].

The competitive advantages of sunflower production are analyzed by Vollrath indexes - relative trade advantage and relative competitiveness (Fig. 4).

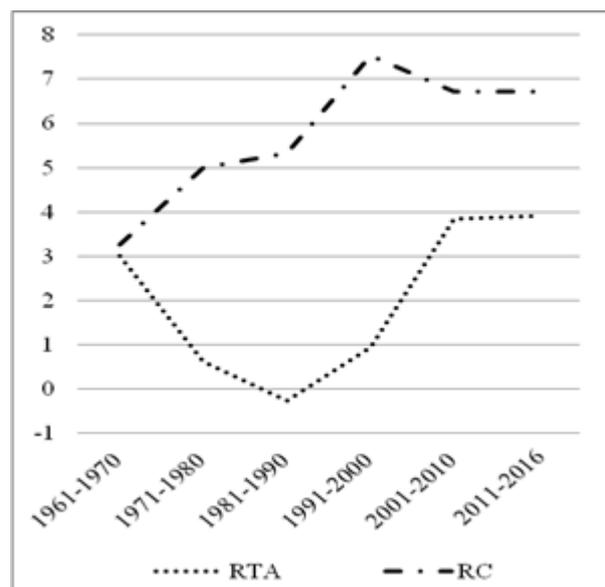


Fig. 4. Competitive advantages of sunflower production 1981-2016
 Source: Own calculation based on FAO. [7].

The results correspond to the trends observed by Balassa index. The first three decades are associated with lower competitive advantages and serious variations. Negative values, related to the limited export of primary goods and rapid development of the livestock sector were registered in the last decade of the planned economy.

The opportunities of sunflower seed for participation in the international trade are declining in the first thirty years of the analyzed period, although the increase of the export prices.

The next decades are characterized by better opportunities in the international trade due to the intensive development of the innovative technologies. The main reason however, is the financial support under the CAP. The direct payments stimulate extensive crop producers and are causing serious changes in the specialization and the concentration of Bulgarian agriculture. Therefore, wheat and sunflower seed production is dominating the structure of Bulgarian agriculture.

The majority of agricultural holdings related to sunflower seed production are large farms that are specialized mainly in extensive farming. They accumulate significant financial support in form of direct payments and thus stimulate the establishment of imbalanced structure of Bulgarian agriculture. The development of sunflower seed production over the past decades is a positive trend, but it should be linked to proceeding industry and livestock. The low processing and consumption in the country is one of the main reasons for the increase of the export potential in the country.

CONCLUSIONS

The analysis of the dynamics of harvested area, yields and production of sunflower seed in Bulgaria shows significant growth in the sector after the accession to the EU. After the transition period there is serious change in the international specialization and the trade policy in Bulgaria.

In the recent years the increase of production is in parallel with the export growth.

The low domestic consumption in Bulgaria and the challenges in the sectors of livestock breeding, viniculture, fruits and vegetables lead to dominant role of sunflower and wheat in Bulgarian export list.

Despite some positive changes after the accession to the EU there is high dependence on the export that raises serious concerns about the sustainable development of Bulgarian sunflower industry.

Strong revision of the priorities of agricultural policy is recommended for the new programming period. The international specialization should be based on high value and proceeded products.

The results of the analysis indicate that Bulgaria is one of the leading countries in the production and the export of sunflower seed. In the forthcoming years we could expect a decrease of the export potential and an increase in the domestic consumption and the export of sunflower oil.

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