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Evaluation of the development of fruit growing in Bulgaria (II part)

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Abstract

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Fruit growing is a traditional branch of Bulgarian agriculture. It is essential for the country's economy and the development of agricultural regions. The study tries to explain what is happening to the fruit sector today in the context of its historical development. The purpose of this article is to determine and evaluate the stages in which fruit growing was developed over the years. In order to achieve this, the study: analyzes and evaluates the development of fruit growing in Bulgaria; estimates the stages it goes through; evaluates the production potential of the fruit branch; analyzes and evaluates fruit export and fruit import. The study considers a long period of time, which requires it to be divided into two parts. This second part of the article discusses the modern period in the development of fruit growing from the 90s until present days. The second part of the study determined two sub-stages of this period: transition sub-stage and sub-stage of equal membership of Bulgaria to EU from 2007 up to now. The analysis found a sharp decline in the production potential of fruit growing in the recent days. The average production level is 2 times lower for the (1900 – 2018) than the period (1925 – 1944). This is also reflected in the drastic decline in fruit exports. The article concludes that Bulgarian fruit growing enters the EU unprepared. There was no long term strategy for development of the branch. Innovative technological approaches in Bulgarian fruit growing are not widespread, mainly due to the more difficult access to support for fruit growers. Although the right direction was taken, serious mistakes were made, which did not allow Bulgaria to gain from its comparative advantages and to build a highly competitive and efficient fruit growing. Knowledge of business history is a prerequisite for avoiding mistakes in the future development of fruit growing in Bulgaria.

Keywords: development stages; production potential; fruit areas; average yields; foreign trade

Introduction

The article attempts to explain what is happening to the fruit branch today in the context of its historical development. The retrospective analysis will allow us to give a more objective answer to the question why the current state of the fruit growing does not meet its potential. The first part of the article examines the period from the beginning of the 20th century to the end of the 80s. This second part of the study discusses the period from the early 90s to present days. This includes: the transition from a centrally planned economy to a market economy; the preparation for implementating the principles of Common Agricultural Policy of EU; and the period of Bulgaria becoming a member of the EU and implementating the CAP. The aim of the article is to evaluate development of fruit growing and to define the stages (periods) during which the branch goes from its occurrence to the present days and to analyze its production potential. The following tasks were studied:

- Determination of the main stages of its development;
- Analyzing and evaluation of the stages during which the fruit growing goes through;
- Estimation of the production potential of the fruit branch and of the main fruit crops;

- Analyzing and evaluation of fruit foreign trade;
- Assess of development of fruit growing from the beginning of 20th centuries up to now.

Material and Methods

The study examines the production potential of the fruit growing branch at national level and applies classical methods of research and analysis: retrospective, situational, expert, comparative and graphic. To research production potential the study uses following indicators: areas under fruiting, average yields, production, export and import. The data sources are official: National Statistical Institute – Republic of Bulgaria and Food and Agriculture Organizations of the United Nations (FAO).

Result and Discussion

The fourth stage covers the period from 1990 to the present. This is the current stage in the development of fruit growing. It can be divided into two sub-stages.

The first sub-stage began in 1990 and ended in 2006. It had a sixteen-years duration. It provides a transition from a centrally planned to a market economy and preparation for implementation the principles of Common Agricultural Policy of EU.

In 1991, the Land ownership and use law was adopted. This created the legal framework for the development of private agriculture. The main purpose of the law was to *return the agricultural land* forcibly taken away by its former owners and to distribute the property of the cooperative farms. It was believed that the return of the farm land and the assets would be sufficient to start agriculture to work on market principles. The practical implementation of the Law created a number of problems. The law had a particularly negative impact on orchards because of theirs specificity as a permanent crops and led to the fragmentation of fruit plots among many owners and some of them neglect their cultivation. The old production structures were demolished before new ones to be built. The change in ownership did not count the efficiency criterion.

During this sub-stage *there was no clear and consistent national policy* in the field of horticulture. Although there were opportunities for support under the Crop Program of the State Fund for Agriculture, under the SAPARD pre-accession program and the three regional agricultural development programs, they did not lead to the expected modernization and the increase of the efficiency of fruit production (Penov & Manolova, 2013).

The relatively well-developed agrarian science before 1990 was faced with serious financial difficulties because of reduced funding from the state budget. This prevented it to operate normally.

Bulgaria was harmonizing its legislation with the European one. The main laws and regulations governing fruit-growing were: EU Common Agricultural Market Organizations Implementation Act (2006), Ordinance No. 108 on the requirements for quality control and compliance of the fresh fruit and vegetables (2006), Ordinance No. 31 on conditions and procedure on the recognition of the interbranch organizations of producers, traders and processors of fruit and vegetables (2006).

In 1991, the old foreign trade structures built under the conditions of the former Council for Mutual Economic Assistance (CMEA) were destroyed. This led to a decrease in the physical volumes of the exported fruits and *Bulgaria lost its position as an exporter*. The import of traditionally produced fruits in the country such as apples and peaches and others was increased.

During the transition period the drastic decline in the areas and the production of fruit orchards continued. In 1990, the areas were reduced 2 times (Figure 1).

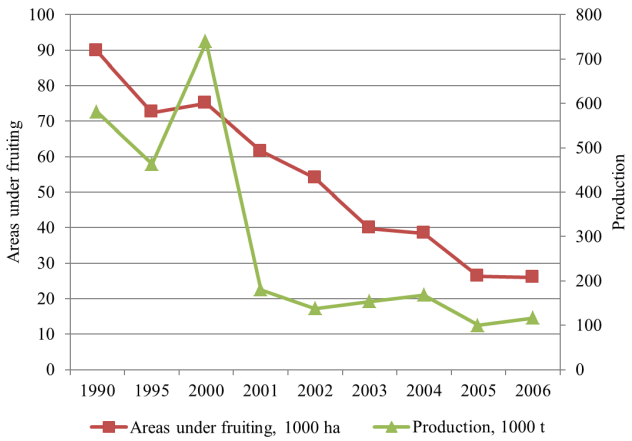

Fig. 1. Areas under fruiting and production of fruit crops in the period 1990–2006

Source: Statistical yearbook – Republic of Bulgaria, 1995, 2001, 2005, 2010

The areas under fruiting from 89 673 ha decreased to 25 978 ha (more than 3 times) due to the exit from the turnover of depreciated gardens and the slower rate of creation of the new ones. The production shrunk 5 times and from 579 787 tons it were reduced to 116 010 tons. These results were a consequence of the short-sighted policy that led the branch to a deep crisis.

For the apple, trends were the most negative. The crisis significantly reduced the areas from 21 467 ha to 2 979 ha (7 times) (Figure 2).

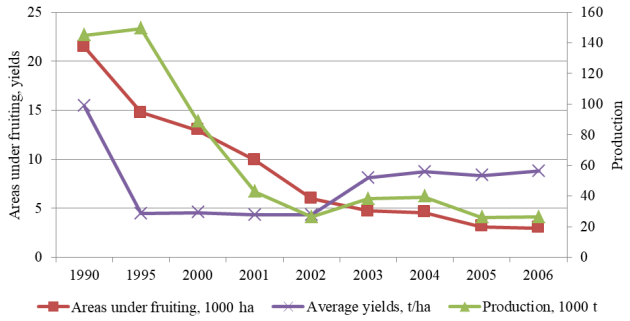

Fig. 2. Areas under fruiting, average yields and production of apples in the period 1990–2006
Source: Statistical yearbook – Republic of Bulgaria, 1995, 2001, 2005, 2010

The production shrunk from 145 000 tons to 26 328 tons (6 times). The average yields were low and far below the biological potential of the crop. Apples lost their position as a structure-defining crop.

At the beginning of the transition, the areas of the plums increased to 16 076 ha (2002), after which they started to decrease and in 2006 were 5 899 ha (Figure 3).

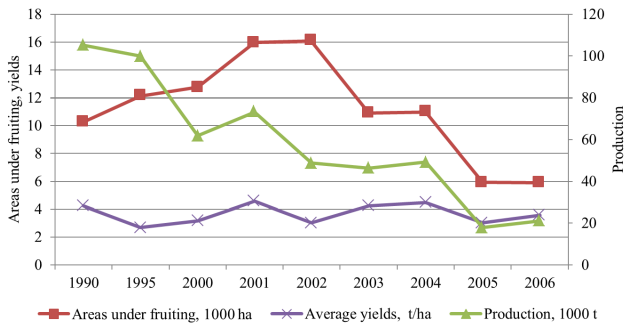

Fig. 3. Areas under fruiting, average yields and production of plums in the period 1990–2006
Source: Statistical yearbook – Republic of Bulgaria, 1995, 2001, 2005, 2010

Average yields were low – below the capabilities of the crop. Production fell from 105 200 tons in 1990 to 21 001 tons in 2006 (5 times).

The areas under fruiting and production of cherries decreased compared to 1990. In 2006 the amount of produced cherry was respectively: 4791 ha (2 times) and 18 331 tons (3 times) lower (Figure 4).

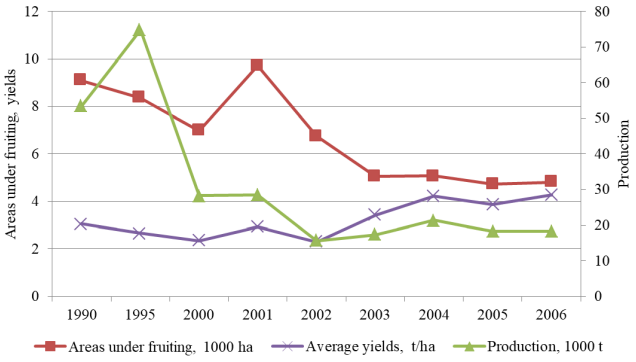

Fig. 4. Areas under fruiting, average yields and production of cherries in the period 1990–2006
Source: Statistical yearbook – Republic of Bulgaria, 1995, 2001, 2005, 2010

Average yields showed a slight upward trend, but their absolute level was low and did not correspond to the biological possibilities of the cherry crop.

During transition to market economy, the areas under fruiting of peaches and nectarines declined steadily (3 times) – from 7794 ha in 1990 they reached 2755 ha in 2006 (Figure 5).

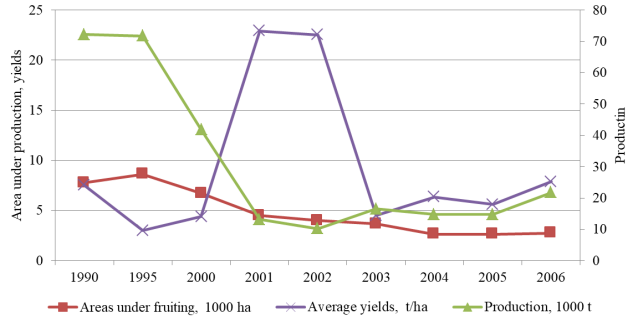

Fig. 5. Areas under fruiting, average yields and production of peaches and nectarines in the period 1990–2006
Source: Statistical yearbook – Republic of Bulgaria, 1995, 2001, 2005, 2010

The same downward trend was observed in production. It decreased about 3 times and in 2006 reached 21 709 tons. High yields were obtained only in 2001 and 2002 year. The yields were unsatisfactory in the other years of the period.

The second sub-stage of the fourth stage began from 2007 and continues to present days. These were the years when Bulgaria became an equal member of the EU. The beginning of the second sub-stage coincides with the beginning of the first programming period (2007-2013). Then the implementation of the Rural Development Program (RDP), which was expected with great hopes, started.

The trend of declining the areas formed during the transition to a market economy remains, but at the end of the second sub-stage there was weak growth and the beginning of stabilization at levels of around 37 000 ha (Figure 6).

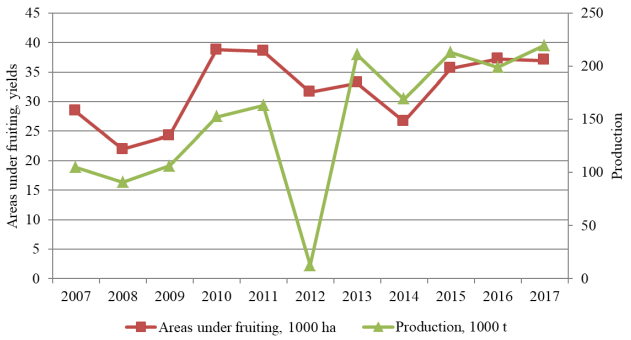

Fig. 6. Areas under fruiting, average yields and production of fruit crops in the period 2007–2017
Source: Statistical yearbook – Republic of Bulgaria, 2005, 2010, 2018

The production varied, which could be explained by the large impact of natural and climatic factors on the final results of economic activity, but the trend was upward and in 2017 the production was 219 847 tons. The modern technological approaches exist in Bulgarian fruit production. Their goals were to prevent or reduce climate impacts such as frost damage, hail, etc. on the final output, to make easier the technological operations, to increase efficiency of production factors. But these innovations have not received the necessary widespread use in the practice (Dunchev, 2019) as they require a significant capital investment that fruit growers do not have.

The areas under fruiting of apples, which declined the most during the first sub-stage, of the fourth stage were stabilized at levels of about 4000 ha during second sub-stage. Production started to increase and in 2018 reached 50 298 tons (Figure 7).

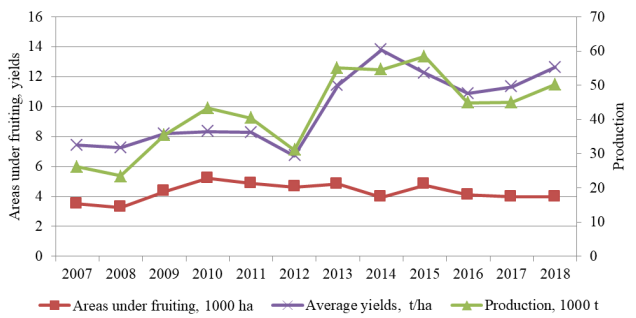

Fig. 7. Areas under fruiting, average yields and production of apples in the period 2007–2017
Source: Statistical yearbook – Republic of Bulgaria, 2005, 2010, 2018

Production depended mainly on the average yields obtained. There was also a positive trend in the yields. They were increased and there were some beginning of stabilization. The highest average yields were obtained in 2014 – 13.794 t/ha.

In order to improve the final results of apple production, modern approaches to orchard management should be applied on a large scale in the fruit plantations. It will reduce the time for pruning and harvesting and will ensure the producing of more quality fruits (Gandev & Dzhuvinov, 2014). Training and pruning of apple trees depend from the cultivars also and science offered decisions (Gandev, 2009; Gandev & Serbezova, 2019).

In the case of plums the areas under fruiting varied between 4000 and just above 7000 ha (Figure 8).

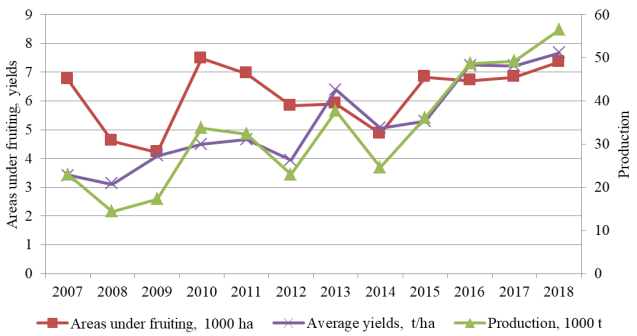

Fig. 8. Areas under fruiting, average yields and production of plums in the period 2007–2017
Source: Statistical yearbook – Republic of Bulgaria, 2005, 2010, 2018

The production fluctuated and there was a tendency for increasing, especially in the second half of the period when it reached the highest level – 56 433 tons (2018). Average yields varied too. They had positive growth, mainly after 2013. The highest yields were reported in 2018 – 7.671 t/ha.

The diversity of cultivars in Bulgarian plum orchards is not quite rich. Introducing new suitable and more productive cultivars was a goal behind producers (Zhivondov & Bozhkova, 2010). The major cultivar grown in our plum orchards is "Stanley". It is tolerant to Plum pox virus – economically essential disease for this crop. Therefore it is very important to implement the cultivar's resistance or tolerant to Sharka diseases (Bozhkova et al., 2013).

The areas of cherries had double increasing and in 2018 they reached 10 014 ha (Figure 9).

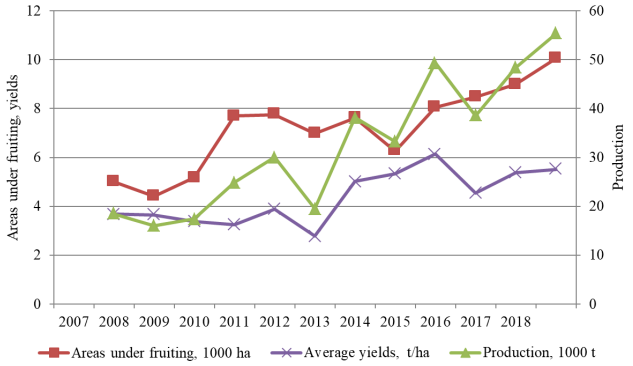

Fig. 9. Areas under fruiting, average yields and production of cherries in the period 2007–2017

Source: Statistical yearbook – Republic of Bulgaria, 2005, 2010, 2018

Production had also steadily growing (3 times) and amounted to 55 309 tons in 2018. Sustainable growth was also observed in average yields. They reached the highest level in 2015 – 6.136 t/ha. These positive trends could be explained by the favorable market conditions for fresh cherries in Europe and many other countries. Some Bulgarian fruit growers were able to take advantage of the market opportunities and expanded and modernized their production activities.

To increase productions results all aspects of production technologies must be improved. Implementation of new cultivars could contribute to this (Zhivondov, 2011). Weed control in nurseries and orchards is a major activity in orchard management, determining the success of fruit production (Manolova & Rankova, 2005; Rankova et al., 2011). Herbigation is also an approach for modern cherry culvation (Koumanov et al., 2009; Koumanov et al., 2016). Establishment more cherry gardens with higher intensification level is a way for improving the economic efficiency of plantations (Manolova & Kolev, 2013). Innovative approaches to fruit production could be successfully implemented only by high-level professionals.

The areas under fruiting of peaches and nectarines had a slowly growth in present days and in 2018 they were 3521 ha, which was growth of 21% from 2007 (Figure 10).

Productions increased with higher rate and in 2018 it was 54% high then 2007. Average yields ran up. The highest yields were received in 2013 – 9.818 t/ha. In the end of the period (2018) yields were 27% more than in the beginning of the period (2007). The increase in production was result of the growth in yields, which was a positive trend and could be explained with modernization of the orchards. The measures of the Rural Development Program (RDP) also contributed to this.

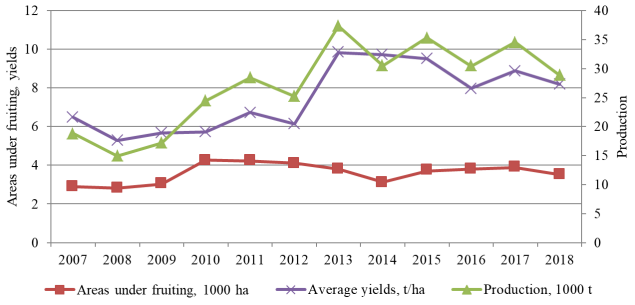

Fig. 10. Areas under fruiting, average yields and production of peaches and nectarines in the period 2007–2017

Source: Statistical yearbook – Republic of Bulgaria, 2005, 2010, 2018

The diversification of peach and nectarine varieties will help producers to reduce production risk and better satisfy the demanding customer. Bulgarian science applied such opportunities (Zhivondov, 2009; Zhivondov, 2010).

The dynamics of the areas under fruiting and production for the fruit crops are presented in Figure 11.

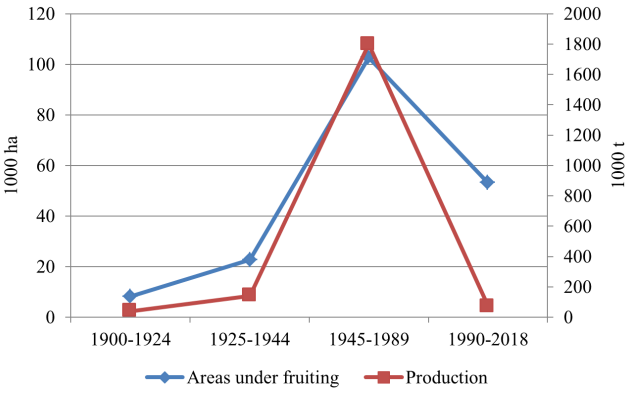

Fig. 11. Dinamics of areas under fruiting and production of fruit crops

Source: Own calculation and visualization based on Statistical Yearbook of Bulgarian Kingdom and Statistical yearbook – Republic of Bulgaria

The average values of the two indicators for the four studied stages were calculated. The data are indicative. Until 1990, the areas under fruiting were rising. After that, they declining significantly and in the present fourth stage, they had an average level of 53 205 ha. Production followed a similar trend, but the production downturn was huge. During the fourth stage (1990 – 2018), the average production level

was about 74 000 tons and it was 2 times higher than the first stage (1900 – 1924), when fruit growing occurs as a livelihood. During the fourth stage, the average production level was 2 times lower than the second stage (1925 – 1944). The data show the drastic shrunk in the production potential of fruit growing in the present fourth period of the development of the branch.

Average yields were indicative for the level of production potential and the applied production technologies. The yields for apples only in 1990, 2018 and 1980 exceeded by 93%, 58% and 43% respectively the level of 1939 (Figure 12).

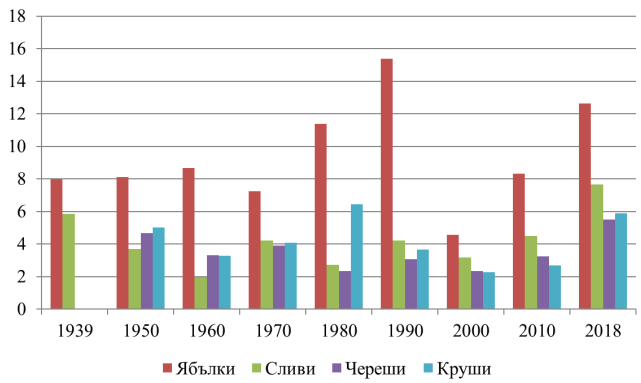

Fig. 12. Average yields for the selected years and fruit crops

Source: Statistical yearbook – Republic of Bulgaria.

The yields for plums only for 2018 were 31% higher than 1939. The situation with cherries and pears was similar. This showed an insufficient level of the technologies, untapped potential of intensive factors of production, low application of the innovative approaches in fruit growing.

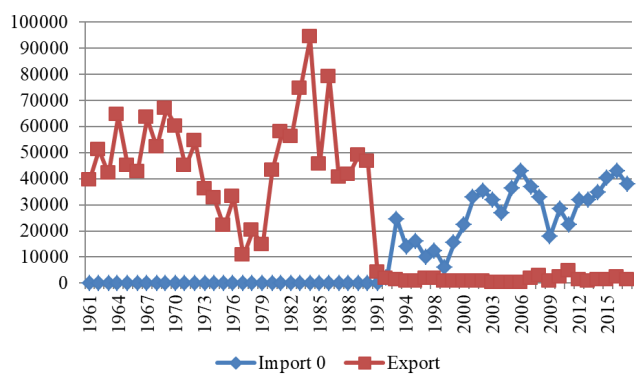

Fig. 13. Import and export of apples in the period 1961–2017, tons

Source: www.fao.org

The production potential directly affected foreign trade.

Apples are one of the major export fruit until the 90's. At that period the country did not import apples. The volumes of exported apples varied from 10 432 tons (1977) to – 93762 tons (1984) (Figure 13).

After 90's the situation changed – import increased rapidly. The largest quantity of imported apples was 42 822 tons (2016). The smallest was 2282 tons (1992). Since 1990, exports were symbolic and fluctuations were high, ranging from 40 tons in 2004 to 4029 tons in 2011.

Export of plums and sloes is very important for Bulgaria but over the years exported fruits declined and in 1991 – 1993 had not registered export (Figure 14).

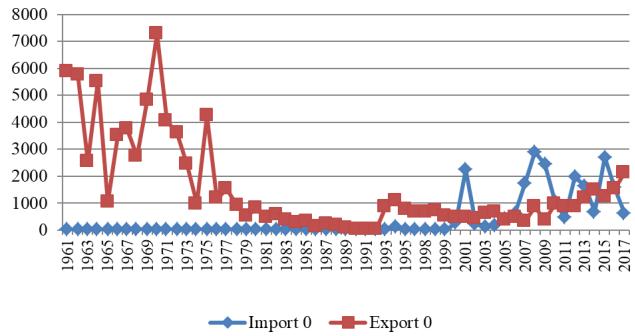

Fig. 14. Import and export of plums and sloes in the period 1961–2017, tons

Source: www.fao.org

The biggest exported amount was in 1970 – 7266 tons. Until 1991 the country had not imported plums and slows. In recent years Bulgaria has restored plums export but in a much smaller volume. They varied between 326 tons (2007) and 2136 tons (2017). In the last years, imports exceed exports. The largest was import in 2008 – 2905 tons.

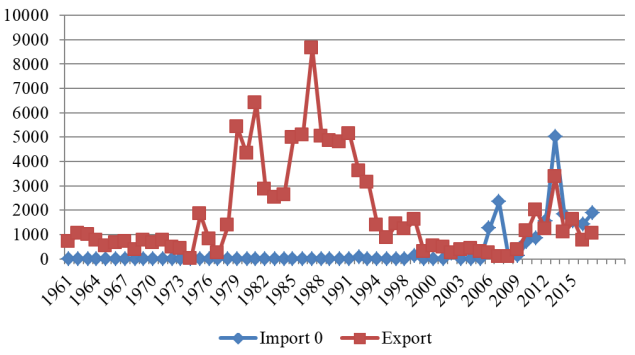

Fig. 15. Import and export of cherries in the period 1961–2017, tons

Source: www.fao.org

Export of cherries varied significant. The biggest amount of export quantity was in 1987 – 8646 tons (Figure 15).

Export declined at the beginning of 90's. After 2009 it was increased but at a low levels – between 1000 and 3000 tones. The import of cherries until 2006 did not exist with the small exceptions. Since 2006, import has been regular and growing over the years. The minimum import quantity was in 2009 – 88 tons and the maximum was in 2013 – 5020 tons.

The peaches and nectarines are traditionally important fruit for Bulgarian export. The country had the biggest export between the end of the 70's and the beginning of 90's (Figure 16).

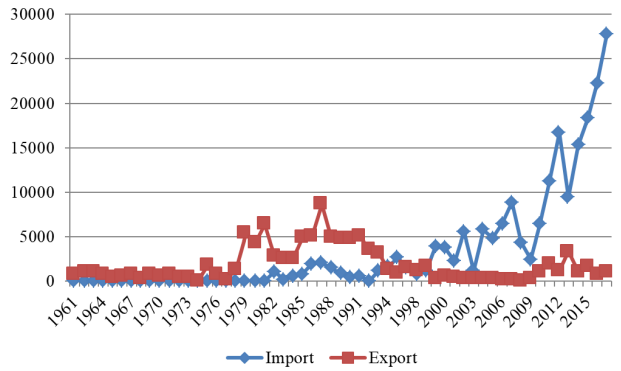

Fig. 16. Import and export of peaches and nectarines in the period 1961–2017, tons

Source: www.fao.org

Largest was export in 1987 – 8646 tons. During the transition period to the market economy, export began to decline. After 2010 there was some increased but at lower levels – between 1000 – 3000 tons after 2010. Until 1981 Bulgaria did not import peaches and nectarines. After that the country began to import these fruits every year and the tendency was for increasing the import. The largest was import in 2017 – 27 703 tons.

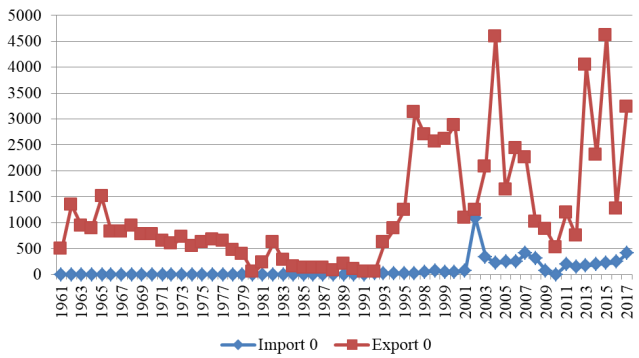

Fig. 17. Import and export of walnut with shell in the period 1961–2017, tons

Source: www.fao.org

Walnuts were exported from the initial stage of fruit growing development. In 1939 the realized export was 3 507 tons. During the period 1961 – 2017 walnuts export varied widely (Figure 17).

At the beginning of 90's, it was increased. The largest exported amount of walnuts was in 2004 – 4593 tons. The exported quantities nowadays are comparable to those from the second stage of fruit growing development.

Since 1993, the export of walnuts shelled was restored. Exported quantities varied between 305 tons (1995) and 1833 tons (2006) (Figure 18).

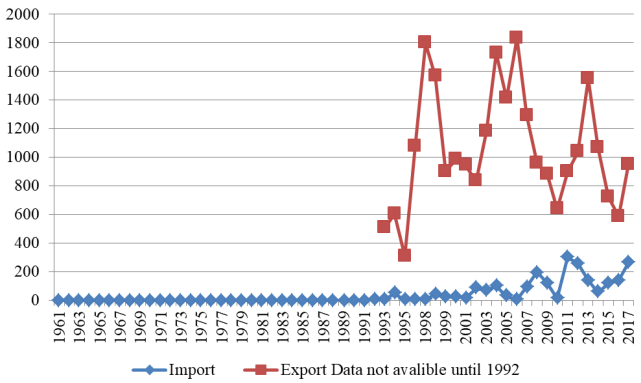

Fig. 18. Import and export of walnut shelled in the period 1961–2017, tons

Source: www.fao.org

Small amounts of import were registered after 1993.

The major export destinations for Bulgarian fresh and processed fruits since 2007 were EU countries.

Briefly for the fourth stage:

- The Land Ownership and Use of Land Act were accepted, which solving an injustice, but creates new problems.
- Destruction of existing production units before building new ones.
- Poor sector support, despite having a national support program, regional programs, the pre-accession program SAPARD and the measures of RDP.
- There was no long-term state policy for the development of fruit growing.
- Production potential decreased. The largest collapse was in the apples.
- Reduced quantities of fruits exported. Imports of traditional Bulgarian fruits were increased.
- Fruit growing entered the EU unprepared with low efficiency and competitiveness.
- The product structure of fruit growing was changed.

Cherries were the defining crop, followed by plums and apples.

Conclusions

Fruit-growing is extremely suitable for family farms and traditionally was developed as a business, except for the period 1944-1989. This study (I and II parts) attempts to evaluate the development of a fruit sector since its emergence to present days and allows us to draw the following conclusions:

The first (initial) stage of development of fruit growing (1900 – 1924) could be assessed as successful.

The second stage (1925 – 1944) upgraded the stable foundations laid in the first stage and the fruit growing continued its positive development.

During the first and the second stage governments realized the potential of the industry and worked for its development and establishment as one of the important industries for the Bulgarian economy and the development of the regions.

In the third stage (1945 – 1989), private property was ceased and the progress achieved until then was liquidated. Despite some achievements, the unhealthy economic basis: lack of private property and self-interest inevitably led to a deep crisis in fruit growing.

The fourth stage (1990 – to present days) was contradictory. Although the right direction was taken, serious mistakes were made which did not allow Bulgaria to take advantage of its comparative advantages and to build highly competitive and efficient fruit growing. To achieve this, producers, experts and institutions must join their efforts in the future.

The lessons should be learned and the mistakes admitted in the previous stages should not be repeated in the future. Knowledge of business history is a prerequisite for avoiding mistakes for the future development of fruit growing.

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