

Main trends in development of the plum fruits market in the world and in Ukraine

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The purpose. To determine main trends in development of the world market of plum fruits. **Methods.** Economic-statistical, comparative, system generalization, analysis and synthesis. **Results.** State and features of development is analyzed of the world fruits market of the studied crop on the basis of parameters of production, consumption, export and import of the produce in 2007 – 2016. It is established that negligible (20%) gain of production of fruits of plum for that period reinforces acute deficiency and growth of their prices in the global market. Calculations show that for maintenance of scientifically proved level of annual consumption of fruits of this crop it is necessary to increase their production in the world up to 48 million tons, and in Ukraine — up to 300 thousand tons. **Conclusions.** Considering favorable soil-climatic conditions, rather low-cost man power, mechanisms of state support and domestic scientific achievements, it is necessary to increase essentially the areas for highly productive plantings of plum with the purpose to grow large wholesale lots of competitive produce for full maintenance of needs of home market and escalating volumes for its export.

Key words: plum, market of fruits, demand, deficiency, countries-producers, plantings, productivity, export and import of products.

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Purpose is the establishment of the main tendencies in the plum fruits market development throughout the word and in Ukraine. **Methods** are economic, statistical, comparative, analytical synthetical and of the systematic generalization. **Results.** The state and peculiarities of the researched crop fruits world and inland market development have been analysed on the basis of the indicators of manufacturing, consumption, export and import of production during 2007-2016. The non-considerable (by 20 %) rise of the plum fruits production during this period has appeared to increase the sharp deficit and high prices of them at the global market. The calculations have shown that in order to ensure the scientifically substantiated requirements in the plum annual consumption it is necessary to increase their manufacturing in the world up to 48 mln. t, and in Ukraine up to 300 thus. t. **Conclusions.** Taking into consideration the favourable soil and climatic conditions, comparatively cheap manpower, mechanisms of the state support and own scientific achievements it is necessary to expand substantially the areas of the plum high productive orchards for the purpose of obtaining great wholesale parties of the competitive products to ensure in full the requirements of the inland market and increase their export volume.

Key words: plum, fruits market, demand, deficit, countries-producers, orchards, yield, production export and import.

The plum fruits take a special place in the rational and dietic nutrition of the population. Thanks to high taste and technological properties they can be consumed both as fresh and as the products of processing throughout a year. Among the traditional stone fruits their production level is somewhat lower than that of peaches. In 2016 the part of plums was 2% of the total world's manufacturing of fruits varieties (610 mln. t) [1].

Analysis of the latest researches and publications. The world's and inland plum fruits market was studied by O.M. Shestopal' [2], V.A. Rulyev [3, 4], I.A. Salo [5], I. Botu et al. [6] and others. However, its modern tendencies demand more profound and systematic consideration of this problem in order to determine the place and role of our state in the formation and development of this segment of the world's fruit crops market.

Purpose of the investigations is to explore the main tendencies of the development of the plum fruits market in the world and Ukraine.

Methods are economic statistical comparative, analytical, synthetical and of the systematic generalization.

Results. According to the FAO data, in 2016 world's total plum fruitful orchards area was 2.65 mln. ha, that is by 11 % more than in 2007, the lion's share 1.96 mln. ha, or almost 74 % being concentrated in China [7].

It should be noted that only a few leading countries-producers consistently increased the plum orchards areas for the 10-years period (2007-2016). The absolute leaders in their establishment were Iran, Uzbekistan and India that increased the areas by 2.4, 1.6 and 1.4 times respectively during the mentioned period.

Alongside, the tendency of decreasing this crop fruitful orchards areas was observed in the overwhelming majority of the countries-producers, in particular, the major plum manufacturer in Europe Serbia reduced the areas from 200 to 77.9 thousand ha, or by 2.6 times. Just it caused low rates of the plum areas increase in the world.

Unfortunately, the analogous processes take place in Ukraine as well though in the seventies of the previous century the share of plum among the fruit crops was the highest (37 %) and concerning the amount of trees it took the second place after apple. At the same time today in the structure of the stone fruit crops this indicator of plum is rather high 29.5 % – the second place after cherry (31.1 %) [8, 9].

From 2007 to 2016 the areas of the plum fruitful orchards reduced in our state by 13 % and at the end of 2016 were 17.8 thousand ha, among them in agricultural enterprises 1.2 and in private peasants farms 16.6 thousand ha. The share of Ukraine in the world's fruitful plum orchards areas is 0.7 %. The greatest areas of this crop are in the Transcarpathian – 2.5 thousand ha, Khmel'nyts'ky – 1.9, L'viv – 1.4, Vinnytsya and Chernivtsi – 1.1 each and Dnipropetrovs'k – 1 thousand ha [8].

In accordance with the FAO data in 2016 the world's plum fruits production was 12.1 mln. t, that is by 20 % more than in 2007 [7]. These volumes are by 4 times less than the scientifically

substantiated standard of those plum fruits annual consumption per capita (7 kg). That brings about the deficit products.

China during the 10 years research period remained the greatest plums producer – 6.7 mln. t, that is 56 % of the world gross manufacturing (fig. 1). It should be noted that during the mentioned period the plum fruits production in the world increased by 2.5 mln. t, the lion's share (1.9 mln. t, that is 74 %) being ensured by the chinese manufacturers.

However, the greatest rates of this crop fruits production during the ten years were achieved by Uzbekistan – by 2.3 times. That made it possible for it with a gross production of 134.1 thousand ,t to remove from the 22 nd position to the 15th one in the rating of the leading world manufacturers. That must be edifying for our country.

It is unpleasant to note but Ukraine decreased the volume of the plums production by 14 % during the mentioned period. Despite this it stays among the leading this crop fruits manufacturers and takes the twelfth place a volume of 178.3 thousand (including agricultural enterprises – 3.3 and private peasants farms – 175 thousand tons), that is 15 % of the total world's volume. The greatest dross yield was fixed in the Khmel'nyts'ky – 26.7 thousand t, Transcarpathian – 19.3 thousand t, Kharkiv – 13.8 thousand t, Dnipropetrovs'k – 11.8 thousand t, Chernivtsi – 10.5 thousand t and Rivne regions – 10.4 thousand t [1].

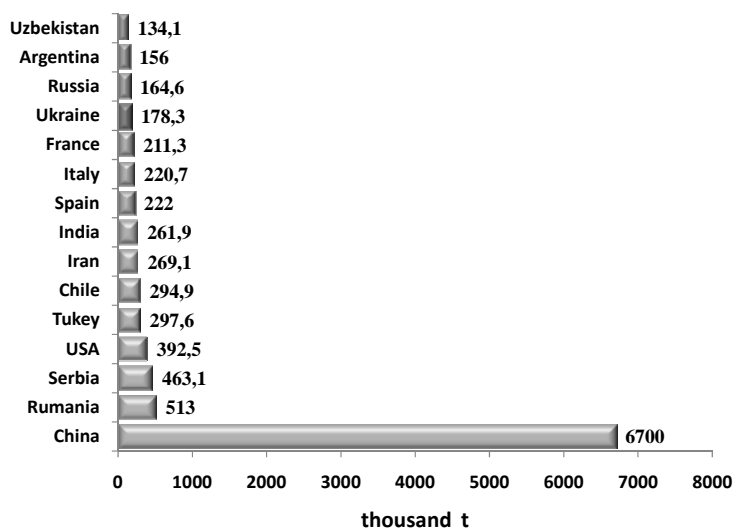
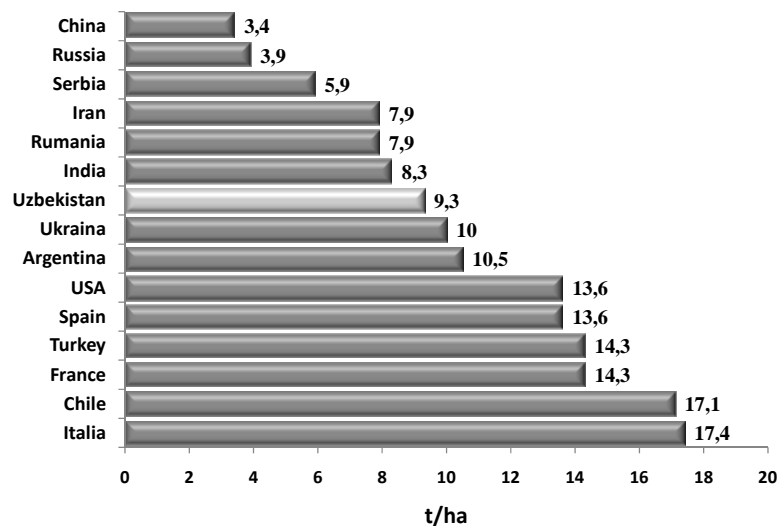


Fig. 1. Leading plum fruits producers (in conforming with the FAO data [7]), 2016, thousand tons

Under such production volume the plum fruits inland market remains in short supply. So in order to ensure the level of the scientifically substantiated annual consumption standard per capita it is necessary to increase their manufacturing by 40 %.

Not less important factor that effects the production level is the orchards productivity (fig. 2). In keeping with the FAO in the year 2016 the average world plum orchards yield stayed low (4.5 thousand t), it increasing during the latest 10 years merely by 0.5 t/ha, that is by 11 % [7].



**Fig. 2. Plum orchards yield in the leading countries- manufacturers
(accoding to the FAO [7]), 2016, mons/ha**

It is pleasant to note that the orchards yield constantly increased in Ukraine during the mentioned period and if in 2007 it was 5.3 t/ha in 2016 this index achieved 10 t/ha, that is by three times more than in China, by 2.2 times more than the average world one and 1.3-1.9 times higher than in Uzbekistan, Rumania, Serbia, Iran, India, Poland, Moldova and Hungary. Under this indicator Ukraine takes the eighth place in the world.

In 2016 high yield indices (at the level of the best world ones) were fixed in the Kharkiv (23.4 t/ha), Poltava (17.1 t/ha), Donets'k (15.2 t/ha), Khmel'nyts'ky (13.7 t/ha), Zaporizhzhya (12.5 t/ha), Rivne (12.3 t/ha) and Dnipropetrovs'k regions (11.8 t/ha) [8]. It affirms the high potential of our country in the plums production. However in order to achieve the highest productivity level it is necessary to begin without delay the establishment of new plum orchards with high productive adapted cultivars of the inland and foreign breeding. By the way, it should be noted that it is the products wholesale price that is the indicator of their production cost. In accordance with the data of the United States Department of Agriculture in 2016 the average woored wholesale price for the plum fruits was 1.2 \$/kg. At the same time this index in Ukraine was 0.3 \$/kg that is by 4 times lower than the average world one. That makes it possible for the production to be competitive at the foreign market without subsidizing the export. In the same year the volume of the world plums export was 725 thousand t, that is only 6 % of that of their manufacturing. However, the export increased by 25 % as compared to 2007 [11]. Its low volumes testify directly that even in the leading countries-producers there exists deficit of the mentioned products. Alongside their greatest exporters are Chile (115.3 thousand t), Spain (72.1 thousand t), South-African Republic (68.0 thousand t), USA (59.2 thousand t), Italy (57.3 thousand t). They together provided supplying the half of the world export volume to the foreign markets in 2016.

Ukraine did not appear in the list of the leading countries-plums exporters. For instance, it in 2007 our horticulturists exported 490 t of the products (129 thousand \$) in 2016 merely 57 t (15 thousand \$).

In corformity with the data of the United States Department of Agriculture the average world price of the imported plum fruits in 2016 was 1.5 thousand \$/kg. The plums were sold most expensively at

the markets of China, Norway, Ireland, the Netherlands, Belgium – 2-2.7 \$/kg while in Ukraine 1.1 \$/kg. Thus the most perspective markets for those fruits export are in the countries of EU and China.

At the same time in the global trade networks the average world price of the imported fresh plum fruits was 3-5 \$/kg depending on their commodity quality and of bullage plums 9 \$/kg [10].

In 2016 the plum fruits import volume throughout the world was 690 thousand t, that is by 22 % more than in 2007 [7]. Their greatest importers are Russian Federation – 79.1 thousand t, Great Britain – 59.8 thousand t, Germany – 53.3 thousand t, Kazakhstan – 48.9 thousand t, the Netherlands – 46.8 thousand t, China – 33.2 thousand t and Brazil – 32.2 thousand t which ensured in the year 2016 the consumption of more than 50 % of the imported plums in the world.

The positive factor is that Ukraine did not appear in the list of the main countries-importers of those fruits but this tendency is rather unconsoling. If in 2007 the ukrainian economic agents imported 445 t of plums (489 thousand \$), in 2016 2 thousand t (2.2 mln. \$). That forms the negative foreign trade balance in this aspect of the economic activity and testifies the deficit of high quality plum fruits at the inland market.

Regrettably such trend is observed concerning the general indicator of the horticultural products export under which Ukraine takes the 61 st. place in the word, the fruits being exported in 2016 at a sum of 188.5 mln. \$, and the negative trade balance being minus 168.7 mln. \$ [1]. Such state is impermissible. The ukrainian horticulture as the potentially export-orientated sector of the agrarian industrial complex under the today's hard economic conditions must be turned into one of the drivers of the national economy and products export.

Conclusions

During the 10 years period (2007-2016) the increase of the world plum fruits production was not considerable (20%). That caused their deficit at the global market. The calculations show that in to ensure the scientifically substantiated annual fruits consumption it is necessary to increase their production throughout the world up to 48 mln. t and in Ukraine up to 300 thousand t.

In the present time conditions the status of Ukraine as one of the leading world plums producers must be preserved. For this purpose it is necessary to use the favourable soil-climatic conditions, relatively cheap manpower as well as to apply properly the mechanisms of the state support and own scientific achievements for the considerable increase of the high productive orchards establishment in order to obtain great parties of the wholesale competitive products for the provision in full of the inland market and increase of the volume of those products export since without taking corresponding steps there exists a risk to turn into an import-dependent country concerning those traditional for our market products.

References

1. *TRADE MAP*. Trade statistics for international business development Regime of access: <https://www.trademap.org>.
2. *Shestopal' O., Kondratenko P., Barabash L.* (2008). Teoretyko-metodologichni osnovy (nova paradygma) ta skladovi Nacionalnoi programy postupu promyslovogo sadivnytstva Ukrainy: makroгалuzevyi aspect. [Theoretical and methodological basis (new paradigm) and components

of the Nacional Programme of the development of the industrial horticulture in Ukraine: macrosector aspect]. Kyiv, NSC IAE, 140 s. [in Ukrainian].

3. *Rulyev V.* (2004). Ekonomichni problemy rozvytku sadivnytstva Ukrainy. [Economic problems of the development of horticulture in Ukraine]. Kyiv: NSC IAE, 350 s. [in Ukrainian].

4. *Rulyev V.* (2007). Konkurentospromozhnist' plodiv i iagid. [Competity of fruits and small fruits]. Melitopol: Publishing house MMD. 315 s. [in Ukrainian].

5. *Salo I.A.* (2013). Rozvytok rynku plodiv v Ukraini. [Development of the fruits market in Ukraine]. Kyiv: NSC IAE, 394 s. [in Ukrainian].

6. *Botu I., Botu M., Papachatzis A.* et al. (2012). Evolution of plum culture: constrains and perspectives. Acta Horticulturae: II EUFRIN Plum and Prune Working Group Meeting on Present Constraints of Plum Growing in Europe, Romania. P. 4–8.

7. *FAOSTAT*. Regime of access: <https://www.fao.org/faostat/en/data>

8. *State Service of the Statistics of Ukraine*. Regime of access: <https://www.ukrstat.gov.ua> [in Ukrainian].

9. *Prokopenko O. et al.* (1999). Sadivnytstvo, vynogradadarstvo ta chmelarstvo v Ukraini [Horticulture, viticulture and hop culture in Ukraine]. Kyiv, Ukraine: State Committee of the Statistics of Ukraine. 213 s. [in Ukrainian].

10. *USDA National Agricultural Statistics Service*. Regime of access: <https://www.nass.usda.gov>.

11. *Belrose, Inc.* World Fruit Marketing Analysis. Regime of access: <https://www.e-belrose.com>