Vegetable Market in Poland
Products of the vegetable farming and processing industry in Poland receive considerable recognition of local and foreign consumers. They are a synonym of delicious, healthy and safe food. They play an essential role in composing a proper diet, since they constitute a valuable source of many nutrients: vitamins, minerals and dietary fiber, among others. Polish vegetables rank as low-calorie foods. They regulate the process of digestion and show deacidification effect; and some of them (garlic, onion, horseradish) contain substances that impair the development of pathogenic germs. Vegetables are one of the important preventive measures against diseases of affluence.

Development of Polish vegetable farming is supported by scientific studies. Warsaw University of Life Sciences’ Department of Vegetable and Medicinal Plants in Skierniewice, founded in 1922 by professor Feliks Kotowski, has become the centre of the development of vegetable farming and processing. In 1956, Research Institute of Vegetable Crops (currently: the Gardening Institute) was created in Skierniewice on the initiative of professor Emil Chroboczek. More than 200 fruits and vegetable plants varieties have been elaborated in the Institute. Cabbage, onion and bell pepper varieties cultivated in the Institute have reached a stake of 40-50% in the Polish production of those vegetables.
Vegetable Production - an important field of Polish agriculture

In the whole world, there are approximately 250 vegetable species, out of which 40 grown in Poland. Consumption of many of them (cabbage, onion, carrot, radish, broad bean, lentils, pumpkin, parsnip, kale, among others) was spread already in the 15th century.

In the 16th century, royal gardeners imported from Italy: leeks, celeries, savoy cabbages, kohlrabies, cauliflowers. Three centuries later in Poland also could be found: tomatoes, Brussels sprouts and bell peppers.

establish a significant potential for the development of vegetable industry, despite the fact that the climate-soil conditions are not as favourable as in Western and Southern Europe. Relatively cheap labour force, increasing purchasing power of consumers, well-developed processing industry and favourable geographical location for establishing business relationships are conductive for the development of the local vegetable industry. Poland’s membership in the European single market has widened

Commodity structure of the agricultural production in Poland in 2014

Vegetable production is an important branch of the local agriculture. Even though the vegetable cultivation in Poland takes over approximately 1,2 % of the entire sowing acreage, the vegetable industry’s stake in the commodity value of the agricultural production reaches 9 %. Soil and labour resources group of potential consumers, at the same time stimulating changes aimed at promoting competitiveness. Changes occurring in the Polish vegetable industry were made possible thanks to the improvement of the organization, the concentration of the production and the upgrade of the distribution.
Contemporary vegetable production in Poland combines a long tradition with a modern approach by applying new technologies, specialising farm production and introducing new and efficient vegetable varieties for sowing. In 2013, there were 90 thousand agricultural farms that cultivated ground vegetables and 12 thousand farms that cultivated vegetables under cover. The average ground vegetables cultivation area reached 1.4 ha, whereas for vegetables under cover - 0.5 ha.

Agricultural farms producing ground vegetables are dispersed all over Poland, but the commodity production is run mainly in the area of Mazovian, Greater Poland, Lesser Poland, Łódź and Kuyavian-Pomeranian Voivodeships. The ground vegetable cultivation area in Poland is now decreasing - it shrank from 208 thousand ha to 172 thousand ha, that is by 17%, in 2004-2014. The lowest decrease was recorded for tomatoes and cauliflowers, whereas the highest decrease of sowing area was registered for onion, carrot and cabbage. This acreage decrease was compensated by a harvesting increase. It has allowed to maintain high, relatively stable, levels of ground vegetables harvest.

Because of the climate the ground vegetables cultivation in Poland is seasonal. In consequence, preferences for the production of vegetables under cover are spreading rapidly, even though - taking into consideration temperature which is lower than in Western and Southern Europe - it takes much more energy to make it work, therefore the cost of production gets bigger as well. Greenhouses and poly-tunnels make possible to offer a complete range of fresh vegetables to customers all year round. In 2011-2014, the cultivation acreage for vegetables under cover increased by an average of 3% each year. The highest increase was recorded in the case of the poly-tunnels cultivation area, and it was caused by the costs of the construction and energy consumption, which result to be lower than in the case of greenhouses. Soilless cultivation is applied in the greenhouses production, whereas in the poly-tunnels two other tendencies prevail: traditional soil cultivation and organic growing media. In the case of the cultivation of vegetables under cover both groups - vegetables for immediate consumption and seedlings of ground vegetables - are produced.

Poland as an important vegetable producer of the European Union market

In 2004-2014, the annual national production of vegetable reached from 4.9 million tonnes to 5.6 million tonnes, which makes Poland the third/fourth vegetable producer in the European Union. 9% of vegetable harvest in the European Union comes from the Polish vegetable production. We are the European leader in carrot and red beet harvesting. We come in second place (following Romania), and in 11th place worldwide, in cabbage production. Our country is also included on the list of the biggest European producers of cucumbers and onions.

In 2004-2014, the ground vegetable production in Poland remained at a level of 4-5 million tonnes. Cabbage, carrots,
onion, red beets, tomatoes and cucumbers had the biggest stake in that production.

The harvesting of vegetables under cover in 2004-2014 increased from 0.7 million tonnes to 1 million tonnes, and its stake in the entire vegetable harvest increased from 12% to 17%. Tomatoes (55-57%) and cucumbers (26-31%) had the biggest stake in the cultivation of vegetables under cover. The bell pepper and other vegetable varieties had smaller stake in the production.

### Vegetable Harvest in Poland

<table>
<thead>
<tr>
<th>Vegetable Species</th>
<th>2004</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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<tbody>
<tr>
<td>Vegetables altogether (thousand tonnes)</td>
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<td>4878</td>
<td>5575</td>
<td>5430</td>
<td>4986</td>
<td>5607</td>
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<td>Ground vegetables, separately:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabbage</td>
<td>1371</td>
<td>1276</td>
<td>986</td>
<td>1231</td>
<td>1140</td>
<td>975</td>
<td>1156</td>
</tr>
<tr>
<td>Onion</td>
<td>866</td>
<td>708</td>
<td>578</td>
<td>677</td>
<td>642</td>
<td>551</td>
<td>651</td>
</tr>
<tr>
<td>Edible carrots</td>
<td>928</td>
<td>913</td>
<td>765</td>
<td>887</td>
<td>835</td>
<td>743</td>
<td>823</td>
</tr>
<tr>
<td>Red beets</td>
<td>357</td>
<td>351</td>
<td>290</td>
<td>370</td>
<td>345</td>
<td>298</td>
<td>358</td>
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<tr>
<td>Cucumbers</td>
<td>256</td>
<td>256</td>
<td>253</td>
<td>297</td>
<td>283</td>
<td>254</td>
<td>267</td>
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<tr>
<td>Tomatoes</td>
<td>213</td>
<td>265</td>
<td>225</td>
<td>273</td>
<td>261</td>
<td>270</td>
<td>272</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>206</td>
<td>225</td>
<td>214</td>
<td>236</td>
<td>246</td>
<td>210</td>
<td>246</td>
</tr>
<tr>
<td>Vegetables cultivated under cover separately:</td>
<td>674</td>
<td>791</td>
<td>689</td>
<td>772</td>
<td>877</td>
<td>982</td>
<td>968</td>
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<tr>
<td>Tomatoes</td>
<td>370</td>
<td>444</td>
<td>384</td>
<td>440</td>
<td>498</td>
<td>559</td>
<td>539</td>
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<tr>
<td>Cucumbers</td>
<td>208</td>
<td>224</td>
<td>185</td>
<td>214</td>
<td>238</td>
<td>259</td>
<td>265</td>
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Source: Final results of plant production, GUS (Central Statistical Office), Agriculture Statistical Yearbook, GUS
Exportation of fresh vegetables from Poland

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<tr>
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</thead>
<tbody>
<tr>
<td>Vegetables in total</td>
<td>370</td>
<td>411</td>
<td>402</td>
<td>414</td>
<td>478</td>
<td>503</td>
<td>526</td>
</tr>
<tr>
<td>(thousand tonnes), incl.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onions</td>
<td>179</td>
<td>123</td>
<td>119</td>
<td>115</td>
<td>122</td>
<td>113</td>
<td>125</td>
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<tr>
<td>Tomatoes</td>
<td>45</td>
<td>72</td>
<td>72</td>
<td>74</td>
<td>95</td>
<td>107</td>
<td>99</td>
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<tr>
<td>Cabbages (white and red)</td>
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<td>60</td>
<td>54</td>
<td>51</td>
<td>59</td>
<td>52</td>
<td>75</td>
</tr>
<tr>
<td>Carrots</td>
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<td>38</td>
<td>29</td>
<td>26</td>
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<td>42</td>
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<tr>
<td>Cauliflowers</td>
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<td>13</td>
<td>17</td>
<td>29</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>Red beets</td>
<td>10</td>
<td>8</td>
<td>11</td>
<td>24</td>
<td>14</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>Peppers</td>
<td>6</td>
<td>11</td>
<td>9</td>
<td>13</td>
<td>18</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>17</td>
<td>10</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Vegetables in total</td>
<td>97</td>
<td>167</td>
<td>199</td>
<td>201</td>
<td>237</td>
<td>262</td>
<td>258</td>
</tr>
<tr>
<td>(EUR million)</td>
<td></td>
<td></td>
<td></td>
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Source: data for 2004 - National Research Institute of Agriculture and Food Economics (IERiGŻ-PIB),
data for 2009-2014 - ARR own calculations on the basis of data from the Ministry of Finance

Export constitutes an important factor in stimulating development of the national vegetable production. After the Poland’s accession to the European Union, there was registered an increase in the export of the majority of vegetables. A downslide was registered only in the case of onion and cucumbers. In 2014, the volume of the Polish vegetables export reached 526 thousand tonnes and it was 42% bigger than in 2004 (the first year of Poland’s EU membership). A much bigger increase was registered in the income originated in export operations. The vegetables export value rose 2.7 times, reaching 258 million EUR.

The export increase was supported by the good quality of Polish vegetables and their competitive prices. Member states of the European Union (principally Germany and the UK) and the countries of the Commonwealth of Independent States (CIS) are the main recipients of the Polish vegetables export. We export mainly onion, tomatoes and cabbage. Among the UE Member States, Spain and Holland are the biggest competitors taking into account delivery of fresh vegetables.

Poland is also a vegetables importer. Imported vegetables are a supplement for the local assortment of fresh vegetables, and are also used as a raw material in the processing industry. The Polish vegetables import scale in the specified years depended on domestic supply (in which there were registered changes as a result of an increasing or decreasing production) and prices changes. After Poland’s accession to the European Union, fresh vegetables import volume rose 2.6 times, reaching 536 thousand tonnes, and increased its value almost 3 times, reaching 443 million EUR. Tomatoes, onion, bell peppers and cucumbers were mainly imported to Poland in the biggest numbers.
Cabbage has been known for a long time and used both as foodstuff and medicine. It is a low-calorie vegetable which is comprised of complete set of vitamins indispensable for life and rutin. Moreover, it is characterised by an unusual content of: calcium, magnesium, potassium, folic acid, and sulfur. Because of its widespread availability and its taste, it is an important ingredient of many traditional Polish dishes.
Cabbage production after Poland’s accession to the EU has been varying from 1 million tonnes to 1.4 million tonnes, which constituted approximately 20% of the European cabbage production. The biggest amounts of cabbage are harvested in Mazovian, Lesser Poland, Łódź and Greater Poland Voivodeships. White cabbage is the most popular one. In recent years, Chinese cabbage has become popularised as another variety cultivated here. In many areas of the country, there are also cultivated other varieties, such as: savoy cabbage, red cabbage and Brussels sprouts. However, these varieties take over only a small area of the whole acreage.

Cabbage export has been varying from 51 thousand tonnes to 75 thousand tonnes in the last five years, which constituted approximately 5% of the production. In 2014, cabbage was exported mainly to the countries of the CIS. Czech Republic and Slovakia have been significant recipients of Polish cabbage on the European market.

Carrot is one of the most common vegetable cultivated in Poland. It is characterised by big amounts of carotene, mineral salts and dietary fiber. On the market, it is possible to buy fresh carrots or in some other form, such as: frozen carrots, carrot juice, canned carrots or dried carrots. The cultivation of carrots takes over approximately 22 thousand ha, which places it in third position in relation to the cultivation acreage in the country, after onion and cabbage. 2004-2014 harvest varied from 0.7 million tonnes to 0.9 million tonnes. Poland became the biggest carrot producer in the EU. We were placed in sixth position worldwide, after China, Uzbekistan, Russia, the United States and Ukraine. In 2004-2014, the carrot export showed an upward trend, and it reached 42 thousand tonnes (of which almost 29 thousand tonnes were exported to the EU) in 2014,. Slovakia, Czech Republic and Romania were the main recipients of Polish carrot on the European market; countries of Eastern Europe were the main recipients among the third-party countries.

Tomato, same as cabbage and carrot, is one of the most common vegetable cultivated in Poland. It is the favourite vegetable among customers and it
is also a valuable raw material for the processing industry. Tomatoes contain many vitamins and mineral elements (e.g. selenium). Among vegetables cultivated in the country, tomatoes are the ones which contain the biggest amounts of potassium, copper, manganese, cobalt and lycopene (a valuable antioxidant). Tomatoes boost the immune system thanks to significant contents of vitamin C. In Polish climate tomatoes gain slightly sourer and more refreshing taste than in warmer climate.

Poland is placed in sixth position taking into account the tomatoes production in the EU. The stake of our country reaches 5 %. The tomatoes production in Poland relies on open-field cultivation and cultivation under cover. The cultivation acreage of tomatoes under cover varies from 1,5 thousand ha to 2,6 thousand ha, and in the open-field variation - from 8 thousand ha to 13 thousand ha. Approximately 70 % of the acreage of ground tomatoes is situated in Greater Poland, Kuyavian-Pomeranian, Mazovian and Świętokrzyskie voivodeships. Since 2004 open-field harvest of tomatoes has increased by 28 %, and of those under cover - by 46 %. In 2014, approximately 66% of harvested tomatoes had originated from cultivation under cover, and the other 34 % from open-field cultivation. Since the Poland’s accession to the EU the fresh tomatoes exportation has risen from 45 thousand tonnes to 99 thousand tonnes, that is 2,2 times and it constitutes approximately 11% of the production. The main direction for the exportation are the countries of the CIS and, among the EU member states, the UK.

Onion is placed in first position taking into account the vegetables cultivation acreage in Poland, even though in 2004-2014 it showed a downward trend. Poland is the third, after Holland and Spain, onion manufacturer in the EU. Our stake in the European production of this vegetable reaches approximately
10%. The onion harvesting varied from 0.6 million tonnes to 0.9 million tonnes. Common onion is the most popular species in Poland, which has many different varieties here. We also cultivate other species, such as: potato onion, welsh onion, shallot, and top onion. All the varieties have special taste and different skin colours. In Poland, it is possible to buy onions of strong, medium-strong or mild taste with white, yellow, brown or red skin. Onion is a source of nutrients, such as: vitamins A and C, chromium, selenium and many flavonoids. It is antibacterially and antivirally active, helping to cure different minor conditions. In recent years the Polish onion export was smaller than in the first years after the accession to the EU. In 2014, 125 thousand tonnes of onions were exported, comparing to 179 thousand tonnes in 2004. The main recipients were the UK, Ukraine and Holland.

**Cucumbers**, as well as tomatoes, is a warm season vegetable. In Poland, it is
cultivated in both ways: in open-field system and under cover. In 2004, the cultivation acreage of ground cucumbers reached 20 thousand ha and in 2014 it deceased, reaching 15 thousand ha. The biggest cultivation areas are situated in: Mazovian, Łódź, Świętokrzyskie, and Greater Poland Voivodeships. The cultivation acreage of cucumbers under cover in Poland is relatively stable and varies from 1,2 thousand ha to 1,3 thousand ha.

In 2004-2014 the ground cucumbers harvest increased from 256 thousand tonnes to 267 thousand tonnes. At the same time, the harvest of cucumbers cultivated under cover increased from 208 thousand tonnes to 265 thousand tonnes. That volume of production places our country in second position in the Community and in twelfth position world-wide. Cucumbers in Poland are destined for the food market, so they can be immediately consumed, therefore we do not sell too much of them to the foreign countries. Since the Poland’s accession to the EU the cucumbers exportation decreased from 17 thousand tonnes to 10 thousand tonnes in 2014.

**Red beet** is one of the most popular vegetable in Poland. Its cultivation acreage reaches 8-15 thousand ha. Its harvest varies from 290 thousand tonnes to 375 thousand tonnes. Red beet is easily digested and it is a low-calorie food. Thanks to its big amounts of dietary fiber it helps the digestive tract. It contains many mineral salts that show deacidification effect. Since it can be stored for long periods of time, it can be consumed as a fresh vegetable almost all year round. Red beet is a valuable raw material commonly used in the processing industry to produce: dried, frozen or tinned beets, ćwikła, beet juice or beet juice concentrate, and - more and more so, in fact - natural dyes. The fresh red beets exportation is small. In the last 5 years it varied between 11 thousand and 24 thousand tonnes.

**Cauliflower** is a popular vegetable in Poland, because of its taste. It con-
tains many different biologically active substances that protect the organism against free radicals, apart from vitamins and minerals. Poland is the fourth cauliflower manufacturer in the European Union and the eighth in the whole world. Poland’s contribution to the European cauliflower production reaches 12%. They are sold as fresh products and raw material: mainly for the production of frozen cauliflower. In the last 10 years plantations took over 9-12 thousand ha. Almost 70 % of the cultivation area is situated in Lesser Poland, Mazovian, Lublin, and Kuyavian-Pomeranian Voivodeships. The cauliflower production increased to 246 thousand tonnes in 2014 (from 206 thousand tonnes in 2004). Its exportation in 2004-2014 rose 2 times, reaching 31 thousand tonnes. It is mostly exported to Czech Republic and Slovakia.

**Bell pepper** is a very nutritious vegetable. It contains a great deal of vitamin C, vitamin A precursor, group B vitamins, vitamin E, folic and nicotinic acids. It also contains proteins, mineral salts (iron, phosphorus, calcium, magnesium, potassium), rutin and some antibacterially active substances. Red pepper is the most popular in Poland and in other countries, but it is possible to buy peppers of yellow and green fruits. Pepper is in third vegetable, after tomatoes and cucumbers, cultivated under cover. In 2014 its cultivation area reached approximately 1,4 thousand ha, and its harvest reached 90 thousand tonnes. The bell pepper harvest from open-field cultivation is much smaller than the harvest of bell peppers cultivated under cover: in 2014 23 thousand tonnes were harvested. In 2009-2014 Poland exported from 9 thousand tonnes to 19 thousand tonnes of bell pepper; in 2014 - mainly to the countries of the CIS.

**The leeks** cultivation is a supplement to the local vegetables production. Leek is characterised by big amounts of nutrients. It contains many mineral salts, mostly calcium and phosphorus, vitamins and antioxidants. It has been estimated that the local plantations take over 4-5 thousand ha, with the harvest between 80 thousand tonnes and 100 thousand
Leek can be cultivated for the processing industry - as a raw material for dried leek and an additive for frozen food - or for the immediate consumption (as an ingredient for soup-greens, salads and other dishes). Since the production is limited, the leek exportation is small.

Celery is also a popular vegetable in Polish cuisine. Celeriac contains a lot of dietary fiber, many mineral salts and vitamins; Ribbed celery contains significant amounts of beta-carotene, vitamin C and group B vitamins. In Poland the celeriac production is the most developed one, it takes over 4-5 thousand ha and the harvest reaches approximately 100 thousand tonnes. Ribbed celery is not as popular as celeriac, but also here the numbers are growing. It is consumed as an ingredient of many dishes and salads. In the processing industry celeriac is used to produce: ready-made meals, frozen food, concentrates, as well as vegetable or fruit and vegetable mixed juice.

Root parsley one of the most common seasoning vegetables cultivated in Poland. Its cultivation area takes over 6-7 thousand ha, and its harvest reaches more than 100 thousand tonnes. Because of its taste and since it is very healthy, there are many applications for that vegetable in Polish cuisine, mostly in soups preparation. Both parts: the root and the leaves are edible. It can be applied as a seasoning ingredient in different dishes and salads. It maintains the majority of its features in both states: dried and frozen. Its aromatic leaves are rich in essential oils and minerals. It contains significant amounts of vitamins A and C, and of iron.
Legumes have been used in our cuisine for centuries because of its many different nutrients. They are tasty, easy to prepare and there are many varieties available in our country. Their seeds have the biggest amounts of proteins among sowing plants and many different macro- and microelements. Beans, peas, broad beans and lentils are the species commonly used in the nutrition. In 2004-2014, legumes destined for consumption were cultivated in approximately 19-20 agricultural farms, on the total area of 27-53 thousand ha. In the sowing structure, beans and peas prevail. In 2014 the beans share reached 33 %, and the peaks share - 31%. Broad beans played a smaller role (5% stake). Other plants had a smaller economic influence on the food industry.

Two species of Polish runner beans have been recorded in the European Union Register of protected designations of origin.

Fasola wrzawska [Wrzawy runner bean] – sweet taste, high water absorption capacity, soft consistency, thin skin and shortened boiling time are the consequences of a soft micro-climate and fertile soils of the northern part of the Sandomierz Basin and manual harvesting and natural methods of drying.

Fasola Piękny Jaś z Doliny Dunajca [Sweet White Runner Bean] – it has many advantages similar to the runner beans from Wrzawy, but its seeds are smaller. Because of the its cultivation location on high magnesium soils it is characterised by an increased content of this element in its seeds.

Fasola korczyńska [Korczyn bean] has been recorded in the European Union Register of protected geographical indications. It is a local variety of runner beans. Thanks to its specific cultivation, harvesting and drying conditions it is characterised by a high quality and a delicate taste.
Polish white mushroom (Agaricus bisporus) - the export bestseller and a relish of European customers

Poland is the biggest manufacturer and exporter of white mushrooms on the European market. White mushroom was brought to Poland from Western Europe in 18th century. At first, it was cultivated only in the cellars of manor houses and it was considered an upmarket product. In the interwar period the annual white mushrooms production in Poland would reach several dozens of tonnes. That period was characterised by an increase in production and development of the sowing technology. In 2004-2014 the entire area of the cultivation of white mushrooms in Poland increased from 205 thousand ha to 241

Geografical structure of Polish white mushrooms export in 2014

Source: elaborated by the Agricultural Market Agency on the basis of data provided by the Ministry of Finance
14 thousand ha, that means an increase by almost 18%, and, as a consequence, the production increased from 180 thousand tonnes (in 2004) to 275 thousand tonnes (in 2014) - and that means an increase by 53%. Dynamic development of the white mushrooms productions in Poland was provoked mostly by a favourable economic situation and a big demand on behalf of other European countries.

In 2004-2014 a significant increase in the white mushrooms exportation was registered. In 2004, 87 thousand tonnes of mushrooms of the value of EUR 101 000 000 were exported, whereas in 2014, the exportation rate reached 208 thousand tonnes and its value - EUR 301 000 000. In recent years approximately 70 % of the national white mushrooms production were destined for exportation. The European countries, principally Germany, the UK and France, are the main recipients. In 2014, the white mushrooms exportation to the European market reached 76% of the entire volume of the exportation of those mushrooms. Among the third-party countries, the member states of the CIS are the main recipients. Foreign recipients appreciate Polish mushrooms because of their high quality and special taste.

The white mushrooms import to Poland is small and doesn’t have any major influence on the national trade balance: in 2014, it reached 4,9 thousand tonnes.

White Mushrooms Production and Export from Poland

Source: data elaborated by Agricultural Market Agency on the basis of data provided by the Ministry of Finance
Vegetables processing - quality and modern solutions

Taking into account seasonality of the national vegetable production, the processing and preservation industry plays an important role in an uninterrupted provision of access to vegetables and their vegetable-based products to customers.

In Poland, for centuries many different kinds of vegetables were pickled, marinated, salted, dried and preserved by adding sugar. Processing food evolved into an industry in the 20th century, especially in the 1960s, when first frozen meals were produced. Nowadays, it is the most important service of the Polish processing industry. Frozen vegetables have the largest share (reaching 50%) in the structure of the national vegetable-based production. Also, canned vegetables, marinades and ketchup or tomato sauce have a significant share. The national processing industry is very well-developed. A significant part of the companies which offer those services, are small and micro enterprises, especially as regards the cabbage, cucumbers and dried vegetables processing. Medium and large companies prevail in the tinned vegetables production. The production scale, technological level and labour productivity in the national processing industry does not differ from the data reported by other EU Member States’ industries. Also, the quality and diversity of our assortment is close to the Western European companies’ offers. The strength of our processing industry lays in the rich raw material base. That is why Poland has become one of the European leaders in the field of frozen, pickled and dried carrots production.

Structure of the Polish preserved vegetables production in 2013/2014

- Frozen vegetables 55%
- Canned Vegetables 14%
- Marinades 11%
- Ketchup and tomato sauces 11%
- Tomato paste 3%
- Sauerkraut 1%
- Other kinds of preserved vegetables 5%

Source: elaborated by ARR on the basis data provided by IERiGŻ and GUS.
After the Poland’s accession to the European Union the processed vegetables production has increased from 860 thousand tonnes to 1 145 thousand tonnes. The most dynamic increase was registered in the case of ketchup and tomato sauce, frozen vegetables and marinades. The tinned and dried vegetables, tomato concentrate and pickled cabbage has been relatively stable.

An increasing exportation demand has provoked a major development of the national vegetable processing industry. In 2004-2014 the exportation volume of processed vegetables increased from 425 thousand tonnes to 629 thousand tonnes, and its value - from EUR 207 million to EUR 455 million. 50% (on average) of the national production was sent abroad.

In the structure of the Polish exportation of processed vegetables prevail frozen foods. During the 10 years of the Poland’s EU membership the exportation of frozen foods increased from 328 thousand tonnes to 423 thousand tonnes. Frozen vegetables produced in Poland are appreciated by both European customers and customers from other foreign countries. Germany, France and the UK are the main recipients of Polish frozen foods. They are exported also to the countries situated beyond the EU boundaries, mainly to the member states of the CIS and to the United States. Processed vegetables, such as: tinned food, marinades, ketchup and tomato sauce were not exported on the same scale as frozen food. Foreign sales of other processed foods were established on even lower level.

<table>
<thead>
<tr>
<th>Type of preserve</th>
<th>2004/05</th>
<th>2008/09</th>
<th>2009/10</th>
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<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
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<tr>
<td>Preserves altogether (thousand tonnes) including:</td>
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<td>462</td>
<td>490</td>
<td>489</td>
<td>563</td>
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<td>629</td>
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<tr>
<td>Frozen vegetables</td>
<td>328</td>
<td>316</td>
<td>339</td>
<td>332</td>
<td>376</td>
<td>455</td>
<td>423</td>
</tr>
<tr>
<td>Tinned vegetables</td>
<td>24</td>
<td>35</td>
<td>34</td>
<td>38</td>
<td>41</td>
<td>53</td>
<td>54</td>
</tr>
<tr>
<td>Ketchup and tomato sauces</td>
<td>11</td>
<td>24</td>
<td>33</td>
<td>37</td>
<td>41</td>
<td>44</td>
<td>36</td>
</tr>
<tr>
<td>Frozen ready-made meals</td>
<td>27</td>
<td>33</td>
<td>33</td>
<td>32</td>
<td>35</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Mrożone przetwory gotowe</td>
<td>6</td>
<td>15</td>
<td>11</td>
<td>10</td>
<td>12</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Dried vegetables</td>
<td>14</td>
<td>18</td>
<td>20</td>
<td>22</td>
<td>27</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Pickled cabbage</td>
<td>13</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>21</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Preserves altogether (million EUR)</td>
<td>207</td>
<td>322</td>
<td>324</td>
<td>351</td>
<td>361</td>
<td>438</td>
<td>455</td>
</tr>
</tbody>
</table>

Source: data elaborated by Agricultural Market Agency on the basis of data provided by the National Research Institute of Agriculture and Food Economics (IERiGŻ-PIB)
The Agricultural Market Agency’s activities on the market of fruit and vegetables.

Administration of the School Fruit and Vegetable Scheme

The scheme aims to provide free of charge fruits, vegetables and juices for children from kindergartens and the first three years (I-III) of primary school, and to promote healthy nutrition. The Agricultural Market Agency for many years has been supporting consumption of those products and has been educating children on healthy eating habits, which is especially important in relation to a decrease in fruits and vegetables consumption, development of harmful eating habits and increasing obesity rates among children.

The project is becoming more and more popular in the whole country. Since the launch in the school year 2009/2010 the number of children par-
participating in it rose almost 5 times. In the 1st semester of the school year 2015/2016 1.5 million of children are participants of the project (91% of the target group of pupils participating in the project). 11,3 thousand primary schools have signed contracts with the approved fruits, vegetables and juices providers. Children are receiving 2-3 portions of fruits and vegetables per week, and those portions may contain: apples, pears, strawberries, blueberries, carrots, peppers, radishes, kohlrabies, tomatoes and fruit and vegetable mixed juices. From the launch of the scheme to the end of the 1st semester of the school year 2015/2016 children will be given 294 million of portions of fruits, vegetables and juices. By the end of September 2015 the Agricultural Market Agency had paid PLN 320 million for the execution of the scheme.

There are also some activities that aim to promote the scheme, beyond the distribution of fruits and vegetables, including: posters, brochures, gadgets, the website www.owocewszkole.org, incentive events, educational and sports events, conferences) and other accompanying educational events. The efficacy of the scheme is being evaluated, taking into account eating habits of the children. To date, the project assessment has been favourable and has confirmed its efficacy and its potential.
Promotional and informational campaigns launched on the fruit and vegetables market.

The Agricultural Market Agency participates in activities supporting the promotion of agricultural products in Poland and abroad, implementing them in several fields.

Since May 2004 the European Commission has conceded to Poland EUR 25.7 million for 8 promotion and information campaigns concerning fruits, vegetables and juices. In 2015, the Agency has supported the implementation of following campaigns on the market of fruit and vegetables:

“Bicolored apples from Europe” – a three-year promotional and informational campaign which has been started in 2015. It has been launched on the markets of China and of the United Arab Emirates. The campaign budget is EUR 5 million;

“Apples Every Day” – a three-year campaign. The campaign budget is EUR 4 million. It has been launched in 2012 on the markets of Russia and Ukraine.

“5 portions of vegetables, fruit or juice” - a three-year campaign. The campaign budget is EUR 3.8 million. It is promoting fresh and processed fruit and vegetables (including juices). It has been launched on the markets of Poland and Romania. It is the continuation of the campaign “Vegetables and fruit 5 times a day”.

In 2015, the Agricultural Market Agency has concluded agreements concerning other campaigns on the market of fruit and vegetables:

“Extraordinary properties of ordinary fruit” – a three-year promotion and information campaign concerning berries (strawberries, raspberries, currants, blueberries) destined for the markets of Sweden, Finland, Austria, the Czech Republic and Poland. The campaign budget is EUR 4 million.

“Juices and mousses - vitamins in a smart for” – a three-year promotion and information campaign concerning fruit and vegetable juices and mousses destined for the markets of Lithuania, the Czech Republic, Slovakia, Romania and Poland. The campaign budget is EUR 5 million.

“EcoEurope - quality and tradition” – a three-year promotion and information campaign concerning products of ecological agriculture (including: fruit, vegetables and processed fruit and vegetables). It is going to be launched on the markets of the United States, Japan and Singapore. The campaign budget is EUR 1.7 million.

„Tastes of Europe - quality and tradition“ – a three-year promotion and information campaign concerning some food groups (fresh and processed fruit and vegetables, among others), destined for the markets of Algeria, Belarus and China. The campaign budget is EUR 5.4 million.

From the Poland’s accession to the EU to the end of September 2015 the Agricultural Market Agency granted a total of PLN 43.4 million for promotion and
information campaigns on the fruit and vegetables market, of which PLN 27.1 were from the European Union budget. The Agency also initiates and supports promotion and information activities that aim to promote products of ecological agriculture, local and traditional products, methods of their production and, also, quality assurance systems for food products.

The Agricultural Market Agency administers - financed by the industry - the Fruit and Vegetable Promotion Fund, created in order to support the agricultural marketing and maximize consumption of products of fruit and vegetable farming. From its creation in 2009 to the end of September 2015 9 thousand different entities paid PLN 37.9 million to the Fund and PLN 36 million was spent on the activities under its support. In 2015, following campaigns and promotion activities are financed or co-financed from the Fund: “Tastes of Europe - Quality and Tradition”, “EcoEurope - Quality and Tradition”, “Extraordinary Properties of Ordinary Fruit”, “Time for tomato, or how can you not love Polish fruit and vegetables”, “5 portions of vegetables, fruit or juice”, “Strawberry Picnic”, “Fruit and vegetable Poland for everyone”, “Polish Tastes. Fruit and vegetables” and “Eat the best. Polish fruit and vegetables”.

Supporting the fruit and vegetables producers in crisis situations

Disturbances in the agricultural markets caused by different factors (e.g. natural or economic) provoke situations of significant loss for the agricultural producers, what may be dangerous for the farms’ economic situation. In such cases it is indispensable to support them, restraining the consequences of the suffered damage. This kind of help is also given to the fruit and vegetables producers.

Crisis on the market of fruit and vegetables, caused by the bacteria Escherichia coli (EHEC) in 2011, contributed to a decrease in the consumption and serious perturbations in the European Union market. In order to support agricultural manufacturers and mitigate the consequences of that crisis the European Commission introduced temporary exceptional support measures for producers of selected fruit and vegetables. The Agricultural Market Agency received more than 7.2 thousand applications for that support under three tranches of financial aid.

Due to the settlement of the three tranches of aid the Agricultural Market

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1 In the case of the fourth tranche of aid, the deadline for submitting applications for support is 31 July 2016, and it will be paid up to 30th September 2016.
Agency till the 30th of September 2015 granted to agricultural manufacturers a total of PLN 311,300,000 for 300,1 thousand tonnes of fruit and vegetables, including: 212,1 thousand tonnes of apples, 34,5 thousand tonnes of cabbage and 34,4 thousand tonnes of carrots. The supporting measures included also 3,5 thousand ha, on which had been mainly executed green harvesting or non-harvesting of fruit and vegetables: apples - 2,2 thousand ha, cabbage - 446 ha and carrots - 330 ha.

Supporting of integration among manufacturers in the fruit and vegetables sector

Taking into account efficacy and competitiveness of the national agriculture, it is important to foster the creation of community associations for agricultural manufacturers. In consideration of the advanced concentration phenomena in other chain links in the food supply chain, integration is becoming one of the most urgent tasks that must be faced by farmers and institutions that support them. This issue has been taken into consideration in the European Union regulations concerning common organization of the markets of agricultural products. Since 2015 the Agricultural Market Agency was included in that field of activities and is responsible for: accepting and supervising of groups and associations of fruit and vegetables manufacturers, holding registers of the above-mentioned economic entities, granting of financial aid for cofinancing of the operational funds, accepting of the operational programmes and monitoring of the implementation of the national strategy for sustainable operating programmes of the approved associations of fruit and vegetables manufacturers. As of 30th September 2015, in Poland there were 119 provisionally approved groups of fruit and vegetables manufacturers and 188 approved associations of fruit and vegetables manufacturers. Both types of organizations were associating a total of 7,4 thousand members.
Selected institutions on the Polish agricultural and food market

**Ministry of Agriculture and Rural Development**  
00-930 Warszawa, ul. Wspólna 30  
tel. 22 623 10 00; faks 22 623 27 50  
e-mail: kancelaria@minrol.gov.pl  
www.minrol.gov.pl

**Agricultural Market Agency**  
01-207 Warszawa, ul. Karolkowa 30  
tel. 22 661 72 72 – Infolinia  
e-mail: tpi@arr.gov.pl  
www.arr.gov.pl

**Agency for Restructuring and Modernization of Agriculture**  
02-822 Warszawa, ul. Poleczki 33  
tel. 0 800 38 00 84 – helpline; faks 22 318 53 30  
e-mail: info@arimr.gov.pl  
www.arimr.gov.pl

**Central Statistical Office**  
00-925 Warszawa, al. Niepodległości 208  
tel. 22 608 30 00  
e-mail: kancelariaogolnaGUS@stat.gov.pl  
www.stat.gov.pl

**National Research Institute of Agriculture and Food Economics (IERiGŻ – PIB)**  
00-002 Warszawa, ul. Świętokrzyska 20  
tel. 22 505 44 44; faks 22 827 19 60  
e-mail: ierigz@ierigz.waw.pl  
www.ierigz.waw.pl

**Foundation of Assistance Programmes for Agriculture (FAPA)**  
00-930 Warszawa, ul. Wspólna 30  
tel. 22 623 19 01; faks 22 623 19 09  
e-mail: fapa@fapa.org.pl  
www.fapa.com.pl

**Agricultural and Food Quality Inspectorate**  
00-930 Warszawa, ul. Wspólna 30  
tel. 22 623 29 00; faks 22 623 29 98  
e-mail: sekretariat@ijhars.gov.pl  
www.ijhars.gov.pl
Trade organisations

Organizations working in the same field are an important link which makes possible sharing information about the market of fruit and vegetables. They associate producers, processors and companies functioning in the horticultural sector.

**Polish Growers Association**
05-600 Grójec
ul. Sportowa 4a
tel./faks 48 664 37 79
e-mail: biuro@polskiesadownictwo.pl
www.polskiesadownictwo.pl

**Polish Nurserymen Association**
00-175 Warszawa
al. Jana Pawła II 80 lok. 71
tel./faks 22 435 47 22
e-mail: zszp@zszp.pl
www.zszp.pl

**Polish Association of Juices Producers (KUPS)**
02-532 Warszawa
ul. Rakowiecka 36 lok. 339 i 340
tel. 22 606 38 63
tel./faks 22 646 44 72
e-mail: biuro@kups.org.pl
www.kups.org.pl

**National Association of Fruit and Vegetable Processors**
20-234 Lublin
ul. Mełgiewska 104
tel. 81 445 25 30
faks 81 445 25 31
e-mail: biuro@kspoiw.com.pl
www.kspoiw.com.pl

**Association of Polish Fruit and Vegetables Distributors**
00-002 Warszawa
ul. Świętokrzyska 20 lok. 321
tel. kom. 504 096 015
faks 22 505 47 01
e-mail: grupy.ogrodnicze@gmail.com
www.grupyogrodnicze.pl

**National Council of Agricultural Chambers**
00-930 Warszawa
ul. Wspólna 30
tel. 22 623 21 65
tel. 22 623 23 01
faks 22 623 11 55
e-mail: sekretariat@krir.pl
www.krir.pl

**Association of Polish Fruit and Vegetable Distributors “Fruit Union”**
05-600 Grójec, Słomczyn 80
tel./faks 22 101 26 84
tel. kom. 696 859 993
e-mail: biuro@uniaowocowa.pl
www.uniaowocowa.pl

**Polish Association of Potato and Agricultural Seed Growers**
91-420 Łódź
ul. Północna 27/29 lok. 107
tel. 42 874 29 89
faks 42 874 29 89
www.fbzpr.org.pl

**Polish Horticultural Association**
91-348 Łódź
ul. Świętej Teresy 56/58
tel. 42 640 71 51
faks 42 651 23 25
e-mail: zwogr@wp.pl
www.fbzpr.org.pl
Agricultural Market Agency – as an accredited European Union paying agency and an executive agency - executes tasks concerning the agricultural and food sector. Those tasks are:

- intervention purchasing and selling of agricultural and food products and issuing certificates for butter and skimmed milk powder destined for intervention purchasing in other member states of EU;

- aids for private agricultural and food products storage;

- administering of the support mechanisms of agricultural manufacturers who suffer from damages caused by critical situations;

- limiting the production of sugar and isoglucose, also: monitoring and controlling of the production and processing process in: wine, sugar, milk, fruit and vegetable markets, among others;

- administering of trade exchange with foreign countries – the Agricultural Market Agency administers the allocation of import quotas, issues and reckons import/export licences for agricultural and food products (including fresh and processed garlic). Also, the Agency issues certificate P2 in the range of the processed non-annex I products;

- supporting producers and agricultural markets by:
  - co-financing purchases of applied sowing material,
  - organizing supporting programmes of apiculture;

- supporting the food promotion:
  - co-financing promotional and informational campaigns in the field, those launched in the country, and those in the foreign markets as well,
  - initiating promotional activities concerning development of the local production, with particular focus on regional, traditional and ecological products and manufactured in quality assurance systems for food products,
  - implementing the action “Quality assurance systems for agricultural and food products” launched in the framework of the Programme for Agriculture and Rural Development 2014-2020,
  - administering of 9 funds for promoting agricultural and food products, created in order to support the agricultural marketing,
  - supporting development of trade cooperation between the agricultural and food sector and the foreign countries;
supporting the integration of agricultural producers – the Agricultural Market Agency is responsible for approving and supervising of producers’ groups and organizations, their associations, and also interbranch organizations in particular sectors of agricultural products. The Agricultural Market Agency grants aid for cofinancing of operational funds of approved organizations of fruit and vegetables producers;

supporting consumption – the Agricultural Market Agency promotes the proper consumption model and the proper consumption of milk and its products by children and teenagers (project: "Milk - Drink it up!") and also of fruits, vegetables and juices among children in kindergartens and in the first three school courses (I-III) in primary schools (project: “School Fruit and Vegetables Scheme”);

implementing the action “Collaboration” within the framework of the Programme for Agriculture and Rural Development 2014-2020, which aims to support of creation and functioning of operational groups fostering innovation (European Innovation Partnerships - EPI) and executions of projects consisting of elaboration of solutions in the range of new: products, practices, processes, technologies and organization methods and marketing in the agricultural, food and forest sector;

collaborating with other countries abroad including supporting substantially and technically foreign institutions of agricultural sector, participating in the European Commission and the Council of the EU preparatory bodies’ tasks and the exchange of experiences with foreign partners (participation in conferences, meetings and economic missions, among others);

preparing research and forecast studies about the current and anticipated situation in selected agricultural markets, which later are published on the website www.arr.gov.pl, under the tab “Market Analysis and Forecast”.

The brochure was elaborated in the Analysis and Programming Office of the Agricultural Market Agency, on the basis of the data provided by the Central Statistical Office, the Ministry of Finance and on the basis of the report “The Market of Fruit and Vegetables” of National Research Institute of Agriculture and Food Economics (IERiGŻ-PIB).

The brochure has an informative nature only. The Agricultural Market Agency declares that this publication shall not constitute an offer targeted at beneficiaries or commit the Agricultural Market Agency to any type of contractual obligations on the basis of the content of this brochure.
www.arr.gov.pl

Agricultural Market Agency
ul. Karolkowa 30
01-207 Warszawa

Helpline
+48 22 661 72 72

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