Vegetable Production in Poland and Selected Countries of the European Union

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Abstract. The paper aims to analyse the state of the art and the conditions for development of vegetable production in Poland and selected countries of the European Union. The research is based on the analysis of the data from the official statistical sources for the period of 2002-2007. It argues that the vegetable sector is developing significantly, which results from market cyclical factors and strong competitive advantages as well as the EU funds available for the sector development. The further development of the sector will depend on the dynamics of increasing competitive positions on the EU Common Market as well as taking advantages of the EU funds and the level of cooperation between sector's stakeholders.
Key words: vegetable sector, conditions of development, sector's organisation.

Introduction

In 2008, the total production of fresh vegetables in the world amounted to 893.4 million tons, with the total crop area of 52.44 million ha. In comparison, one year earlier that production amounted correspondingly to 889.7 million tons and the crop area 52.04 million ha. The biggest harvest of vegetables took place last year in Asia – approximately 658.6 million tons, then in Europe – over 94.5 million tons, less than 41.0 million tons in the North America, over 22.0 million tons in the South America, and over 55.75 million tons in Africa. In comparison, just at the beginning of the 1980s, the total production of vegetables and fruit in the world amounted to 630.0 million tons, in the 1990s, it was 820.0 million tons, and the beginning of the 21st century, i.e. the years 2000–2001 brought the production volume growth up to 1.20 billion tons (Długokęcka M., 2008). China is for a few years the biggest vegetables producer in the world, producing approximately 50% of global production. Two European Union countries: Italy (13.6 million tons) and Spain (12.7 million tons) are among the first ten of the vegetable producers in the world.

Poland takes the 4th place in the global vegetable production, after Italy, Spain, and France. In the years 2004–2007, the vegetable production in Poland amounted to approximately 5.5 million tons, which was approximately 9% of total vegetables crop in the EU-27. Poland is the biggest producer of garden beet, cabbage, and carrot in the EU, with the following proportions of crops: 46%, 23%, and 15%. In production of cucumber and onion, Poland takes the 2nd place in the EU. Poland is the second producer, after Belgium, of refrigerated vegetables in the EU, and the biggest producer of sour vegetables and dried carrot. Supplies from Poland are very important in covering the EU demand for onion, cauliflower, and refrigerated, sour and dried vegetables.

The vegetable growing is one of the most important parts of Polish gardening. The vegetables production in Poland amounted over PLN 4.8 billion in 2007, which was approximately 6% of global agricultural production and approximately 10% of global vegetable production. The agricultural production of vegetables amounted over PLN 3.3 billion, which was over 6% and 14% in the agricultural and vegetable production, accordingly. The export value of vegetables and their preserves amounted to EUR 463 million, which was approximately 5% of total agricultural and food export.

The paper aims to analyse the state of the art and the conditions for the development of vegetable production in Poland and selected countries of the European Union. The tasks of the research are 1) to analyse the production of vegetables; 2) to analyse the consumption of vegetables; and 3) to analyse the EU support to vegetable sector. Additionally, a case study of Poland was performed with regard to the latter task.

Methodology and data sources

This paper presents the conditions of vegetables production growth in Poland, as one of the biggest vegetable producers in the EU, and in selected EU countries. It aims to analyse the state of the art and the conditions for the development of vegetable production in Poland and selected countries of the European Union. The analysis includes the production and consumption of vegetables as well as the organisational and legal solutions for the sector, especially in the context of the EU support. The time range of performed analysis has been selected for purpose, due to Poland's accession to the EU in 2004, and included the years 2002–2007. The performed analysis has been based upon the materials and source data from the institutions engaged in the organisation, supervision, and monitoring of the sector, using the source documents analysis tools as well as descriptive statistics methods and heuristic methods.

1. Production of vegetables in Poland and selected EU countries

The vegetable production in the EU-27[1] in the years 2002–2007 amounted to 69 million tons on average, including approximately 55.1 million tons in the EU-15 countries, approximately 13.9 million tons in the EU-12 countries, and almost 5.5 million tons in Poland (Table 1). Calculating production per capita, the vegetable production level in the EU-27 amounted approximately to 140 kg. The vegetable production in the EU-27 has dropped from 69.1 million tons in 2002 to 64.9 million tons in 2007 (drop by 6.1%). In the studied period there was the production drop in the EU-15 countries, from 56 million tons to 51.4 million tons (drop by 8.2%), and it was the biggest in 2006 (drop by 6.6%). The vegetable production in the EU-12 countries in the analysed years maintained the similar level, approximately 13 million tons, only in the years 2003–2004 it amounted to 15 million tons. In the years 2002–2007, the vegetable production in Poland has increased from 4.9 to 5.9 million tons (raise by 1 million tons, i.e. 20.4%). The average annual raise amounted to 3.4% in the analysed period, but there were fluctuations in the vegetable production. In the years 2005–2006, there was the production drop by 3.4 and 5.4% respectively and in the years 2003–2004, the production increased by 8.2%, 9.4%, and 11.3% respectively.

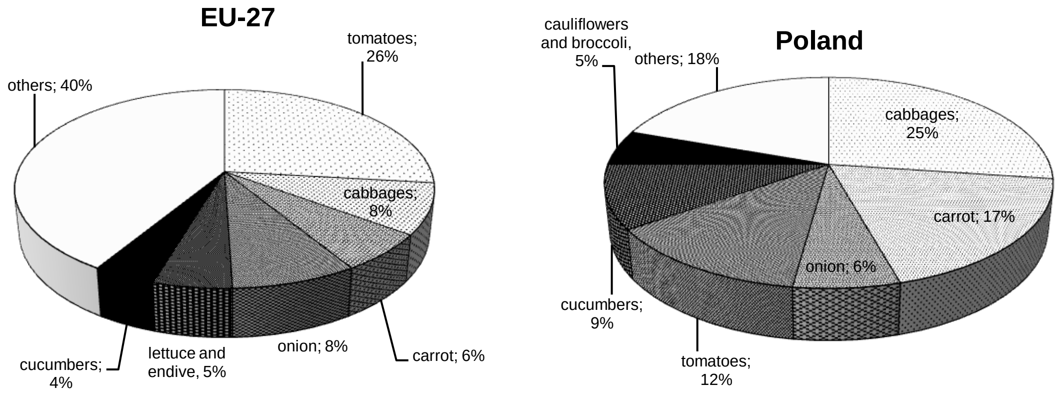
Table 1

Vegetable production in the European Union (million t)

Item	2002	2003	2004	2005	2006	2007
EU-27	69.1	71.1	71.7	70.9	66.2	64.9
EU-15	56.0	56.0	56.7	57.7	52.5	51.4
EU-12	13.1	15.1	15.0	13.2	13.7	13.5
Poland	**4.9**	**5.3**	**5.8**	**5.6**	**5.3**	**5.9**

Source: Analizy rynkowe: Rynek owoców i warzyw nr 33/2008, IERiGŻ–PIB

In the individual EU countries, the production change rate in the years 1995–2006 was diversified, in either amount or direction.



Source: Źródło: Nosecka B., Stryjewska I., Mierwiński (2008): Perspektywy polskiego rynku warzyw i ich przetworów, Skierniewicki Portal Ogrodniczy

Fig. 1. **Structure of total vegetable production in Poland and the EU-27 in the years 2004-2006**

[1] The calculations were done for the period of 2002-2007. The authors used data for the present 27 Member States. However, some countries joined the EU in 2004 and some in 2007. Thus, corresponding data for some potential EU-27 Member States were calculated until the year 2007

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The EU-27 countries with the constant vegetable production growth include Italy, Spain, the Netherlands, and Austria. In Poland, there was a small drop trend noticeable in the years 1995–2006 (revision of the statistical data after 2002, performed by the Central Statistical Office after the General National Census). Especially visible drop trends have been noticed in those "new" European countries, where there were problems with ownership transformations (Bulgaria, the Czech Republic, Lithuania, Slovakia, and Hungary). There is a high geographical production concentration in the EU. The countries with the highest vegetable production (Italy, Spain, France, and Poland) produce almost 60% of the EU-27 production (Table 2).

Table 2

Changes in vegetable production in the EU in the years 1995-2006

Country	**Vegetable harvests (1000 t)**		**Share in the harvest in the EU-27 (in %)**
	1995-1997	**2004-2006**	
EU-27	**64 473**	**69 207**	**100.0**
Italy	14 442	15 826	22.9
Spain	11 014	13 084	18.9
France	6 400	6 069	8.8
Poland	**5 700**	**5 550**	**8.0**
Romania	4 214	4 248	6.1
Netherlands	3 616	4 235	6.1
Germany	3 211	3 195	4.6
United Kingdom	2 942	2 726	3.9
Hungary	1 597	1 679	2.4
Bulgaria	1 440	767	1.1

Source: Nosecka B., Stryjewska I., Mierwiński J. (2008). Perspektywy polskiego rynku warzyw i ich przetworów. Skierniewicki Portal Ogrodniczy

The variety structure of produced vegetables in the EU-27 and in Poland is characterised by differences, but also similarities (Figure 1). The clearly dominating varieties in the production structure of the EU-27 include tomatoes (26%), while in Poland – cabbage (25%). Four varieties of vegetables: cabbage, carrot, onion, and tomatoes in Poland amounted to 69%, and in the EU-27 countries – 51%. The share of six most often cultivated vegetables in Poland in turn amounted to 80%, and in the EU-27 – almost to 60%.

Table 3

Vegetable production in Poland in the years 2002-2007 (in 1000 t)

Item	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Vegetables in total	**4701.2**	**5090.8**	**5590.0**	**5458.3**	**5120.0**	**5710.0**
Ground vegetables	**3947.2**	**4419.6**	**4916.2**	**4785.3**	**4408.0**	**4987.0**
Cabbage	1188.2	1236.7	1371.0	1320.0	1189.4	1325.0
Cauliflower	176.4	188.8	205.7	204.3	211.8	228.0
Onion	584.9	678.3	865.7	714.1	590.2	725.0
Carrot	692.1	834.6	927.9	929.0	833.2	938.0
Red beet	311.2	333.5	356.9	356.0	340.6	375.0
Cucumbers	259.7	289.7	255.9	257.5	271.9	293.0
Tomatoes	221.4	234.1	212.7	232.4	246.7	277.0
Others	513.0	623.9	720.4	772.0	724.2	797.0
Greenhouse vegetables	**754.0**	**671.2**	**673.8**	**673.0**	**712.0**	**723.0**
Tomato	393.0	372.3	369.6	369.0	405.0	412.0
Cucumbers	223.0	198.7	208	211.0	220.0	218.0
Others	138.0	100.2	96.2	93.0	87.0	92.0

Source: IERiGŻ (2005). Analizy rynkowe: Rynek owoców i warzyw. nr 23, IERiGŻ (2008). Analizy rynkowe: Rynek owoców i warzyw. Nr. 33

The share of other vegetables in Poland amounted only to 18%, but in the EU-27 – to 40%. This shows that Poland has quite low diversified and modest structure of cultivated vegetables in comparison with other EU-27 countries.

Total vegetable production in Poland in the years 2002–2007 has fluctuated from 4.7 to 5.7 million tons, and the share of cabbage, carrot, and onion has amounted to over 60% (Table 3). In Poland, vegetables are produced mostly on the fields. The ground vegetable production level in the analysed years amounted to 3.9–4.9 million tons. The greenhouse vegetable production ranged between 671 thousand tons in 2003 and almost 723 thousand tons in 2007. In 2007, the greenhouse vegetables accounted for 12.6% of total crops.

2. Consumption of vegetables and their products

The consumption of vegetables and their products in the years 2002–2007 amounted to 111 kg per capita on average (according to the balance data: production, export, and import). The vegetable consumption in the years 2002–2006 in turn varied from 109 to 111 kg, and in 2007 increased to 115 kg (Table 4).

Table 4

Consumption of selected ford products in Poland in the years 2002-2007 (kg/capita)[2]

Item	2002	2003	2004	2005	2006	2007
Grain	120	120	119	119	117	115
Potatoes	131	130	129	126	121	121
Vegetables	**111**	**110**	**111**	**110**	**109**	**115**
Fruit	56.7	54.5	55.0	54.1	54.4	41.0
Meat	69.5	72.1	71.8	71.2	74.3	77.0
Milk	182	181	174	173	176	178

Source: Kowalski A. [ed.] (2008). Analiza produkcyjno-ekonomicznej sytuacji rolnictwa i gospodarki żywnościowej w 2007. IERiGŻ-PIB. Warszawa

The consumption of fresh, chilled, and refrigerated vegetables and their products in Poland, according to the research of family budgets carried out by the Central Statistical Office (excluding consumption in the public catering institutions, i.e. hospitals, bars, restaurants etc.) amounted to 63.8 kg per capita on average in the years 2002–2007. In the analysed period, consumption of vegetables and their product dropped from 64.5 kg to 60.5 kg in 2007 (drop by 6.3%). The highest consumption of vegetables has been noticed in 2005, while the lowest - in 2007, and it amounted to 67.1 and 60.5 kg per capita, respectively. In the studied period, the highest vegetable consumption growth was noticed in 2005 (6.1%), and the highest drop - in 2006 (7%).

Table 5

Average annual consumption of vegetables and their products in Polish households (kg /capita)

Products	2002	2003	2004	2005	2006	2007
Vegetables, mushrooms and their products	64.56	64.92	63.24	67.08	62.40	60.48
Fresh vegetables and mushrooms	60.72	61.08	59.64	59.16	54.12	52.2
Cabbage	8.76	8.76	8.88	8.16	7.44	7.44
Cauliflower	2.04	1.8	2.04	1.92	1.80	1.80
Tomato	10.08	10.56	10.44	10.68	10.20	9.84
Cucumber	8.40	8.16	6.96	8.18	7.92	7.08
Red beets	4.44	4.44	4.32	4.08	3.48	3.36
Carrot	8.04	8.16	8.04	8.04	6.96	6.72
Onion	6.96	6.84	6.72	6.60	6.00	5.76
Other	12.00	12.36	12.24	11.40	10.32	10.20

Source: Statistical Yearbook of Poland, different years, GUS

[2] Data from the country statistical product balance

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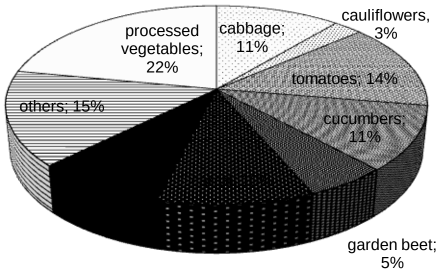
In the years 2002–2007, there was a drop in the fresh vegetable consumption, from 60.7 kg to 52.2 kg per capita (drop by 14%). The share of fresh vegetables in the vegetable consumption dropped from 94.1% to 86.3%. The consumption of almost all fresh vegetables has dropped in the analysed period. The highest decline was noticed in relation to the following varieties: garden beet (drop by 24.3%), onion (17.2%), and carrot (16.4%). The tomatoes consumption did not changed, and in the whole period, it amounted approximately to 10 kg per capita. The structure the share of cabbage, tomatoes, cucumbers, carrot, and onion dropped from 69.6% in 2002 to 60.7% in 2007 in the fresh vegetable consumption.



Source: authors' calculations based on the data from GUS

Fig. 2. **Structure of vegetable consumption in Poland in the years 2002-2007**

In the years 2002–2007, other vegetables represented 15% (paprika, zucchini, lettuce, endive, spinach, leek etc.), tomatoes - 14%, cabbage - 11%, cucumbers - 11%, carrot - 10%, onion - 9%, beet - 5%, vegetable products - 22%, and cauliflower and broccoli - 3% in the consumption structure (Figure 2). In the years 2002–2007, the consumption drop of cabbage, beet, and carrot was observed in comparison with the previous period. There were no changes in the consumption of cucumbers, onion, and products. The share of broccoli, cauliflower, and other vegetables grew. It proves the small widening of the assortment of the vegetables consumed in Poland.

Table 6

Average annual consumption of vegetable processed products[3] and vegetable juices in Poland (kg per capita)

Products	2002	2003	2004	2005	2006	2007
Processed products from vegetables	**14.9**	**14.7**	**15.0**	**16.5**	**18.0**	**18.5**
Frozen	2.5	2.7	2.5	3.7	5.2	6.0
Tin	3.0	3.3	3.8	4.0	3.7	3.7
Pickle	2.1	1.9	2.1	2.0	2.2	1.6
Sauerkraut	3.8	3.8	3.6	3.5	3.2	3.0
Tomato concentrate	0.4	0.4	0.4	0.6	0.7	0.7
Ketchup	1.7	1.7	1.6	1.7	2.1	2.5
Vegetable juices	**0.9**	**1.1**	**1.3**	**1.3**	**1.7**	**1.5**

Source: Statistical Yearbook of Poland, different years, GUS

The vegetable products consumption in Poland grew from 14.9 to 18.5 kg per capita in the years 2002–2007 (growth by 24%) (Table 6). The highest consumption in the vegetable products consumption was noticed for the refrigerated products (growth from 2.5 to 6 kg per capita), canned vegetables (growth from 3.0 to 3.7 kg per capita), and sauerkraut (consumption drop from 3.8 to 3.0 kg per capita). In the years 2002–2007, in Poland the consumption of drinkable juices, fruit drinks, and fruit – vegetable drinks has grown from 27.1

[3] Balance consumption: production, import, export

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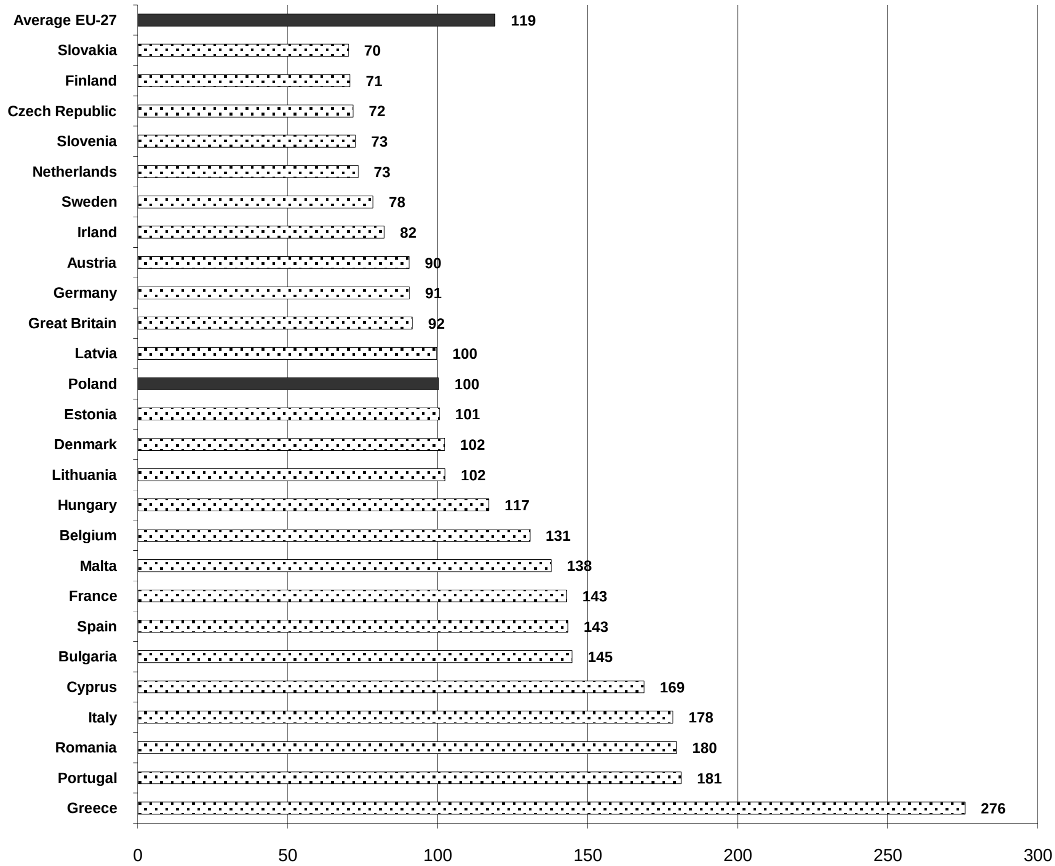
to 38.1 kg per capita (growth by almost 41%). The consumption of vegetable juices increased almost twice, and reached 1.8 kg per capita in 2007.

The vegetable consumption in the EU countries shows great diversification (Kwasek M., 2008). The highest consumption level in 2003[4] has been noticed in Greece – 275.5 kg per capita, and the lowest in Slovakia – 70.2 kg per capita. The difference between the highest and the lowest consumption amounted as much as 205.5 kg per capita (Figure 3). High consumption level has been also noticed in Portugal (181.1 kg), Romania (179.5 kg), Italy (178.3), and Cyprus (168.7 kg). More than 100 kg of vegetables were consumed in Poland, Estonia, Denmark, Lithuania, Hungary, Belgium, Malta, France, Spain, and Bulgaria (from 100.3 kg in Poland to 144.7 kg in Bulgaria). In other countries, the vegetable consumption was below 100 kg per capita, and below 80 kg in the following countries: Slovakia (the lowest consumption in the whole EU-27), Finland, the Czech Republic, Slovenia, the Netherlands, and Sweden.



Source: Kwasek M., (2008). Typologia krajów UE wg. wzorców konsumpcji żywności. Wyd. IERiGŻ-PIB, Warszawa

Fig. 3. **Consumption of vegetables and their products in the EU 27 in 2003 (in kg per capita)**

The vegetable consumption level in Poland accounts for 90% of the average consumption in the EU-27 countries. According to the FAO data, in Poland the total vegetable consumption in 2003 amounted over 100 kg per capita, and Poland took the 12th place among the EU countries. The consumption of cabbage and root vegetables, tomatoes, and cucumbers prevails in Poland. The consumption of cabbage, cauliflower, tomatoes, cucumbers, carrot, onion, and their products (in calculation into fresh products) in Poland approximately accounted for 118% of the average consumption in the EU-27 in the years 2000–2005. These products are more consumed only in Greece, Romania, Italy, and Belgium. Polish consumption of cabbage (31.6 kg in comparison with 12.8 kg in EU-27), carrot (21.4 kg – 10.1 kg), onion (14.4 kg – 10.2 kg), and cauliflower (3.8 kg – 3.0 kg) is definitely higher than in other European countries. On

[4] The latest data of the FAO and Eurostat for the consumption in the EU are for 2003

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the contrary, the consumption of tomatoes and their products is lower (9.6 kg per capita in comparison with 31.1 kg in the EU-27 on average) as well as most of other vegetables. The consumption of vegetable pickles is not significantly different from the EU, and the consumption of sour vegetables is higher in Poland.

3. Support for vegetable sector in the EU

After observations of fruit and vegetable markets functioning in the past years, the European Commission decided that the system regarding fruit and vegetables sector, which was valid until 2007, and legislated with the previously issued and the recent regulations (EC No. 2201/96 of 28 October 1996 regarding the common organisation of fruit and vegetable products market, and the EC No. 2202/96 of 28 October 1996, introduces the community support programme for the producers of selected citrus fruit) requires changes in order to increase the competitiveness and market orientation of that sector (Walczak J., 2008). In connection with the abovementioned, the decision regarding the transformation of common organisation of fruit and vegetable market was made since 2008. The main goals and assumptions of the transformation are as follows:

- better market orientation and higher sector competitiveness;
- limiting the fluctuations of farmers incomes;
- activities aiming at balancing improvement in the fruit and vegetable selling chain (better market organisation level);
- better consideration of sector diversification;
- strengthening of producers abilities in crisis management;
- decreasing of negative influence on the natural environment;
- increasing of fruit and vegetable consumption;
- assuring of coherence with the WTO principles and development policy;
- increasing of predictability and control of public expenses;
- simplification of management (minimisation of administrative duties) and control rationalisation.

There are many detailed solutions provided in order to achieve the assumed goals. The most fundamental one is to remove support for the production addressed for processing (including the financial support system for delivering tomatoes for the processing) and covering fruit and vegetables with the regional payments systems (decoupling). For the countries using the uniform regional payment system (SAPS), the fruit and vegetables are currently covered with the direct additional payments. The financial means, provided for the support of production for processing will be transferred to the Member States as the national envelopes. In case of financial support for tomatoes, the Member States will be able to use the direct payments for the tomato crops during the 4-year period of transition (2008–2011), on the condition that the part of payments, connected with the production amount, will not exceed 50% of the national ceiling.

The stimulation of process of establishing the renowned producers' organisations is another mechanism of vegetables producers support. It will consist in increasing of community support share (from 50% to 60%) in the operational funds of producers organisations in the specified cases (therewith, among others, for the new Member States and countries with low market organisation level, i.e. below 20% of producers organisations sale in the total production of fruit and vegetables). Moreover, it is foreseen that there will be the support limit growth for the operational fund from 4.1% to 4.6% of sold products value, on the condition of using the excess only for preventing and managing the crises. In the Member States, where the producers' organisations sell less than 15% of fruit and vegetables production, and where the fruit and vegetables production is at least 15% of their total agricultural production, it is possible to provide the national financial help for the producers up to 80% of the producers' contribution. This help is additional with reference to the operational fund, and may be returned by the EU at the request of the Member State. At the same time, the increase of support for the initially accepted fruit and vegetables producers groups is provided for covering the costs, connected with the group establishment and administrative activities: up to 10% of sold products value in the first year of the implementation of the project for obtaining the acceptance, 10% - in the second year, 8% - in the third year, 6% - in the fourth year, and 4% - in the fifth year.

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Because the transformation includes the natural environment protection aspects, the producers' organisations shall allocate at least 10% of the expenses foreseen in each operational programme for that purpose. Moreover, the operational programme must include at least two activities connected with the environment protection. In range of the operational programme of the producers' organisation, the EU will co-finance the ecological production up to 60%.

At the same time, other support mechanisms have been provided, among others the promotion of fruit and vegetables consumption, especially among children and youth as well as the introduction of crisis management for the producers' organisations. Among others, the following tools are provided for counteracting or preventing the crises on the market: removing fruit and vegetables from the market, reaping of green fruit and vegetables or reaping cancellation, informing and training activities in the crises, crops insurance, and support for securing the bank loans or administrative costs of creating the mutual insurance funds. The crisis management means shall not be more than one third of the expenses in range of operational programme. In order to finance the crisis management, the producers' organisation will be authorised to incur the loans on the commercial conditions. The loans capital and interest payment may be the part of the operational programme, not exceeding the limit of 20% of operational programme total expenses in the particular year. The expenses, incurred by the producers' organisation for the loan payment, will be possible to be included in range of the operational programme financial support.

4. Support for vegetable sector in Poland – case study

The fruit and vegetables sector differs significantly from other agricultural sectors in range and national intervention techniques within the framework allowed in the EU. Thus, intervention comes down to supporting the producers organisations, compensations for not introducing the fresh fruit and vegetables on the market, maintaining the common quality requirements, additional payments for some fruits and vegetables for processing, export refunds and import certificates, and promotion subventions. However, it is required to note that the support mechanisms in the individual EU countries are the same as the matter of principle. Only the amounts of national support, accompanying the EC support, are different. This document presents the main support mechanisms for the vegetable sector in Poland, before and just after the EU accession. It should be considered that the vegetable sector is always subject to the support with the fruit sector. Therefore, the characteristics below refer to these both sectors. The support was granted either for the producers or for the processors of fruit and vegetables.

The Activity 7 "Groups of Agricultural Producers" has been provided within the Rural Development Plan for the years 2004–2006. Its goal is to increase the incomes of farmers by the costs reduction; improvement of production quality on the market by using the common production technologies and common product preparation for the market; concentration of deliveries; better production planning; and adaptation to the market needs. As the result of such activities, 119 producers groups have been supported, including 27 fruit and vegetables producers groups. At the same time, wide support was offered in range of Activity 8 "Technical Support". With the use of means from that activity, the trainings and workshops took place, study travels were organised, and studies were published in order to increase the level of knowledge of the producers and processors.

The activity "Improvement of Processing and Marketing of Agricultural Products" was implemented within the Sector Operational Programme "Restructuring and Modernisation of Food Sector and Development of Rural Regions 2004–2006". Totally, 1643 applications were submitted for the co-financing of the implementation of projects for PLN 2.92 billion, and 1092 contracts were signed in the amount of PLN 1.82 billion, which reached the limit of the budget. Until the end of 2006 the implementation of 433 projects has been finished – most of them referred to meat and milk processing sectors (approximately 24% of projects each), and approximately 20% - to fruit and vegetables processing. Implemented projects are mostly connected with improvement and control of health conditions (26% of projects), improvement and control of quality (24%), use of new technologies (18%), and improvement and rationalisation of processing procedures (15%).

The best-documented effects of support programme influence on the fruit and vegetable sector in Poland took place in the range of SAPARD programme. That programme preparation was based upon two identified priority axes in range of agriculture and country regions needs in the pre-accession time. It was also reflected in the division of means in range of the first axis "Improvement of Agricultural and Food Sector Efficiency". In range of this axis, the considerable part of means was assigned to the investments connected with the adaptation of dairy, meat, fish, and fruit and vegetable sectors to the acquis communitaire requirements.

In range of Activity, totally 1 1778 applications were submitted, therein 1429 applications in range of Scheme 1 and 349 applications in range of Scheme 2. Until 31 December 2006, in total 1268 projects have been implemented (they received the final payment) for PLN 1,525,052.9 thousand. Most applications, in respect of the number of finished projects (649) and the amount of paid means, were implemented in the meat sector (PLN 781,718.4 thousand), followed by the dairy sector (315 applications and PLN 387,711.1 thousand), fruit and vegetables sector (223 applications and PLN 243,199.1 thousand), and in the fish sector (81 applications and PLN 112,424.2 thousand).

Most investments carried out in the range of projects in Activity 1 were connected with the adaptation to the sanitary and veterinary requirements, or only sanitary in fruit and vegetables processing sector. The fruit and vegetable sector plants mostly undertook the investments connected with the increase in value added, improvement of products quality, implementing new technologies and innovations, and production costs reduction. The share of such investments in case of fruit and vegetable sector amounted to 47% in comparison with 25% in dairy sector, 18% in fish sector, and 11% in meat sector. The share of investments closely connected with limiting of negative influence on environment was low in the SAPARD programme, and varied from 0.4% (fruit and vegetable sector) to 2.0% (meat sector).

In the range of fruit and vegetable sector, 102 plants implemented projects, where the HACCP system was implemented, and 130 implemented programmes of adaptation to the sanitary and veterinary standards in the EU. The quantity of production from plants, which received support in the range of SAPARD, having the authorisation for export to the EU, amounted to 740,339 tons. In range of fruit and vegetable sector companies, who implemented the investments financed from the SAPARD programme, the lowest increase of emitted pollutants has been noticed among other sectors, i.e. 0.3%.

In the range of allowed the EU national support, the Agriculture Restructuring and Modernisation Agency has also offered the producers and processors help in range of credits and other financial support (ARiMR, 2009). The following mechanisms were implemented in the analysed period:

- preferential investment credits;
- preferential disaster credits;
- credit warranties and securities of preferential credits payment;
- financial support for agricultural producers groups, registered before 30 April 2004.

Another programme with different character than the above was the project implemented by the Trade Quality Inspection of Agricultural and Food Products, co-financed by the EU – Strengthening of Market Quality Control of Fruit and Vegetables in Poland – being the element of multi-sector programme Transition Means 2005/017-488.01.02 "Strengthening of Administrative Possibilities". The project was implemented in cooperation with the Federal Ministry of Food, Agriculture and Consumer Protection, and the Environment and Consumer Protection Agency in the North Rhine-Westphalia in Germany. The goal of that project was to improve the trade quality control of fresh fruit and vegetables in range of consistency with the valid regulations. In range of its implementation, a number of trainings were planned, including two seminars and four workshops.

Other important programmes of supporting the fruit and vegetable sector are the promotional programmes, co-financed by the EU. From May 2004 to the end of 2007, Poland achieved the acceptance of six promotional programmes with the total budged of over EUR 8 million (ARR, 2009). Two of them applied directly to the fruit and vegetable sector.

Conclusions

The importance of Poland in the vegetable production in the EU is getting more significant due to increasing crops of most vegetables. There is production growth of vegetables, having until now lower importance in the production structure: broccoli, paprika, leaf and leguminous vegetables and sweet corn. The growth trends are not observed only for cabbage and garden beet, but it results from the stable demand for these vegetables.

In the EU countries, the systematic growth of vegetable production could have been observed in Italy, Spain, the Netherlands, and Austria. The production in the new Member States, mostly in Bulgaria, the Czech Republic, Slovakia, Hungary, and Lithuania has not grown due to the ownership transformations.

The vegetable consumption in the EU-27 countries shows great diversification. The highest consumption level in 2003 has been noticed in Greece, and the lowest in Slovakia (the difference between the highest and the lowest consumption amounted as much as 205.5 kg per capita). In Poland and most of the EU-27 countries, the total consumption of fresh vegetables shows no growth trends. In Poland, there is small growth of consumption of tomatoes, paprika, broccoli, cauliflower, cucumbers or Savoy and Chinese cabbage, and the consumption drop of white cabbage and root vegetables. In Poland, likewise in the old and new EU countries, there is the consumption growth of vegetable products, mostly refrigerated vegetables.

To sum up, it can be stated that the vegetable sector in Poland and in other EU countries develops significantly, which results mostly from the cyclic factors on the supply and demand sides as well as from its strong competitive position. The sector support mechanisms are also important, mostly the EU funds. Further development of the sector will be connected with the dynamics of competitive positions changes in range of the EU Common Market as well as with changes on the global market of vegetables and their products. The basic extra-market factors, which will influence the vegetable sector in Poland and other EU countries, include the knowledge of using the sector support funds, which sine qua non condition is the ability of cooperation in the range of producers groups and other forms of collective competitive advantage building.

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