Acta Sci. Pol.
Oeconomia 18 (4) 2019, 5–13
ISSN 1644-0757 eISSN 2450-047X DOI: 10.22630/ASPE.2019.18.4.39
acta_oeconomia.sggw.pl

ORIGINAL PAPER

Received: 15.11.2019
Accepted: 27.12.2019

SUGAR MARKET IN POLAND IN THE CONTEXT OF THE SUPPORT OF AGRICULTURAL POLICY. CURRENT SITUATION, TRENDS AND PROJECTIONS

Michał Borychowski✉, Anna Matuszczak, Sebastian Stępień

Poznań University of Economics and Business

ABSTRACT

The aim of the article is to present the situation of the sugar beet and sugar market in Poland in the context of changes to the Common Agricultural Policy of the European Union, and to present prospects for the development of these markets until 2030. The authors prove that, due to the significance of these markets for the whole agricultural sector, an intervention policy regarding the sugar beet and sugar markets is crucial, which is indicated by various positive economic and environmental effects connected with the functioning of this sector. The necessity for intervention stems also from the observed volatility of production, prices and incomes. The spatial scope of the research encompasses the whole area of Poland by applying a regional approach in some analyses (voivodeships) and a comparison with the Member States of the EU. The analyses cover a period of over 20 years – from 1997/1998 to 2018/2019 – as well as a projection for 2030.

Key words: sugar beet market, sugar market, agricultural policy, tendencies, projections

JEL codes: Q02, Q11, Q13, Q18

INTRODUCTION

Sugar is one of the most important food products. The sugar market constitutes an essential element of the whole agricultural sector and is linked to other agricultural markets. This claim can be substantiated, for example, by its increase in production and consumption. Its cultivation can be considered an alternative to typical food and feed crops (e.g. wheat, corn); sugar beet and sugar cane, however, have wider use and applications. For instance, they can be utilized for the purposes of food, feed and fibre production and as a source of bioenergy (bioethanol production). Sugar cane is considered to be one of the most important and effective sources of biomass for the production of bioethanol [International Sugar Organization 2019]. Besides that, there are some by-products of bioethanol production, such as sugar cane ashes (from combustion of biomass), which can be utilized as partial cement replacement in mortar and concrete, which in turn can contribute to the reduction of greenhouse gas [Jamora et al. 2019]. Its production appears to have certain positive environmental, economic and social effects. Hess et al. [2016] point out that expanding

Michał Borychowski https://orcid.org/0000-0001-6256-2680; Anna Matuszczak https://orcid.org/0000-0002-5045-5447; Sebastian Stępień https://orcid.org/0000-0001-9475-8418

✉michal.borychowski@ue.poznan.pl

sugar cane production influences the environmental and social aspects depending on the situation of the sugar market (both in global and local contexts), quality of scheme, nature of the production system and farm management. Currently, over 100 countries produce sugar from sugar cane (80% of world sugar production) or from sugar beet. In the 2017/2018 season, the 10 largest sugar producers (India, Brazil, Thailand, China, the United States, Mexico, Russia, Pakistan, France and Australia) accounted for almost 70% of global supply [International Sugar Organization 2019, Ruggeri and Corsi 2019]. The European Union is also a large producer of sugar, with France, Germany and Poland in the first three places, followed by Great Britain and the Netherlands [Szajner 2019].

The aim of this article is to identify the changes occurring on the sugar beet and sugar market in Poland, one of the largest producers of this commodity in the EU and in the world. Tendencies regarding the number of plantations, cultivated areas, production and prices are presented. These changes will be placed in the context of reorienting the support policy within the Common Agricultural Policy. Finally, a projection of the development of the sugar beet and sugar market in Poland until 2030 will be presented. The authors hypothesize that the functioning of the sector is closely related to the CAP; the support mechanisms and their future state is determined by the amount of budget expenditures for this purpose. The topic is important for assessing potential development opportunities for the sugar sector in Poland. At the same time, knowledge of agricultural policy mechanisms allows us to estimate the impact of this policy on production profitability. An added value is the analysis of the market in Poland vis-a-vis the EU and the world situation. The authors' contribution is the presentation of forecasts and projections for basic market aggregates in Poland, also by region (with voivodships specified) until 2030.

MATERIAL AND RESEARCH METHODS

The paper reviews the literature and secondary data from Statistics Poland (Główny Urząd Statystyczny), Ministry of Agriculture and Rural Development (Ministerstwo Rolnictwa i Rozwoju Regionalnego), National Association of Sugar Beet Growers (Krajowy Związek Plantatorów Buraka Cukrowego), the European Commission and the International Sugar Organization. These sources of data were used to describe trends and to analyse time series (dynamics measurement), evaluate changes in the support policy and to present the projection of the market situation. The perspectives presented in the article regarding sugar beet cultivation and the sugar market in Poland devise a scenario for 2030, with the assumption that there will be no significant changes related to the support for this sector under the CAP and demand and price shocks. They are based on the reference scenario under the CAPRI partial equilibrium model[1].

SUGAR BEET AND SUGAR MARKET IN POLAND

Table 1 presents basic data about the sugar beet and sugar market in Poland in the period form 1997/1998 to 2018/2019. In the first three indicated seasons, the number of sugar beet growers was relatively high: 160–170 thousand. However, it quickly decreased to approx. 100 thousand, and in the following years it continued to decrease. In the 2018/2019 season, about 33 thousand agricultural holdings cultivated sugar beet and in the last eight periods this number was relatively stable, while in the first years after Poland's accession to the EU, the number of growers decreased significantly each year (on average by a few percent).

In the period form 1997/1998 to 2008/2009, decreasing tendencies in the cultivated area for sugar beet can be observed (from 310 thous. to 176 thous. ha).

[1] The Common Agricultural Policy Regionalised Impact Modelling System is a model widely used by the European Commission (Joint Research Centre). It is an ex ante impact assessment tool for agricultural and international trade policies, with a particular focus on the European Union, based on a 30-year baseline period (1984–2013). Its core consists of two interlinked modules: a supply module comprising around 280 regional aggregated programming models covering EU-27, Norway and the Western Balkans at NUTS 2 level, and a market module, a global multi-commodity model for around 50 agricultural commodities, which together allow a wide range of economic and environmental indicators to be calculated.

Table 1. Sugar beet and sugar market in Poland – basic data

Period	Number of growers (thous.)	Cultivated area (thous. ha)	Sugar beet yield		Sugar beet production		Sugar production		Year	Sugar beet purchase prices (PLN·t^{-1})	Price gap
			t·ha^{-1}	dynamics (y/y) (%)	thous. t	dynamics (y/y) (%)	thous. t	dynamics (y/y) (%)			
1997/98	170	419.0	37.5	–	15 723	–	2 086	–	1997	94.9	95.8
1998/99	160	380.0	39.5	105.3	15 000	95.4	2 091	100.2	1998	96.6	91.4
1999/00	160	340.0	40	101.3	13 600	90.7	1 806	86.4	1999	99.8	91.5
2000/01	107	310.0	42.2	105.5	13 083	96.2	2 013	111.5	2000	101.9	103
2001/02	101	300.0	36	85.3	10 800	82.5	1 520	75.5	2001	111.2	97.5
2002/03	96	300.0	46.9	130.3	14 057	130.2	2 018	132.8	2002	112.1	90.9
2003/04	86	290.0	40.7	86.8	11 800	83.9	1 930	95.6	2003	124.2	97.5
2004/05	76	280.0	45	110.6	12 600	106.8	2 003	103.8	2004	187	102.6
2005/06	71	270.0	45	100.0	12 150	96.4	2 068	103.2	2005	175.3	96
2006/07	63	236.0	48.4	107.6	11 471	94.4	1 723	83.3	2006	128.8	102
2007/08	59	220.0	58.4	120.7	12 848	112	1 942	112.7	2007	108.3	107.7
2008/09	41	176.4	48.4	82.9	8 542	66.5	1 298	66.8	2008	103.7	91
2009/10	40	191.2	56.7	117.1	10 852	127	1 606	123.7	2009	115.7	96
2010/11	38	195.6	50.9	89.8	9 960	91.8	1 433	89.2	2010	113.1	110.1
2011/12	36	196.3	59.1	116.1	11 606	116.5	1 881	131.2	2011	144	108.3
2012/13	36	192.9	63.6	107.6	12 276	105.8	1 895	100.7	2012	137.2	98.3
2013/14	36	184.8	60.8	95.6	11 233	91.5	1 778	93.9	2013	148.7	99.1
2014/15	35	192.0	70.23	115.5	13 485	120.0	2 046	115.1	2014	125.9	94.8
2015/16	35	171.4	54.6	77.7	9 358	69.4	1 465	71.6	2015	119.5	97.3
2016/17	34	203.1	66.53	121.8	13 512	144.4	2 084	142.3	2016	116.6	99
2017/18	34	230.8	68.1	102.4	15 722	116.4	2 313	111.0	2017	95.6	110
2018/19	33	239.4	59.7	87.7	14 302	91.0	2 191	94.7	2018	105.3	94.4

Price gap – index of price relation ratio of sold agricultural products to purchased goods and services by farms.

Data on purchase prices of sugar beets and price gap are presented in calendar years (not in seasons).

Source: Own elaboration based on: Szajner [2005, 2012, 2019], GUS [2014, 2017, 2018, 2019], Krajowy Związek Plantatorów Buraka Cukrowego [2019b].

In further seasons it remained stable at a level of approx. 190 thousand ha, and after 2016 it started to grow significantly (annual average increase of approx. 12%), which gave the area under cultivation nearly 240 thousand ha in 2018/2019. These two processes were accompanied by an increase in sugar beet yields, which is positive. In the whole period being analysed, the increase in sugar beet yields was on average about 2.24% annually. Although the coefficient of variation itself oscillated around 20%, the increase in yields was characterised by exceptionally high instability and significant year-to-year fluctuations (mainly due to changing weather conditions). Such tendencies are difficult to recognise, however, in the case of sugar beet production.

In the seasons for 1997/1998 to 2008/2009, beet production decreased annually on average by more than 5%, which was mainly due to a decrease in the cultivated area. These decreases were not compensated by the growth of yields (which was slower). In subsequent years, as in the case of harvests, there were significant fluctuations in the production of sugar beet; however, with a higher rate of average variability, year-over-year changes reached even above 40%.

In 2018/2019, 14.3 million t of sugar beet were produced in Poland, which is 1.4 million t (9%) less than in the previous year, but by 800 thousand t more than in the 2016/2017 season. With a relatively stable cultivation area, changes in yields cause changes in the volume of sugar beet production. In recent years, there was a significantly higher convergence of these changes (a kind of synchronisation of variability) and growing yields contributed to an increase in sugar beet production. On the other hand, unstable weather conditions increased fluctuations [Krajowy Związek Plantatorów Buraka Cukrowego 2019a]. In turn, these fluctuations determine the production of sugar, which is strongly correlated with beet production. As a result, one can observe an increasingly clear synchronization of production cycles.

Sugar beet purchase prices also have strong fluctuations. As Pop et al. [2013] claim, historically, the sugar market has been one of the most volatile agricultural markets, challenging both market participants and policymakers to deal with this instability. In the analysed period, prices increased eight times and decreased tenfold on a year by year basis. The lowest price was observed in 2017 (at the level of PLN 95.6 per 1 t), and the highest price in 2004 (PLN 187 per 1 t). Purchase prices of sugar beet in 2018 were similar to those in 2000, 2007, 2008, and much lower than in 2011–2014. While decreasingly low sugar prices contribute to a decrease in profitability of the entire sugar industry, decreasing prices of sugar beet influence the profitability of production for farmers, which is confirmed by the "price gap" (Table 1). Values lower than 100 indicate an unfavourable situation from the point of view of production profitability in agriculture.

COMMON AGRICULTURAL POLICY INSTRUMENTS FOR THE SUGAR MARKET – IMPACT ASSESSMENT

More than 50 years ago, the sugar market in the EU became regulated, and for nearly 40 years it operated in an unchanged form. However, over time it became apparent that there were structural problems in this sector related to the creation of market surpluses, high intervention costs and low international competitiveness, all stemming from high sugar prices. On the other hand, export subsidies contributed to the reduction of prices globally, which had a negative impact on the development of agriculture in less developed countries. As a result, in 2005 under pressure from the World Trade Organization, the EU undertook to change the regulation of the sector [World Trade Organization 2005]. In 2006, the first major reform of the sugar market in the European Union was carried out to prepare the EU sugar market for complete liberalisation of the international trade exchange and to improve the competitiveness of the EU sugar market [Council Regulation (EC) 318/2006]. As a result, a number of instruments were introduced, which were to be maintained until the end of September 2015. These were [European Commission 2014]: production quotas (limits of sugar production per country); administrative prices (purchase minimum price, reference price for white sugar, reference price for raw sugar), gradually reduced during the reform period; separate "sugar payment" (in Poland and eight other countries) or support for beet production included in direct payments; export of surplus production in accordance with WTO limits and trade instruments. A special restructuring fund was also set up for enterprises reducing production to compensate for the resulting losses. Restructuring aid measures were financed by those sugar producers who ultimately benefited from the restructuring process.

The measurable effect of the 2006 reform was an almost complete reduction of export subsidies and storage aid. Moreover, conclusions of a study by Aragrande et al. [2017] indicate that vertical price transmission asymmetries still existed, which in turn contributed to increased sugar sector concentration in the most competitive regions. As a result, Bulgaria, Ireland, Latvia, Portugal, and Slovenia ceased sugar production in the first years, while Greece, Spain, Italy and Slovakia significantly reduced their production. The negative consequences of the reform were also felt by Poland, where by the end of the 2009/2010 marketing year, 38 out of 56 sugar factories were closed [Cieślukowski and Mutascu 2018]. In the entire EU, the number of sugar beet growers has significantly decreased.

The changes similarly affected acreage and sugar production (in the first two years of the reform). With an increase in the average size of sugar beet farms, by

2016 the EU became a net sugar importer [Ministerstwo Rolnictwa i Rozwoju Regionalnego 2011]. Prices of sugar beet initially fell. From the mid-2010s, they began to rise, and then in 2013 they began to decline again [European Commission 2019a]. In addition, the adopted reference price in 2009–2018 was below the market price, so there were no reasons to launch an intervention – private storage. On the other hand, 11 years after the reform (in 2017), sugar prices on the EU market approached the level of world prices and prices of sugar imported to the EU. As a consequence, the European Union has become a net exporter. In the 2018/2019 season, foreign sales amounted to 3.25 million t, with 2.43 million t of import (in white sugar equivalent). Thus, it was possible to abolish existing intervention mechanisms.

The solutions implemented as part of the 2006 sugar market reform were not intended to be permanent, and in the next couple of years the market was expected to move away from quotas, minimum prices and production payments. Particularly in the case of the first of these instruments, changes were justified. The European sugar production quota system was extremely concentrated and dominated by several major players. In this regard, a great concentration of quota sugar production capacities was evident, which considerably eliminated competition in this sector [Rezbova and Maitah 2015]. Ultimately, the decision to withdraw the quotas was taken by the European Parliament and EU countries as part of the CAP reform carried out in 2013, and on 1 November 2017, the decision came into effect. At the same time, some liberalising changes in foreign trade regulations were adopted. However, some instruments are left under the CAP 'safety net' in case of a major crisis in the sector related to a sharp rise or fall in market prices (including import duties, the possibility of private storage, and the mobilization of emergency measures) [Wnorowski 2018].

Sugar beet producers can still get support under direct payments (this form applies to all agricultural producers) and additional support under voluntary complementary payments for specific sectors (which was also possible before the 2017 reform). Eleven Member States, including Poland, chose this form of assistance. The annual allocation for this purpose at the EU level for 2019 was EUR 182.5 million, which represented 4.3% of the total allocation under voluntary complementary payments (EUR 173.4 million is planned for 2020) and 0.4% of the total envelope for direct payments. The area covered by this support reaches almost 510 thous. ha, and the EU-28 average payment per farm is EUR 359 per 1 ha (it is expected to be 341 in 2020). The highest share in the area covered by support is found in Poland – 211.3 thous. ha, which gives 42%. The envelope of money is also the highest – EUR 82 million, which constitutes an average payment of EUR 388 per 1 ha (for 2020 respectively EUR 74.4 million and EUR 352 per 1 ha, assuming an unchanged area of ha) [European Commission 2019b].

As forecasted earlier, the release of sugar quotas in October 2017 contributed to a significant drop in prices on the EU market. In mid-2019, the average price in the EU was around EUR 320 per 1 t, compared to almost EUR 500 in mid-2017. It was the lowest level since the onset of the European Commission's price reporting system, i.e. since July 2006. In just two years, there was a decline of almost 35%. The price reduction applied to all member countries, although there is still considerable regional differentiation. The lowest prices (around EUR 10 per 1 t lower than the EU average) are recorded in North-Western Europe. In Central and Northern Europe, including Poland, the prices are similar to the EU average. The highest prices (above EUR 60 per 1 t higher than average) occur in regions of southern Europe [Committee for the Common Organisation of Agricultural Markets 2019].

This price differentiation can be important when considering further development of the sugar sector. A further concentration of production is expected in the most price-competitive regions, i.e. in Western Europe and some Central European countries (e.g. in Poland due to relatively lower processing costs, including the costs of labour) [European Commission 2019a]. Maitah et al. [2016] point out that the future state of sugar companies in the EU, including Poland, will largely be determined by the activities of big-scale German, French, Dutch or Belgium concerns/alliances that control supply in many European countries. According to the analyses of the EC, Poland is listed as a country with competitive sugar beet production conditions. The lack of restrictions on production can lead to a better use of Poland's

production potential, which ranks third in the EU in terms of sugar production (after France and Germany). The competitiveness of the Polish sugar sector is indicated by, for example, a clearly positive balance of foreign trade (more than EUR 150 thous. in the first eight months of 2019) [Szarejko-Pater and Pachnicki 2019].

On the other hand, in the second year after the reform, i.e. in the 2018/2019 marketing year, sugar production in Poland amounted to a significantly lower level than in the previous period, despite the increase in acreage (to 240 thous. ha in 2019 against 203 thous. ha in 2016/2017 and 171 thous. ha in 2015/2016) [Krajowy Związek Plantatorów Buraka Cukrowego 2019b]. In the period from September 2018 to June 2019, the country produced a total of 2.1 million t of sugar, 8% less than in the same period of 2017/2018 [Krajowy Ośrodek Wsparcia Rolnictwa 2019]. A decrease in prices recorded after the abolition of the quota also negatively affected the results of sugar companies, which recorded profits several times lower than a year earlier.

PROJECTION OF THE DEVELOPMENT OF THE SUGAR BEET AND SUGAR MARKET IN POLAND IN 2030

According to the CAPRI model, it is expected that in 2030 the cultivated area will increase (250.7 thous. ha) as compared to 2019 (239.4 thous. ha), which confirms the growing trend over the last 10 years. The regions where the largest cultivated areas will be located, as at present, will be voivodeships: the Wielkopolskie, the Kujawsko-Pomorskie and the Lubelskie. It is also expected that the yields will be fairly stable at the level of 61.3 $t \cdot ha^{-1}$. In this case relatively large differences between regions can be observed – the highest yields will be harvested by producers from the Dolnośląskie Voivodeship (69.6 $t \cdot ha^{-1}$), the Kujawsko-Pomorskie Voivodeship (68.4 $t \cdot ha^{-1}$) and the Opolskie Voivodeship (67.5 $t \cdot ha^{-1}$), while the lowest from the Mazowieckie Voivodeship (50.3 $t \cdot ha^{-1}$), the Podkarpackie Voivodeship (52.7 $t \cdot ha^{-1}$), the Śląskie Voivodeship (54 $t \cdot ha^{-1}$) and the Małopolskie Voivodeship (54.6 $t \cdot ha^{-1}$). According to this forecast, a stagnation of the sugar beet production trend, which has been growing for over a dozen years, will occur. However, in 2030 Poland will maintain its leading position as a producer of these crops in the EU and on the international arena, with an estimated supply in the country at the level of 15,366 million. The volume of production that will be supplied by producers from particular voivodships will be primarily correlated with the area of crops (Table 2).

As mentioned above, the reference scenario assumes that the mechanisms of intervention will remain unchanged after the year 2020, especially in the area of income support for sugar beet producers. Thus, it is estimated that the total payment in 2030 will amount to EUR 494.4 per 1 ha, while the payment related to sugar beet production will amount to EUR 293.54 per 1 ha, i.e. approx. PLN 1,260 PLN (Table 3). The probability of such a scenario occurring seems to be high, as from 2015 this rate has been steadily decreasing. In 2019, the amount of the payment related to sugar beet production came to PLN 1,524.18 per 1 ha (in accordance with the Regulation of the Ministry of Agriculture and Rural Development on the rates of payments related to the area of crops for a given year). It should be noted that in 2015 this rate was still at the level of PLN 2,138.45, but in 2018 it fell to PLN 1,495.63. At this point, a question arises whether it would not be advisable to consider compensation for the reduction of this support with a higher transfer of national funds. It is anticipated that in 2030 national support will constitute only 4.7% of the total pool of subsidies (EUR 6.05 million from the total amount of EUR 126.55 million).

The projection showed sugar beet prices estimated at EUR 241 per 1 t in 2030. The projected sugar production in Poland in 2030 is 2,626 million t, which is slightly higher than the forecasts for the 2019/2020 season (from 2.27 million to 2.38 million t). It should be noted, however, that the production in Poland is higher than the demand on the internal market, amounting to 1.72 million t, making it necessary to export some of the yields. Moreover, there is a permanent global surplus of production, which in some periods slightly decreases as a result of growing demand and/or lower world production.

Table 2. Expected basic volumes related to sugar beet production in Poland in 2030

Specification	Crop area (thous. ha)	Productivity/ /yield ($t \cdot ha^{-1}$)	Supply (thous. ha)	Crops share in arable land (%)	Costs of fertilizers ($EUR \cdot ha^{-1}$)	Voluntary coupled payments (million EUR)
Poland	250.66	61.3	15 365.71	2.05	903.71	82.04
Łódzkie	6.61	55.6	367.25	0.74	787.46	2.17
Mazowieckie	18.38	50.3	924.97	1.15	824.79	6.04
Małopolskie	2.47	54.6	134.8	0.52	770.64	0.81
Śląskie	2.65	54	143.34	0.78	707.44	0.87
Lubelskie	44.21	60	2 654.61	3.58	936.55	14.54
Podkarpackie	7.55	52.7	397.87	1.5	753.13	2.49
Świętokrzyskie	7.5	59.3	444.82	1.62	816.15	2.46
Podlaskie	0.43	56.9	24.38	0.06	903.51	0.15
Wielkopolskie	51.18	59.8	3 060.12	3.6	935.18	16.82
Zachodniopomorskie	19.7	61.4	1 210.4	2.58	846.94	6.47
Lubuskie	2.59	59.6	154.16	0.77	827.99	0.85
Dolnośląskie	17.45	69.6	1 215.4	2.17	929.84	5.73
Opolskie	12.74	67.5	859.69	2.8	828.08	4.19
Kujawsko-Pomorskie	40.8	68.4	2 792.09	4.43	1 015.42	13.42
Warmińsko-Mazurskie	3.96	64.4	254.99	0.54	952.03	1.30
Pomorskie	12.44	58.4	726.83	2.01	812.85	4.09

Source: Authors' own calculations based on the reference CAPRI scenario.

Table 3. Expected income support for sugar beet producers in Poland in 2030 ($EUR \cdot ha^{-1}$)

Specification	Total sum	Total payments, Pillar I	Single Area Payment	Voluntary coupled payments	Greening	Total payments, Pillar II	LFA payments	National payments
Sugar beet	494.17	460.52	89.8	293.54	58.94	20.58	20.58	13.07

Source: Author's own calculations based on the reference CAPRI scenario.

The profitability of the production of sugar beet is strongly dependent on voluntary payments related to its production: estimates indicate that these payments constitute up to 80% of the income obtained per hectare of crops. In order to test the possible consequences of abandoning this payment after 2020, a scenario was drawn up under the CAP, assuming: liquidation of voluntary payments linked to production, convergence of the single area payment, maintenance of payments linked to greening. On this basis, we can conclude that sugar beet production in Poland after the abolition of voluntary support is no longer profitable. It is estimated that producers will generate a loss. It will also result in a decrease of nearly 1/3 of the area under sugar beet cultivation (to 175.7 thous. ha). With a relatively stable yield level, the supply will fall by 1/3, to the level of 10,819 million t. The abolition of subsidies may also lead to a change in the structure of crops – a decrease in the share of sugar beet to 1.44% in total arable land. It should be emphasised that in the structure of crops in Poland, cereals already clearly dominate, occupying about 70% of the cultivated area. Interestingly, the estimated prices would not change in relation to the reference scenario, while the sum of payments received in total per 1 ha of crops would be only EUR 230.19,

which would not allow producers to compensate for the incurred loss.

SUMMARY

The data presented in the study clearly shows that the EU and national sugar and sugar beet market is subject to constant changes. These changes are the result of supply and demand adjustment processes and international relations. The role of the intervention policy is also essential. The reforms of the CAP carried out in the last dozen or so years have led to structural changes in the sector and a separation between the EU regions with a high concentration of production and those in which production is disappearing. Poland belongs to the first group of countries, with a high development potential. In the future, however, the scale of this development will depend on the continued support under the mechanisms of the CAP, depending mainly on payments related to production. In such a scenario, one may expect an increase in the area of crops, stabilisation of yields and supply at a relatively high level, which will allow Poland to maintain the position of one of the leaders on the international market. In the scenario without payments, profitability will decrease significantly, leading to a decrease in sowing area and production volume.

Finally, an important matter that should be addressed during the discussion on the future of sugar beet cultivation are the economic and environmental issues. The 2030 scenario shows that the production of bioethanol from sugar is to constitute 22.3% of the total, i.e. 76.5 thousand t, which is undoubtedly an important item. It can even be said that the development of the bioethanol industry, which generates an additional source of demand for sugar, is a factor favouring the development of the sugar market. What is more, higher demand for bioethanol in transport may contribute to the improvement of financial results for sugar producers. On the other hand, the use of bioethanol from sugar beet instead of gasoline can also achieve real savings in carbon dioxide emissions to the atmosphere. As the Directive 2009/28/EC 2009 indicates, typical and standard greenhouse gas emission reductions are respectively: 61% and 52%, so their use in the biofuel industry may be as beneficial as that of grains (wheat, corn). Moreover, the cultivation of sugar beet in crop rotations is beneficial, as it leaves crops in good agricultural condition and weeds out due to numerous maintenance treatments [Gniewowska and Maziarek 2015]. The production of this rootstock plant favours greater crop diversification and prevents the further domination of cereals in their structure and the formation of crop monocultures. Therefore, the continuation of financial support for sugar beet producers after 2020 will facilitate the accomplishment of two important objectives: firstly, the maintenance of profitability of production and, as a result, the preservation of agricultural income; secondly, the broadly understood protection of the climate and the environment, which in turn justifies support for producers.

REFERENCES

Aragrande, M., Bruni, M., Loi, A., Esposti, R. (2017). The effect of EU 2006 sugar regime reform on vertical price transmission. Agricultural and Food Economics, 5 (18), https://doi.org/10.1186/s40100-017-0087-8

Cieślukowski, M., Mutascu, M. (2018). Fiscal consequences of the abolition of sugar levies. Economics and Business Review, 4 (18), 4, 83–96.

Committee for the Common Organisation of Agricultural Markets (2019). Sugar Price Reporting. Brussels.

Council Regulation (EC) No 318/2006 of 20 February 2006 on the common organisation of the markets in the sugar sector. OJ L 58/1 of 28.02.2006.

Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance). OJ L 140/16 of 05.06.2009.

European Commission (2014). Sugar Price Report, Agri C4. Committee for the Common Organisation of Agricultural Market, Brussels.

European Commission (2019a). Sugar. Brussels. Retrieved from https://ec.europa.eu/info/food-farming-fisheries/plants-and-plant-products/plant-products/sugar_en [accessed: 17.11.2019].

European Commission (2019b). Voluntary coupled support. Review by the Member States of their support decisions applicable as from claim year 2019. Ref. Ares(2019)5742211. Brussels.

Gniewowska, E., Maziarek, A. (2015). Prawidłowa agrotechnika buraków cukrowych. Opolski Ośrodek Doradztwa Rolniczego w Łosiowie, Łosiów.

GUS (2014). Polska 1989–2014. Warszawa.
GUS (2017). Rolnictwo 2016. Warszawa.
GUS (2018). Rolnictwo 2017. Warszawa.
GUS (2019). Rolnictwo 2018. Warszawa.
Hess, T.M., Sumberg, J., Biggs, T., Georgescu, M., Haro-Monteagudo, D., Jewitt, G., Ozdogan, M., Marshall, M., Thenkabail, P., Daccache, A., Marin, F., Knox, J.W. (2016). A sweet deal? Sugarcane, water and agricultural transformation in Sub-Saharan Africa. Global Environmental Change, 39, 181–194.
International Sugar Organization (2019). The Sugar Market. London. Retrieved from https://www.isosugar.org/sugarsector/sugar [accessed: 17.11.2019].
Jamora, J.B., Gudia, S.E.L., Go, A.W., Giduquio, M.B., Orilla, J.W.A., Loretero, M.E. (2019). Potential reduction of greenhouse gas emission through the use of sugarcane ash in cement-based industries: A case in the Philippines. Journal of Cleaner Production, 239.
Krajowy Ośrodek Wsparcia Rolnictwa (2019). Informacja o sytuacji na rynku cukru. Biuro Analiz i Strategii KOWR, Warszawa.
Krajowy Związek Plantatorów Buraka Cukrowego (2019a). Wyniki kampanii 2018/19. Retrieved from https://kzpbc.com.pl/informacje,2,pl,news,2,1,112.html [accessed: 17.11.2019].
Krajowy Związek Plantatorów Buraka Cukrowego (2019b). Wyniki produkcyjne w Polsce. Retrieved from https://kzpbc.com.pl/wyniki-produkcyjne-w-polsce,50,pl.html [accessed: 04.11.2019].
Maitah, M., Rezbova, H., Smutka, L., Tomsik, K. (2017). European Sugar Production and its Control in the World Market. Sugar Tech, 18 (3), 236–241, https://doi.org/10.1007/s12355-016-0439-9
Ministerstwo Rolnictwa i Rozwoju Regionalnego (2011). Etapy reformy rynku cukru. Warszawa.
Pop, L.N., Rovinaru, M., Rovinaru, F. (2013). The challenges of sugar market: an assessment from the price volatility perspective and its implications for Romania. Procedia Economics and Finance, 5, 605–614.
Rezbova, H., Maitah, M. (2015). EU Quota Sugar Market Concentration – the Main Drivers of EU Sugar Market. Agris on-line Papers in Economics and Informatics, 7 (4), 131–142, https://doi.org/10.7160/aol.2015.070413
Rozporządzenie Ministra Rolnictwa i Rozwoju Wsi z dnia 7 października 2019 r. w sprawie stawek płatności związanych do powierzchni upraw za 2019 r. Dz.U. 2019, poz. 1970.
Ruggeri, G., Corsi, S. (2019). An analysis of the Fairtrade cane sugar small producer organizations network. Journal of Cleaner Production, 240, https://doi.org/10.1016/j.jclepro.2019.118191
Szajner, P. (Ed.) (2005). Rynek cukru – stan i perspektywy. Analizy Rynkowe, 28
Szajner, P. (Ed.) (2012). Rynek cukru – stan i perspektywy. Analizy Rynkowe, 39.
Szajner, P. (Ed.) (2019). Rynek cukru – stan i perspektywy. Analizy Rynkowe, 46.
Szarejko-Pater, A., Pachnicki, A. (2019). Rynek cukru, 9. Ministerstwo Rolnictwa i Rozwoju Regionalnego, Warszawa.
Wnorowski, H. (2018). Biznes cukrowniczy w Unii Europejskiej po zniesieniu kwot produkcyjnych – przypadek Polski. International Economics, 23, 103–116, http://dx.doi.org/10.18778/2082-4440.23.03
World Trade Organization (2005). European Communities – Export Subsidies on Sugar. AB-2005-2. Report of the Appellate Body.

RYNEK CUKRU W POLSCE W KONTEKŚCIE WSPARCIA POLITYKI ROLNEJ. STAN AKTUALNY, TRENDY, PROJEKCJE

STRESZCZENIE

Celem artykułu jest zaprezentowanie sytuacji na rynku buraka cukrowego i rynku cukru w Polsce w warunkach zmian wspólnej polityki rolnej Unii Europejskiej i określenie przewidywanego rozwoju do 2030 roku. Autorzy dowodzą, że ze względu na wagę sektora w całym rolnictwie polityka interwencyjna w tym obszarze jest kluczowa, na co wskazują pozytywne ekonomiczne i środowiskowe efekty związane z funkcjonowaniem rynku. Konieczność wsparcia wynika także z obserwowanej zmienności produkcji, cen i dochodów. Zakres przestrzenny badań obejmuje Polskę wraz z odniesieniem do analizy regionalnej i porównaniem do innych krajów UE. Zakres czasowy to okres ponad 20 lat – od 1997/1998 do 2018/2019, a dla projekcji 2030 rok.

Słowa kluczowe: rynek buraka cukrowego, rynek cukru, polityka rolna, tendencje, projekcje