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The Influence of the Russian Embargo on the Economic Situation of Apple Producers in the Eastern Part of the Masovia Province

Abstract. The article concerns the effects of the Russian embargo on apple producers in Poland. Scientific literature is quite poor in this field, mainly information articles in industry literature and media information are available. The literature was reviewed in this respect and two studies (questionnaire and interview) were carried out. The information obtained allowed us to draw conclusions about the very large negative impact of the embargo on the apple market and to learn about its characteristics. New markets do not generate sufficient demand, in 2018 apple prices dropped below production costs, but this does not reflect in a drop in prices in stores, which means that price speculations take place, and the situation is used by realtors. It is necessary to quickly return to the Russian market, because soon it will be unrecoverable for Polish fruit farmers. It is also necessary to put pressure on the European Union's policy, because nowadays it is the Polish farmers who bear its effects to the greatest extent.

Key words: embargo, Russia, apple market

JEL Classification: F140, F510, O130, Q170

Introduction

The issue of the Russian embargo influence on the functioning of Polish apple producers has not been followed by many scientific publications, mainly opinions of experts are available on websites and in publications related to the fruit and vegetable industry. However, they are not compatible. Some experts claim that the embargo has still a very large negative impact on apple producers (Kodłubański 2017), the others believe that it does not longer matter, because apples reach new markets and the Russian market is no longer necessary for the industry (Kowalski 2015, Janczewski 2018, Dywan 2018). It seems that the nearest truth is statement saying that embargo causes losses on both sides (Nacewska-Twardowska 2015). Such a discrepancy in experts opinions results from the lack of comprehensive studies and hard data regarding the situation of apple producers after the introduction of the embargo. The aim of this article is to examine the real impact of the embargo on apple producers from the eastern part of the Masovia Province. For this purpose, a free interview with the president of the Union of Fruit-growers of the Republic of Poland BO Kisielany was conducted as well as a questionnaire survey was carried out, which covered 100 apple producers from the siedlecki and łosicki districts. The applied research methods complement each other, and the article provides knowledge in the theoretical and cognitive dimension.

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Literature review

By the decision of the Russian Federal Veterinary and Phytosanitary Surveillance Service, on 01.08.2014, an embargo on fruit and vegetables from Poland entered into force. (Polish Fruit-growers Association 2015). Officially, "notorious violations of phytosanitary norms" were given as reasons, but the political nature of the sanctions became evident on 08.08.2014, when the President of the Russian Federation, Vladimir Putin, issued a decree prohibiting the import of agricultural products and groceries from countries that imposed sanctions on Russia. in connection with armed aggression to Ukraine.

Just before the embargo came into force, Minister Marek Sawicki sent a letter to the European Commissioner for Agriculture and Rural Development, Dacian Cioloș, in which he pointed out that Polish farmers would suffer enormous losses as a result of EU sanctions against Russia and said that this problem should be resolved in the spirit of European solidarity. He also estimated that the imposed embargo could result in losses of EUR 500 million in 2014 (Woźniak 2014). In response, the subsidies for apple producers covered fruits produced in years 2014-2017. In 2018 Commissioner for Agriculture Phil Hogan informed that the aim of the assistance funds was to strengthen the sector during the crisis, rather than permanent actions, stressing that there is a structural overproduction of apples in Poland and the aid has been suspended (Szałaj 2018).

When the embargo was introduced, it was estimated that the Russian market absorbed 60-70% of the exports of apples from Poland, which accounted for 30% of the total Polish production. In absolute terms, the level of total exports amounted to around 1.1 million tons of apples, which meant that in 2014, an additional 600-700 thousand tons of apples appeared on the domestic market (Rosińska-Bukowska 2015). This is especially important in the context of the opinion that the costs for the state against which the sanctions were introduced are the higher the two countries are more inter-linked and economically interdependent (Kholodilin et al. 2014). The strong orientation of apple exports to Russia meant just such a situation, although in the literature on the subject there are also opinions that sanctions do not have to be severe, as you can make adjustments in foreign trade directions and maintain or even increase level of sales (Drezner 2000). The severity of sanctions is also weakened by their length (van Bergeijk 1989) and a higher frequency of use (Clifton, Schebach 1997). However, there is no doubt that the dependence of exports, and thus the functioning of the entire apple producers industry from one recipient, carries many dangers (Ambroziak 2017), therefore the diversification of markets is necessary.

It is worth noting that this was not the first embargo on Polish fruits, because Russia also introduced such sanctions in years 2005-2008. However, it was so short-lived that the mechanisms of "smuggling" Polish apples into Russia could not be consolidated. In the case of the 2014 embargo, the main "transfer channel" of Polish apples to the Russian market came via Belarus, which acted as a "silent agent". It is visible in the statistics, since 2011 export of agri-food products (including apples) from Poland to Belarus has been systematically falling, yet since 2014 there has been an increase in apple exports from 144.9 thousand tonnes in 2013 to 208.6 thousand tonnes in 2014 (Association of Entrepreneurs and Employers 2015). In 2017 in Brześć, Belarus, 20 companies that re-exported Polish apples to Russia were disclosed. The fruits went legally to Belarus, but they were to be sold for cash at local bazaars, while in fact they went to Russia as a Belarusian product (Onet 2017). A similar procedure, though on a smaller scale, was carried out by Serbia, Moldova and Kazakhstan. Some chains of illegal deliveries of Polish apples to the

Russian market required international connections. For example, at the turn of 2015 and 2016, a procedure involving the cooperation of entrepreneurs from at least four countries was detected. Polish apples went to Lithuania, where they received false phytosanitary certificates issued by Moldovan services and with such falsified documentation they were sent to two companies in Belarus, which in turn sent shipments to Russia. The investigation against Moldovan officials showed that at the turn of 2015/2016, they issued to the Lithuanian broker about 1000 certificates worth 1 million euro for apples that have never been exported from this country (Kresy24.pl 2016). The presence of Moldova in this example is important because by 2014 Moldova was the second, after Poland, supplier of apples to the Russian market, which accounted for 90% of the total exports of this country, and currently this state is maintained (exports of 177 thousand tons, 173 thousand tons of which to Russia in 2018) (Grel 2018).

It is worth emphasizing that there are no contraindications to the use of a mechanism whereby a given country exports its apples to Russia and then complement deficiencies with imports from Poland or other embargoed countries (Szłęzak-Wójcik 2015). Experts anticipated in 2018 abundant harvest of apples in Poland at the level of 5 million tons. However, there was no agreement as to the recommendations on the situation of apple producers. Optimistic forecasts drew attention to the fact that Polish apples are increasingly being sent to Asia, mainly to China. In turn, in this country, the year 2018 brought a significant decrease in production of apples due to frost (several million tons), which in fact meant shortages in the entire Asian market, which was mainly supplied by China (Wysoczańska 2018). However, the actual situation at the end of the year turned out to be the worst since the introduction of the embargo.

Results of questionnaire studies

The questionnaire study was conducted in December 2018 on a random sample of 100 people who run fruit farms in the siedlecki and łosicki poviats and who produce apples for sale. The selection of the sample was made according to the recommendations of prof. W. Modzelewski (1999). The questionnaire was constructed on the basis of guidelines of dr E. Krok (2015). Its fulfillment was supervised by an interviewer. The advantages of questionnaire studies are simplicity and speed of execution as well as the possibility of obtaining detailed data, however, optimal results bring the complementation with a qualitative study (Read, Marsh), what has been done (free interview).

The respondents were dominated by people aged 35-49 (53%), then aged 50-64 (17%), 20-34 years (16%) and aged 65 and more (14%). No people younger than 20 years were recorded. As far as the area of cultivated area on farms is concerned, most often it was the range > 5-10 ha (74%), then > 10-30 ha (18%), > 2-5 ha (4%), over 30 ha (3%) and up to 2 ha (1%). Therefore it can be concluded that farms with a crop area of over 30 ha and less than 5 ha are sporadic phenomena. The percentage of orchard area in the total farm area and the percentage of apple orchards in the total orchard area are indicators that were to answer the question whether apple producers diversify production. In the first case dominated the cover of orchards at 76-90% of the farm (79 cases), then 51-75% (10 cases), 91-100% (9 cases) and 26-50% (2 cases). There were no farms in which orchards constitute up to 25% of the area. As for the share of apple orchards in the total area of orchards, in 95 cases it was 91-100%, in three cases it was 76-90% and in two

cases 51-75%. There were no cases where the share of apple orchards was less than 51%. The obtained data indicate that there is quite a large specialization in the apple production industry, dominated by farms with very high share of orchards, and among apples growers the dominant product is apples. Areas not included in the cultivation of fruits among the smallest farms were intended mainly for growing vegetables for own needs, and the larger the area of the farm, the percentage decreased, while the percentage of wasteland grew. To a marginal extent, these were cereal crops, meadows and ponds.

Annual yield of apples in tonnes in 2018 usually fluctuated in the range > 100-500 t (82% of respondents), then > 500 t (15%), > 25-100 t (2%) and in one case > 10-25 t. In none of the examined farms apple yields were less than 10 tons. Only in 39 examined farms in 2018, the whole crop was harvested, 23 growers did not collect up to 15% of yield, 18 subjects 16-25% of yield, 8 people left 26-50% of yield, while 4 farms were in the following compartments: 51-75%, 76-99% and 100%. The rule was that the larger the farm, the greater the chance that some of the crops were not harvested, but among the four cases where no apples were harvested at all, the smallest farm was found, one with a yield range > 25-100 t and one from the range > 100t-500 t. It should be kept in mind that harvested crops are only given estimated, because apples left on trees were not weighed. Among the respondents, 69 people obtained in the general yield 81-90% of dessert apples, 19 people collected 91-100% of dessert apples, and 12 subjects received an indicator in the range of 66-80%. It should be recognized that this is a very good result, providing a very high quality of fruits in 2018. The more that no one received result of less than 66%, and 88% of respondents reported results above 80%. It was therefore necessary to trace the average prices obtained for dessert apples in 2018. One respondent pointed the range 21-30 gr/kg, 31 people received 31-40 gr/kg, 51 people sold dessert apples for 41-50 gr/kg, 7 people for 51-60 gr/kg, 3 people for 71-90 gr/kg and 3 people over 90 gr/kg. It shows that the average price of dessert apples is 45-50 gr/kg with production costs of about 80 gr/kg. Industrial apples are less important due to their share in the total production and a lower price, but their sale affects the economic result of the farm. The price of up to 10 gr/kg was obtained by 14% of respondents, half of the respondents sold industrial apples at 11-15 gr/kg, 16% of farms received the price of 16-20 gr/kg, the next 4% the price of 21-25 gr/kg, and 1% the price of 26-30 gr/kg. No one could count on a price above 30 gr/kg, and 15% of the respondents did not sell industrial apples in 2018 due to lack of profitability. The average price for dessert apples was around 15 gr/kg, which meant the level of prices below production costs.

Among the forms of apple management, 97% of the respondents indicated wholesale on the open market, 81% benefited from intervention purchase, 61% of respondents indicated not harvested crop in whole or in part, then 33% of the owners made a retail sales on the free market, 13% decided to sell apples in processed form, and two people allowed free fruit picking in their orchards for private individuals. None of the respondents destroyed fruits, did not use contract sales and did not give harvested apples for free. Interest does not add up to 100% because respondents could point to several forms of apple management. However, it occurred that the highest prices of dessert apples were obtained by respondents who used retail sales on the free market, omitting agents, while the highest prices of industrial apples were sold to those who sold them in processed form.

The next question in the survey concerned the quantity of cultivated apple varieties. Most respondents indicated 5-6 varieties (40 people), then 34 people named 7 or more varieties, 23 subjects used 3-4 varieties, and only 3 people 1-2 varieties. The obtained results should be evaluated positively, especially in the context of diversified consumer

expectations in the world. In turn, the disadvantage is that only 16% of the surveyed farms belonged to producer groups.

Households of all respondents obtained also income from sources other than apple sales. In 72 households at least 1 person worked in the country, in 19 abroad, in 52 farms there was at least 1 pensioner. In turn, in 21 farms, non-agricultural business activity was conducted, and in 38 cases at least one member of household received other social benefits. In 8 cases fruit processing and transport services were provided, and the activity in the gray zone concerned 14 farms. Such income diversification allows to survive the crises on the apples market.

The study also included a subjective assessment of the perception of the effects of the Russian embargo on the farms under investigation. All respondents indicated that they as well as the entire apples industry experienced negative consequences in each year of the embargo and they expect the same situation in 2019. Other opinions on the effects of the embargo on the examined farms in the years 2014-2018 and the forecast for 2019 are presented in Table 1.

Table 1. The effects of the Russian embargo on apple farms in 2014-2019

Embargo effects	Year					
	2014	2015	2016	2017	2018	2019 - forecast
Decrease in apples sales price	98%	71%	66%	41%	99%	22%
Difficulties with apple sales	98%	71%	70%	68%	98%	96%
Part of the crop was not harvested	95%	58%	52%	39%	70%	76%
The whole crop was not harvested	1%	1%	0	0	4%	9%
Speculative price movements	39%	43%	46%	46%	61%	61%
Increase in investment expenditures for new varieties	4%	11%	15%	17%	19%	7%
Higher consumer requirements	3%	14%	19%	27%	32%	34%
Liquidation of part of the apple orchard	2%	0	0	0	3%	5%
Lack of EU assistance funds	0	0	0	0	85%	83%
Destabilization of the market	63%	61%	56%	41%	92%	85%
Increase in production costs	0	9%	16%	18%	19%	26%
The need to bear high investment costs to stay on the market	6%	8%	12%	14%	15%	21%

Source: own study.

The presented data show that the most serious problems in the entire analyzed period were: decrease in apples sales prices and difficulties with apples sales. These data show stabilization and even gradual small improvement on the apple market after market slump in 2014, until 2018 when the market collapsed again. The responses in these categories were almost identical for the years 2014 and 2018. The respondents in the vast majority, predicted very serious difficulties with the sale of apples in 2019, however, only 22% of respondents indicated a further decrease in prices. The others said that prices in 2018 were so low that a further decrease is simply not possible. As for the tactics of not harvesting part of the crop, immediately after the introduction of the embargo it was used by 95% of respondents, in subsequent years this percentage systematically decreased to 39% in 2017, to increase in 2018 to the level of 70%. Forecasts for 2019 predict a further increase in this type of activities, because as many as 76% of respondents counted with such a possibility. As for leaving the whole crop on trees, the situation is even worse now than immediately after the introduction of the embargo (increase from 1% to 4%), while the worst is the

forecast for 2019, as up to 9% of respondents consider such a scenario. This is dictated by the lack of willingness to suffer losses if the price level from 2018 will be maintained. The problem, which significantly intensified in the analyzed period were speculative price movements (increase from 39% to 61%) and according to the respondents this phenomenon will persist in 2019. It was also found that in the years 2014-2018, in the examined farms occurred a systematic increase in expenditure on new apple species, however the forecast for 2019 is pessimistic, as 2018 did not bring profits, so there is no capital for this type of investments. A definitely upward trend in the analyzed period concerned growing consumer demands for apples, in 2014 it was felt by 3% of respondents, while in 2018 this percentage increased to 32%, and in 2019 an increase up to 34% is estimated. Drastic actions in the form of liquidation of a part of the apple orchard were applied by 2% of respondents immediately after the embargo was imposed, in the period of stabilization (2015-2017) no one decided to make such a move. However, in 2018 the problem returned and affected 3% of households and if the bad situation on apple market situation will be maintained, in 2019 5% of respondents consider the liquidation of some apple orchards. Another issue raised in the study was the end of EU subsidies for apple production. It was considered to be severe in 2018 by 85% of respondents, and 83% of them predict that the situation will not change in 2019. The respondents also acknowledged that the destabilization of the market after the introduction of the embargo was smaller than today (respectively 63% and 92% of respondents considered this as a problem). Despite the embargo in 2015-2017, the severity of the market destabilization was felt by a much smaller percentage of farms (61% in 2015, 56% in 2016, 41% in 2017). Among the respondents, 85 persons believe that this problem would also occur in 2019. The examined apple producers also recognized the increase in production costs as a problem. In 2014 it was not a severe problem for anyone, but in the following years it was felt by 9% of respondents in 2015 to 19% in 2018. According to the forecasts for 2019 the scale of the problem will further increase and affect 26% of households. The respondents also raised the issue of high investment costs necessary to stay on the market. As troublesome in 2014, this issue was recognized by 6% of respondents, in subsequent years this percentage increased up to 15% in 2018, while in the 2019 forecast 21% of respondents felt that this problem would affect their farms.

Among the negative effects currently experienced by the apple producers industry, in 98% of cases, prices and difficulties in selling goods were indicated, 93% of respondents indicated lack of profitability of production, 88% of respondents saw the problem of price speculation, and 86% increase in consumer requirements. Nevertheless, 68 people among the respondents also notice positive effects of the embargo. This group indicated a larger share in sales of processed apples (92%), new sales markets (79%), an increase in the quality of apples (63%) and a greater tendency to associate in producer groups. None of the respondents agreed with the statement that at present the embargo does not affect the economic situation of apple producers. At the same time, 65% of respondents used domestic support funds and 79% EU funds (until 2017). All respondents felt that EU aid should still be available to apple producers due to the embargo difficulties, otherwise they are affected by political decisions. These effects are measurable, in 2018 compared to 2013, the respondents recorded an average increase in the production volume of apples by 22% (fertile year 2018), while at the same time there was a relative decrease in revenues by 58% on average, with a simultaneous increase in costs on average 32%. Only two of the respondents thought that there are other ways to get profitability in apple production than embargo abolition. The others believe that abolition of the embargo is a necessary condition

for this to happen. The situation on the apple market in 2018 was very bad, as only 4% of the examined farms did not suffer from the problem of the lack of sales of apples at a price guaranteeing profitability. Among the remaining 96 people, the problem of the inability to obtain prices giving any income concerned on average 60% of production, and, to the largest extent, large farms. Accordingly, 98% of the respondents expect in 2019 the support mechanism in the form of intervention purchase of dessert apples at average 85 gr/kg, 72% of respondents would like subsidies to change the production profile, and 53% subsidies for restructuring orchards. 31% of respondents pointed to the change of policy towards Russia and the EU. Nobody, however, expected additional payments to destroy fruits.

When asked about the benefits that the embargo brings to apples consumers, 21 people pointed to decrease in prices, 9 people to increase the quality of apples, while 77 people thought that there were no benefits, because consumers do not experience a drop in prices due to the functioning costs of producer groups and higher agents margins. At the same time, all the respondents decided that there is no other group of producers more affected by the embargo than the apple producers. The study shows that 88% of respondents thought that apple producers who process them on their own feel the effects of the embargo to a lesser extent. The respondents asked whether the embargo was beneficial to anyone, gave negative answers in three cases, 89% of the others indicated domestic agents, and 83% agents abroad.

During the study, respondents were asked to provide intervention purchase prices for dessert and industrial apples, which would ensure no losses. In the first case, 77 people indicated the range of 76-90 gr/kg, 18 people for the amount of 51-75 gr/kg, according to 3 people would be 36-50 gr/kg, and for 2 people it would be 91 gr – 1.05 zł/kg. While in the case of industrial apples, these amounts for 48 people ranged between 31-40 gr/kg, for 44 people 21-30 gr/kg, 5 people indicated values in the range of 11-20 gr/kg, 2 people recommended the level of 41-50 gr/kg, and 1 person of 51-60 gr/kg. Considering that 80 gr/kg is the minimum cost of producing dessert apples, and in the case of industrial apples, 35 gr/kg, the indications at the level of production costs dominate, however in the case of industrial apples a large group of respondents indicated the level of intervention purchase prices below production costs. Methodological consideration should be made at this point. The actual cost of producing both apples is identical, however, it is assumed that with the 15% of share of industrial apples in the total production, the sales of dessert apples at 80 gr/kg, and industrial at 35 gr/kg gives a refund of production costs. In addition, some respondents did not include their own work as well as their household members work to the cost of producing apples.

Respondents were also asked to give their opinion on whether they think Polish apples, despite embargo, reach the Russian market. 96 people answered positively, 95% of which said this is done via Belarus, 73% indicated agents from Kazakhstan, 41% transfers through Moldova and 9% via Ukraine. The summary of the study, which results leave no doubt as to the negative impact of the embargo on apple producers, was the question whether the economic situation of apple producers was clearly better between the 2011 and 2014 embargoes. All respondents answered positively.

Results of the study – free interview

The purpose of the interview was to supplement the information obtained in the questionnaire study. The interview was conducted according to the methodology described in the literature on the subject (Kvale 2010, Flick 2006, 2011). The advantage of an

interview study is to acquire typically expert knowledge, where the size of the research sample is not relevant, but the respondent's knowledge and experience. Person of Robert Remiszewski - President of the Union of Fruit-growers of the Republic of Poland, branch in Kisielany gave a guarantee of the high value of the obtained results, because in addition to duties related to his function, he is also a fruit-grower and producer of apples, so he knows the problems of the industry from the theoretical, statistical and practical side.

The first issue which the respondent commented on concerned the apple market in 2014-2018. He said that in this period, two years - 2014 and 2018 were the worst for apple producers, while in years 2015-2017 the situation was relatively stable and allowed to make profits.

The second issue raised was the scale of exports of Polish apples in 2018. Experts estimated that due to the failure in China, the Asian market will absorb several million tons of apples, which, with good harvest in Poland, would mean high profits for Polish producers. Meanwhile it turned out that instead of a huge opportunity for expansion, it was the most difficult year for fruit-growers since the introduction of the embargo. In the respondent's opinion, the reason is that Asian markets are still unrecognized, there are research and international talks, but this does not lead to sales. It is difficult to enter new markets because you have to repress suppliers who already operate on them. The effect is that Poland has lost the Russian market with absorptivity of about 1 million tons of apples per year, and in return, new markets for 100,000 t of apples have been acquired, which means that each year on the domestic market there is a surplus of around 900,000 t. The respondent has also stressed that if the embargo will not be abolished in the near future (at the moment it has been extended until the end of 2019), it will not be possible to return to the Russian market, because both Russians and farmers from countries not covered by embargo are planting new orchards and a probable scenario is that this market will not be possible to gain for Polish producers.

The next topic concerned the estimation of apple production volume in 2018. Estimates say about 4.5 million tons of harvest, but in fact no one weighs it, and according to the expert, taking into account the number of employees and their work efficiency, a real harvest is 3.5 million tons. The more so that during the season there were cases where in spite of the employees' deficit, the workers' cooperatives established to support apple producers, that offered services of seasonal workers (including from Ukraine) have noted periods in which for many employees there was no employment, despite the attractive hourly rate for fruit-growers. It resulted from the producers' worries about the lack of profitability of the harvest. According to the respondent, the yields could indeed have reached the level of 4.5 million tons, but in this case it should be assumed that 1 million tons of apples were not collected.

Another issue concerned dessert and industrial apples. The respondent explained that both types of apples grow on the same trees. Industrial apples are a remainder after sorting dessert apples, where the criteria are among others: size, shape, color, appearance. In prosperous farms, about 85% of production is dessert apples, however, in 2018 due to the lack of sales opportunities for dessert apples, 50% of their production was sold as industrial apples.

During the interview, the subject of defense activities on the Polish apple market was also mentioned. The expert admitted that he knows about the "smuggling" of Polish apples on the Russian market, mainly through Belarus, but this applies to a small percentage of old exports to Russia and this channel only applies to large producers. A much better and legal solution would be to encourage countries not covered by the embargo, to export their entire

production to Russia, and to satisfy their domestic demand with apples from Poland. It would also be worth to consider the use of retorts against Russia, e.g. by setting the embargo on coal from this area and limiting the purchase of other fuels to the maximum. In addition, there is a problem with the transport of Polish apples to Kazakhstan, because it cannot take place through Russian territory, which results in lengthening of the road and a significant increase in transport costs. At domestic level, participation in producers groups should be promoted, which are able to negotiate better apple prices, but this carries a certain risk, because the formation of a producer group is associated with high costs (new buildings, facilities and other infrastructure), mainly covered by loans, which at low apple prices can even threaten with bankruptcy. It is worth returning to the European Commission's proposal, not to pay extra for production or losses, but to support restructuring activities, aimed mainly at the production of apple varieties, which are desirable on global markets. The demand for national policy is to build solutions that allow to use the lower quality fruits for energy production, e.g. from biogas or spirit.

Then, the respondent assessed that, assuming the yield of apple harvests of 40 t/ha, the minimum cultivation size, which allows maintenance is 5 ha. However, the problem in 2018 is such a low price, that no acreage allows to make a profit, because the sale price does not balance even the costs incurred. Apple farms are only saved by the fact that usually there is a person in each of them who works outside the farm and provides funds for survival in the years of crisis. Unfortunately, the mentality and lack of economic awareness of Polish apple producers is an additional problem. For example, the Association of Polish Fruit-growers monitors the apple market on an ongoing basis and, if there are indications that the price is artificially low, it recommends abstaining from selling. Nevertheless, some producers prefer to sell goods at a loss. In the respondent's opinion, fruit farmers are able to store on their own about 50% of apples produced, and they do not use this to obtain a better price. Often, fruit growers prefer to sell apples at a lower price than production costs and to cover losses using other resources (e.g. from working in England) than not to collect fruits at all. Such activities are bizarre from an economic point of view and spoil the (already difficult) market.

To sum up, the respondent assessed that the Russian embargo was the work of the local political elites. Suffer both Polish fruit growers and Russian consumers who have to pay more for fruit. At the turn of 2014/2015, the price of apples in Russia was several times higher than in Poland, later this relation decreased slightly, but the decrease of the Russian currency had a big influence on this (in the second half of 2014 the price was about 50%, currently in relation to the exchange rate is around 35%). He also stated that the cause of the embargo was a resultant of the policy of three entities: Poland, the EU and Russia. It is a paradox that Ukraine, which was the source of the conflict, even now conducts economic exchange with Russia, selling among others, fruits and vegetables, while Poland, which is a kind of Ukrainian ambassador, suffers from this, and more precisely the bills for political games are paid by ordinary citizens, in this case the fruit growers.

Summary

The research and analysis carried out have led to several conclusions. First of all, the loss of the Russian market was not compensated by new markets (only 10% of apples that went to Russia are successfully sold), so the claims that the embargo does not affect the situation of apple producers anymore is groundless. Secondly, it is necessary to take actions to regain the

Russian market in a short period of time, because soon it will not be possible for Polish suppliers. It is known that the embargo was extended until the end of 2019, so after at least 6 years of absence, it will be difficult to rebuild the position of Polish exporters. The existing segments of the Russian market, which Poles have acquired, are now being filled by other suppliers. Additionally Russian producers are increasing their orchards areas. Potential actions may take place in three dimensions: retortions against Russia (e.g. the ban on coal imports, difficulties in transport), changing the policy of the Polish government to a more neutral attitude towards Ukraine and pressure on the European Union to endeavor the abolition of the embargo, because it harmed the most Polish apple producers. Until the embargo abolition, the ad hoc measures are necessary, e.g. EU funds for the restructuring of orchards, or efficient marketing activities towards the acquisition of new markets. At the domestic level, the surplus of apples should be processed to the maximum extent, also for energy. The activity of producer groups helps only in the period when production is profitable, in 2018 they generated higher costs than revenues. The economic awareness of fruit growers must also be increased so that price speculation can be counteracted. The Polish apple production sector has many advantages, such as high specialization, multitude of varieties and good fruits quality, storage possibilities, and the size of farms is appropriate due to the possibility of maintenance, but the market is very uncertain. In 2018 despite favorable factors (good harvest in Poland, crop failure in China), prices that guarantee the profitability of production could not be achieved. Therefore, it would be necessary to consider own processing and increasing of retail sales, but at the same time effective acquisition of new sales markets, because dependence on one customer carries the risk of collapse and crisis of the whole industry, as Polish fruit farmers have learned.

To sum up, it is necessary to use all possible means to survive the embargo, including finding alternative channels to enter the Russian market. However, the most important conclusion is that apple producers expect actions to abolish the embargo, because this is the biggest chance to stabilize the market and they are more and more convinced that they bear the costs of EU policy, particularly severe after the withdrawal of aid funds. The apple producers' industry in the whole country is struggling with the same problems, and the study results obtained are in line with the experts' opinions representing the negative effects of the Russian embargo on Polish apple producers. In turn, the opinions that the embargo has no longer any economic significance and is only a problem for the Russians did not find any justification. In the author's opinion, it would be worth to conduct further research among fruit growers from central Poland, e.g. from the grójecki and rawski powiats, where the monoculture of apple cultivation occurs.

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