

FUNCTIONING OF SELECTED BEEKEEPING FARMS IN POLAND DURING COVID-19 PANDEMIC

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ABSTRACT

Aim: The purpose of this study was to examine the impact of the COVID-19 pandemic on selected beekeeping farms, as well as to compare the experience of chosen Polish beekeepers with the impact of the pandemic on beekeeping in other countries, as shown in the literature. **Methods:** The study was conducted using a literature review and questionnaire interview ($n = 36$) among beekeepers in the Mazowieckie and Warmińsko-Mazurskie provinces according to a 5-level Likert scale. Responses on industry topics were correlated with opinions on the positive and negative impact of the pandemic on beekeeping using the Pearson correlation. **Results:** Approximately 60% of respondents said that the pandemic had little or even no impact on their beekeeping activities. This may have been related to the peculiarities of Polish beekeeping, which is not dependent on seasonal labor. There were also moderate correlations between negative opinions on the impact of the pandemic and a lack of contact with other beekeepers and the seasonality of production and related sales as well as between opinions on the time-consuming nature of production and the positive impact of the pandemic on the beekeeping market. **Conclusions:** It was stated that beekeepers proved to be more resilient to supply chain breakdowns compared to beekeeper experiences in countries such as Canada and the UK. The nature of beekeepers' marketing channels may affect the speed with which they can sell their goods. The impact of the pandemic on Polish beekeepers has not been previously studied.

Keywords: apiculture, beekeeping, COVID-19, Poland

JEL codes: D22, O13

INTRODUCTION

The COVID-19 pandemic affected most, if not all, of the economy. While most industries suffered due to a halt in investment and consumption, some benefited from changing consumer behavior patterns. Industries can even be divided into “winners” and “losers” of the pandemic. The economic perturbations had a mixed impact on various agri-food industries [Zawojcka 2021]. For example, while in the food economy the pandemic negatively impacted the fully closed HoReCa industry [Grębowiec 2021], the food

industry itself experienced the smallest decline [Rokicki 2020]. Moreover, increased attention to health has had a positive impact on, for example, apple sales [Grębowiec 2021]. However, the production of these exemplary apples would not be possible without bees, which pollinate entomophilous plants such as apple trees [Majewski 2016]. To accurately assess the impact of a pandemic on the agri-food sector, it is necessary to study each of its components separately. Our study focuses on the impact of the pandemic and its consequences on the selected producers within the beekeeping industry in Poland.

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AIM AND METHODS

The main objective of the article was to determine the impact of the 2020–2021 COVID-19 pandemic on selected beekeepers in Poland. To achieve this goal, a literature review was conducted on both the Polish beekeeping industry and the consequences of the pandemic for the beekeeping industry in other countries. For the 2021 study, an online survey was conducted on the operation of the honey distribution chain in the Mazowieckie and Warmińsko-Mazowieckie provinces. Its purpose was to determine how beekeepers store, transport, and sell their products, including during the pandemic period. The survey was created in an online form, and 36 beekeepers participated. The sample was collected according to the purposive selection method, and the selection criterion was conducting the business activities of beekeeping during the pandemic. Beekeepers are a small group of agricultural producers, so the sample did not meet the requirements of representativeness, but it was considered that its randomized size was sufficient to draw appropriate conclusions, which are informative. However, they cannot be generalized to Poland as a whole.

It included both single-choice (with a 5-point Likert scale) and multiple-choice questions. Finally, one open-ended question was posed. All questionnaires were filled out correctly, making it possible to use them all in the study. Responses on the impact of the COVID-19 pandemic on the honey market and distribution (both expressing negative and positive impacts of the pandemic) were correlated using Pearson's correlation coefficient in two tables, dividing the impacts into positive (Table 1) and negative (Table 2).

CHARACTERISTICS OF THE BEEKEEPING SECTOR IN POLAND

Beekeeping is usually viewed in terms of supplying consumers with bee products (most commonly honey). However, the key role of beekeeping is not so much to meet the demand for honey and other products, but to pollinate entomophilous plants, as more than a 1/3 of crop production in agriculture requires pollination by bees [Koltowski 2007, Majewski 2017]. In addition to honey, beekeeping products include

wax, propolis, and pollen. They have specific applications in both cosmetics and the pharmaceutical and food industries.

The number of bee colonies changes many times during the year, which contributes to high fluctuations in honey production in Poland. This is dependent on weather and environmental conditions. The mortality of bees is affected by pesticides used in agriculture, heavy rain, and cold winters, while their survival is supported by the beekeeper's care: preparing the bees for wintering, feeding them, and protecting them from parasites. Good, sunny weather and moderate rain can also have a positive effect on the amount of honey harvested. As data from the Veterinary Inspection shows, there were 1.68 million bee colonies in Poland in 2019, increasing by 2.7% compared to the previous year. The Lublin province had the highest number of bee colonies (11.7% nationwide), while Podlaskie had the lowest number (2.7%). Poland has about 5.4 bee colonies per square kilometer. The highest number of bee colonies is found in the Lesser Poland province, which is twice as high as the national average (5.4%). The smallest was recorded in the Podlaskie Voivodeship.

In 2019 the largest honey production took place in the Lublin province – 2.25 t, and the smallest in the Podlaskie province – 0.3 t. An average of about 13kg of honey was spun in amateur apiaries, while about 22kg was spun in commercial apiaries. In amateur apiaries, the most honey was obtained by beekeepers from the Lower Silesian province, while in commercial apiaries, the most honey was harvested in the Lublin province [Semkiw 2019]. The highest honey prices were in retail sales. The exception was multi-flower honey, whose price was about PLN 1 lower than in direct sales. Direct and retail sales placed 87.7% of honey from apiaries on the market. The rest was destined for purchase. Honey production in Poland from 2016 to 2021 is presented in Figure 1.

In 2019, per bee colony, honey production costs amounted to about PLN 365 in commercial apiaries, while costs in amateur operations amounted to PLN 296. Variable costs had the strongest impact on the operation of a beekeeping farm. The highest of these was labor costs (this applied to every farm). In amateur apiaries, the profitability of production

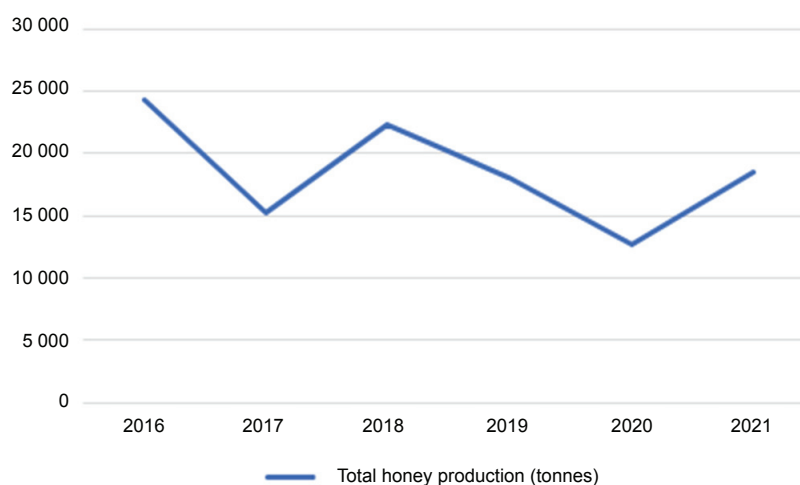


Fig. 1. Honey production in Poland (t) from 2016 to 2021

Source: own compilation, based on [Semkiw 2016, 2017, 2018, 2019, 2020, 2021].

was affected by the cost of winter feeding for bees, while in the case of commercial apiaries, the costs associated with transportation dominated. Production costs per unit, i.e., per kg of honey from small apiary farms, were about PLN 23, and in large apiaries, about PLN 16, due to economies of scale (Fig. 2).

There was a deficit of 16.8 million euros in foreign trade in honey in 2018. Exports amounted to about 36.4 million euros, and their weight value was about 14.7 thousand tons. The value of its imports at the same time was about 53.2 million euros, and its

volume was about 25.7 thousand tons. Between January and October 2019, about 13.7 thousand tons of honey were exported from Poland, while imports exceeded 24 thousand tons. The main markets for Polish beekeeping products are EU countries, primarily Germany and France.

Honey is mostly imported to Poland from Ukraine and China. The Polish market offers honey from both domestic and foreign producers. Due to the taste and nutritional qualities (depending on the origin and plants from which they are produced), there is also

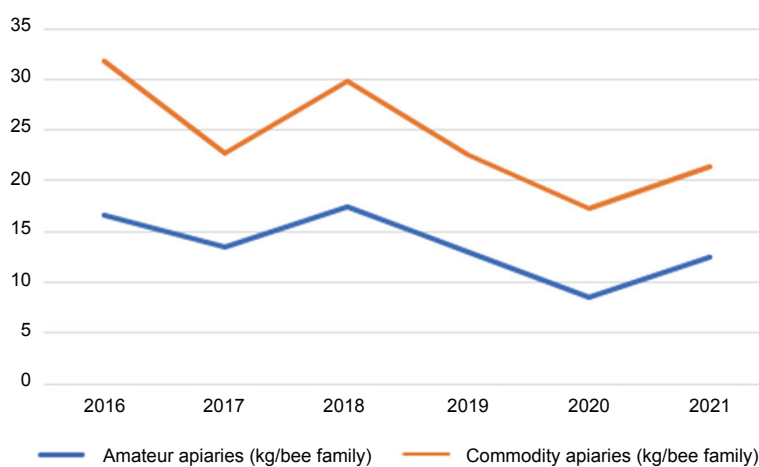


Fig. 2. Honey production (kg per bee family) in Poland between 2016 and 2021

Source: own compilation, based on [Semkiw 2016, 2017, 2018, 2019, 2020, 2021].

a demand for exotic honey in Poland [Kiczorowska 2017, Kobylińska 2021]. Economic fluctuations due to foreign trade and seasonality have a significant impact on beekeeping production in Poland. For these reasons, institutional support for beekeeping is essential. For small as well as large producers, special programs are created to support their activities through funds from state budgets as well as the EU, aimed at their modernization and restructuring [Semkiw and Ochal 2009].

IMPACT OF THE COVID-19 PANDEMIC ON THE GLOBAL BEEKEEPING INDUSTRY

Due to health concerns arising from the COVID-19 pandemic, honey consumption has increased [Attia et al. 2022, Lau et al. 2022, Özmen Özbakir et al. 2022]. While lockdowns have also had a positive impact on the bees themselves due to the reduction of toxic emissions into the environment, they have also harmed the bees' work. For example, the wandering hives could not be transported and thus assist in the pollination process [Özkirim 2020, Das and Bhuiya 2020, Attia et al. 2022]. The economic impact of lockdowns on beekeepers' operations in many places [Das and Bhuiya 2020, Bixby 2021, Lau et al. 2022] and their financial situation, especially in developing countries, was also negative [Das and Bhuiya 2020, Lazor-Chavero et al. 2022].

In the US, Canada, or the UK – which do not have enough bees of their own – hives are seasonally imported from other countries to pollinate farmland, or queens bred in other countries are imported. This was not always possible during the lockdown restrictions in place [Bixby et al. 2021, Attia et al. 2022]. Due to the COVID-19 pandemic, foreign workers were unable to migrate to countries using seasonal labor in apiaries [Bixby et al. 2021, Attia et al. 2022]. In Poland, however, the employment of outside workers in beekeeping is rare, and beekeepers are usually assisted by members of their families. Thus, the need to bring in hives and workers seasonally has not negatively affected Polish beekeeping as it has in the southern United States [Lau et al. 2022].

Studies point toward the negative effects of lockdowns on beekeeping, and thus on food security – not

only for well-known reasons, such as reduced trade, decreased purchasing power, or reduced access to labor [Lau et al. 2022], but also, for example, a reduction in the positive impact of bees on the resilience of other animals such as rabbits, poultry, fish [Attia et al. 2022], or reduced pollination of plants [Das and Bhuiya 2020, Bixby et al. 2021]. Although difficult to quantify, the latter factor, in particular, is important for maintaining food security [Majewski 2017].

POLISH BEEKEEPING INDUSTRY DURING THE COVID-19 PANDEMIC PERIOD

The coronavirus pandemic has affected the beekeeping industry in Poland as well, particularly through closed borders or markets, postponed training or thematic meetings, and restrictions on movement. In addition – despite the increasing number of beekeepers and the ongoing fragmentation of the sector [Semkiw 2020, Roman and Szewczyk 2022], and increased demand for honey – there was a smaller honey harvest in 2020, with most beekeepers managing to harvest only spring honey. Initially, this was a consequence of winter losses, as then honey harvesting was impossible due to drought conditions, and the bees required feeding [Semkiw 2020]. During the season, honey was quickly bought out of stores, so it was difficult to access during the winter. In addition, consumers during the pandemic were more likely to reach for sweet foods, including honey – also due to the belief in its health-promoting properties. At the same time, customers avoided large gatherings of people and bought honey directly from beekeepers. Consumers are also more likely to buy honey the traditional way than at discount stores due to the belief that the honey sold there is inferior or adulterated.

Many honey blends that can be bought in supermarkets come from China. Their imports reduced honey prices in 2018–2019. Before the pandemic, its prices were 13.9% lower in discount stores, 8.9% lower in supermarkets, 5.7% lower in hypermarkets, and 2.8% lower in cash & carry stores. In convenience stores, on the other hand, honey fell slightly, as the decrease was only 1.2%. In direct sales from apiaries, honey prices were stable or increased slightly [wiadomoscihandlowe.pl 2020]. However, due to the pandemic situa-

tion, honey prices in China increased, also affecting honey prices in Poland. Climatic conditions, as well as the pandemic situation, affect prices, and consumers are also able to pay more for it [Miody Manuka 2021], which can positively affect the margins of Polish beekeepers, also by making Polish consumers accustomed to local products.

IMPACT OF THE COVID-19 PANDEMIC ON THE OPERATIONS OF SELECTED BEEKEEPING FARMS IN POLAND

The effects of the pandemic on the beekeeping industry in Poland have varied. On the one hand, fear of contact negatively affected sales of bee products. On the other hand, customers, seeking natural treatments and antiviral prophylaxis, increased demand for honey. Half, or 53.1% of beekeepers, said the pandemic had a small impact on honey sales, 28.1% thought it had a medium impact, 12.5% thought it had a large impact, and 6.3% said it had no impact at all (Fig. 3).

Moderate correlations were observed in negative opinions on the impact of the pandemic with responses to the questions, ‘Possibility of commodity exchange with other beekeepers’, and ‘Seasonality of production’. The correlation with the question on the

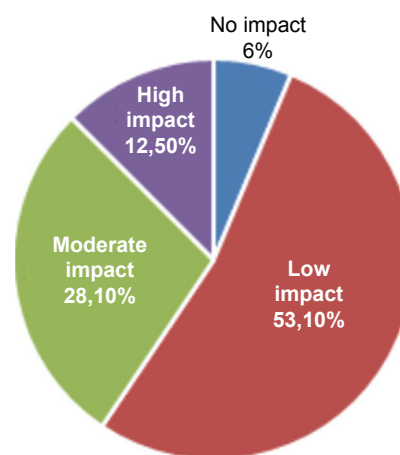


Fig. 3. The impact of the COVID-19 pandemic on honey sales

Source: the Authors.

exchange can be explained by the inability of beekeepers to integrate due to the lockdown and the limitation of meeting opportunities between them (Table 1).

There was a moderately positive correlation between positive opinions about the impact of the pandemic on beekeeping activities and opinions about the time consumption of production in beekeeping. This could have been associated with higher demand and

Table 1. Correlation of opinions on the positive and negative impact of the pandemic on honey supply, with opinions on positive factors affecting this market

Factors and their correlation with the impact on the beekeeping market	Positive	Negative
Subsidies for the purchase of beekeeping equipment for the procurement process	-0.0768	0.1100
Possibility to exchange goods with other beekeepers	0.1595	0.4725
Seasonality of production	0.3891	0.5716
Family assistance in running the apiary	0.3146	0.0651
Production takes place during warm seasons	0.1785	0.2843
The medicinal properties of honey have a positive effect on its sale	0.0324	-0.2412
Family's assistance in the sale of honey	0.2254	0.1169
The customer comes to the apiary to purchase	0.3065	0.0586
COVID-19 has a positive impact on the honey market	1.0000	0.4486
Subsidies positively affect the honey market	0.2921	0.1186

Source: the Authors.

Table 2. Correlation of opinions on the positive and negative impact of the pandemic on the Polish beekeeping industry, with opinions on the positive factors affecting this market (1–10) and on the beekeeper’s assessment of their supply chain

Factors and their correlation with your supply chain	Positive	Negative
High prices of medicines for bees	–0.0791	0.1058
The need for specialized equipment	0.3603	0.3098
Climate change hurts production	0.2763	0.2904
Mass bee die-off limits honey harvests	0.3637	0.2906
Time-consuming production	0.5503	0.3896
The natural crystallization process makes it difficult to sell honey	0.5163	0.5958
Seasonality of bee production harms sales	0.2382	0.5781
Fake honey on the market makes it difficult to sell at a sufficient price	0.1920	0.1981
COVID-19 harms honey sales	0.4486	1.0000
Sugar price fluctuations harm the honey market	0.1903	0.2182
The honey supply chain at my apiary is efficient enough	–0.0259	0.0843

Source: the Authors.

higher prices also related to the consumer response to the pandemic. However, price increases were not as high as producers expected [Semkiw 2020]. A moderately positive correlation was also observed between opinions about the difficulty of selling honey due to its natural crystallization process with both negative and positive opinions about the impact of the pandemic on honey supply chains. Finally, a moderately positive correlation emerged from the survey between opinions about the negative impact of the seasonality of bee production on sales and negative opinions about the impact of the pandemic on honey supply chains (Table 2).

DISCUSSION

Similar to studies conducted in Louisiana and Texas [Lau et al. 2022], Polish beekeepers suffered from a lack of opportunities to integrate at industry events during lockdowns. In the same way, there was no problem with lack of access to seasonal workers or seasonally imported queens – as, for example, in Canada or the UK [Bixby 2020] because Polish beekeepers usually support themselves with the labor of their family members, and queens are bred locally.

There were no strong correlations between opinions on the COVID-19 pandemic (either on its positive or negative impact on honey supplies). Nevertheless, there was a correlation between the usual exchange of goods between beekeepers and negative opinions on the impact of the pandemic. Opinions on time spent on production correlated moderately with opinions on the positive impact of the pandemic on beekeeping, which may be due to beekeepers’ sense of adequate financial compensation for their work due to increased demand for their product during the lockdown – and thus, the increased price of honey [Semkiw 2020]. The study also found moderate correlations between beekeepers’ opinions on the impact of the pandemic (both positive and negative) and their negative assessment of honey crystallization. This variation may have been due to the beekeepers’ different marketing opportunities. For example, the positive assessment of the pandemic’s impact on sales may have been due to the increased demand for honey during the pandemic by those beekeepers who had this outlet assured. At the same time, those beekeepers who did not have developed outlets may have been forced to stockpile products, which consequently crystallized. To confirm such a relationship, however, further research is required.

CONCLUSIONS

Despite the severe consequences of the pandemic, such as the instability of markets and the rising cost of maintaining hives, beekeeping is still popular in Poland, and the number of honey producers is growing each year. The variation in the opinions of its producers on the impact of the pandemic may be due to the size of their apiaries and the stability of their distribution channels. Our research showed too weak a correlation in the subjective opinion of surveyed beekeepers of their supply chain with the positive and negative impact of the pandemic on them to confirm such a relationship. It is interesting to investigate the correlations between the positive opinion of the impact of the pandemic and positive opinions of the impact of seasonality on beekeeping, as well as correlations between negative opinions of the impact of the pandemic with negative opinions of the impact of seasonality on beekeeping. A limitation of our study is the lack of representativeness of the sample to understand the correlations between the types of apiaries and the impact of the pandemic on them. Therefore, further research in this aspect is needed.

REFERENCES

- Attia, Y.A., Giorgio, G.M., Addeo, N.F., Asiry K.A., Piccolo, G., Nizza, A., Di Meo, C., Alanazi, N.A., Al-qurashi, A.D., Abd El-Hack, A.E., Khafaga, A.F., Bovera, F. (2022). COVID-19 pandemic: impacts on bees, beekeeping, and potential role of bee products as antiviral agents and immune enhancers. *Environmental Science and Pollution Research* 29, 9592–9605. <https://doi.org/10.1007/s11356-021-17643-8>
- Bixby, M.E.F., Polinsky, M., Scarlett, R., Higo, H., Common, J., Hoover, S.E., Foster, L.J., Zayed, A., Cunningham, M., Guarna, M.M. (2021). Impacts of COVID-19 on Canadian Beekeeping: Survey Results and a Profitability Analysis. *Journal of Economic Entomology*, 114(6), 2245–2254. <https://doi.org/10.1093/jee/toab180>
- Das, R., Bhuiya, M. (2020). Impact of COVID-19 Pandemic on Bee-keeping in West Bengal. *Indian Farmer* 7(11), 1000–1005.
- Grębowiec, M. (2021). Sytuacja produkcyjno-ekonomiczna na rynku jabłek w Polsce w obliczu pandemii COVID-19 (The production and economic situation on the apple market in Poland in the face of the COVID-19 pandemic). [In:] T. Rokicki (ed.), *Społeczno-ekonomiczne skutki pandemii COVID-19 – wybrane zagadnienia*. Wydawnictwo SGGW, Warszawa, 89–103.
- Kiczorowska, B. (2017). Naturalne produkty pszczele i miód sztuczny w diecie młodzieży (Natural bee products and artificial honey in the diet of young people). Uniwersytet Przyrodniczy w Lublinie, Lublin.
- Kobylińska, M. (2021). Regionalne zróżnicowanie pszczelarstwa w Polsce (Regional diversity of beekeeping in Poland). *Wiadomości Statystyczne*, 66(2), 25–38. <https://doi.org/10.5604/01.3001.0014.7388>
- Kołtowski, Z. (2007). Znaczenie pszczół miodnych w zapylaniu roślin entomofilnych (The importance of honey bees in pollination of entomophilous plants). *Oddział Pszczelnictwa ISK, Puławy*.
- Lau, P., Payne, A.N., Khan, O., Buchman, M.B., Rangel, J. (2022). The impact of COVID-19 on beekeepers in Texas and Louisiana. *Journal of Apicultural Research*, 61(3), 309–314. <https://doi.org/10.1080/00218839.2022.2051333>
- Lazos-Chavero, E., Rivera-Núñez, T., Ruiz-Mercado, I., Medina-García, M. (2022). Vulnerabilities, Environmental Threats, and Recursive Crises under COVID-19: Dilemmas for Beekeeper-Farmers in Yucatan, Mexico. *Agronomy*; 12(8), 1839. <https://doi.org/10.3390/agronomy12081839>
- Majewski, J. (2016). Pszczoły w biogospodarce – znaczenie i wartość ekonomiczna (Bees in bioeconomy – importance and economic value). *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*, 18(4), 172–177.
- Majewski, J. (2017). Rola owadów zapylających w zapewnieniu bezpieczeństwa żywnościowego Polski (The role of pollinating insects in ensuring food security in Poland). *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*, 19(3), 182–187. <https://doi.org/10.5604/01.3001.0010.3244>
- Miody Manuka (2021) Czy przez pandemię COVID-19 będziemy mieć mniej miodu? (Will we have less honey because of the Covid-19 pandemic?). Retrieved from <https://miodymanuka.pl/czy-przez-pandemie-covid-19-bedziemy-miec-mniej-miodu> [accessed: 3.05.2021]
- Özkirim, A. (2020). National and Global Impact of COVID-19 on Beekeeping. *Mellifera*, 20(1), 1–2.
- Özmen Özbakir, G., Öztokmak, A., Tohumcu, E. (2022). Beekeeping activities and consumption of beekeeping products by beekeepers under the pandemic conditions. *Medycyna Weterynaryjna*, 78, 6637–2022. <https://doi.org/10.21521/mw.6637>
- Rokicki, T. (2020). Zmiany w koniunkturze gospodarczej Polski w wyniku epidemii COVID-19 (Changes

- in the economic situation in Poland as a result of the COVID-19 epidemic). *Przegląd Prawno-Ekonomiczny*, 105–126. <https://doi.org/10.31743/ppe.10029>
- Roman, M., Szewczyk, I. (2022). Organizacja łańcucha dostaw miodu na przykładzie firmy „Sądecki Bartnik” sp.z o.o. (Organization of the honey supply chain on the example of the company „Sądecki Bartnik”). [In:] M. Roman, J. Domagała, A. Górecka (eds) *Logistyka wczoraj, dziś i jutro. Kierunki zmian, innowacje i perspektywy rozwoju sektora transportu i logistyki*, Wydawnictwo SGGW, Warszawa, 230–244.
- Semkiw, P., Ochal J. (2009). Analiza sektora pszczelarskiego w Polsce (Analysis of the beekeeping sector in Poland). Zakład Pszczelnictwa w Puławach, Puławy.
- Semkiw, P. (2016). Sektor pszczelarski w Polsce w 2016 roku (The beekeeping sector in Poland in 2016). Zakład Pszczelnictwa w Puławach, Puławy.
- Semkiw, P. (2017). Sektor pszczelarski w Polsce w 2017 roku (The beekeeping sector in Poland in 2017). Zakład Pszczelnictwa w Puławach, Puławy.
- Semkiw, P. (2018). Sektor pszczelarski w Polsce w 2018 roku (The beekeeping sector in Poland in 2018). Zakład Pszczelnictwa w Puławach, Puławy.
- Semkiw, P. (2019). Sektor pszczelarski w Polsce w 2019 roku (The beekeeping sector in Poland in 2019). Zakład Pszczelnictwa w Puławach, Puławy.
- Semkiw, P. (2020). Sektor pszczelarski w Polsce w 2020 roku (The beekeeping sector in Poland in 2020). Zakład Pszczelnictwa w Puławach, Puławy.
- Semkiw, P. (2021). Sektor pszczelarski w Polsce w 2021 roku (The beekeeping sector in Poland in 2021). Zakład Pszczelnictwa w Puławach, Puławy.
- Wiadomoscihandlowe.pl (2020). Koniec z promocjami na miód. Koronawirus może zachwiać rynkiem (End of honey promotions. The coronavirus may shake the market). <https://www.wiadomoscihandlowe.pl/artukul/koniec-z-promocjami-na-miod-koronawirus-moze-zachwiac-rynkem> [accessed: 3.05.2021]
- Zawojnska, A. (2021). Zwycięzcy i przegrani pandemii COVID-19: perspektywa globalna z uwzględnieniem gospodarki rolno-żywnościowej (Winners and Losers from Covid-19 Pandemic: A Global Perspective Considering the Agri-Food Economy). *Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Problemy Rolnictwa Światowego*, 21(36), 4, 54–75. <https://doi.org/10.22630/PRS.2021.21.4.16>

FUNKCJONOWANIE WYBRANYCH GOSPODARSTW PSZCZELARSKICH W POLSCE W CZASIE PANDEMII COVID-19

STRESZCZENIE

Cel: Celem artykułu było zbadanie wpływu pandemii COVID-19 na wybrane gospodarstwa pszczelarskie, a także porównanie doświadczeń wybranych polskich pszczelarzy z wpływem pandemii na pszczelarstwo w innych krajach, przedstawionych w literaturze. **Metody:** Badania przeprowadzono za pomocą przeglądu literatury i wywiadu kwestionariuszowego ($n = 36$) wśród pszczelarzy z województwa mazowieckiego i warmińsko-mazurskiego. Pszczelarze udzielali odpowiedzi według 5-stopniowej skali Likerta. Odpowiedzi dotyczące tematów branżowych skorelowano z opiniami na temat pozytywnego i negatywnego wpływu pandemii na pszczelarstwo za pomocą współczynnika korelacji liniowej Pearsona. **Wyniki:** Około 60% respondentów stwierdziło, że pandemia miała niewielki lub wręcz żaden wpływ na ich działalność pszczelarską. Mogło to być związane ze specyfiką polskiego pszczelarstwa, które nie jest uzależnione od sezonowej siły roboczej, zazwyczaj wykorzystując pracę własną. Stwierdzono również umiarkowane korelacje pomiędzy negatywnymi opiniami na temat wpływu pandemii i braku kontaktu z innymi pszczelarzami a sezonowością produkcji i związanej z nią sprzedaży, oraz pomiędzy opiniami na temat czasochłonności produkcji a pozytywnym wpływem pandemii na rynek pszczelarski. **Wnioski:** Stwierdzono, że pszczelarze okazali się bardziej odporni na załamania łańcucha dostaw w porównaniu z doświadczeniami pszczelarzy w takich krajach jak np. Kanada czy Wielka Brytania. Charakter kanałów marketingowych pszczelarzy może wpływać na szybkość sprzedaży ich towarów. Wpływ pandemii na polskich pszczelarzy nie był wcześniej badany.

Słowa kluczowe: pszczelarstwo, pszczoły, COVID-19, Polska