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Honey production in Latvia

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Abstract

The geographical position of Latvia is favorable for obtaining high-quality honey. The beekeeping industry is one of the modern agricultural production sectors in Latvia. Honey from various flowers can be obtained in Latvia. The aim of the study is to assess the potential for honey production in Latvia. Research methods: 1) analysis of honey production data, 2) review of various information sources. On average, 1256.811±0.426 tons of honey are obtained in Latvia per year (time period 1923-1937 and 1997-2023). Since 2019, honey exports in Latvia have exceeded imports. The greater the amount of honey produced in Latvia, the greater the amount of honey exported. The amount of honey exports increased, especially in 2021. It is possible that this was also facilitated by the formation of beekeepers' cooperatives. The amount of imports also increased, which could be explained by the decrease in the solvency of the population, i.e., imported honey is much cheaper than local honey. In Latvia (2018), honey was exported at a price 2.1 times higher than imported, but in 2019, the difference between export and import prices was only 1.3 times. There is a trend in Latvia where there are many small beekeepers in the honey extraction sector, for whom it is an additional source of income or a hobby. However, both the number of bee colonies and the amount of honey produced are increasing every year. Latvian beekeepers can produce high-quality products, but honey production can be increased by moving bees to nectar-rich pastures and diversifying production types by developing monofloral honey production.

Keywords: honey yield, tips of honey, Latvia, export, import

1. Introduction

The beekeeping industry is not only one of the modern agricultural production sectors in Latvia, but also an occupation rich in traditions, and one of the oldest (LR ZM, 2024). In Latvia, colonies of various subspecies of Western honeybees (Apis mellifera L.) are used in beekeeping (LR ZM, 2021). The Latvian native honeybee (Apis mellifera mellifera L.), or the European (Western European) dark bee, appeared 8,000 years ago (Liepniece et al., 2017). Bumblebees can also collect honey, which has a much higher content of enzymes, microelements, and vitamins compared to bee honey, i.e., 100 g of bumblebee honey replaces 1 kg of bee honey when comparing the content of enzymes, microelements, and vitamins (Dimiņš et al., 2022). In addition, in northern regions, including Latvia, during the short flowering period of nectar plants, nectar is released more concentrated and richer in biologically active substances than in southern regions (LR ZM, 2021). Honey contains antioxidants, which are higher in bee honey than in bumblebee honey (Dimiņš et al., 2022). The main components of honey are various carbohydrates, the most important of which are glucose and fructose (Šteiselis, 2024: 157). However, it should be noted that for beekeeping products, impurities that occurred during product collection are not desirable (Jayapal et al.,). Honey obtained in Latvia is polyfloral, containing a wide spectrum of biologically active substances (ZM, 2022). Bees can also collect so-called honeydew honey, which is a sweet liquid of plant origin that oozes through leaves, branches or plant stems (Ritmanis, 1992; 222). Honey is a natural product that has a wide range of applications, for example, in food, apitherapy. In recent years, beekeepers have also used honey to feed bees. Various by-products are also obtained from the honey production process, such as bee bread and beeswax candles.

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According to the information provided by the Agricultural Data Center (LDC), in 2023, there were 4,723 registered beekeepers with 117,657 bee colonies. Compared to 2022, the number of beekeepers has increased by 35% and the number of bee colonies by 12% (LR ZM, 2024).

Research problem: Analysis of the potential for honey production in Latvia is an important factor in assessing the volume of honey production in Latvia and possible sales opportunities. Research object: honey production in Latvia. Research subject: honey production potential in Latvia. Research question: What is the potential for honey production in Latvia. The aim of the research is to assess the potential for honey production in Latvia. The medicinal and gastronomic properties of honey are an important factor in its application in various sectors. There is a trend in Latvia where there are many small beekeepers in the honey extraction sector, for whom it is an additional source of income or a hobby, because in Latvia (LR ZM, 2024)) in 2023, most (28%) were beekeeping establishments with 21 to 50 bee colonies, 22% were establishments with 11–20 bee colonies, 20% were establishments with 6–10 bee colonies and 21% of establishments with one to five bee colonies. It is important to assess the real potential for honey extraction in Latvia. Otherwise, a shortage of supply may arise, as a result of which it will not be possible to ensure demand. However, there is also a risk of the opposite situation, that supply will exceed demand, therefore it is important to also explore possible sales opportunities and how to increase honey sales.

2. Materials and Methods

A literature review was chosen as a research method because it can summarize and synthesize previous research. The study collected information on honey harvest in Latvia (time period 1923-1937 and 1997-2023), exports, imports (Fig. 2 - Fig. 5), using the Latvian Statistics Portal (Latvijasportāls, 2025), (Statistikas portals, 2019), the Ministry of Agriculture's Agricultural Annual Reports (LR ZM, 2001)-(LR ZM, 2024), as well as to find out what honey is (Table 1) and what are its types (Fig. 1), because a literature review is also equivalent to practical research (Snyder, 2019).

Data processing was performed using aprakstošas statistikas elementi (mean values, standard deviation, regression coefficient, regression equation) in the "Microsoft Excel" computer program.

3. Results and discussion

In Latvia, since 1937, both the number of bee colonies, the total honey yield (Fig.2), and honey consumption per person per year have been decreasing. In 1936, one person ate an average of 1.8 kg of honey, but in 2016, a rural person – 0.62 kg and a city person – 0.92 kg of honey per year, but in 2009 – 1.2 kg. (Statistikas portāls, 2019) (LR ZM, 2010).

Honey has different definitions both in regulatory acts, in various dictionaries, and in scientific publications (Table 1). Definitions 1-5, 7, 11-13 indicate that honey is a sweet substance, while definitions 6, 9, 10 indicate that honey is a food product, and definition 8 indicates that it is a source of energy.

TABLE 1 DEFINITIONS OF HONEY

No.	Honey is…	Information source
1.	...a sweet, aromatic sugar substance that honey bees have collected from living plants, carried into cells and sealed; nectar is the main raw material for honey	(Latviešu konversijas vārdnīca, 2002: 26305)
2.	…a sweet, firm or viscous product created by bees when processing flower nectar	(Latviešu valodas vārdnīca, 2013; 613)
3.	…sweet liquid	(Ritmanis, 1992)
4.	…a sweet additive or sugar substitute in a person's daily diet, a natural product with a liquid or semi-liquid, viscous consistency	(Vincēviča-Gaile, 2010)
5.	…a natural, sweet substance produced by the bee (Apis mellifera) from plant nectar or secretions of living parts of plants, or from secretions of sucking insects on living parts of plants, which it collects and transforms, adding its own special substances, deposits, dehydrates, stores and leaves in honeycombs to mature and ripen	(LR ZM, 2015)
6.	...a well-known food product worldwide due to its sweet taste, aroma and health benefits	(Keke et. al., 2020)
7.	….a natural sweetener, expensive compared to other sweeteners	(Labsvārds et. al., 2021)

No.	Honey is…	Information source
8.	….an important source of energy, 100 g of which consists of approximately 80 g of carbohydrates and 20 g of water	(BIOR, 2019: 5)
9.	…a complex product consisting of more than 300 different groups of substances: sugars, organic acids, enzymes, vitamins, essential oils, flavonoids, sterols and phospholipids, which also determine the taste, colour and aroma of honey	(BIOR, 2019: 5)
10.	…a product that inhibits the growth of foodborne pathogens	(Bikheet et. al., 2024)
11.	...the main and most popular bee product. It is widely used in food, as a natural sweetener, and as a pharmaceutical product.	(Pokojevicz et.al., 2024)
12.	…a sweet, nutritious, and stable food that honeybees produce from plant nectar or the excrement of plant-sucking insects found on living plant parts.	(Washkoo et.al., 2024)
13.	…nectar, which is a sugar solution in water that also contains small amounts of other substances (amino acids, organic acids, proteins, minerals)	(Šteiselis, 2024:151)

Summarizing the definitions of honey (Table 1), it can be stated that honey is clearly a natural and sweet product, which is a good source of energy, and with its positive properties has been widely known in Latvia and the world since ancient times. Honey is a sweetness that has taste properties that are not found in any other sweet substance (Šteiselis, 2024:426). This means that honey can be used as a sugar substitute.

Honey can be divided into nectar or flower honey (it is obtained from plant nectar) and honeydew-leaf honey (it is mainly obtained from the secretions of sucking insects on the living parts of plants or from the secretion of the living parts of plants (LR MK, 2015) (Fig.1). In Latvia, various flower honeys can be obtained (various flowers, wildflowers, linden flowers, phacelia flowers, sweet flowers, heather flowers, meadow flowers and buckwheat flowers, etc.) (Dimins et al., 2008). The quality of honey can be characterized by various chemical and physical parameters (Kūka et al., 2002). Latvian beekeeping production meets EU requirements in terms of both price and quality (ZM, 2022). In order to support Latvian honey producers, scientific research has been underway for several years on the authenticity, quality and safety of honey of Latvian origin. As a result of the research, a database has been created, with the help of which it will be possible to distinguish honey of Latvian origin from products of other countries, as well as to assess the quality of Latvian honey and monitor the spread of pesticide residues (ZM, 2022). Honey samples obtained in Latvia have been of high quality, natural and matured (Kūka et al., 2002).

Honeydew-leaf honey is produced by bees from sweet secretions left on plants by various insects. This honey is darker and thicker than flower honey, with a pronounced taste and aroma. The fructose and glucose content (total) in honeydew-leaf honey, in a mixture of honeydew-leaf and flower honey, the sugar content must be at least 45 g/100 g, and in flower honey - at least 60 g/100 g (BIOR, 2019), (LR MK, 2015). If honey is produced from the flowers of different plants, it is called polyfloral honey. If honey is produced from the flowers of one plant species, it is called monofloral honey.

Honey from various flowers is most widely available in Latvia, however, nectar from a specific plant is becoming increasingly popular (Labsvārds et al., 2021). The following monofloral types of honey are most commonly obtained in Latvia:

- Linden honey: light, mild, with a distinct linden blossom aroma.
- Buckwheat honey: dark, with a specific taste and aroma, rich in iron.
- Rapeseed honey: light, with a mild flavor, crystallizes quickly.
- Heather honey: dark, with a bitter taste, jelly-like consistency.

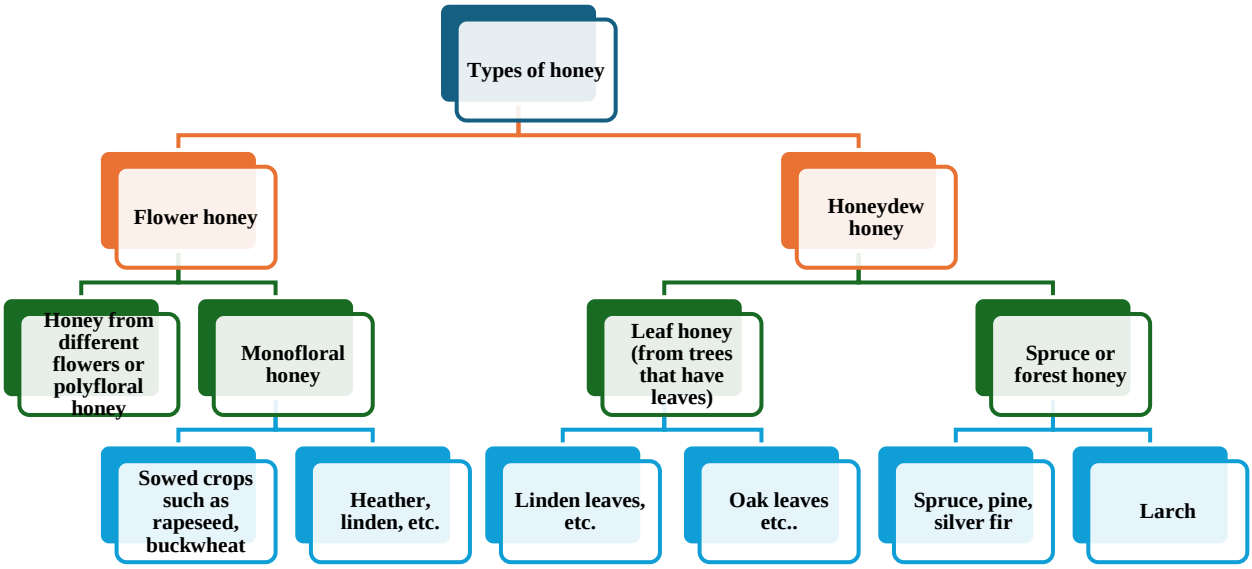

Fig.1. FTypes of honey (Šteiselis, 2024:153), (ZM, 2022), (BIOR, 2019), (LR MK, 2015), (LR ZM, 2024) (Labsvārds et.al., 2021).

In 2000, the trademark "Ievākts Latvijā" was created in Latvia and applied for registration with the Patent Office, which designates beekeeping products collected in Latvia and prepared for sale. The trademark was created with the aim of highlighting products produced in Latvia in the general range of goods and supporting local producers. The trademark project envisages extensive popularization of beekeeping products, as well as training of beekeepers to improve their professional skills and produce high-quality products. The project has earned recognition and received state support for 2001 (LR ZM, 2001).

Honey is the third most counterfeited product in the world (Eiropas Parlaments, 2018), so honey labelling is important so that consumers of honey products know the country and place of origin of honey. Any product labelled as honey that is not a joint product of bees, and a living plant is counterfeit (Latviešu konversijas vārdnīca, 2002, 26305). The geographical location of Latvia is favourable for obtaining high-quality honey. The mixed forests of the temperate climate zone, which alternate with wide meadows, natural and floodplain meadows, shrubs, bogs and heaths, are an excellent home for nectar plants. The diversity of nectar plants and their quality are the main prerequisites for the quality of the harvested honey.

In Latvia, honey consumption has decreased to 576.8 tons in 2000 (LR ZM,2001). If we compare the statistics for four years (1996-2000), then the number of bee colonies has tended to decrease, which has affected the amount of honey produced and caused its decrease from 700.2 t in 1997 to 333.3 t in 2000. However, in 1999, 362.3 t were produced, which is more than in 2000. The reason is indicated that it was a rainy summer in 2000 (LR ZM, 2001). It is positive that the total honey yield in Latvia has tended to increase in recent years (Fig. 2), which is an important factor, especially considering the changes in the environment, when, due to weather conditions, many farms suffered losses due to floods, rain, heat, etc. This phenomenon of not only not decreasing but even increasing honey yield can be explained not only by the increase in the number of apiaries, but also by the suitability of the bee species in Latvia for the geographical location of Latvia. The increase in the total honey yield in Latvia can serve as a good basis for the sale of honey not only in Latvia, but also outside Latvia. It is positive that Latvia has a trademark "Ievākts Latvijā", which, by developing it, implementing various distribution methods, advertising it, depicting its positive qualities and uniqueness, can bring the name of Latvia to distant lands, thus increasing its distribution opportunities outside Latvia. Many Latvians also live in other countries and the trademark "Ievākts Latvijā" can cause nostalgia and when planning a marketing strategy, attention should also be paid to this aspect.

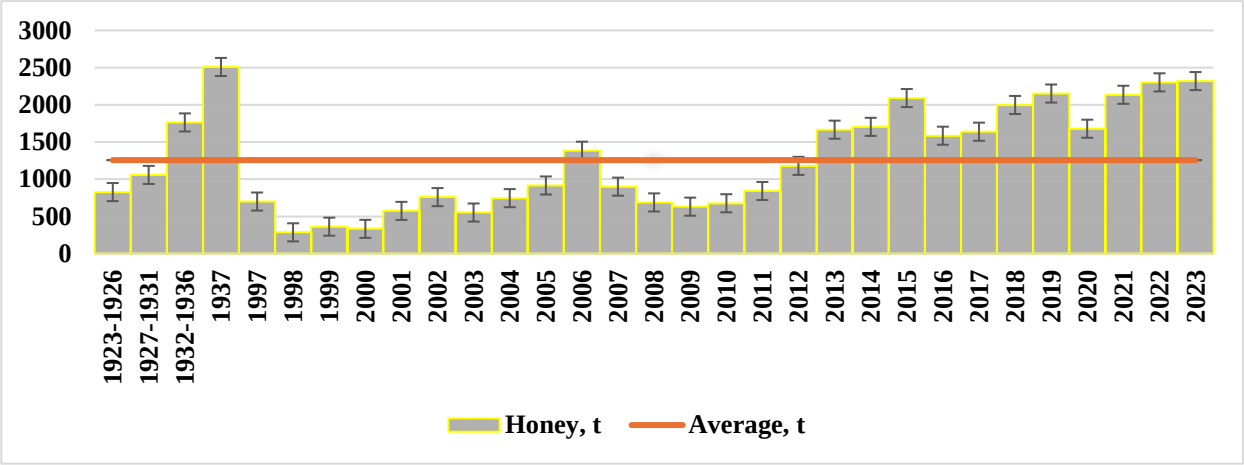

Fig.2. Total honey production in Latvia depending on the year of production, tons (Statistikas portāls, 2019), (LR ZM, 2001) - (LR ZM, 2024), (LR,2022), (LR MK, 2015).

In 2021, Latvia produced 2,135 tons of honey (Fig.2), which is 27.2% more than in the previous year. This could be explained by Covid-19 restrictions, when people had to spend more time at home, as well as be near their apiaries and pay more attention to their bee colonies, while monitoring their health.

The value of honey exports increased especially in 2021 (Fig.3). It is possible that this was also facilitated by the activities of beekeepers' cooperatives. The value of imports also increased, which could be explained by the decrease in the solvency of the population, i.e. imported honey is much cheaper than local honey. In Latvia (2018), honey is exported at a price 2.1 times higher than imported, but in 2019 the difference between export and import prices was only 1.3 times. The value of honey exports in the reporting period from 2021 to 2023 decreased by 21% overall, but in 2023 compared to 2022 – by 26%. The value of honey imports increased by 2% in the reporting period, while in 2023 it decreased by 25% compared to the previous year. The average price of honey exports in 2023 increased by 11% compared to 2021 and the average price of imports – by 19%.

Since 2019, there has been a trend in Latvia that honey exports exceed imports (Fig.3, Fig.4), which can be assessed positively from an economic point of view. Despite the fact that the largest increase in the total honey yield was observed in 2018 (Fig.2), the sharpest increase in exports was observed only in 2021 (Fig.3, Fig.4). Which could be explained by caution on the part of beekeepers, restrictions introduced due to Covid-19, or sufficient demand in the domestic market. Despite the good total honey yield in 2023 (Fig.2), honey exports decreased in that year compared to previous years. The decrease in imports is also more likely due to the fact that Latvia had a good total honey yield in that year. It can be unequivocally stated that Latvia has a good environment for honey production and there is also potential for its distribution.

After joining the European Union, Latvian honey producers had the opportunity to sell their products in other EU member states, thus expanding the range of consumers. In very small quantities, honey was exported to Estonia and Malta in 2005, but the largest percentage of honey imports came from Hungary and Ukraine, even up to 99% of all imports (LR ZM, 2006:111). In 2019, honey was mainly exported to Estonia (36% of the total value of honey exports), Germany (29%), Poland (17%) and Lithuania (11%), while the honey importing countries were Lithuania (40% of the total value of honey imports), Poland (35%), China (16%), etc. (LR ZM, 2020:73). At the end of 2022, the European Commission also approved the Latvian Beekeeping Society's program "EU honey - delicious and environmentally friendly", the operation of which began in Latvia and Estonia in 2023. The aim of the project is to promote honey consumption in everyday life and public awareness of the possibilities of using honey and its connection with natural diversity in Latvia and Estonia. When implementing the project, information campaigns are organized to popularize honey harvested in the European Union as a delicious and environmentally friendly food product (LR ZM, 2024).

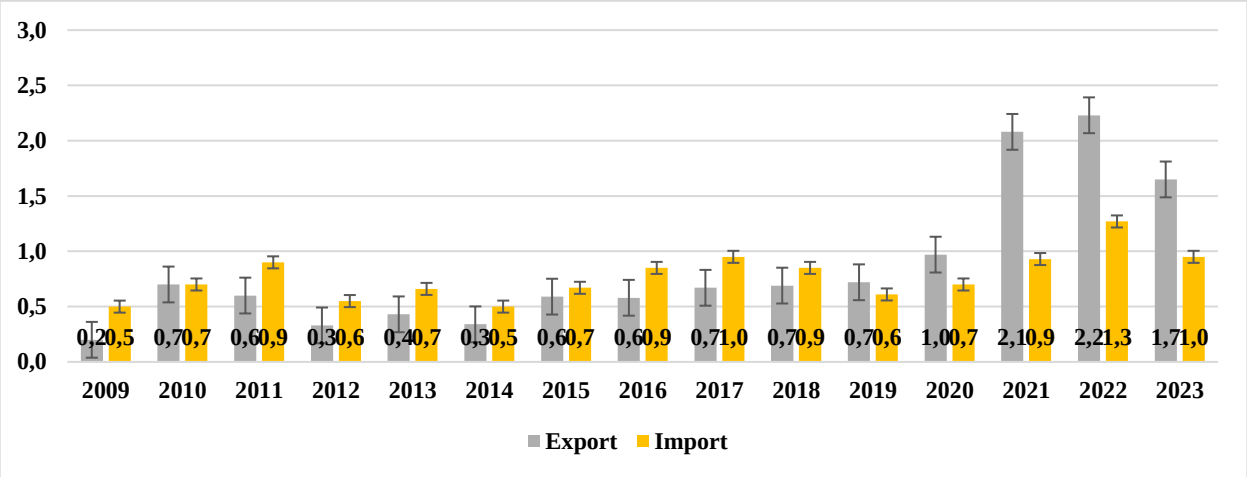

Fig. 3. Honey export and import in Latvia depending on the year of production, million, euros (LR ZM, 2010) - (LR ZM, 2024).

In 2015, the number of farms with more than 150 bee colonies also increased rapidly (an increase of 29%), as well as the number of professional beekeepers (LR ZM, 2016; 63). The structure of the honey market has changed significantly since 2013 – direct sales to consumers have decreased, the volume of honey sold to retail companies and producers has slightly increased, and exports have begun. This means that honey producers are becoming more professional, the volume of wholesale honey sales is increasing, and large producers do not threaten beekeepers of small farms who are engaged in direct sales to consumers with their products.

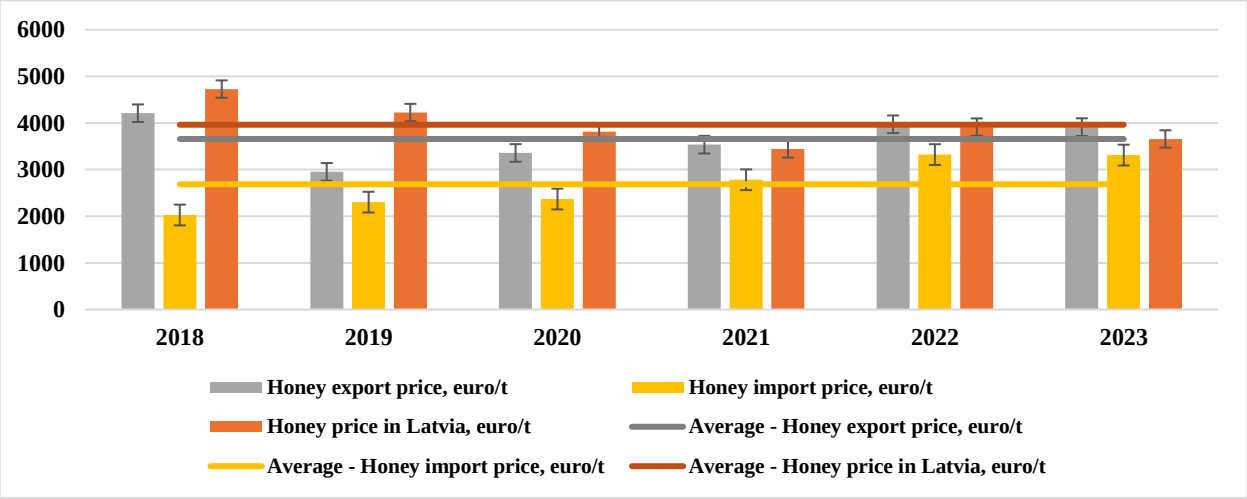

Fig. 4. Honey export and import price in Latvia depending on the year of production (LR ZM, 2019) - (LR ZM, 2024).

The large import of honey, despite the large honey harvest in Latvia, can be explained by the price of imported honey (Fig.4, Fig.5). Although the price of imported honey increases every year, except for 2023, when it remained at the previous year's level, it is still cheaper than local honey. It should be noted that since 2021, the price of honey consumed by Latvians has been lower than the price of exported honey, which indicates the interest of Latvian residents in purchasing local products. In previous years, honey was exported at a significantly lower price than it was offered to local consumers in Latvia. The larger the amount of honey produced in Latvia, the larger the amount of honey exported (Fig.5).

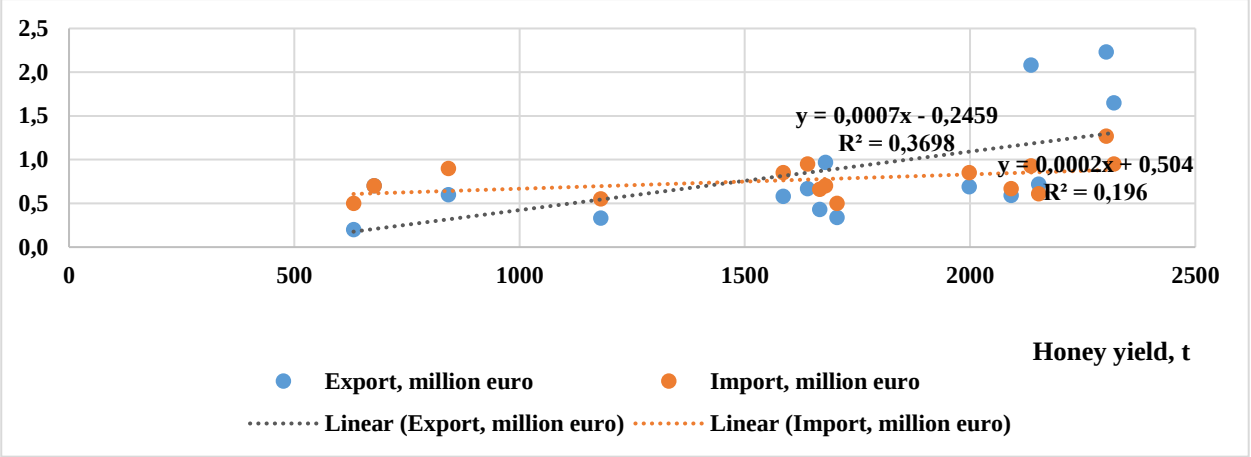

Fig. 5. Relationship between export/import and honey production in Latvia 2009-2023 (LR ZM, 2010) - (LR ZM, 2024).

In the future, honey consumption could possibly increase, not only in markets and shops, but also in restaurants and cafes and other public catering establishments. Reducing the price of the product is currently not possible due to the political situation in the world, and therefore an increase in consumption can be ensured by educating consumers, offering new and suitable packaging types and sizes, as well as using honey and its products in other industries, such as medicine, cosmetics, confectionery, etc.

4. Conclusions

Both the number of bee colonies and the amount of honey produced are increasing every year. Latvian beekeepers are able to produce high-quality products, but there are additional opportunities in honey production, both in increasing productivity by moving bees to nectar plants and by diversifying production types - by developing monofloral honey production.

The price of honey produced in Latvia is higher than the price of imported honey. The large import of honey, despite the large honey harvest in Latvia, can be explained by the price of imported honey. Since 2019, honey exports in Latvia have exceeded imports. Both the number of bee colonies and the amount of honey produced are increasing every year.

The increase in the total honey yield, price stability, and the development of the beekeeping industry are key factors that indicate that the honey yield in Latvia is sufficient to satisfy both the needs of local consumers and suffice for export, making a greater contribution to Latvia's economic growth and development of the national economy.

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