GLOBAL STUDY ON THE PRODUCTION AND MARKETING OF BARLEY

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Abstract

This study captured the evolution of barley production and marketing worldwide during 2015-2019. In order to be able to highlight as well as possible this evolution, it was required to present and analyze specific indicators such as: the area cultivated with barley at global level; total barley production worldwide; average yield per hectare of barley worldwide; imports and exports of barley recorded worldwide.

Barley is cultivated in all major regions of the globe, but there are substantial differences in terms of production. Barley grown around the globe is used on the one hand, in human food and animal feed, and on the other hand, in various industries.

In 2019, Europe made 60.15% of the world's barley production, which places it on the first place in the top of barley producers. The data that formed the basis for the elaboration of this work were provided by the FAO website.

Key words: *barley, world barley production, barley imports and exports*

INTRODUCTION

Barley (*Hordeum vulgare*) is one of the species of cereal plants that belongs to the genusHordeum, being included in the familyPoaceae. The region of origin afferent to barley is found inNear East, but also, inthe Eastern Balkan area (https://ro.wikipedia.org/wiki/Orz, 2021).

Barley belonging to the genus Hordeum L., includes 27 wild species and one cultivated. An important aspect was noticed, namely, of the wild species, 16 are perennial and the rest are annual (Ion, 2010).

Barley has a wide spread around the globe, being the only cereal that reaches 70 degrees north latitude. Barley is also an important cereal crop for regions where very high temperatures are recorded, such as those in North Africa (Ifrim, 2010).

Currently, barley has a number of uses such as: human food; animal feed; use in different industries, it is widely used in the beer industry (Ifrim, 2010; Ion, 2010).

It should be remembered, a very important aspect, namely that the barley grains used in animal feed have an increased nutritional value and a

high degree of digestibility, which brings them much closer to the forage value of the maize grains.

The use of barley grains in animal feed is important, because concentrated feed can be used especially for dairy animals, young animals and for those put to fattening (Ion, 2010; Medelete and Pânzaru, 2013; Dunăreanu et al., 2021).

The specific chemical composition of the barley grains is as follows: carbohydrates (55-65%); protein (9.5-14%); 2-3% fat (2-3%); cellulose (4-7%) and ash (2-3%).

Barley grains are an important matter for the industries of alcohol, glucose, dextrin, etc Because of this, producers who use barley as raw material are very interested on the one hand, to purchase good quality barley, and on the other hand, to buy on the international market at a better price.

Barley remains an important cereal crop for both the population and the animal feed (Derbala and Hashad, 2013; Medelete, 2016; Porumb et al., 2019).

Photo 1. Barley
Source: https://pixabay.com/ro/photos/orz-cereale-cultura-putere-c%C3%A2mp-4179406/

MATERIAL AND METHODS

This study highlighted the evolution of barley production and its marketing worldwide for the period 2015-2019. In the present work were analyzed a series of specific indicators for the production and marketing of barley.

The main indicators that have been presented and analyzed in the present work are: total area cultivated with barley worldwide; total barley production worldwide; the average yield per hectare of barley achieved worldwide; imports and exports of barley worldwide.

The statistical data underlying this study were taken from the FAOSTAT website.

In order to achieve this paperwork, numerous specialized materials were studied, and the results of the research were presented in tables and in graphic form.

RESULTS AND DISCUSSION

According to the data published by FAOSTAT regarding the total area cultivated with barley worldwide, it was found that they varied for the period 2015-2019 (Table 1).

The most significant barley-growing area worldwide was recorded in 2019 (51,149,869 ha), and the smallest cultivated area was recorded in 2017 (47,878,057 ha). In 2019, the total area cultivated with barley worldwide registered an increase of 2.63%, compared to 2015.

At the continental level, the total area cultivated with barley varied from one year to the next.

From the presented data it can be seen that Europe occupies the first place at regional level in terms of area cultivated with barley. Here, the smallest area was recorded in 2017 (23,224,858 ha), and the largest area was of 24,222,012 ha (2019).

In 2019, in Europe, the area cultivated with barley increased insignificantly, by only 0.20%, compared to 2015.

On the next position in the top of barley growers at regional level is Asia. Here, the cultivated area increased from 11,475,058 ha (2015) to 12,582,974 ha (2019).

The smallest cultivated area with barley in Asia was of 9,924,782 ha (2017). In 2019, the area cultivated with barley in Asia, increased by 9.65%, compared to 2015. The third place at regional level is occupied by the Americas.

Table 1

The evolution of the barley cultivated area worldwide, during 2015-2019 (ha)

Specification	2015	2016	2017	2018	2019	2019/2015 (%)
World-total	49,838,421	48,373,562	47,878,057	48,028,284	51,149,869	102.63
Africa	4,825,117	4,303,877	5,194,379	4,556,707	4,116,152	85.30
Americas	5,224,182	5,295,726	4,657,969	5,244,305	5,736,686	109.81
Asia	11,475,058	10,473,752	9,924,782	10,573,658	12,582,974	109.65
Europe	24,171,859	24,140,667	23,224,858	23,473,185	24,222,012	100.20
Oceania	4,142,205	4,159,540	4,876,069	4,180,429	4,492,045	108.44

Source: https://www.fao.org/faostat/en/#data/QCL ; own calculations

The largest area cultivated with barley was highlighted in 2019 (5,736,686 ha). In 2019, the area cultivated with barley increased by 9.81%, compared to 2015.

The next position in this ranking is occupied by Africa. Here, the largest area was recorded in 2017 (5,194,379 ha). In 2019, the area cultivated with barley decreased by 14.70%, compared to 2015.

The last position in this ranking is occupied by Oceania. In 2019, Oceania cultivated 8.78% of the world's barley-grown area. The largest barley area in Oceania was of 4,876,069 ha (2017) (Figure 1). In 2019, the area cultivated with barley increased by 8.44%, compared to 2015.

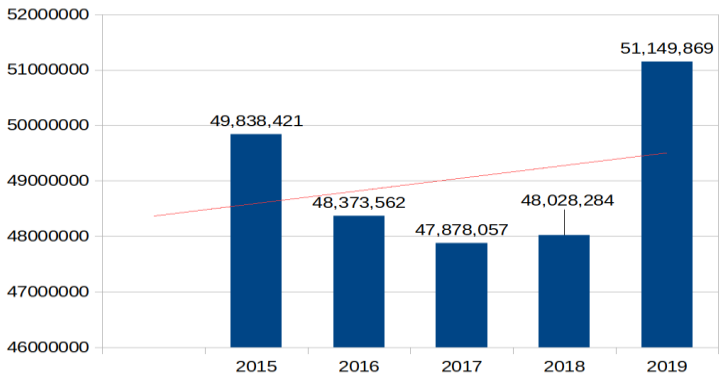

Fig.1. Total area cultivated with barley worldwide,
during 2015-2019 (ha)
Source: Own design based on FAOSTAT database 2021

The total barley production achieved worldwide recorded oscillations from one year to another during the analyzed period (Table 2 and Figure 2).

The most significant barley production worldwide was in 2019 (158,979,610 tons). From the data presented in the table below, it can be seen that in 2019, the world production of barley increased by 7.61%, compared to 2015.

At regional level, the largest barley productions were obtained in Europe. These productions ranged from 83,369,457 tons to 95,634,161 tons. In 2019, the total production of barley in Europe increased by 4.85%, compared to 2015.

Asia ranks second in the ranking of barley producers worldwide. In 2019, production increased by 13.36%, compared to 2015.

Table 2

Evolution of total barley production worldwide, during 2015-2019 (tons)

Specification	2015	2016	2017	2018	2019	2019/2015 (%)
World-total	147,730,419	145,865,103	148,478,878	139,743,307	158,979,610	107.61
Africa	7,561,489	4,842,505	6,566,569	7,698,573	6,884,764	91.05
Americas	17,333,411	20,239,308	17,103,399	18,961,808	21,699,045	125.18
Asia	22,545,084	21,137,228	20,325,523	20,079,913	25,559,043	113.36
Europe	91,206,970	90,289,602	90,679,798	83,369,457	95,634,161	104.85
Oceania	9,083,465	9,356,460	13,803,589	9,633,556	9,202,597	101.31

Source: https://www.fao.org/faostat/en/#data/QCL ; own calculations

In America, the most significant barley production was recorded in 2019 (21,699,045 tons). Smaller productions were obtained in Africa and Oceania. In 2019, barley production increased by 1.31% in Oceania compared to 2015. In Africa, in 2019, barley production decreased by 8.95%, compared to 2015.

The barley production achieved at global level was determined by a series of factors, of which the most representatives are: the cultivated area; the degree of fertilization, the level of precipitations, etc.

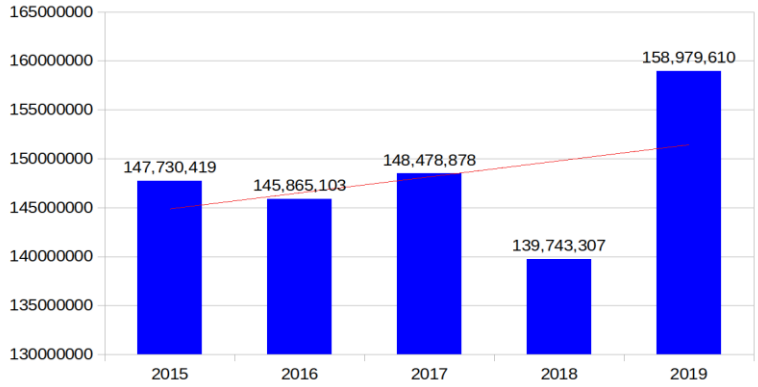

Fig. 2. Total production of barley worldwide, during 2015-2019 (tons)
Source: Own design based on FAOSTAT database 2021

The average yield per hectare for the barley crop recorded worldwide, varied from one year to another in the period under analysis (Table 3). The highest average yield per hectare of barley in the world was

achieved in 2019 (3,108 kg/ha). In 2019, the average barley production increased by 4.85%, compared to 2015.

Europe in the analyzed period obtained the highest yields for barley production, they varied between 3,552 kg/ha - 3,948 kg/ha. In 2019, the average yield per hectare of barley in Europe increased by 4.63%, compared to 2015.

This increase in the average yield per hectare of barley in Europe is almost equal, with the increase recorded worldwide for the same analyzed period.

America ranks second in terms of average yield per hectare achieved for the barley crop. The most significant average yield per hectare of barley was achieved in 2016 (3,822 kg/ha). In 2019, the average yield per hectare of barley increased by 14.01%, compared to 2015.

Table 3

The evolution of the average yield per hectare for the barley crop worldwide, during 2015-2019 (kg/ha)

Specification	2015	2016	2017	2018	2019	2019/2015 (%)
World-total	2,964	3,015	3,101	2,910	3,108	104.85
Africa	1,567	1,125	1,264	1,690	1,673	106.76
Americas	3,318	3,822	3,671	3,616	3,783	114.01
Asia	1,965	2,018	2,048	1,899	2,031	103.35
Europe	3,773	3,740	3,904	3,552	3,948	104.63
Oceania	2,193	2,249	2,830	2,304	2,049	93.43

Source: https://www.fao.org/faostat/en/#data/QCL ; own calculations

Oceania ranks third in the regional ranking in terms of average yield per hectare of barley. The most significant average yield per hectare of barley was achieved in 2017 (2,830 kg/ha). In 2019, the average yield per hectare of barley decreased by 6.57%, compared to 2015.

Asia, although it ranks 2nd in terms of barley production obtained, it ranks fourth in terms of yield per hectare. The most significant yield per hectare achieved for the barley crop was 2,048 kg/ha (2017). In 2019, the yield per hectare increased by 3.35%, compared to 2015.

Africa occupies the last position at regional level in terms of yield per hectare for barley production. The highest yield was recorded in 2018 (1,690 kg/ha). Here, in 2019, the average yield per hectare for the barley crop increased by 6.76%, compared to 2015.

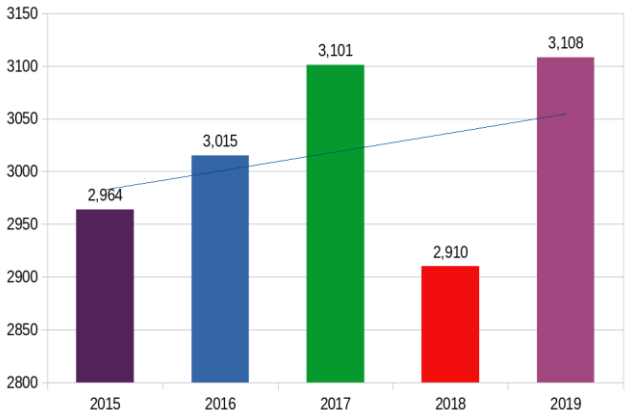

Fig. 3. Average production per hectare of barley worldwide, for the period 2015-2019 (kg /ha)
Source: Own design based on FAOSTAT database 2021

World trade in barley during 2015-2019 reflected a differentiated evolution. In table no.4 is presented the evolution of worldwide imports and exports of barley in the period 2015-2019.

Quantitative barley imports recorded worldwide fluctuated from one year to the next. The most representative quantitative imports of barley were in 2017 (39,237,488 tons), and the smallest were in 2019 (31,330,240 tons). In 2019, quantitative barley imports decreased by 12.38%, compared to 2015.

Table 4

Evolution of worldwide barley imports and exports, in the period 2015-2019 (tons)

Specification	2015	2016	2017	2018	2019	2019/2015 (%)
Import	35,754,892	33,964,238	39,237,488	34,525,663	31,330,240	87.62
Export	38,318,647	35,109,192	39,573,720	36,543,704	31,061,984	81.06

Source: https://www.fao.org/faostat/en/#data/QCL ; own calculations

Quantitative barley exports changed between 2015 and 2019. The most significant exports were recorded in 2017 (39,573,720 tons), and the smallest were in 2019 (31,061,984 tons). In 2019, world barley exports decreased by 18.94%, compared to 2015.

From the statistical data presented in Table no. 4 for the period 2015-2018 it can be noted that the world exports of barley were superior to the world imports of barley. There was only one exception, namely 2019, when world barley imports overthrew world exports by 268,256 tons.

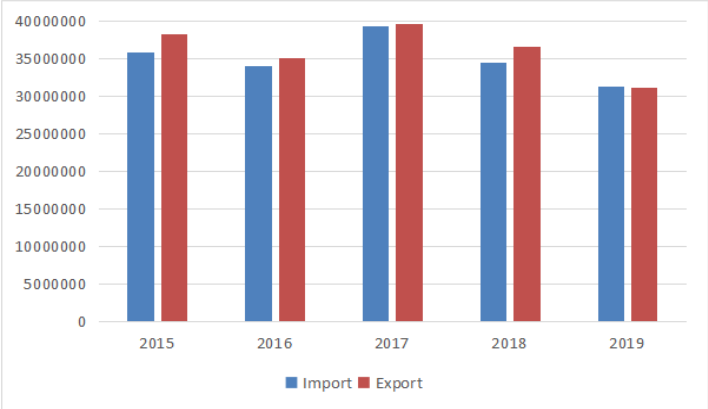

Fig. 4. Worldwide imports and exports of barley, during the period 2015-2019 (tons)
Source: Own design based on FAOSTAT database 2021

At the level of 2019, according to the published statistical data, it was found that France is on the first position in the top of the first barley exporters highlighted worldwide. France held in 2019 a share of 23.08% of the world's barley exports.

The following places in the top of barley exporters are occupied by: Russian Federation (12.68% of world barley exports); Australia (9.24% of the world barley exports); Argentina (8.10% of world barley exports) and Ukraine (7.56% of world barley exports).

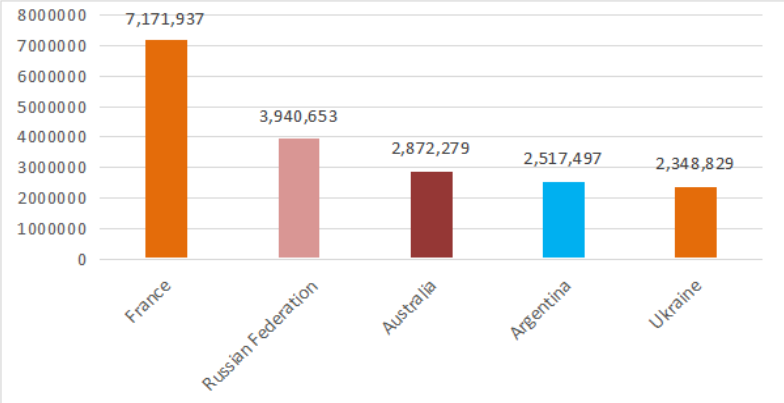

Fig. 5. Top of the first barley exporters registered at worldwide level in 2019 (tons)
Source: Own design based on FAOSTAT database 2021

In 2019, the world's top 5 exporters of barley held 60.66% of the world's barley exports.

CONCLUSIONS

Following the analysis of the main indicators specific to the production and sale of barley worldwide, the following results were obtained:

- The total area cultivated with barley worldwide increased by 2.63%, in 2019, compared to 2015;
- Europe is the leader in terms of barley-growing area;
- In 2019, the world's largest barley production was recorded, namely, 158,979,610 tons;
- In Europe, barley production increased by 4.85%, in 2019, compared to 2015;
- The most significant yield for barley worldwide was of 3,108 kg/ha (2019);
- In 2017, the world's largest imports of barley were recorded, of 39,237,488 tons;
- Global quantitative barley exports decreased by 18.94% in 2019 compared to 2015.
- France occupied in 2019, the first position in the top of barley exporters registered worldwide, with an export level of 7,171,937 tons.

In perspective mankind can rely on this cereal crop, because it can be grown on the one hand, both in regions with high temperatures, and on the other hand, at high altitudes.

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