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Sorg Culture - The Culture of the Future, According to the EU Strategy

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Abstract: Sorghum cultivation is integrated into the sustainable food system as it presents numerous advantages for human nutrition, having a nutritional value close to that of corn and wheat. It shows great biological and agricultural potential, which can contribute to the well-being and development of local communities, while also having a minimal impact on the surrounding environment, as it is an ecological crop. Sorghum meets the requirements of the E.U. strategy in the context of sustainable food due to the growing population, insufficient and unhealthy diets, as well as the unstable climatic context for agriculture. The study was based on an analysis of statistical data from various sources, an exploratory research to allow for the analysis and synthesis of E.U. agricultural policy.

Keywords: sorghum, benefits of sustainable food, sustainable food, organic farming, agricultural policy at EU level.

Introduction

Ranking fifth among global cereal crops—behind wheat, rice, maize, and barley—sorghum provides the primary source of nourishment for over 500 million individuals across more than 30 countries [1,3], with a particularly strong presence in sub-Saharan Africa [7,10]. Today, over 90 % of the world's sorghum acreage is concentrated in Africa and Asia (Fig. 1).

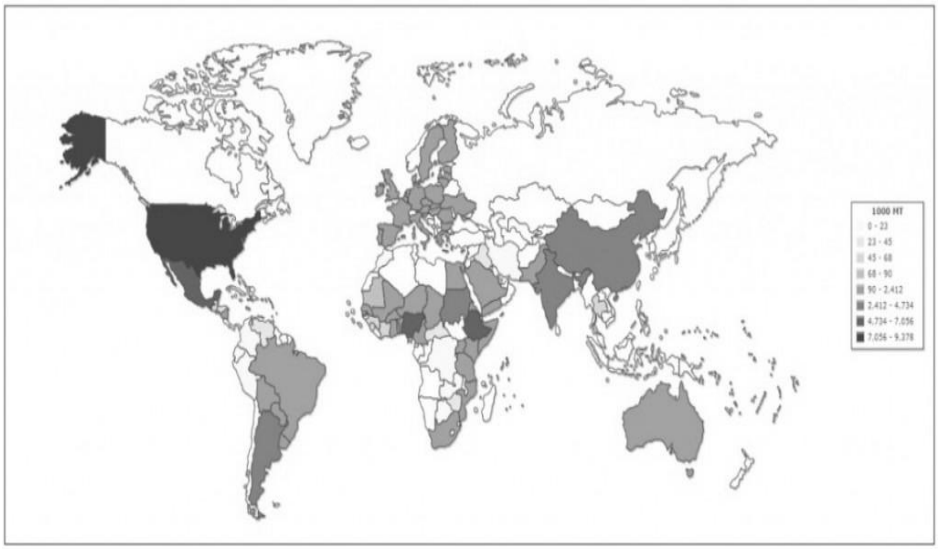

Fig. 1: Global sorghum production. Source: FAOSTAT

In the context of climate change in recent years, sorghum represents a safe alternative for farmers, having good agricultural potential, a plant resistant to drought, to uneven rainfall, a good precursor in crop rotations, with high biological potential, being used not only in feed rations, but also in human consumption, as the demand for sorghum increased to 30 million tons, on a global scale, in 2024.[2,4,5]

The EU Food Sustainability Strategy protects the environment and ensures healthy food for all, while guaranteeing livelihoods for farmers.

The food system, from production to consumption and waste, has a major impact on the environment, health and food safety. With the so-called "Farm to Fork Strategy", presented on 20 May 2020, the European Commission wants to build a sustainable EU food system that ensures food security and protects people and

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nature. (www.europarl.europa.eu/topics/ro/article/20200519STO79425/construirea-unui-sistem-alimentar-sustenabil-strategia-ue)

Materials and Methods

The study is based on statistical data from FAOSTAT, European Union Sorghum Area, Sorghum id.com end europa.eu.

The comparison and index methods were used as analysis methods.

The analyzed data refer to the period 2021/22-2024/25 (estimate), over a period of 3 years.

The research included a synthetic analysis of sorghum cultivation in the world, in the EU, but also in Romania, an assessment supported by the literature.

Results and Discussions

World sorghum production also increased in 2024, but also at the European level, as well as the areas cultivated with sorghum, for example, France, show an increase of almost 89% over the period of one year.

In 2024, world sorghum production was about 61.3 million t – an increase of 4.3% compared to the 2023 harvest (58.8 million t). Africa is at 28.3 million t, still in first place. The main African sorghum producing countries include: Nigeria (7 million t), Sudan (5.3 million t) and Ethiopia (4.1 million t). Although the United States remains in second place in the ranking of the largest sorghum producers, the harvest in this country decreased from 8.1 to 7.1 million t, due to difficult growing conditions: excessive heat and water shortage. India's production is also declining: 4.4 million t in 2023, compared to an estimated 4.2 million t in 2024. Production in Russia, China and Australia is relatively stable, unlike Mexico, Brazil and Argentina, where their levels increased, respectively, from 4.3 to 4.5 million t, from 5 to 5.2 million t and from 2.6 to 3 million t. In Europe, production is also estimated to increase from 0.8 to 1 million t (https://www.sorghum-id.com/ro/sorgul) Globally (source: IGC Grain Market Report, August 2024)

-Production year 2021/22: 61.4 million t

-Production year 2022/23: 57.7 million t

-Production year 2023/24: 58.8 million t

-Production year 2024/25: 61.3 million t (estimate)

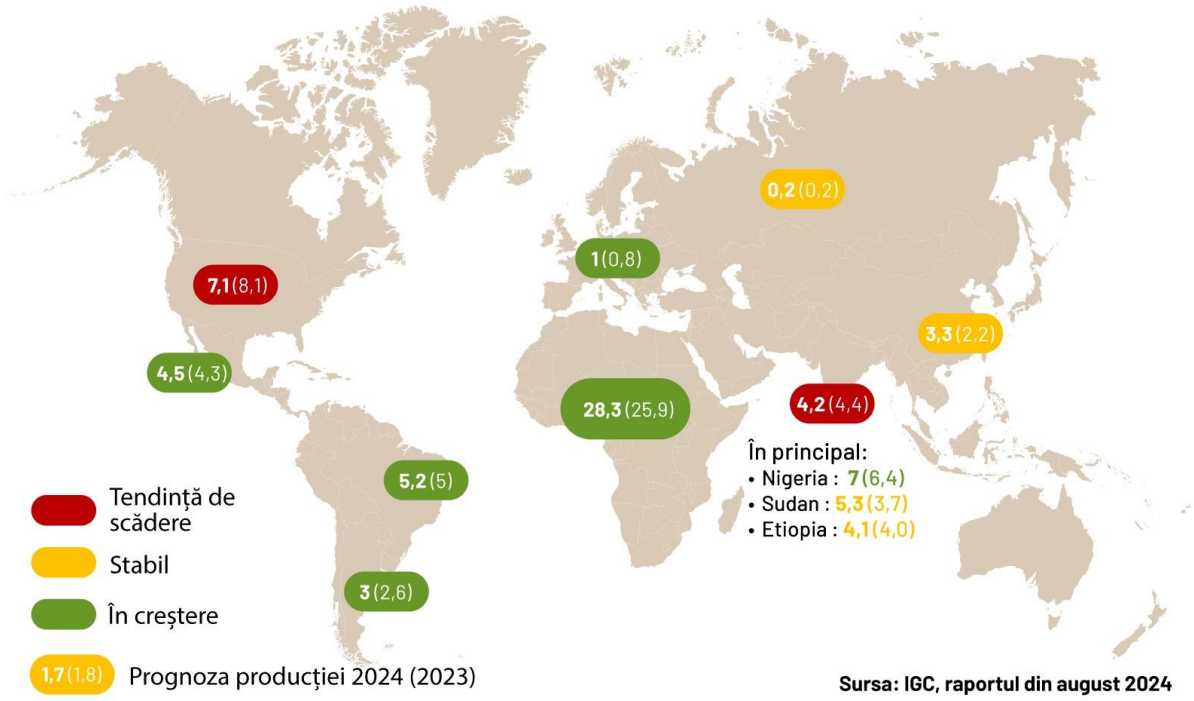

Fig.2 Sorghum production forecast 2024(source: IGC Grain Market Report, August 2024)

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Sorghum demand for human consumption increased by 5.9% in 2024, reaching 30 million t. This development was mainly due to the increase in Sudanese production, focused on this type of consumption. The feed sector seems to remain unchanged (at 24.5 million t), mainly caused by a reduction in demand in China, but also by the level of production in the United States. As for industrial consumption, it is estimated to increase by 2.4%, reaching 4.5 million t.

Europe: Sorghum area exceeds 250,000 ha Europe is doing well, recording a 34% increase in sorghum grain areas in one year. In the EU-27, France is the leading producer of sorghum, with an area of 103,000 ha, representing an increase of almost 89% in one year. It is followed by Hungary (44,940 ha), Italy (40,580 ha) and Romania (16,000 ha) – a country where recurrent drought is a real problem for spring crops, and where sorghum is a suitable alternative in farmers' rotations.[8,9,11,12]

Silage sorghum area in Europe increases by 11% The area under silage sorghum in the EU-27 is 98 000 ha, an increase of 11%, mainly due to France (+17%, to 35 000 ha), Italy (+20%, to 30 000 ha) and Poland (+5%, to 5 000 ha). Outside the Union, the strong growth of sorghum areas in Russia (+40%) is noteworthy, where silage sorghum covers almost 170 000 ha.

In 2024, the area allocated to sorghum seed production was 2600 ha – the largest multiplication area ever recorded in Europe. This historic figure indicates the increasingly important place that sorghum occupies in rotations.[3,8,9] The seed production harvested from this area will allow the replenishment of stocks, which are currently low due to the strong increase in the area sown with sorghum in 2024.(fig.3)

We recall that this area was only 675 ha in the 2018-2019 production year and 1950 ha in 2023 (+34%). The main producing countries include: Hungary (1050 ha), France (1006 ha) and Spain (400 ha).

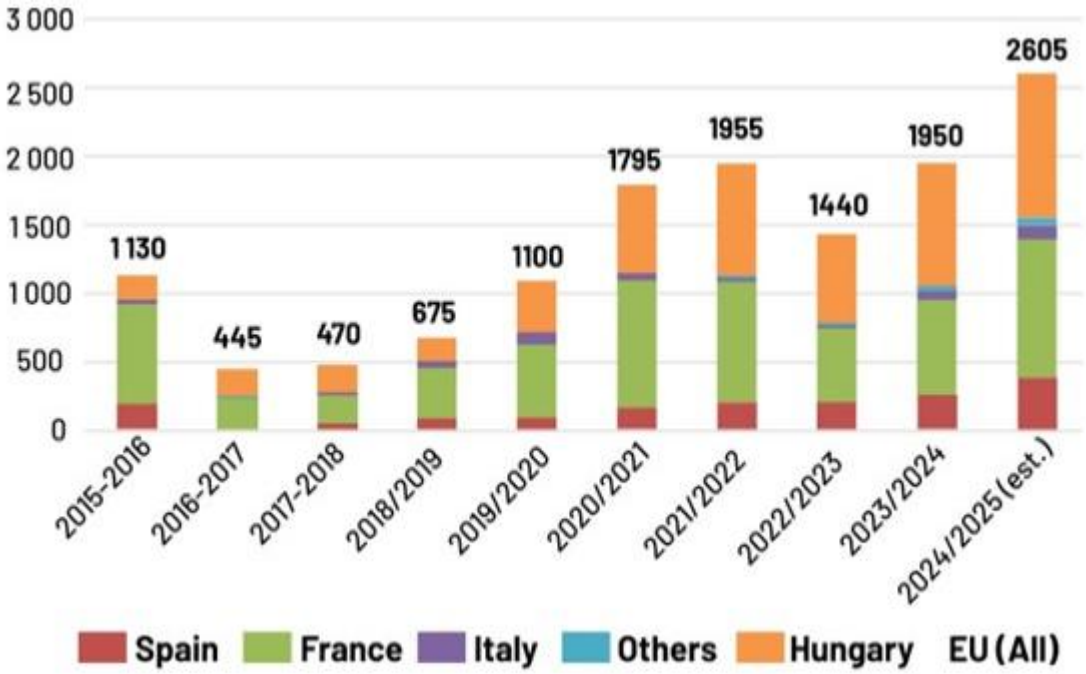

Fig.3 Evolution of areas intended for sorghum seed production in the EU (ha)

Compared to other cereal crops such as maize, rice, and wheat, sorghum yield is relatively low [4,9,13,14]average global yield of sorghum (~2.5 t/ha) is just at the lower level of the optimum yield, which ranges between 2.5 and 5 t/ha.

Sorghum contains numerous phytochemicals that act as antioxidants in the body, such as tannins, phenolic acids, anthocyanins, phytosterols and polycosanols. The integument of the sorghum grain containsmany antioxidants compared to blueberries, strawberries and plums. Antioxidants play a rolein slowing downaging process, and foods rich in antioxidants are associated with a reduced risk of heart disease,diabetes, cancer, type 2 diabetes, and some neurological diseases [1,5,6,]

According to an April 2021 Eurobarometer survey, around a third of Europeans buy and consume predominantly organic food (32%), buy and consume less meat (31%), and 16% take into account the carbon footprint of the food they buy and sometimes change their purchasing decisions accordingly.

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Consumption patterns are changing, but with more than 950,000 deaths linked to unhealthy diets in 2017 and half of adults overweight, there is still much progress to be made. To make it easier to make healthy choices and make informed decisions, the Commission is proposing a mandatory harmonised front-of-pack nutrition labelling system.

The EU is the world's largest importer and exporter of agri-food products, as well as the largest market for fishery products. European food meets the highest global standards and the strategy aims to promote a global transition to sustainability, in cooperation with partners and through trade agreements.

Conclusions

Sorghum is promoted in the E.U., it benefits from funds, thanks to the development and research strategy under the coordination of Sorghum ID Inter professional Association, by creating new varieties of sorghum with a high production yield, with great development potential, in Europe and Romania.

Farmers want productive, profitable and sustainable crops, so this crop is sustainable, in the context of global warming in recent years, being a crop with many benefits for the environment life, with high nutritional value, but also with agricultural potential, being an economic crop.

EU agriculture is the only major agricultural sector in the world that has reduced its greenhouse gas emissions (by 20% compared to 1990), it is still responsible for around 10% of greenhouse gas emissions (of which 70% are due to animals). Along with production, processing, packaging and transport, the food sector is one of the main drivers of climate change.

The strategy foresees a change in the way we produce, buy and consume food to improve our environmental footprint and contribute to climate change mitigation, while protecting the livelihoods of all economic actors in the food chain, by generating fairer economic returns and providing new business opportunities.

(www.europarl.europa.eu/topics/ro/article/20200519STO79425/construirea-unui-sistem-alimentar-sustenabil-strategia-ue

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