Chapter 12
Descriptive Analysis of Maize Characteristics

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ABSTRACT

In this chapter, the authors followed the trend of the movement of maize according to selected variables: harvested area (in ha), production (in t), and the value of maize exports (thousand USD). The movement of these variables was observed in the example of twenty-seven European countries that have available data in the period from 2010 to 2022. The aim of the research was to determine the changes that occurred in the analyzed countries during the observed time period and according to the variables in terms of growth and/or reduction of average indicator values. The basic source of data was the FAOSTAT database, but also other relevant scientific and professional literature. The results of applying descriptive statistics showed that the greatest deviation from the arithmetic mean was recorded in the value of maize exports (Cv = 209.3493), while the Pearson correlation coefficient showed that the strongest correlation was between production and area harvested of maize (.955). Finally, a conclusion was given according to the graphic presentation in the form of a trend line of maize production.

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THE SCENARIO

Agriculture is a very complex activity that does not only include livestock production with livestock products, but also and plant production (Grujić Vučkovski et al., 2022; Marina et al., 2023). Considering rapid demographic, economic and lifestyle changes, the production of primary plant crops in the world increased by 50% in 2018 compared to 2000, i.e. by about 9.2 billion tons (FAO, 2020). There are forecasts that the demand for cereals at the global level could increase by approximately 10,094 million tons in 2030, i.e. 14,886 million tons by 2050, which is caused by increased pressures in the sphere of society, demography and economy. (Islam, Karim, 2020). Cereals are characterized by good nutritional values, primarily in terms of the content of minerals, vitamins and micronutrients. Also, the caloric values are very emphasized. A group of authors Farooq et al. (2023) have observed that developing countries consume more cereals than developed countries (per capita). The mentioned authors consider cereals to be a high-quality source of calories because they have a high caloric value, so they came to another conclusion, namely that in the population of developing countries, as much as 60% of the total calories consumed comes from cereals, while in developed countries this share is double less (about 30%). Although maize has a good caloric content, it is considered that it is not represented enough in human nutrition, taking only the third place. The explanation for this conclusion was found by the authors Gwirtz and Casal (2014), Okoruwa (1997), and Kaul et al. (2019). They consider that, on the one hand, the majority of the global population consumes food that is quickly prepared, while on the other hand, most countries grow corn that is for animal feed.

Along with wheat and rice, maize (*Zea mays*) is considered an important crop that contributes to global food security (Farooq et al., 2023, Dragomir et al., 2022). Maize is one of the most important cereals grown as an annual plant in different parts of the world, especially in the United States of America (abbr. USA) which accounts for 48% of world production. After the USA, among the leading countries in the world in maize production are China and Brazil (Kaushal et al., 2023).

As it is known there are several varieties of maize: sweet corn, popcorn maize, maize for cattle feed, etc. Maize can be used for different purposes: in its fresh state for human nutrition and making flour; for feeding cattle in the form of maize silage; in industrial production, maize is most often the raw material for biofuel production (Wallington et al. 2012; Courtois et al. 1991; Kaushal et al., 2023). Accordingly, the following is a brief overview of the significant economic, nutritional and biotechnical characteristics of maize, which make it considered one of the most important cereals at the global level: