

LENTIL – A BENEFICIAL LEGUME CROP**Iloxomxonova Dilafruz Ilyos kizi**

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ABSTRACT: This article discusses the importance of the lentil plant in agriculture, its nutritional value, and the economic efficiency of its cultivation. It highlights that lentils are rich in protein and contain many vitamins and minerals that are important for human health. In addition, its resistance to drought, low water requirements, and its role in improving soil fertility are analyzed. The article also provides information about the role of lentils in crop rotation systems, global production indicators, and the prospects for developing this crop in the future.

KEYWORDS: Lentil, legume crop, nutritional value, protein, vitamins, soil fertility, crop rotation, drought-resistant, agriculture, food security.

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Lentil is one of the leguminous plants that has been cultivated by humanity since ancient times. It stands out for its high nutritional value, quick cooking, and beneficial properties. Lentils contain many vitamins, minerals, and proteins, which are very beneficial for human health. For this reason, lentils are widely grown in many countries around the world and are used as a food product.

Lentil is considered one of the important legume grain crops that has been cultivated since ancient times. This crop has high nutritional value and is distinguished by its high content of protein, vitamins, and minerals. Therefore, lentils are widely grown in many countries and occupy an important place in the human diet.

Currently, the global lentil cultivation area exceeds approximately 5 million hectares. Every year, more than 6.5 million tons of lentil grains are produced worldwide. These figures demonstrate the significant importance of this crop in agriculture.

The lentil plant requires little water, is drought-resistant, and grows well under various soil and climatic conditions. In addition, as a legume crop, lentils play an important role in improving soil fertility. Therefore, they are widely used in crop rotation systems in many countries.

The lentil plant is important not only as a food source but also for enhancing soil fertility in agriculture. As a legume, nitrogen-fixing nodule bacteria develop in its roots. These bacteria absorb free nitrogen from the atmosphere and enrich the soil with nitrogen. As a result, the nutrient content of the soil increases for subsequent crops, positively affecting their yield.

Lentil grains have high nutritional value and contain up to 25–30 percent protein. In addition, they are rich in minerals such as iron, potassium, and phosphorus.

It is also rich in B-group vitamins. For this reason, lentils are considered a very beneficial food product for human health. Being particularly high in protein, they occupy an important place in the diets of vegetarians and people who follow a healthy lifestyle.

Nowadays, various food products are made from lentils. They can be used to prepare soups, purees, salads, and a variety of traditional dishes. In some countries, lentils are processed into flour and used in the production of various baked goods and semi-prepared foods.

The adaptability of lentil plants to different climate and soil conditions helps them spread widely around the world. This crop grows well in various types of soil and can tolerate low moisture conditions. Therefore, lentils are successfully cultivated even in drought-prone regions of many countries. In addition, they are also beneficial in crop rotation systems with other crops, as they help protect the soil from diseases and pests.

The economic benefits of lentil cultivation are also significant. Lentils stand out for their short growing period, low resource requirements, and high market demand. For this reason, many agricultural producers prefer to grow lentils. Lentil exports are increasing worldwide, making them economically attractive in the international market. For example, Canada, India, and Turkey are leading countries in lentil exports.

Moreover, lentils have many health-promoting properties. The protein and vitamins they contain help strengthen the immune system, improve blood composition, and support the development of bones and muscles. For this reason, lentils occupy an important place in diets that promote a healthy lifestyle.

In the future, developing lentil cultivation and creating new high-yielding varieties will be an important factor in ensuring agricultural development and food security.

The demand for lentils (*Lens culinaris*) is also increasing, particularly in Central Europe, most likely due to migration flows. Today, the leading producers of lentils include the United States, China, Turkey, India, Nepal, Australia, Syria, Ethiopia, and Morocco. The contribution of other countries to lentil production is relatively small.

Generally, the purchase of lentils is important for countries that import other grains, such as countries in Southeast Asia and some African nations.

In terms of nutritional value, lentils are rich in plant proteins, containing 25–35 grams of protein per 100 grams. For cooking, large-seeded lentils, often called “Heller lentils,” are usually used. This name originates from coins used in Germany and Austria in ancient times.

Lentil grains are easily digestible compared to other members of the legume family, and their proteins are absorbed much better than proteins derived from meat. Additionally, lentils are rich in vitamins and microelements, especially iron, making their nutritional profile superior in many respects. Lentils are often processed into flour for cooking purposes.

Due to their high protein content and nutritional value, lentils have been used in traditional medicine for a long time. Lentil grains contain a range of vitamins, amino acids, proteins, and carbohydrates. They are also a functional legume crop rich in bioactive compounds such as polyphenols, saponins, and phytosterols.

Several studies have shown that the consumption of lentils may help reduce the prevalence of certain chronic diseases due to their biologically active compounds. The most common polyphenols in lentils include phenolic acids, flavan-3-ols, flavonols, anthocyanidins, antioxidants, and proanthocyanidins. These compounds, especially anthocyanins, play an important role in preventing several degenerative diseases due to their strong antioxidant activity.

Lentils are valued not only for their economic benefits but also as a crop that ensures ecological sustainability. Therefore, increasing lentil productivity through scientific research and developing varieties resistant to diseases and pests are considered important and urgent tasks.

In addition, lentils are regarded as one of the promising crops in agriculture. In the context of climate change, the efficient use of water resources is becoming increasingly important. Since lentils require relatively little water, they can produce stable yields even in drought-prone areas. For this reason, expanding lentil cultivation areas and developing new high-yielding varieties will be among the important tasks in the future.

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