

Saffron growing in Uzbekistan and prospects for its development

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Abstract: Cultivation, breeding and establishment of industrial plantations of saffron and other promising medicinal plants in the soil and climate conditions of our Republic and the establishment of industrial plantations are not only used in the local pharmaceutical, food and perfumery, cosmetology industries, but also produce valuable products in the world market. creates an opportunity to export as

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Introduction

During his visit to Kashkadarya region on February 23-24, 2017, the President of the Republic of Uzbekistan familiarized himself with the project for the cultivation of medicinal plants, including the establishment of saffron plantations in our republic, the provision of the needs of the pharmaceutical industry, and the organization of the reproduction of medicinal plants for export, and gave relevant instructions and assignments. In accordance with it, the minutes of the meeting No. 114 held in the Cabinet of Ministers on August 21, 2017 "On measures to establish saffron plantations in our republic, to meet the needs of the pharmaceutical industry and to organize the reproduction of medicinal plants for export" to ensure the implementation of the decision No. EDO-03/1-421 practical measures have been started. During this period, that is, until 2021, large-scale work was carried out in this area. 2-3 hectare mother plantations of the saffron plant were established in different soil and climatic conditions of our republic (in 23 farms under the State Forestry Committee, in the irrigated plain areas of Andijan region to Surkhandarya region, in the moderately saline irrigated plain area of Navoi and Bukhara regions).

It is known that in order to eliminate the negative consequences of the coronavirus pandemic, fundamental changes have been implemented to ensure the rapid development of the Republic of Uzbekistan, to expand investment activities and to stimulate exports. As a result, conditions were created for the development of cooperation between local and foreign companies.

One such example is BMB Trade Group and Fin.OPERA s.r.l. (Italy) is an investment project for the delivery, processing and export of the saffron plant (*Crocus Sativus L.*) from Italy to the foreign market for the first time.

In March 2020, the BMB-Opera Zafferano Uzbekistan-Italy joint venture was established by the above-mentioned companies. Based on the decision of the head of state on April 10, 2020 "On measures for the protection of medicinal plants growing in the wild, cultivated cultivation, processing and rational use of available resources", the joint enterprise received the status of a cluster of medicinal plants.

By 2020, the company has taken over all measures for the development of saffron cultivation and the establishment of large-scale production plantations in Uzbekistan. Plantations for the export of saffron raw materials were established on 55 hectares in the highlands of Bakhmal district of Jizzakh region. This year alone, 120 kg of plant raw materials were obtained, and real national Uzbek saffron under the BMB ZAFARON brand was presented to our country and foreign consumers. The most important thing is that the national product received the 1st category according to the analysis conducted in one of the leading European laboratories. This is a high status. According to foreign experts, our product can easily compete with saffron varieties grown in Europe.

It should be noted that all the processes from planting saffron to harvesting, processing, and packaging were carried out under the supervision of the scientists of the Italian University of Piacenza and the direct supervision of Italian experts.

It is known that in a series of video selector meetings held under the chairmanship of President Shavkat Mirziyoyev, the issue of providing employment to women was emphasized several times, and the areas that needed special attention in this regard were clearly indicated. As one of these directions, the proposal to expand the experience of the VMV Trade Group company on the cultivation of saffron on the national scale was also put forward. According to the proposal of our head of state, the task of establishing 50 hectares of saffron plantations in each of a number of mountainous districts of our republic was set. If this project is implemented, more than 50,000 women in remote villages will be provided with seasonal work, as well as production of export-oriented products with high value tax will be launched. This, in turn, serves to expand the source of income of the population.

In general, this project also includes the production of additional industrial products in the field of pharmaceuticals and cooking. This provides many thousands of local residents with permanent and seasonal jobs.

National economy of saffron



Juvenile stage (j). At this stage, the number of leaves of the plant is 1-2 and their length is 1-1.5 cm. up to length. The upper part of the resulting leaves is pointed, band-shaped, the central part is concave along the length, and it is bordered with yellow-brown spots. Juvenile stage lasts 2-3 days in planted saffron.

Picture



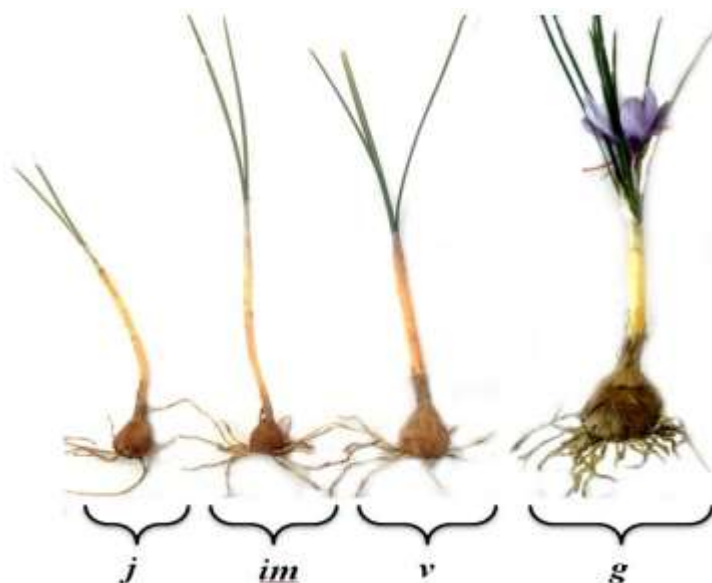
Immature stage (im). In August of the second year, the lateral roots of the young bulbs develop. In this case, the third and fourth leaves develop on the main branch with a growth cone. In rare cases, the immature phase is not observed when the plant enters the generative phase already in the first year of vegetation. Because of this, during the juvenile stage, a bud wrapped in a white veil begins to form between the leaves of the plant in 2-3 days.

Picture



Virginil stage (v). The transition of the plant to the generative period begins with the development of young onion side roots and the formation of 3-4 leaves in the plant in the virginal state (in the second year of vegetation). In general, the pregenerative period lasts 12-13 months in a planted saffron plant.

Generative period (g). The transition to the generative period in the plant is observed in plants planted from large-caliber bulbs in the first year. In most cases, the generative period is observed in the second, third and, in rare cases, the first vegetation years in plants planted from small-caliber bulbs. In the course of research, it is observed that the role of external environmental factors (light, air temperature, relative air humidity, soil temperature and humidity) in the duration of plant growth and development period is large. This directly depends on the development of the newly formed bulb.



Ontogeny period and stages of Crocus sativus

It takes 2 days for the bud to fully form. After 5-12 days of flowering, the plant is dormant for 6-8 days. During this time, the plant accumulates the necessary nutrients for vegetative reproduction. 10 days after the end of the flowering phase, when the underground bulbs of the plant are observed, it is observed that a new bulb has started to form on the side of the main mother bulb. At the end of February, at the beginning of March, the newly formed bulb is fully formed and separates from the main mother bulb. At this time, the diameter of the newly formed bulb reaches 1-1.5 cm, the length of the tumor reaches 2-2.5 cm. When the bulbs of the plant are dug in the middle of August, the newly formed bulbs are in a completely separated state, and they are placed on separate floors 10 cm apart. can be planted deep. At the beginning of September, bulbs begin their vegetation. Leaves begin to form from the tip of the tumor, which has developed for two days. It takes 3-4 days for the leaves to fully form. Most of the bulbs planted in the first year do not go through the

flowering phase. But their bulbs and additional rhizomes developed rapidly. In all these plants, the flowering process is observed from the second year.

Establishment of saffron plantations in Uzbekistan

It is known that cultivated saffron as an ephemeroïd plant is rarely found in nature. The raw material of the fragrant spice plant saffron (saffron) is valued in the international market and has been used since ancient times as a means of regulating the health of the human body. Therefore, the plant is planted as a plantation in areas with soil and climatic conditions that are compatible with the bioecological characteristics of this plant.

In the establishment of saffron plantations, the soil and climatic conditions of the region have been scientifically studied, different periods, planting norms, preparation of the area before the establishment of the plantation, and agrotechnical measures to be carried out in the plantation are defined differently in different regions:

1. In regions with soil and climate conditions of the countries around the Mediterranean basin, Southern Europe, Western and Eastern Europe and North Africa. The establishment of plant plantations is scheduled between the end of September and mid-October, taking into account whether the autumn season is temperate or humid subtropical. The saffron plant is planted flat on the floor from the bulb. To establish a plantation, 4-5 tons of plant bulbs are used on 1 hectare. So, 400,000 - 450,000 pieces of 10 - 12 gauge onions are used on 1 hectare. For the normal course of growth and development of plants in the plantation, it is cleaned of weeds once in late autumn and early spring. In June of the year, the plants in the plantation go into a dormant period.

2. In the countries of Iran (Northern, Western and Central Mashhad regions, Northern Iranian regions), Azerbaijan (4-5 districts on the Obshoran peninsula around Baku) and Afghanistan (Herat region, now plant plantations are being established in the northern regions as well). The soil and climatic conditions of these regions are extremely dry, hot in summer and cold in winter. Plant bulbs are planted in flat areas at the rate of 3 tons per hectare. If 10 - 12 gauge onions are planted in the field, 250,000 - 270,000 onions are used per hectare. Taking into account that the soil and climate conditions of these countries are very different from the soil and climate conditions of the countries around the European and Mediterranean basins, agrotechnical measures to ensure the growth and development of the plant are somewhat difficult. We will present our thoughts in the section on the actions taken to establish saffron plantations in the territories of Central Asian countries (Uzbekistan, Tajikistan, South Kazakhstan, Kyrgyzstan and Turkmenistan).

3. The establishment of saffron plantations in Central Asian countries (Uzbekistan, Tajikistan, Kazakhstan, Kyrgyzstan and Turkmenistan) in the soil and climate conditions started in 2017 in Uzbekistan. Many scientific studies were carried out by the scientists of "Saffron Scientific Research Center" LLC regarding the establishment of plantations. As a result of scientific research, the period of establishment of plantations in this region, the amount of planting bulbs, agrotechnical activities for the growth and development of plants, and activities such as harvesting and sorting of raw materials were determined.

It was taken into account that the climatic conditions of these regions are rapidly changing, hot or very hot in summer (40-45 °C), some years are dry or very cold in the winter season, and the eda factor (soil) is complex in terms of hygroscopic and hygroscopic properties of the soil. If 10-12-caliber bulbs are planted in the field, 90,000-92,000 bulb bulbs are used per hectare. If 8-10 caliber bulbs are planted in the field, 1 hectare of land 130,000 - 150,000 pieces of onion are used. Saffron bulbs planted in local conditions were planted in rows in a strict order. It was observed that the bulbs of the plant planted on a flat area or on the floor had poor growth and development due to several reasons.

If saffron tukanak bulbs are planted in rows, it becomes easier to carry out agrotechnical measures:

- Cultivation spells are performed. 60-70% of weeding is done with tractors and manual labor is reduced.
- When the plants are weeded by hand, a person walks in the ditch and performs this task.

- During the implementation of irrigation measures in the field, the soil contaminated with water affects the plant not from the top, but from the bottom or from the root side.

- In the process of performing all activities, a person does not step on a plant planted in the field or is constantly protected from loosening the soil.

- Prevention of loosening of the soil, hygroscopic and hydrosopic condition of the soil, i.e., the development of plant bulbs in soft places causes the rapid increase of plant bulbs.

- The positive condition of the soil ends with the quality of plant raw materials.

Even when the plant is collecting flowers, the fact that the plant is planted in the ditches is a positive situation. The same is the case when picking flowers of plants, a person can walk in the ditch and collect flowers in comfortable conditions.

Here the question arises: why Uzbekistan?

The fact is that today in our country every idea, innovative project, and business relations aimed at diversifying the economy are supported. Inspired by this process, BMB Trade Group decided to grow saffron in Bakhmal district, process it and export it to European markets in cooperation with the Italian company Fin.OPERA SRL. The decision of the President of the Republic of Uzbekistan on April 10, 2020 "On the protection of wild medicinal plants, cultivation, processing and rational use of available resources" was an important support for the further development of work in this regard.

As mentioned above, saffron is a very medicinal and aromatic spice, its price is very high in the world market. At the same time, all the work from planting it to harvesting is a complex and delicate process. Taking this into account, the BMB-Opera Zafferano Uzbek-Italian joint venture cluster of medicinal plants under the company is carrying out these works with great responsibility. These processes are carried out in cooperation with Italian experts and scientists of the "Shafran" scientific research center.

In October 2020, saffron bulbs were brought to Uzbekistan in the form of direct investment from Italy and planted on 55 hectares of the Bakhmal district allocated for the company. The first finished product entered the Uzbekistan and foreign markets. Most importantly, experts, representatives of the business community, and ordinary consumers warmly welcomed the new product in our local market.

Therefore, it is intended to expand the scope and geography of the project. The supply of saffron products as raw materials to pharmaceutical, culinary, and perfumery industries using saffron harvest will be launched.

In due course, it should be said that the large STE company of Saudi Arabia also imported this saffron product grown in Uzbekistan. In particular, the chairman of the company, Ubaidulla Siddiqui, repeatedly emphasized the competitiveness of Uzbek saffron in all indicators, and its strong position in the Saudi market.

The saffron project has a positive impact on another important issue - creation of new jobs, employment of the population. In general, within the framework of all the company's projects, thousands of permanent and seasonal jobs have been created to date. Regular attention is paid to such activities to ensure the employment of the population. In particular, at the meeting of the video selector held in February this year under the chairmanship of the head of our state, officials were given a strict task to solve women's problems and provide them with social support. In response, it was decided to grow saffron on 50 hectares in each of Zomin, Bostonliq, Urgut, Kitab, Shahrisabz, and Chortoq districts. If this plan is implemented, conditions will be created to provide seasonal work for a total of 50-60 thousand women in these regions.

The company does not stop its strict aspirations in this regard, on the contrary, it continues to expand the scope of such investment projects based on new innovative ideas.

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