ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 09,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

MELON GROWING TECHNOLOGIES AND EXTERNAL ENVIRONMENT RELATIONSHIP TO FACTORS

O.R. Umarov

associate professor (PhD)

M.O. Rajabov

2nd year master's student

Annotatsiya: Ushbu maqolada respublikamizda yetishtirilayotkan qovun navlari hamda yetishtirish haqida ma'lumotlar keltirilgan. Aholining yil bo'yi qovun mahsulotlarini iste'mol qilish muddatini uzaytirish yil davomida vaqtidan oldinroq qovun iste'molini yo'lga qo'yish uchun bir nechta usullar va tashqi muhit omillariga munosabati tog'risida yetarlicha bayon qilingan.

Аннотация:В статье представлены сведения о сортах дынь, выращиваемых в нашей республике, и особенностях их выращивания. Также представлено достаточно информации о ряде методов и экологических факторов, способствующих продлению срока круглогодичного потребления дынь населением, в том числе за счёт внедрения дынь в более ранние сроки в течение года.

Abstract: This article provides information on the varieties of melons grown in our republic and their cultivation. It also provides sufficient information on several methods and environmental factors for extending the period of year-round consumption of melons by the population, including the introduction of melons earlier than usual throughout the year.

Kalit so'zlar: Mulchalsh, qovun, Amiri, Beshak, Oqqosh, Gulobi, Bo'rikalla, plyonkali yopqich, tunnel, dekada, issiqsevar.

Ключевые слова:Мульча, дыня, Амири, Бешак, Аккош, Гулоби, Борикалла, пленочное покрытие, тоннель, декада, теплолюбивый.

Key words: Mulch, melon, Amiri, Beshak, Aqqosh, Gulobi, Borikalla, film cover, tunnel, decade, heat-loving.

Central Asian melon cultivation has a centuries-old history, and during this time melon has been revered as the most valuable food product loved and consumed by people. N. I. Vavilov (1926) noted that Central Asia is considered the birthplace of cultivated plants and the secondary birthplace of melon, where its large variety is concentrated. Many varieties of melon have been created by folk breeders, adapted to cultivation in various soil and climatic conditions. There are also such narrow local varieties that are adapted to cultivation within a certain region, even a separate settlement. On the basis of many local varieties, new selection varieties have been created that have a wide distribution scale.

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 09,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

Currently, more than 160 cultivated varieties of melon are widespread in Uzbekistan , which differ in ripening time, yield, taste, and shelf life of their fruits, and most of them have gained fame in the world. Currently, 36 varieties of melon are included in the State Register, of which: 9 are early-ripening, 15 are mid-ripening, and 12 are late-ripening varieties. Eight of the varieties included in the State Register belong to local varieties. Most of the melon varieties included in the State Register have been cultivated for several decades.

The Republic of Uzbekistan is the largest melon-growing region in Central Asia. Here, more than 35-40 thousand hectares of land are allocated for melon crops every year, and the gross yield is 450-500 thousand tons, of which 5.5 thousand hectares are planted with melon crops in Karakalpakstan, and the gross yield is 39 thousand tons.

The Bukhara oasis is located in the central plain of the republic, surrounded by the Kyzylkum and Karshi deserts. The climate is typical of a desert region, with an average air temperature in July of +29.6°C, a small amount of atmospheric precipitation of 114-125 mm, strong winds and extremely dry air. The sum of positive temperatures is 4680-4794°C.

Melon fruit has excellent taste and many beneficial properties. It contains 85.0-92.0% water, 8.0-15.0% dry matter, 0.8% protein, 1.8% fiber and 6.2% other carbohydrates, 0.9% oil, 0.6% ash, 20.0-30.0 mg/% vitamin C, 0.03-0.07 mg/% other vitamins, microelements such as Zn, Fe, Ca, Mg, K, P, organic and mineral salts. The sugar content in the fruits of Central Asian melon varieties reaches 14.0-16.0%. Due to the high content of fructose in the composition, the flesh of the melon is very sweet, and when there is more glucose, the flesh has a sweet taste.

These qualities determine the importance of melon in terms of dietary nutrition, medicinal properties and use in folk medicine. The works of the great scholars and physicians Iskari Alim (IV century BC) and Abu Ali ibn Sina (X century AD) mention the use of melon in the treatment of many diseases. The medicinal properties of melon have also been confirmed by modern medical science. Its consumption helps to regulate many physiological processes. It is used as a medicinal agent in diseases of the kidneys, stomach, liver, as well as in atherosclerosis, bronchitis, tuberculosis, gout and anemia. Melon seed tinctures are used to treat coughs, skin and stone diseases.[1]

In general, it has been scientifically proven that soaking seeds in a 0.5-1.0% copper sulfate solution for 1 hour before planting to increase germination capacity increases yield by 13-14% and seed germination by 8.7%. Methods to extend the period of consumption of fresh watermelon products by the population of our republic throughout the year:

1. Using various methods of growing fairy products.
2. Introducing late-ripening varieties that can be stored for longer periods and improving product storage methods.

There are several intensive methods to extend the period of year-round consumption of fresh melons by establishing earlier melon consumption throughout the year. Methods for growing tomorrow's melons include mulching the soil, planting the crop from seedlings, planting from seedlings and seeds under temporary film covers, and growing in protected heated and unheated greenhouses.[2]

The first method is mulching the soil. Mulching is carried out simultaneously with sowing seeds or after sowing. In this case, a film is covered over the rows of crops and its edges are covered with soil. After the emergence of the seedlings, holes are made in the film so that the plants can emerge from the surface. The film is left on the plants throughout the entire growing season and is removed after the harvest. In this method, the crop is sown one to two

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 09,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

weeks before the planting date in open ground. The method of planting seedlings with mulching the soil also allows for a higher yield.

The most effective way to accelerate melon cultivation is to plant the crop from seedlings in open ground. This is the second method, and most of our farmers use this method. The resulting trenches are covered with a white film as mulch. The film is perforated every 70 cm. Phosphorus fertilizer is diluted in the perforated areas. To prepare the diluted phosphorus, 2 kg of ammophos fertilizer is added to 10 liters of water, boiled and dissolved. The prepared solution is mixed in 10 liters of water and poured into each hole at the rate of 1 liter. 100 kg of phosphorus fertilizer is used per hectare of area. 7100 seedlings are planted per hectare.

Method three. Mulching seedlings under temporary film-cover. Under temporary film-cover For cultivation, early-maturing, short-stemmed, disease-resistant varieties of watermelon are used. Specially prepared 35-45-day-old seedlings are planted and covered with polyethylene film in a single-layer layer.

Immediately after planting seedlings or sowing seeds, it is necessary to begin installing a film cover in the form of a tunnel. A strip with an irrigation furrow running through the middle of each tunnel covers two rows of crops. The width of the tunnel is 160-180 cm, the height is 60-70 cm, and the length (50-60 m) depends on the conditions. The space between the strips is 180-190 cm, which is left open and serves as a corridor. Later, the plant's foliage is placed in this corridor. [3.4]

Climatic conditions, soil fertility, humidity, feeding area and agrotechnical measures affect the development of plants. **Temperature.** Melon is very demanding on heat. Its seeds begin to germinate when the soil temperature is +13…+16°C. The optimal temperature for melon development is +25…+30°C. When the temperature drops to +12…+15°C, the growth of the plant slows down, the flowers fall off, and at -1°C the plant dies. High temperatures (above +40°C) have a negative effect on plant growth. Melon crops have acquired xeromorphic, that is, drought-resistant properties during their evolutionary development, and have adapted to living in hot, dry and semi-desert climates. This is manifested in the ability of its seeds to withstand temperatures up to +60…+70°C and then germinate in moist soil for 2-3 days. Grasses die when the temperature drops to 0°C. Established plants are damaged at temperatures of +3…+5°C. However, during the growth and development of plants, as well as an excess of moisture, insufficient temperature significantly prolongs the period from seed germination to the flowering of the mother flower. The plant's high temperature requirements are observed during flowering and fruit formation. The most favorable temperature during the growth and ripening of fruits is +30…+35°C. High temperature and air humidity during flowering have a negative effect on flowers, causing them to become sterile. Melon plants have high drought and heat tolerance. Varieties from Central Asia and Asia Minor are more heat-resistant than European varieties. Summer varieties are also generally more heat-resistant than late varieties. Depending on the variety, for melon fruit to ripen, the sum of effective temperatures above +10°C during the entire growing season should be 2800-3200°C. **Light.** Melon is a short-day photophilous plant. It needs full sunlight and does not tolerate shade. The reduction of daylight hours to 9-10 hours during the period of germination and the formation of the first true leaf causes the mother flowers to bloom 7-8 days later than plants grown in full daylight. **Soil.** Melon is distinguished by its high adaptability to soil conditions and can be grown on moist meadow soils, on loamy soils with deep groundwater, as well as on saline soils. However, not all varieties of melon retain their varietal characteristics equally well on different soils. **Humidity.** Despite its relative resistance to air and soil drought, melon is a moisture-loving

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 09,2025
Journal: https://www.academicpublishers.org/journals/index.php/ijai

crop. The different water requirements of varieties determine the development of the root system. The highest water demand is observed during the fruiting period. An excess of moisture in the soil and air also has a negative effect. High humidity reduces the sugar content of the fruit and allows fungal diseases to develop. Due to the lack of moisture in the roots, the plant effectively uses its minimal reserves, which determines the drought resistance of the variety. Melon is an annual herbaceous plant. Its entire life cycle consists of two periods: the period from germination to the flowering of the mother flowers and the period from the formation of fruits to their physiological maturity. It has a spreading hairy stem, which is crowned with primary, secondary and secondary peduncles, each of which is from 1 to 4 meters long. The total number of peduncles of melon grown in irrigated areas of Uzbekistan reaches 20 meters.

In conclusion, it can be said that Melon is grown on non-saline and saline soils of varying degrees: gray, meadow-alluvial, meadow-steppe and meadow-barren, saline soils. Melon cultivation is mainly developed in large population centers, in areas close to industrial centers and railway stations. The composition of melon varieties in the Bukhara oasis is diverse and differs sharply across regions. Varieties distributed in the Bukhara region (Aqnovvot, Aqzogora, Zarchopon F 1, Yashil etli zagoora, Aq etli zagoora, Aq borikalla, Ola yul yol borikalla, Ko'tir borikalla, Kara borikalla, Ko'k borikalla, Sariq borikalla, Mekhliy aq etli bosvoldi, Daniyori, Ertagi ko'tir, Obinovvot) represent different groups in terms of ripening speed. Depending on the variety, the plant usually forms from one to five fruits. In early-ripening varieties, the growth and ripening of fruits continue at the same time. In late-ripening varieties, the ripening of fruits begins after their growth stops. Depending on the variety, the period of picking ripe fruits begins within 55-130 days after the formation of shoots.

References:

1. R.Mavlyanova , A.Rustamov, R.Hakimov, A.Hakimov, M.Turdiyeva and others. Melons of Uzbekistan. International Institute of Plant Genetic Resources. Tashkent. 2005
2. Boriev Kh.Ch., Ashurmetov OA Biology and cultivation technology of melon crops Tashkent – 2000. B 31-34-.
3. Hakimov RA, Hakimov AS, Toshmuhammedov AA Seed production of vegetable melon crops. Tashkent, 2003. p 144.
4. Alimuhammedov SS, Kholdorov MU The effect of fertilizing preparations on the germination of melon and watermelon seeds Collection of materials of the Republican Scientific and Practical Conference “Prospects, problems and solutions of vegetable, melon and potato cultivation in the Republic”. – Tashkent, 2019. – p 375-379.
5.Balashev NN “Policemanship” Tashkent, 1975. p. 17-25, 98-99.