

## HISTORY AND AREAS OF MELON CULTIVATION

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### ABSTRACT

Written historical records mention that melon cultivation dates back to more than 2000 years ago. Melon seeds dating to the 3-rd century AD were found out at the excavation of Toprakkale castle, 80 km from Berunii. Ak-Saolibii and Moroccan traveller Ibn Batutta (14th century) described in their books the 'Khorezm melons'. Sakheriddin Mukhamed Babur (15th century) and many travellers in subsequent years, travelling in the Maverannakhre area, were fascinated by the excellent taste of melons that were found here.

Melon cultivation has been practiced in Central Asia for centuries, and melons are loved and appreciated by people in the region as one of their most valuable food sources.

According to N.I. Vavilov (1926), Central Asia is a major centre of origin of cultivated plants and a secondary centre for melons, where its diversity is concentrated. Many melon varieties adapted to grow in different soil and climatic conditions of the region have been developed by local breeders. Varieties exist that are adapted to a specific region or even to a specific settlement. Using the genetic diversity of local varieties, new commercial varieties suitable to grow over a wide area have been successfully developed.

### INTRODUCTION:

Today in Uzbekistan, more than 160 melon varieties—differing in their maturity

period, productivity, taste, and fruit shelf life—can be found, and many of them have gained worldwide popularity.

In recent years, 36 melon varieties have been released in Uzbekistan. Among these varieties, some are early ripening, midseason ripening, and late ripening. Eight released varieties are local types. Many varieties now listed in the State Register have been released during the last several decades. Melons traditionally decorate tables during weddings and other important celebrations.

With the same pleasure, fresh melons are eaten by families as part of everyday life. Among many diverse recipes, melon pulp is used in canning and confectionery for the preparation of jam 'shinni', candies, mousse, pies, gingerbread, and cookies. Changes in modern societies and new trends in agricultural production are influencing the cultivation and spreading of melon varieties. Over the last decade, the local diversity of melon varieties sown by amateurs has fallen, and there is a threat of losing some valuable old varieties that have been selected and maintained by generations of farmers. At the same time, however, the process of improvement of existing local varieties has continued, and new interesting, promising, and stable melon forms and varieties are being produced.

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Across Uzbekistan, until the present time, a wild melon species with bitter and sour taste grows naturally. It is speculated that this species is the ancestor of the melon varieties now cultivated across Central Asia.

The development of melon cultivation always has been closely connected with ethnic traditions at a local level. The existence of good social interaction in the region has also promoted the spread of melons across Central Asia. Annually, during the time of melon maturity, the fair 'Kowun Sayli' was held, during which melon farmers displayed various varieties, among which there were real masterpieces of human selection. Sale of fruits in local markets and export to other districts, especially of varieties with good shipping quality and shelf life, was carried out actively during these festivals.

The gradual spreading of local varieties developed in one centre to other districts promoted the adaptation of varieties to new growing conditions. As a result of human selection in new directions, change took place not only in morphological traits, but also in economically valuable traits such as productivity, sugar content, and shelf life. The process of variety development in different climatic zones continues to this day.

The Central Asian melons created as a result of long-term breeding can be clustered into groups: (1) varieties with a high degree of uniformity of morphological traits, (2) varieties or populations consisting of forms differing from the basic variety types in biological and morphological traits, but

retaining their former name (such as 'Amiri', 'Beshak', 'Ak-kash', 'Gulabi', 'Buri-kallya', and others), (3) varieties with similar morphological traits but possessing different names, often with one common root (such as 'Gurvak', 'Ak gurvak', 'Ala gurvak', 'Bosvoldi', 'Kara bosvoldi', 'Ak bosvoldi', and others). Some varieties also have synonyms, and the reverse is also true: two different varieties spread under one name — 'Buri-kallya' (in the Bukhara region this variety refers to var. *chandalak* and in the Fergana valley it refers to var. *casaba*).

The early ripening variety 'Kara-kash' is distributed in the Samarkand region, and its late-ripening form in Karakalpakstan and the Khorezm region. The varieties spread in Uzbekistan are named by people in their local language, but in the literature their names are sometimes modified 'Ak zhambilsha'—'Ak zamcha'. New forms appeared as a result of variability of traits within several decades by natural hybridization between old varieties: these are cultivated by the population and constantly improved, often keeping the former variety name. There can be many forms in each local variety: this is the case with the varieties 'Ala-khamma', 'Alleke', 'Amiri', 'Bekzodi', 'Beshak', 'Bakiraman', 'Gulobi', 'Gurvak', 'Non gusht', and 'Madani zaman'.

One of the World's largest melon germplasm collections (more than 1330 accessions)— the product of many expeditions and exchanges led by scientists in the past—is maintained at the Uzbek Research Institute of Plant Industry, the Uzbek Research Institute of Vegetables, Melons, and Potato, the Karakalpak Research Institute of Agriculture. Even today, expeditions across Central Asia are proceeding, leading to the collection of new varieties and the introduction of new material. The study of variability and inheritance of morphological and agriculturally valuable traits of melon

varieties and their classification is being carried out, and intensive variety cultivation and seed growing technology are being developed. Breeding work for the development of new varieties is also proceeding actively.

**Khorezm area.** The Khorezm area is located in the northern part of the vast Turan Province covering part of Central Asia. It occupies a left-bank part of an ancient delta of the Amudarya River. Its east border runs along the plateau Taschsanna; on the west it borders with Turkmenistan. Karakalpakstan and the Khorezm region belong to the northern part of Uzbekistan. Their territory covers hyper-arid zones (80–90 mm rainfall/year mainly in winter and spring). The climate here is sharply Continental. Summer is hot and dry. In July, the average air temperature is 28°C, (an average absolute maximum is 41°C, sometimes reaching 46°C). The sum of positive temperatures for the period of vegetation fluctuates from 4200°C–5400°C. Melons are cultivated mainly on irrigated and salinified (washed) soils and meadow soils of the desert zone. The Khorezm area is one of the most ancient known melon-growing areas, where districts with rich melon diversity are distinguished (especially for winter melons). Here, both old local and new varieties introduced from others oases as well as the Turkmen varieties ‘Gukcha’, ‘Ala-Geke’, and ‘Marikawun’ are found. The melon diversity of the Khorezm oasis and the areas of melon cultivation are changeable. Varieties grown here today and in the past can be distinguished by different ripening times.

**Fergana area.** The Fergana valley is located in the east part of Uzbekistan, surrounded by the Chatcal and Fergana ridges, which form the Fergana area itself. The climate is characterized by an average summer temperature of 28°C (a maximum up to 42°C) and also a small quantity of rainfall (180–315

mm/year mainly in autumnwinter and early-spring). The sum of positive temperatures is 4400°C.

**Tashkent area.** The Tashkent area is located in the Northeast part of Uzbekistan. In the north it is bounded by the Turkestan ridge, in the East by spurs of the Chatkal ridge, and in the Northwest by the desert Kizilkum. Its climate is sharply continental: the average air temperature in July is 28°C, (with a maximum up to 44°C). The quantity of rainfall is 175–300 mm/year in the plains and 366–435 mm/year in the foothills. Melon is cultivated on typical grey, light-grey, and grey-meadow soils affected by salinification to a greater or less extent. The climate is typical of the desert zone: the average temperature in is July 29.6°C, with a small quantity of atmospheric precipitation (114–125 mm/year), strong winds and high air dryness. The positive temperatures sum is 4680°C–4794°C.

Melons are cultivated here in both normal and salt-affected soils: gray, meadow alluvial, meadow-deserted, and also meadow-takir, saline soils. Melon cultivation is mainly developed in areas close to large settlements, industrial centers, and railway stations.

**Samarkand area.** This is surrounded by the Nurata Mountains in the northern part of the Samarkand area. The central part contains the Zarafshan valley and the south is characterized by the spurs of the Zarafshan ridge.

Climate here is continental, with sharp seasonal transitions and large differences of temperatures within a day. The average air temperature in July is 28°C, (maximum of 45°C). The positive temperatures sum is 3800°C–4200°C.

Melon is cultivated on irrigated gray, meadow-gray, meadow, and marsh meadow soils differing in their degree of salinity.

Southern area. The southern melon growing oasis is located in the south/southwest of the Republic and includes the Surkhandarya and Kashkadarya regions. The climate here is sharply continental. Summers are hot and long, the average air temperature is 31.6°C, and the maximum up to 50°C. The strong winds lead to heavy air dryness, 'garmsel'. For the vegetative period, 40–140 mm of rainfall is received annually. The positive temperatures sum is 4900°C–5000°C.

Melons are cultivated on gray and meadow soils and not only on irrigated, but also on bogara soils. In the Southern melon growing oasis, the melon assortment is diverse, but there are few original local varieties in cultivation.

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