

Section 1. «Innovative technologies for growing and processing vegetable products»

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TERRITORIAL ORGANIZATION OF SUBTROPICAL PLANTS IN THE SOUTH-EAST OF THE REPUBLIC OF AZERBAIJAN

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Lankaran economic region covers Lankaran, Astara, Masally, Lerik, Yardimly and Jalilabad administrative districts. The economic region in the southeastern part of Azerbaijan borders on the Caspian Sea to the east and Islamic Republic of Iran to the west and south. The territory of the economic region is 6.08 thousand sq. km, and covers 7% territory of the country. Due to the relief features, the territory of the economic region is divided into two parts, consisting of the Lankaran lowland and the Talysh mountains. 7 of the existing climate zones are found in this economic region. Talysh mountains are a mountainous part of Lankaran physical-geographical region. From the Caspian Sea, it is surrounded by the Lankaran lowland, in the south, west and northwest by Islamic Republic of Iran. The area is 3,000 square kilometers. The Lankaran lowland is between the Caspian Sea and the Talysh mountains. It stretches to the Astara River (Iranian border) in the south and to the Salyan and Mil plains in the north. The longitude is 110 km, the width in the north is 25-30 km, 7 km in the south, 200 m in the highlands, and 28 m below sea level on the shores of the Caspian Sea.

Astara region was established in 1930. The area is 616 square kilometers. The relief is mountainous in the west (Talysh mountains), plain in the east (Lankaran lowland).

In the mountainous part the height of some peaks reaches 2,000 meters. It belongs to the humid (moderately humid) subtropical zone of the republic. Astara is one of the rainiest regions of the country (annual rainfall is 1200-1750 mm). The region mainly has been specialized in tea, vegetables, citrus fruits and livestock.

Lankaran district. Lankaran, one of the ancient and developed regions of the republic, was established in 1930 as an administrative district. It is surrounded by the Caspian Sea in the east and is located in the south-eastern part of the republic. The area is 661 square kilometers.

Lankaran has the material and technical base, professional staff, work experience of the population, land and climate, ready to develop tea growing on the basis of modern technologies and in accordance with European standards.

Masally district. Masally was established in 1930 as an administrative district with the largest labor and economic potential of the republic. It is surrounded by the Caspian Sea in the east.

It is mainly located in the Lankaran lowland, a small part of the territory is mountainous. The area is 792 sq. km. Masally is one of the largest tea-growing and vegetable-growing regions of the republic. Tea and citrus fruits are grown from cultivated subtropical plants in Lankaran region. This area is the second formation center of these plants, which began to form in the middle of the XIX century. Tea farming plays an important role in the region's industrially important subtropical agriculture. Although the tea plant is native to the Himalayas, India and China, it is now widely used as a food product on the Earth and is grown in subtropical-tropical zones. Specialists studying the problems of growing tea in the Caucasus in the middle of the 19th century paid special attention to the natural potential of the Lankaran region. In the geography of subtropical agriculture, the organization and location of tea plantations required serious research. First of all, it aims to clarify the natural potential of new areas of subtropical crops to meet the needs of the domestic and world markets for tea. The beginning of the study of tea plants in Azerbaijan on a scientific basis dates back to 1929. In 1929, A.D. Rajabli established tea plantations in the territory of Hirkan base settlement of Lankaran, and in the following years the foundation of industrial tea growing was laid. It should be noted that until 1932, the soil and climatic conditions for the introduction of tea plants in the Lankaran region were not fully studied. In those years, expeditions were organized to study the possibilities of growing tea plants in the yellow mountain-forest lands of Talish. As a result of these expeditions, it was determined that 40,000 hectares of land in the Lankaran region are suitable for growing tea plants. Studies have revealed the possibility of using tea in podzal-yellow soils in the foothills and plains of the area. Lemons, oranges and tangerines are the most common and used evergreen citrus plants in the Lankaran subtropics. As the lemon plant spread from humid climates to countries with dry subtropical climates, it underwent physiological changes, and new species, i.e. fruit forms with the characteristics of dry subtropical plants, emerged by natural selection. Like tea, citrus plants were brought to the Lankaran region of Azerbaijan from the humid subtropical zones of the Black Sea coast. During the development of citrus plants in Lankaran, research was conducted on its introduction, selection and cultivation of plants. Feijoa was first brought to Azerbaijan in 1928 and planted in the Lankaran subtropical plantation. At present, industrial feijoa plantations are organized in Astara and Lankaran regions. Therefore, taking into account the level of productivity of the ecological geographical environment of the region, achieving promising economic and social development of the subtropical economy makes the research relevant.

Our rich climate and soil resources allow for the economically efficient organization of subtropical plants, which are important for various industries. The area where citrus fruits and tea are developed is mainly Lankaran region. However, the level of development

of this sector in the region does not meet today's requirements. Therefore, there is a need to reorganize citrus and tea growing in accordance with local agro-ecological conditions and the requirements of the domestic market. One of the main issues is to regulate market relations based on scientific, economic and geographical concepts of territorial organization.

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**PROBLEMATIC ASPECTS IN TECHNOLOGY OF LEMON
(*CITRUS LIMON BURM*) CULTIVATION IN DAMP SUBTROPICS OF
AZERBAIJAN**

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The research has been carried out in yellow-podzolic soils of the South-Eastern part of Lenkoran region, in Branch Lenkoran Tea of Azerbaijan Scientific-Research Institute of Horticulture and Subtropical crops, during 2018-2020-ies. Soil sections were laid on non-eroded and average-eroded soils. For the studying of season dynamics of easy-assimilated forms of nutritious matters, microbiological, biological, fermentative activity of these soils nitrogen bacteria citrus-lemon were taken soil samples in arable layer (0-20, 20-30, 30-40 sm). Humus supply of nutritious matters has been calculated in half-meter depth in the natural conditions and on arable layers under lemon. In establishment of the fertility models of studied soils were used of the following block indices – block of agroecology, soil composition, fertility, biological processes, crop capacity of plant and management. The rate of soil erosion is determined on the basis of genetic layers and vegetation degradation. Based on comprehensive research years we have got more experimental materials by technology cultivation of major lemon (*Citrus reticulata Blanco*) fruit crops. There are studied the agrochemical service problems associated with the interaction between plant and soil on a background of intense rational use of farming practices.

There are held eco-soil analyses of soil fertility on the studied cultural plantations; also it is revealed the limiting factors of more rational and efficient use of land soil and to develop targeted measures to improve their fertility and protection. We have improved an optimal model of soil fertility for the culture of citrus-lemon, in its commercial cultivation region (Lenkoran region), based on the optimization of the most important properties of irrigated yellow-podzolic soils, identifies potential and their effective fertility, which