

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

makes it possible to solve the issues of further correct replacement of plants of this crops and forecasting and planning their productivity.

Citrus crops (lemon) is very high profitable plant for on economic side. In Azerbaijan learning the difference of the subtropic plants show that before our era from VII era and till III era of our era citron were introduced. Having eternal green and beautiful cluster the citrus-limon trees are considered dear plants in decorative gardening, forming protective forestry zones.

Last years in Azerbaijan fulfils great measures plan for the development of citrusecultivation. The citruse gardens growing is begun in the objects having potential chances for the citruse development. In rises on attention for the citrusecultivation development citrus the scientific bases. Azerbaijan learns the countries experiment growing classic citrus and gathers citrus genefund, learns them increases selecting the perspective ones for in Azerbaijan and widens plough areas. In the objects of Lencoran of Azerbaijan referring to our investigations it is determined that there is a chance for growing citruse successfully in the area of more than 7 thousand hectare in this region. With this purpose the research works must be strengthen.

Azerbaijan is characterized by its warm, dry, subtropic climate condition and its thermic supplies richness. Subtropic climate occupies nearly 65% of the general area of the country. In many parts of the zone the active temperature is 4000- 4500°C. In the plain and foothill regions of the republic the sunny hours quantity is 2000-2700.

The citrus growing in the industrial scale depends on selection of its correct sort. That's why when the citrus garden is grown we must pay attention to the agrobiological characters of the sort (suffering to cold, drought, ripening rapidly, quality and quantity indices).

In the citrus gardens it is demanded to take care of soil structure and improvement of its fertility for the root system normal activity, the growth and development of trees in young and old times in keeping interxow soils. In the citrus gardens keeping interxow in heric condition for a long time violates soil structure, weakens water – air regime. So, black heric must be changed by sideral plant plough.

It was known from the carried out investigations that when lemon is irrigated, the fruit crop increases for some times (2-3 times and more). When the method of the lemon garden irrigation and irrigation technology are selected it must be taken into consideration: the climate condition, soil and economic condition, plant biological peculiarity relief and etc. For irrigating the lemon all the irrigation methods can be used. The irrigation must provide the plant with the demanding water, moisten the soil into the depth, protect the soil structure and improve soil condition. Last year in the irrigation of the fruit gardens more contemporary and water econmy method irrigation by drop is recommended. By this method water is automatically brought in the quantity of plant demand into the area where the root system is situated. The water is given into the plant root system by drop. By this method the water is given into soil in little expense, 0,7- 9,0 l for an hour. The useful

character of the irrigation by the drop method. It is possible to irrigate by this method in the difficult condition in which the other method can't be applied on all inclined slope; the plant can get water non-periodically, can get it in permanent quantity; the irrigation doesn't violate the soil structure; doesn't concentrate plough layer; doesn't increase ground waters level and doesn't form salinity for the second time; (the solution density is 2-3%, the most mustn't be more than 6 %); after irrigation the soil loosening isn't needed; water and fertilizes expense is economized. It is possible to reach water useful usage to 80-95 %, during the irrigation application by drop method. This number forms 70-80 % in raining method, 30-60 % in pouring method. The demand of lemon to water depends on the plant biological character, sort, age, density of placing in the area, loading with the fruit crop, the keeping system of soil in the interrow, soil-climate condition at the same time on soil relief, slope inclined degree and the direction of the slope for sides and etc. The optimum soil fertility can change for lemon, being 80-85% of its area water capacity, depending on soil structure and water capacity.

It is important to irrigate lemon in the following periods; at the beginning of the new growing shoot in the active development period of generative buds, after flowering, in the period of forming fruit seed, during active growing fruits, mass pigmenting of fruits and period of fruit ripening.

Feeding the lemon with mineral in this quantity causes in improvement of its growth, continue period of the plant, improvement of flower and fruit falling. Normal mineral feeding with the other complex measures (fruit forming normalizing, irrigation) cause in remove fruit forming in a year, the increase of the plant suffering the cold and increase of the fruit quality.

It is carried out comparative analysis of natural conditions and indices of soil fertility from ecological regions revealed in limits of Lenkoranchay reservoir. The changes of soil fertility during (for 40-50 years) presentation in the form of fertility ecological model. The organic fertilizers are considered the most useful fertilizers for lemon (manure compost, green fertilizers and etc). The application of organic fertilizers with mineral fertilizers increases their rationality. The organic fertilizers are feeding source for a plant, and they also increase soil structure and microorganisms activity. If mineral fertilizers get lost differing from organic fertilizers it provides the plants with nutrients rapidly. New organic fertilizers are produced on the basis of available wastes called "Lenkoran" etc.

For soils every of ecological region (good soils for citrus of accumulated) in Lenkoranchay reservoir, is composited scale of bonitet marks. Mapschemes are composed, grouping of republic soils conducted on the most important water-physical indices, that gives a chance to differentiate necessary meliorative measures, directed into the soil productivity rise, rational use of the natural resources.

As a result of the carried out researches it was established. That at application of the different norms and correlations of mineral and organic fertilizers the most efficient was a version of $N_{120}P_{150}K_{90} + 30$ of compost "Lencoran". The highest increase in productivity is

in the version of 20 t/ha compost “Lencoran” + N₁₂₀ (carbamide) P₁₅₀K₉₀ so lemon has been 20,0 t/ha 222,6%.

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PHYTOPHTHOSE – A DANGEROUS DISEASE OF POTATOES

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Potato (*Solanum tuberosum*) is one of the widespread agricultural crops from the nightshade family, popularly known as "second bread". It is used as one of the most important plants for food, technical and fodder purposes. In everyday life, a potato is characterized not as a species, but as a potato tuber. And although most of the products are grown on homesteads, every year farms expand the area for its production. The main reason for this is the high demand for it and its stable harvest.

Annual per capita consumption of potatoes in Ukraine varies between 128-136, in Lithuania - 116, Latvia - 114, and in the USA only 54 kg.

According to the State Statistics Service of Ukraine [1], in 2000, 1,631,000 hectares were planted with potatoes, which accounted for 6.0% of the country's total cultivated area. Over time, its area decreased. In 2021, only 1,283.2 thousand hectares were occupied, which is 4.5% of the entire cultivated area of Ukraine. It is worth noting that the decrease in the area under potatoes did not have a negative effect on the volume of its production. So, in 2000, 19838.1 thousand tons were collected, and in 2021 - 21356.3 thousand tons.

The yield in 2021 in Ukraine was 16.64 t/ha. This indicator was much higher in 2018 (17.05 t/ha) under more favorable weather conditions, in particular, the arrival of moisture in the form of rain (Table 1).

According to the State Statistics Service of Latvia [2], the harvest in 2019 in Latvia was 22.40 t/ha, because the weather conditions were favorable, and in 2021 - 15.30 t/ha, because in July, during the flowering of potatoes, the air temperature was +25-+30 degrees Celsius and there was no precipitation.