

Scientific Basis of the Effect of Nutritional Production Field on Yield Peanut in Grazing Gray Soil Conditions

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Annotation. The cultivation of almonds has a special place in the food supply of the world's population. Therefore, this article analyzes the results of scientific research on the technology of cultivation of peanuts and draws conclusions about the cultivation of high and quality crops, depending on the method of sowing.

Keywords: peanuts, meadow gray soils, planting methods, feeding area, variety, yield, plant, soil, agrotechnics.

Introduction. As noted by President Sh.M.Mirziyoyev in his report at the joint session of the Legislative Chamber and the Senate of the Oliy Majlis of the Republic of Uzbekistan, the measures taken to implement the national economic development program allow the country to achieve significant results in various sectors. The volume of products of the agricultural sector is growing from year to year, which determines the main priorities.

A modern technological system is being introduced in agriculture, which requires the rational organization of agricultural culture and agricultural production in accordance with the established and widely used agro-technological standards in the world.

The culture of farming is, first of all, the introduction of advanced technological processes aimed at maintaining and increasing soil fertility, which allows to grow high-quality crops per unit area. In this regard, some positive work has been done and is being done in recent years. In particular, forms of ownership were changed, lands were transferred to their owners, and farming was developed. Nowadays, the introduction of new technologies in the production of crops in accordance with the technological standards of crop production is becoming a requirement of the times.

In this regard, the chosen topic is relevant, and the impact of the feeding area on the yield of peanut varieties in the conditions of meadow-gray soils in order to further improve the fertilization system, which is widely used in high yields, is also relevant.

Literature review. Uzbekistan's agriculture is complex in terms of climate, which requires the use of scientific advances and best practices in its management, as evidenced by global warming, relatively low rainfall and frequent water shortages.

Peanuts are an important source of raw materials for industrial production and human nutrition. It is important to get a product rich in essential fats, proteins, glucosides and many vitamins. In peanut cultivation, the number of seedlings and agronomic techniques change the nutrients in it. The accumulation of organic matter in peanuts and seeds depends on the leaf surface of the plant. One of the important biometric indicators of peanuts is that the leaf surface varies due to changes in its feeding area. Because peanuts are legumes, they have the ability to accumulate free nitrogen in the air in symbiosis with nitrogen-fixing bacteria in the soil. The number of buds accumulated in peanut roots plays an important role in the accumulation of biological nitrogen in the soil. Experiments have shown that the number of buds on the roots of peanuts varies depending on the feeding area (M.M. Gukov and Nabiev T.N, Kurbanova B.A, SH.Shotemur).

Peanut plant fertilization has its own specific directions and peanuts are very demanding on organic and mineral fertilizers. Z.A.Luzina noted that the planting scheme has a significant impact on productivity.

According to Y. Gorelov, H. Botirov, N. Khalilov, peanut plant produces 1 t of grain and 6.2 kg of nitrogen for stem production, requires 1.1 kg of phosphorus and 4.0 kg of potassium.

According to S.Semerdjian and D.Epremyan, peanuts are moldy when the moisture content is high after harvesting. Therefore, the quality of the grain is maintained after it is thoroughly dried in the field. In addition, the use of planned agro-technical measures is important for the production of high quality peanuts.

The results of scientific work on the cultivation of peanuts for different soil and climatic conditions of the country are covered in the scientific works of V.Chirkov (1952), A.Abdullayev (1997), M.Amanova (2010). Sufficient varieties of peanuts have been studied and recommendations have been made for planting quality varieties.

Research Methodology. In the analysis of this article, the logic of scientific knowledge, theoretical research methods, as well as the method of analysis-synthesis were widely used.

Analysis and results. Peanut is an annual plant that belongs to the legume family. There are more than 10 types. Its body is of medium height (60 cm), branched, and there are two types: ground-growing and bush-growing. A single plant can have more than a thousand fruits (nuts). The vegetation period lasts 120-150 days. The flowering and ripening period is much longer, so the crop does not ripen at the same time. It is difficult to know whether the nut is ripe or not, because when the flower is pollinated, the stalk goes underground and the fruit ripens there. That's why it's called a peanut.

Peanuts (Chinese walnuts) are a valuable oil and food plant. Peanuts are grown in many countries around the world for a total of 23.7 million tons. The average yield is 1.4 tons per hectare. India, China and the United States account for 336 percent of the world's output, with 60 to 80 percent of the country's output being processed. The highest yields in the world were recorded in China (2.5-3.0 t / ha) and the United States (3.0-4.0 t / ha). In the country, this figure averages 1.5-1.8 t / ha, with the introduction of advanced innovative cultivation technologies, the highest yield was 3.7-4.1 t / ha.

In the irrigated regions of Uzbekistan, the common type is grown. Homeland - South America (Brazil). It spread from South America to Asia and then to Europe (China) in the 16th century. Peanuts are grown in India, China, Myanmar (Burma), Japan, Central and North Africa, the United States and Central Asia. The total crop area in the world is 24.7 million hectares. ha, with an average yield of 13.4 s / ha, with a gross yield of 33 million tons (1999).

The root of the peanut is a bullet, 2 m into the soil, enters the pit and forms nitrogen-fixing nodules. Stems erect, 50-60 cm high, branched, erect, lateral branches grow on the ground. The leaves are complex, double-lobed, or inverted ovoid. In the axils of each leaf there is a bouquet. The flowers are bisexual, butterfly-shaped; yellow, orange. The underground flowers (cleistogamous flowers) do not open and are self-pollinating. The flowers on the ground are pollinated from the outside. After pollination, the nodule grows upright, then downwards, penetrates the soil to a depth of 8-10 cm, and the fruit (dukkak) ends. Dukkagi has 1-6 seeds. The weight of 1000 seeds is 200-1500 g (average 400-500 g). Dukkagi does not chat. There are up to 700 pods in a bush. Peanuts are heat-loving, moisture-loving, light-loving and short-day plants. It does not grow well in sandy and fertile soils, in saline and swampy soils. The seeds germinate at 12-15 °, the grass dies in the cold. Growth period is 150-170 days. In Uzbekistan, peanuts are grown on irrigated lands with a yield of 20-40 c / ha.

Peanuts contain 48-66% fat, 23-38% protein and up to 22% carbohydrates. The seeds are usually eaten roasted (peeled or peeled). Seeds and oil are used in confectionery (halva, candy). Peanuts accumulate biological nitrogen in the soil and increase soil fertility.

Varieties: "Tashkent-112", "Qibray-4", "Salomat", "Mumtoz" and "Lider" varieties are regionalized in Uzbekistan.

Cultivation technology. Peanuts are grown after grains (wheat, barley, corn), potatoes, root crops, and vegetables. Peanuts are a good predecessor for field crops.

Seed selection and preparation for sowing. Seeds should be stored in a dry and cool place until sowing. It is recommended to carefully grind the nuts by hand. However, manual chopping of peanut seeds is a difficult task, and it is recommended to use special chopping devices when sowing large areas. When the seeds are separated from the husk by the mechanism, up to 10-15% of the seeds are mechanically damaged. Therefore, it is advisable to increase the sowing rate by 15-20%. Care should be taken with seed pods, as a slight misalignment can damage the ovary, resulting in loss of seed germination or a weak tumor. If the seeds have not been treated with fungicides and insecticides during storage, they should be treated 2-3 days before sowing and should not be damaged during processing. Before sowing, the seeds are treated against fungal diseases and rodents in a closed building in direct sunlight. When seeds are treated with fungicides and insecticides, healthy and vigorous seedlings are obtained. Seed sowing norms are determined by the size of the seed, the optimal bush thickness for each region.

Location selection. Irrigated for peanuts, sandy, light mechanical composition, meadow, gray, black and chestnut soils, seeds of perennial weeds (reeds, sedges, sedges, salamanders) are scarce. Areas where peanuts have not been grown in the last 4-5 years and have good irrigation potential will be selected. High yields can be achieved by planting in orchards with the possibility of direct sunlight for 6-8 hours. The best perennial crops for peanuts are winter wheat, potatoes, and vegetables and melons. It is not recommended to plant after rice and peanuts. It is not recommended to plant in rocky, waterlogged fields with heavy mechanical composition, where the groundwater surface is (0.3-1.0 m).

Preparing the land for planting. Land preparation begins with the removal of plant debris. Collected weeds need to be removed from the field. Before the autumn plowing, 70-100% of the annual norm of phosphorus and potassium fertilizers is applied per hectare, and the soil is plowed to a depth of 30-35 cm. Studies have shown that the application of 20-30 tons of decomposed manure per hectare (it is strictly forbidden to apply decomposed manure) to the previous crop also increases the yield by 25-35%. The edges of the field should be cleared of weeds and plowed in a rectangular pattern. It is prepared for planting in the spring when it reaches the ground. That is, a chisel, a storm. Depending on the condition of the soil, additional agro-technical measures may be taken. In some cases, plowing is carried out late in the spring. In such cases, there is a shift in the field. At this time, as the soil matures, it is recommended that agricultural machines grind the cuttings using zircon or discs, otherwise the seeds will not fall to a flat depth during the sowing of large lumps, high seed consumption, the quality of irrigation ditches will be adversely affected. reveals a mystery.

Planting. Healthy, large nuts are selected for seed and are peeled 20-30 days before planting by hand. Peanuts in the southern regions of Uzbekistan in the first ten days of April, in the Tashkent and Fergana Valley regions in the third decade of April, in the northern regions in the first ten days of May when the soil temperature is above 15-17 ° C It is recommended to sow at a depth of 4-5 cm in soils of 6 cm, medium and heavy mechanical content. In small farms, a row of 70 cm furrows is taken after the formation of fine soil flattened on small areas, and the seeds are sown in rows in a row by hand. Peanuts can be grown in rows up to 60 cm wide, depending on soil and climatic conditions and the biological characteristics of the variety (stem structure and height). The use of machinery for planting peanuts in large open spaces and between rows of young gardens is cost-effective. When sowing with the help of machinery, the sowing rate is increased by 15-20%, taking into account the mechanical damage of seeds during sowing, falling on the soil surface and a number of other factors.

High quality soil preparation is very important when planting peanut seeds with the help of machinery. This is due to the fact that if the soil is uneven and rough, the seeds will not fall evenly and the seeds will not be well buried in the soil, and the buds will be crooked, which in turn will cause a lot of damage during cultivation. causes the wires to be cut. After sowing the seeds with the help of seeders, if there is enough moisture in the soil, the seed water will not be given. When the seeds are fully germinated, they are cultivated and irrigated. When the spring months are dry, the seeds are watered after sowing. Irrigation canals will be opened for this purpose. There are no special seeders for planting peanuts in the soil and climatic conditions of our country.

However, it is advisable to use Turkish-made seeders for planting peanuts on large areas, has been shown to be superior in experiments.

The optimum plant thickness for peanuts in the soil conditions of Uzbekistan is 70x8 for Tashkent-112 and Salomat varieties; 70x10 cm, "Qibray-4"; 70x12 for "Classic" and "Leader" varieties; 70x15 cm.

Sowing norm for "Tashkent-112" and "Salomat" varieties (70x10 cm) is 150 thousand seedlings per hectare, sowing norm is 70-85 kg / ha, "Mumtoz", "Qibray-4" and "Lider" 100-110 thousand seedlings per hectare for varieties (70x15 cm), and 85-100 kg / ha for seed sowing. When sowing seeds with the help of seeders, it is recommended to increase the sowing rate by 10-15%, taking into account the mechanical damage to the seeds and the fact that the cuttings are not completely covered with soil. The main waterways will be cleared and ditches will be opened every 70-100 meters depending on the slope.

Irrigation. When peanuts are planted as the main crop, they are absorbed into the soil moisture in the spring. In some cases, when the spring is dry and the soil moisture is not enough, the buds are watered in rows. But it is important not to let the puddles flood. One of the key factors in growing a peanut is to provide it with enough water to meet its water needs. When the peanut plant is not adequately supplied with water, the physiological processes that take place in it are disrupted. As a result, plant growth and development are slowed down and yields are reduced. Even if the water supply is premature and excessive, the leaves will turn yellow and the fruiting process will be delayed, which will negatively affect productivity. To get a high quality product from a peanut plant, it is important to set the right amount and timing of irrigation. In many cases, farmers determine the timing of peanut irrigation depending on its condition or calendar days. As a result, the quality of crop yields deteriorates.

The most accurate and accurate method of determining irrigation times is to determine the soil moisture capacity of the field (CHDNS). The order and timing of irrigation depends on soil and climatic conditions. Up to 4 times in alluvial soils of nearby meadows with groundwater, irrigation rate of 600-700 nrV, 6-7 times in typical gray soil conditions with deep groundwater, irrigation rate of 800-900 m³ / ha, 7-8 times in light sandy soil conditions, irrigation rate 700-800 m³ / ha. Irrigation should be 70-70-65% of the soil moisture capacity (CHDNS).

Above or below the field moisture content of the soil before irrigation recommended above, and more or less irrigation rates, will impair productivity. When peanuts are grown in soils with heavy mechanical composition, excess water in the last stages of the growing season will cause the ripening nuts to darken. In most cases, this results in 80-90% of the crop being unusable. Strict adherence to the recommended irrigation regime and proper use of water to ensure the quality and efficiency of irrigation are the key to a good harvest. This, in turn, reduces the cost of irrigation and saves water, making it easier for farmers and increasing productivity. In the field of peanuts, the last irrigation is carried out in small quantities (depending on the mechanical composition of the soil) 15-20 days before harvest.

Plant care. For peanuts to thrive, loosening row spacing, avoiding excess moisture, raising soil temperature, improving air circulation and weeding are critical. The first cultivation and mowing is carried out when the grass is fully germinated. The first food is given and watered. The second cultivation is 6-8 cm, the third cultivation is 8-10 cm and the last is 10-12 cm, leaving a protection zone between the rows.

In order to avoid damaging the plant during cultivation and not burying it in the soil, it is advisable to use knives, KKO or naralnik.

Fertilize. The rate of field fertilization is determined by the results of agrochemical analysis of the selected area. Peanuts grow well in soils rich in organic matter. In irrigated areas, the first feeding is given at the rate of 30 kg / ha of nitrogen (pure) and 30 kg / ha of phosphorus before flowering after full germination of seedlings. Applying ammophos (physically) at 250-400 kg / ha per hectare, based on soil fertility, before harvesting is also good. The second feeding is carried out after the plant is in full bloom and 70 kg of pure nitrogen fertilizer is applied per hectare. Experiments have shown that the application of nitrogen fertilizers to peanuts increases the yield by 0.2-0.4 t / ha, but sharply reduces the accumulation of nitrogen bacteria in the roots. In addition to macronutrients, microelements such as calcium, magnesium, boron, and zinc are important in high yields of peanuts. Micronutrients also act as a catalyst for the plant to absorb other nutrients from the soil. Low levels of micronutrients in the soil have a negative effect on plant growth and productivity. Seedlings germinate 5-6 weeks after flowering. By this time (50-60 days after germination) the plant gynophores are strongly developed and penetrated into the soil. It is watered 2-3 times during the whole growing season. During the humming process, the gynophores are buried in the soil and nuts are formed.

Keeping the soil moist during the growing season (preventing the soil from drying out and cracking) and keeping it free from perennial weeds will have a positive effect on the smooth development of the plant's nuts, yield and product quality. It is possible to harvest in a short time without losses using the mechanism.

The agronomic techniques are similar to those of mowed crops. It is sown in spring (late April) on the fields plowed 2-3 times. Requires phosphorus and nitrogen fertilizers. Seeds or pods are sown in corn or seed drills in wide rows (60-70 cm) in the scheme 70x10, 70x15, leaving 7-8 or 4-5 seeds in each nest to a depth of 5-7 cm. 70-100 kg of seeds are used per hectare. It is irrigated 4-6 times during the growing season. It is cultivated between the rows, pruned 2-3 times during the growing season, and if the root collar is buried in the soil, the yield will increase significantly.

Nuts are rich in vitamins and minerals: vitamin B1 - 49.3%, vitamin B5 - 35.3%, vitamin B6 - 17.4%, vitamin B9 - 60%, vitamin E - 67.3%, vitamin H - 35%, vitamin PP - 94.5%, potassium - 26.3%, silicon - 266.7%, magnesium - 45.5%, phosphorus - 43.8%, iron - 27.8%, cobalt - 67.5%, manganese - 96.7%, copper - 114.4%, molybdenum - 16.6%, selenium - 13.1 %, chromium - 19.4%, rux - 27.3%.

- Proteins 26 g
- Fats 52 g
- Carbohydrates 13.4 g

Watering the plant should be abundant, then loosen the soil. The water should be warm and sediment-free, free of chlorine. Therefore, plants use water from various containers for irrigation or they are irrigated only with industrial water, unsuitable for drinking and cooking. Irrigation of plants planted by the square-nesting method should be at the root, and fill the ditches with water by the broad-band planting method.

One day after watering, the soil should be loosened. During the entire growth period of the nut, the plants need hilling. The first process is carried out when the height of the plants reaches fifty centimeters, the second peak occurs after the appearance of the first flowers, and all subsequent work is carried out at intervals of seven days.

Planting nuts is better in two ways: rectangular inner or wide row. In the first case, the distance between the plants should be at least sixty centimeters, in the second this row spacing should be and the distance between the plants should not exceed twenty centimeters.

With a square-built planting method, a single hole can contain five seeds at a distance of seven centimeters from each other. When growing nuts in a wide row method, place two seeds in the hole. The area for growing nuts should be small and, if possible, on a hill. This provides drainage and eliminates stagnant water that threatens crop rot. This is why many gardeners prefer to grow peanuts in "smart" or, in other words, high beds.

Caring for nuts is an activity that requires attention. This plant needs timely watering, as well as protection from possible pests.

Peanuts are heat-loving, moisture-loving, light-loving and short-day plants. Peanuts are a heat-loving plant. In the field, peanut seeds germinate in 15-16 days, 13-15 days, 19-20 days, 10-11 days, and 25-26 days, 6-8 days. During the 25-27 days after germination, the flowering process is accelerated when the average temperature is 25-30 degrees. The growing season is 120-125 days for early varieties, 125-130 days for medium varieties and more than 140 days for late varieties. Peanuts grow well in fertile, porous, well-cultivated and weed-free fields. Heavy sandy and swampy soils are unsuitable for peanuts.

The reaction of peanuts to moisture. Peanuts are grown only on irrigated lands. Peanuts are drought tolerant and moisture demanding. The plant's need for water varies from stage to stage of growth, from the time the grass sprouts to the time of flowering, to the maximum during the flowering period and to the average during the ripening period of the nut. Depending on the mechanical composition of the soil, water is not provided for 15-20 days after the plants are fully harvested. During this period, the plant's roots tend to absorb moisture and grow to a depth of 25-30 cm, and the formation of many side roots has a positive effect on productivity. Regular soil moisture during the flowering period of peanuts accelerates the process of photosynthesis, which in turn accelerates the formation of gynophores. Excessive moisture during the ripening of nuts can lead to darkening of the skin, which adversely affects the quality and marketability of seeds. After pollination, the flower buds begin to grow rapidly, tend to the ground and penetrate to a depth of 8-10 cm into the soil. Beans grow in the soil. Therefore, the soil needs to be fertile, clean and porous. When the temperature rises to 38-40 ° C, the flowering process slows down. Peanuts are susceptible to low temperatures during ripening, and short-term negative temperatures in autumn also kill the plant.

Conclusions. Peanuts are one of the most soil-selective crops in terms of soil fertility and composition. Based on the above information, we can conclude the following:

1. Planting methods for growing peanuts depend on soil climatic conditions and applied agricultural techniques.
2. In addition to planting wide and narrow rows of peanuts, high yields are obtained when planted in square nests.
3. Seeds of perennial weeds (reeds, sedges, sedges, sedges), irrigated for peanuts, sandy, light mechanical composition, meadow, gray, black and chestnut soils Areas with low yields, no peanuts in the last 4-5 years, and good irrigation capacity should be selected.
4. The best past crops for peanuts are winter wheat, potatoes, and vegetables and melons.
5. Sowing after rice and groundnuts is not recommended.
6. Strict adherence to the recommended irrigation regime and proper use of water to ensure the quality and efficiency of irrigation is the key to a good harvest.

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