

The Need for Cultivation and Crop Rotation of Chickpeas

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Soil bionitrification and land resource utilization direction, 2nd year student

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Annotation: The change - weakening of soil bionitrification requires the wider use of leguminous crops in short rotation crop rotations on our irrigated lands and the practical implementation of intensive technologies for the cultivation of high-quality grain.

Keywords: bionitrification, pioneer, Cicer arietinum, protein, oil, nitrogen-free extractives, fiber.

One of the important tasks of the agriculture of the Republic of Uzbekistan is to fully satisfy the population's demand for food products. In achieving this goal, the cultivation of grain and leguminous crops, increasing their diversity, productivity, and quality are of great importance. In recent years, recurring water shortages, the constant increase in prices for food products on the world market, the need to more fully satisfy the population's demand for food products, especially to eliminate the shortage of protein and oil, and to further increase the volume of food crop production in the republic and increase their varieties, thereby increasing the incomes and living standards of the rural population, are urgent issues for scientists involved in agriculture. The change - weakening of soil fertility in our irrigated lands requires the wider use of legumes in short rotation crop rotations and the practical implementation of intensive technologies for the production of high-quality grain. One of such technologies is the use of early-maturing varieties of protein-rich peas as a repeated crop in irrigated areas after autumn-sown grain crops, which can be considered one of the main factors in increasing grain yield and increasing soil fertility using its root biology. Intercrops are additional crops planted after the main crops in the crop rotation system are harvested. Intensive crop rotation allows for 2-3 harvests per year, protects the soil from erosion. Intercrops are harvested in the spring for green fodder, and corn, sorghum, Sudanese peas, etc. are planted instead as the main crop. There are types of catch crops called intensive crops, mixed crops, green manure,

combined crops, and second crops. Thanks to catch crops, the amount of product obtained from each hectare of land and soil fertility increase. Uzbekistan has extremely favorable conditions for growing catch crops: in the autumn-winter-early spring seasons, temperatures reach 1000 - 1500 °. For the cultivation of catch crops, temperatures of 540 -900 ° are required. During this period, catch crops yield 300-600 centners of green mass per hectare of land, in addition, 4-6 tons of dry root and stem residues. In irrigated agricultural lands of Uzbekistan, 2.7-3.0 million tons of additional feed units can be produced due to the planting of catch crops. Catch crops are sown in two seasons - the first in August, the second in October. In the irrigated agricultural regions of Central Asia, rye, barley, oats, peas, rye, mustard, etc. are considered catch crops.

Chickpea is an annual plant rich in protein belonging to the genus *Cicer arietinum* L. The pea plant has a high nutritional value, with the grain containing an average of 19-30% protein, 4-7% oil, 47-60% nitrogen-free extractives, 2.4-12.8% fiber, 0.2-4.0% ash, as well as vitamin B1 and mineral salts.

Peas are of great importance as a pioneer for many crops, because they can absorb nitrogen from the air with the help of nodule bacteria that settle on the roots. Pea plants on 1 hectare of land can accumulate 100-120 kg of nitrogen in the soil during the growing season under favorable conditions, which is equivalent to the effect of 20-25 tons of fertilizer. Pea cultivation technologies are, of course, developed primarily taking into account its biological characteristics. This plant is grown in many regions of our country. One of its features is resistance to low temperatures at the beginning of the growing season. Pea seeds germinate already at a temperature of 1-2 ° C. At the same time, these pea seedlings can withstand temperatures up to -4-6 ° C. Good results are also achieved by growing this plant after spring grain crops. Peas are generally not recommended to be planted after other legumes. It is advisable to grow this crop in the same area with a frequency of no more than 1 time in 5 years. It is also not recommended to plant these legumes after sunflowers. On average, 0.8-1.4 million seeds of this crop per hectare are sown at a depth of 4-6 cm, depending on soil type and moisture content. The optimum soil temperature is 4-5 °C, and the soil pH is between 6.2 and 7.0, depending on soil type.

On average, 1 ton of pea seeds requires 50 kg of nitrogen, 12 kg of phosphorus and 25 kg of potassium. If the phosphorus content in the soil is low, a small part of it is added with planting (10-20 kg, usually in the form of ammophos).

Organic fertilizers should be applied at least three years before planting peas. Because the application of fresh organic fertilizers develops a strong vegetative mass, the ripening period is extended, and the number of weeds in the field also increases.

In the budding phase, 15 kg of nitrogen is applied with 3 kg of sulfur (a mixture of ammonium sulfate or magnesium sulfate with any nitrogen fertilizer), which significantly increases the protein content in the seeds and leads to an increase in yield. It is important to feed microelements with molybdenum and boron. If there is a drought, foliar feeding of microelements is the preferred method. It is recommended to feed 1-2 times during the entire growing season: the first in the 5-6 leaf phase at an amount of 2-3 l/ha, the second - 3-4 l/ha - at the budding stage. Peas are highly demanding on soils. It is desirable that the soils are moderately viscous loams and sandy loams, fertile, slightly acidic or neutral soils, cleared of weeds, rich in humus, calcium, phosphorus and potassium (pH = 6.0-7.0).

To obtain a good pea crop, it is necessary to provide it with mineral fertilizers. First of all, the crop needs phosphorus-potassium additives, and these minerals are applied in the fall after autumn plowing of the fields. If this is not possible, it is also possible to apply phosphorus-potassium fertilizers in the spring, after sowing. Increasing the yield of plants, including pea plants, requires a deep study of the physiological and biochemical processes in plants. The growth and development of plants is largely related to their physiological and biochemical properties. The intensity of photosynthesis in plants is also of great importance for high productivity in plants. Because the synthesis of organic matter occurs during photosynthesis. The high or low intensity of

photosynthesis is related to the main components of the chloroplast, and these components directly determine the photosynthetic potential of the plant. In this case, timely agrotechnical measures taken for the full assimilation of mineral elements in the soil lead to high productivity.

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