Soybean Cultivation Technology and Basics of Land Preparation for Planting

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ABSTRACT

This article discusses the cultivation of soybeans and its importance in agriculture, planting, care and its fertility in the agriculture of the republic, depending on the conditions of the regions. In addition, methods of preparing land for sowing were discussed, ideas and opinions were expressed on ways to increase the yield of soybean crops.

Keywords: Organic Matter, Mineral Fertilizers, Cultivation, Soil, Irrigated Land, Fertility, Complex, Soybean Seeds, Soybean Varieties.

Introduction

Adequate protein plays an important role in human consumption. According to scientists, a person should consume 12% of the calories in food per day or 90-100 grams of protein. In developed countries, this figure is 90-95 grams, and in developing countries - 20-25 grams. The human body is always in great need of meat, milk, yoghurt, butter, eggs and other products. In our daily activities, we try to consume pet products. Soybeans contain 10 amino acids in their protein and amino acids, which are found in animal protein. Other plants do not have such an opportunity.

Materials and methods

Soybeans are one of the most important sources in solving the current problem - protein deficiency. Because soybeans protein is chemically similar to animal protein, soybean cultivation is highly valued in all developed countries. In Japan, after rice and vegetables, soybeans occupy the third largest area [1,2].

Japan is also buying large quantities of soybeans from abroad. These grains are used for various purposes. Nowadays, soybean protein is used to catch silkworms. 67% of artificial foods prepared by Japanese experts contain soybeans protein, 2% soybean oil, citric acid, B group vitamins and various other supplements. In Japan, silkworms are fed five times a year, and artificial food made from soybeans plays a big role in this. Soybeans are also used to make quality food. Soybean varieties developed in Japan differ from soybean varieties grown in other countries due to their high protein content. The amount of protein in soybeans is 14 times higher than in chicken, 4 times higher than in eggs, and 3.5 times higher than in beef. Therefore, soybeans should play a key role in the complete solution of plant protein deficiency in our country. When oil is extracted from soybeans by heating, the protein content reaches 75%. This is a very serious product - called shadow insulation. Used in the preparation of various

sausages in soybeans isolate. The cost of soybeans protein is 25 times cheaper than milk protein and 50 times cheaper than beef protein. If 800,000 tons of soybeans are grown, that means 320,000 tons of protein. To get this amount of protein, it is necessary to grow 4 million 200 thousand tons of meat [3,4].

When soybeans flour is added to bread, sweet cakes, pasta and whole wheat products, their protein content increases. Soybeans are now grown in 14 per cent of the crop area in the United States. Today, more than 100 varieties of soybeans are grown in the United States. These varieties are highly productive, including those that contain 55% protein. Breeders are working to create varieties that are drought-resistant, able to grow in different soil conditions, adapted to herbicides and pesticides, fast-ripening and chemically high in protein and fat.

Now, U.S. scientists have developed a new recipe for baking bread. They suggested baking with the addition of 7-8 per cent soybeans, which increases the protein content of the bread and makes it very soft. Such bread does not harden quickly, the dough rises most quickly, and the porosity increases even more. Because wheat flour contains 14 per cent protein, soybeans flour contains 50 per cent protein. The caloric content of soybeans flour is much higher than other flour. If 100 grams of wheat flour contains 360 calories, pea flour 320 calories, oatmeal 385 calories, buckwheat flour 345 calories, soybeans flour has 450 calories [5-9].

Soybeans contain two to three times more protein than regular beef. If the protein in the meat is 18-25%, the protein content in soybeans flour isolate reaches 80%. At present, soybean isolation is added to 10-15% of sausages produced in the sausage production shops of meat factories in the country. Today in our country soybeans are called "Baraka", "Victoria", "Genetic-1", "Gracia", "Friendship", "Elegant", "Dream", "Golden Crown", "Oyjamol", "Sochilmas", Ustoz ",“ Parvoz ",“ Favorit "are included in the state rating of agricultural crops recommended for planting. In addition, soybeans play an important role in the development of industry, technology and animal husbandry. It is widely used in the production of soap, paints, plastics, films, chemicals, and textiles [10-13].

Today, the properties and benefits of soybeans are well known all over the world. In particular, among legumes, soybeans rank first in the world in terms of gross yield and area under crops, accounting for 40% of the total vegetable oil produced. In accordance with the Decree of the President of the Republic of Uzbekistan dated March 14, 2017 "On measures to increase soybean sowing and soybean production in the country in 2017-2021", for the first time soybeans were planted on more than 12,000 hectares and 14,000 tons of grain were harvested. Due to the processing of raw materials, more than 2,000 tons of soybean oil were delivered to the population, and 10,000 tons of high-nutrient shrot were delivered to poultry farms. By 2021, this figure will reach 28.2 thousand hectares. This means that the amount of products obtained from soybeans processing has doubled.

Goals and objectives of the work. It is not possible to cultivate a farming culture without the proper introduction of crop rotation on the farm. When selecting soybean crops, their biological characteristics, as well as the natural and climatic conditions of the area, should be taken into account. Crop rotation in soybean growing areas has the following objectives: accumulation of large amounts of organic matter and biological nitrogen in the soil, improvement of physical properties, microbiological condition of the soil, proper use of organic and mineral fertilizers and increase their efficiency. Due to the dry and hot weather in summer in our country, organic matter in the soil decomposes quickly. As a result, the physical properties of the soil deteriorate rapidly, and its fertility decreases. Therefore, when alternating planting, it is necessary to properly select plants that will improve the soil structure. In our country, soybean-based crops can be mainly cotton, rice, wheat and corn [14-19].

Soybeans, in turn, are a good predecessor for many plants. In particular, when grain, cotton and potato crops were planted after soybeans,

their yields were higher. For example, the yield of oats planted after soybeans was 4.5 quintals higher. When sowing seeds after soybeans, the yield of cotton increased to 2.7-3.3 quintals per hectare.

Preparing the soil for planting. It consists of several complex agro-technical measures, including land levelling in autumn or winter, application of local and mineral fertilizers, watering of areas where autumn ploughing is required, saline washing, and levelling of lands before autumn or spring sowing, storming and other works. Complex measures to prepare the land for planting are carried out in turn according to a separate plan developed for each farm. Because. The basic conditions required for the plant will vary in the soil climatic conditions of different districts. If the tillage system is properly organized, moisture accumulation and retention in the tillage layer, loss of weed seeds and roots, fungi, viruses and bacteria that cause various diseases, and wintering insects in the soil are achieved. Before driving in autumn, 8-10 tons of manure per hectare, phosphorus fertilizers are applied at 67-70% of the annual norm [20-24].

Sowing time. One of the important agro-technical measures in obtaining high yields from soybeans is to know the optimal timing of sowing. Sowing time is determined taking into account the biological characteristics of the plant, varietal characteristics and natural-climatic conditions of the area. Experiments over several years show that the best time to plant soybeans is when the top layer of soil 5-10 cm is heated to a temperature of 14-16 ℃. This is the first half of April in most regions of the country. Such favourable soil temperature occurs in Kashkadarya and Surkhandarya regions in late March and early April [25-28]. In the conditions of the republic, it is possible to sow soybeans twice a year and get grain. Based on experiments, it can be said that the yield of replanted plants is a few centners lower than that planted in spring. However, it is possible to harvest grain from one field twice. For example, on irrigated land, 40-45 quintals of wheat are sown in autumn and 15-20 quintals of soybean are sown in summer. In short, the optimal sowing period for soybeans in early spring is 1-15 April, and when planted as a repeat crop is 15-20 June. During this period, the heat, humidity, and light regimes needed for the development of soybean seeds will be most favourable.

Planting methods. The most common method of sowing in the production of soybeans is this row, the row spacing is 45, 60 and 70 cm. The soybean is an erect, tall, well-branched, deciduous plant. Therefore, it is necessary to choose a convenient planting method, taking into account the soil and climatic conditions on the farm. Based on the experiments, it should be noted that soybeans planted 45 cm wide between rows grow rapidly during the flowering and flowering phases. During this period, the plants cover the row spacing and it becomes difficult to process between the rows. Often in processing areas, plants are damaged and die. In all soybean farms of the republic, the row spacing of 60-70 cm is convenient. Soybeans planted in these methods grow well, and cultivation, irrigation, and feeding between rows are good [29-37].

Planting rate and depth. Planting norms and methods are the main factors that determine the feeding area of plants. It is known that the yield of each plant and its quality are greatly affected by the planting norm, the feeding area. Different sowing norms were tested on the lands of the Bukhara region, in the experimental farm. In these experiments, 400, 500, 600, 700 thousand seeds or up to 60, 70, 80 and 100 kg of seeds were planted per hectare.

Results

Experiments show that as the sowing rate increases to 500,000 seeds (70 kg) per hectare, the plant's height, number of leaves, side branches and yield, ie the number of fruits (pods) per plant, the number of grains per pod and the weight of 1000 seeds, increase. In this case, the feeding area was 238 cm per plant. As a result, up to 30-32 centners per hectare are obtained from soybeans planted at this rate. The results were not bad even when the

sowing rate was 600,000 seeds (80 kg) per hectare. Plant growth and yield were good but did not lead to an increase in yield. At the same time, the yield per hectare was 28-30 quintals. Based on the experiments, it should be noted that the most suitable sowing norm for soybeans is 500,000 seeds or 70 kilograms of seeds per hectare. In order to set and recommend a clear sowing norm, it is first necessary to know the purity of the seed, its fertility, its suitability for sowing, and the weight of 1000 seeds. The seeds of most crops sown on one hectare of land are expressed in millions of seeds. The sowing rate depends on the size of the seed, soil conditions, method of sowing, suitability for sowing and other factors. Usually, the sowing rate is taken as 100 per cent, which is adjusted for suitability for sowing. In order to determine the sowing rate by the number of germinated seeds, it is necessary to know the weight of 1000 seeds, as well as their suitability for sowing. Planting depth plays a big role in producing healthy vigorous seedlings. The length of time from germination to germination depends on the depth of sowing. Planting depth depends on soil type, humidity and temperature. Mechanical composition In grey soils soybeans is planted mainly at a depth of 4-5 cm, in heavy soils at a depth of 3-4 cm.

Conclusion

In the meadow soils of the Bukhara region, the most suitable sowing rate for early and middle ripening varieties of soybeans is 550-600 thousand germinating seeds per hectare, and for medium and late-ripening varieties - 500-550 thousand germinating seeds. Taking into account the small size of the seeds, ie the weight of a thousand seeds, we can calculate the sowing in kilograms, which is 60-70 kg per hectare. In other words, the sowing norm should be 450-500 thousand plants per hectare in early ripening varieties and 400 thousand seeds per hectare in late-ripening varieties at the time of soybean harvesting.

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