

## ADVANTAGES OF USING DISK WORKING BODIES IN ONION PLANT FERTILIZING MACHINES

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**Abstract:** Today, energy- and resource-saving techniques and technologies are used in all areas of production, especially in the field of agricultural machinery. Including in the processes from preparing the field for planting to harvesting. To implement this sequence of systems, agricultural machines are equipped with different types of aggregates and carry out a systematic sequence.

**Keywords:** superphosphate, Fertilizer, soil.

In the initial period of germination, the onion plant develops very slowly, the leaves are small and delicate. Therefore, the onion plant can quickly die if it is not watered, processed and provided with nutrients during the young seedling period. The yield from onions depends on its care and leaf development. The earlier the leaves grow stronger, the faster the onion will grow. The onion plant requires a large amount of nutrients in the soil compared to other crops. So, in order to get a good harvest from onions, it is necessary to provide them with nutrients during the entire growth period. Fertilizers should be given depending on the biological characteristics of onions. When fertilizing young lawns, the fertilizer should be applied to the surface of the soil, and then to the deeper layer. During the growing season, onions are fertilized 3 times (with mineral fertilizer). In general, 30 kg of nitrogenous and phosphorous fertilizers are given for every 100 m. This is a very high norm, corresponding to 2 tons of saltpeter and 2 tons of superphosphate per hectare. Fertilizer is applied after each transplant of onions. [1].

Today, onion fertilizers are mainly spread using disc and disk fertilizing machines. Along with the advantages of these fertilizing machines, there are also the following disadvantages:

When spreading fertilizers on the surface of the crop field at a distance of 10 - 11 meters, the level of equal distribution of fertilizers decreases with increasing distance;

As a result of fertilizers not being mixed with the soil on the surface of the crop field until irrigation works are carried out and as a result of insufficient irrigation during irrigation works, fertilizers are suffocated under the influence of sun and heat;

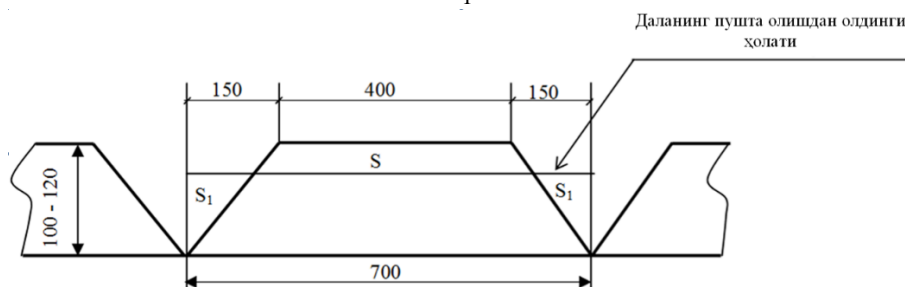
During fertilizing, the impact of mineral fertilizers on the leaves of young seedlings and the dropping of more than the norm fertilizer leads to the fact that the number of seedlings is not normally distributed over the cultivated area due to the death of young seedlings;

As a result of the mentioned shortcomings, the uneven distribution of nutrients has a negative effect on the overall development of seedlings and prevents high productivity.

Based on the above and on the basis of the research analysis, it can be said that the creation of energy-efficient fertilizing machines and working bodies, which allow peasant farmers and farms to fertilize vegetable crops in accordance with the specified agrotechnical requirements, remains one of the urgent issues of today.

The geometrical parameters of onion planting boxes are required to be as follows [2; 3]: the total width of the field is 70 cm, the width of the seed planting zone is 40 cm, the width of the irrigation trough is 30 cm, and the depth of the irrigation trough is 10-12 cm. Surfaces  $S_1$  shown in Figure 1 is the soil layer removed from the irrigation field to the seeding zone to form paddy in the cultivated field. In this

$$S = 2S_1. \quad (1)$$



**Figure 1. Geometrical diagram of a field where onions are planted**

Based on the geometric dimensions of the onion seedbed and the germination and development of seedlings, it is reported in the literature that the burying of fertilizers at a depth of 5-6 cm at the bottom of the irrigation pipes has a positive effect on the development of the onion plant, and that the nutritional conditions of the plants after watering are improved by this layering of fertilizers under the soil [4].

The function of the disc working body of the fertilizer machine is to form a narrow channel of 5-6 cm depth for the fertilizer falling from the fertilizer box through the rods from the side of the onion plant, and it turns the soil on the edge of the plant towards the suction side. After the fertilizer falls from the fertilizer box through the fertilizer channels into the narrow ditches opened by the disk, the egate opener, placed behind the disk working body, mixes the disk and the soil it overturns and buries the fertilizer. The disc distance is also changed taking into account the growth (development) period of the onion plant, i.e., the growing of the onion crop.

In conclusion, it can be said that the use of such disk working bodies in the machines for fertilizing vegetable crops, especially the onion plant, reduces the consumption of fertilizer as a result of creating conditions for the equal distribution of the specified fertilizer over the crop area, feeding of the applied fertilizers through the root part of the plant, and during the soaking and precipitation, the sorghum produced in the spring does not harm the onion plant. as a result of its softening, it has a positive effect on productivity and allows to get a large harvest of onions.

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