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AN IMPROVED MACHINE FOR GIVING LOCAL FERTILIZER TO CROP FIELDS.

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Abstract: *In the article, the harvest obtained in agriculture is mainly grown due to the assimilation and absorption of various substances contained in the soil by the crop. As a result, the organic and mineral content of the soil decreases year by year. To restore the fertility of the soil, it is necessary to regularly add various fertilizers to it. plant fertilizing machines, i.e. types of organic and mineral fertilizing machines, hay cultivators, fertilizer seeders and other modern fertilizing machines are used.*

Key words: *Fertilizer, bunker, mineral, local fertilizer, plant, auger, hydromator, cotton, row, phosphorus, potassium, nitrogen.*

The use of local fertilizers in the production of high yields of agricultural crops is considered important in increasing their productivity. The harvest obtained in agriculture is grown due to the assimilation and absorption of various substances contained in the soil by the crop. As a result, the organic and mineral content of the soil decreases year by year.

To restore the fertility of the soil, it is necessary to regularly add various fertilizers to it. Fertilizers should contain phosphorus, potassium, nitrogen, carbon and other elements necessary for plant development. According to their chemical composition, fertilizers are divided into such types as mineral, organic and organic-mineral mixture. [1,5].

Figure 1. Mineral fertilizers.

Local fertilizers are divided into solid (manure, peat, compost, etc.), liquid (liquid manure) and sidereal (various types of fast-growing green grass) types. If local solid and liquid fertilizers are mainly sprinkled on the soil before plowing, the fast-growing green grasses planted in the fields are crushed and sprinkled on the surface after growing in sufficient quantity, plowed with plows and mixed with the soil.

Figure 2. Local fertilizers.

Currently, animal waste (manure) and compost (a mixture of manure, plant stems and various waste) are widely used as the main local fertilizers. Preparation and application of solid local fertilizers are carried out in two ways: directly (farm-field) and in the form of collection (farm-storage place-field). In this case, local fertilizers are mainly loaded from the storage places of livestock farmers to the transport vehicle and they are transported to the storage place prepared at the beginning of the field. Then they are stored in that place until the time of application and when necessary, they are put into the soil. In non-saline fields, before plowing, solid and liquid local fertilizers are applied to the surface of the land, and then plowing is organized. It is appropriate to apply to the saline areas after washing off their salt during tillage [7].

Complex fertilizers - (nitrosphoska, ammophos, potassium nitrate) contain several chemical elements and contain few ballast compounds. Complex fertilizers are also prepared in liquid form. Micro fertilizers contain elements such as chalk, copper, zinc, cobalt, molybdenum. Organic fertilizers consist mainly of manure humus, manure lye and various composts from livestock farms[7,8].

Properties of fertilizers. It is necessary to take into account its physical and mechanical properties when choosing the right type of machinery for spreading fertilizer on the field. The most important property of fertilizer is its flowability. The degree of leakage can be estimated by the natural alignment angle ps. For mineral fertilizers, ps = 30°-55°. Fertilizers with high hygroscopicity are crushed before being spread on the field, and their flowability is restored. The friction angle of fertilizers with steel tin is φ = 27°-45° (friction coefficient φ =0.5-1.0). Since the powdery fertilizer has a natural angle of convergence ps < 35°, it can pour freely through the hole at the bottom of its container. For this reason, a machine that uses a calibrated slot should be selected to spread such fertilizer. If пс = 40°, a doser is used that scatters the fertilizer over the tank wall. When пс ≥ 90°, the fertilizer does not spill out of the hole in the container, so a meter is chosen to sprinkle it over when spreading.

The bottom of such a quantifier moves up and continuously conveys the fertilizer up. The working part installed on top of the fertilizer layer spreads it evenly. Depending on the level of decomposition, the natural angle of integration of organic fertilizer is п = 40-50°, the angle of friction with steel is φ = 40-45°. Liquid nitrogen fertilizers are several times cheaper than dried ones, but working with them is dangerous: anhydrous ammonia is poisonous and prone to explosion[1,6].

It evaporates quickly even at atmospheric pressure and positive ambient temperature (boiling temperature minus 33°), therefore, it is recommended to use special machines for anhydrous ammonia. Methods of fertilization. Fertilizers are applied to the ground before planting (main), during planting, after planting (feeding). In the main fertilizing, the annual rate of organic fertilizer is full, more than half of the annual rate of mineral fertilizer is scattered on the field, and soil tillage machines (miller, plow, cultivator, harrow, etc.)) mixed with soil to a depth of 10-20 cm. At the time of planting, the fertilizer is applied simultaneously with the seeds with the help of a universal seeder, but 5-10 cm deeper than the seeds or 5-10 cm to the side from the seeds in order not to burn the seedling roots. Plant feeding is done before watering. To carry out the method of fertilizing, machines are used that grind the fertilizer, sprinkle it on the ground, apply fertilizer continuously or locally in relation to the plant row.

Seeders, centrifugal spreaders, manure spreaders and silt sprinklers are used to spread mineral fertilizer on the surface of the earth. Liquid ammonia fertilizers should be made in a narrow ditch, poured into it and immediately buried with soil 10-15 cm thick, otherwise most of it will fly into the air. Agrotechnical requirements. The lumps of mineral fertilizer applied to the ground should be crushed into 1-5 mm particles, the moisture content should not exceed 15%. The machines should be able to spread mineral fertilizer at 50-1000 kg/ha, and organic fertilizer at 5-60 t/ha.

The machine must provide fertilizer burial to the specified depth (difference ±15%). Mineral fertilizer should be buried in the soil within 12 hours, and organic fertilizer within 2 hours, so that useful elements do not decompose. Nowadays, after planting, only mineral fertilizers are used as feed between the rows, which leads to a

decrease in the porosity of the soil, and the crops we eat are saturated with harmful chemicals. . In order to prevent these problems, a local fertilization device is installed between the rows [7].

This device consists of the following parts (Figure 3):

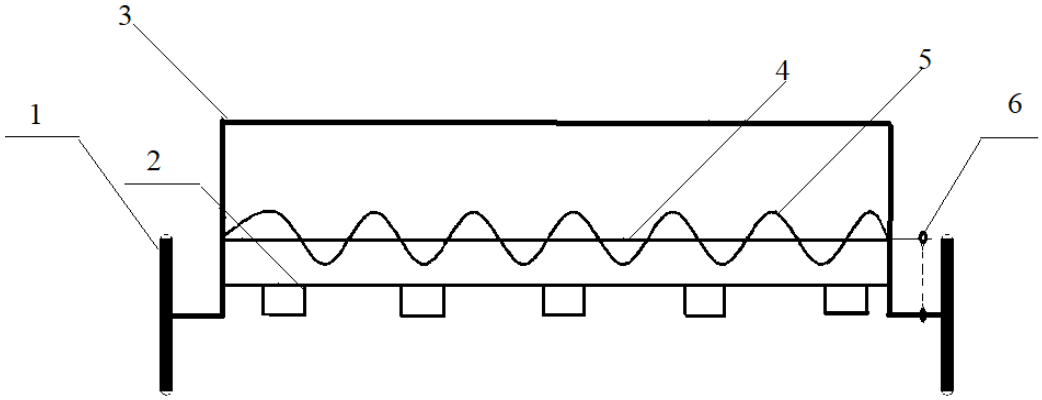

Figure 3. Kinematic production of fertilizer production included in the series

1- hill; 2-fertilizer falling power; 3 - bunker; 4-screw axis; 5- screw; 6-chain transmission.

My device is mainly adapted to apply fertilizer to 5 rows. it takes from the tractor's rear drive transmission mechanism, it is connected to the tractor by three points. According to their structure, augers are divided into single, winged, ribbon and shaped types[6,7].

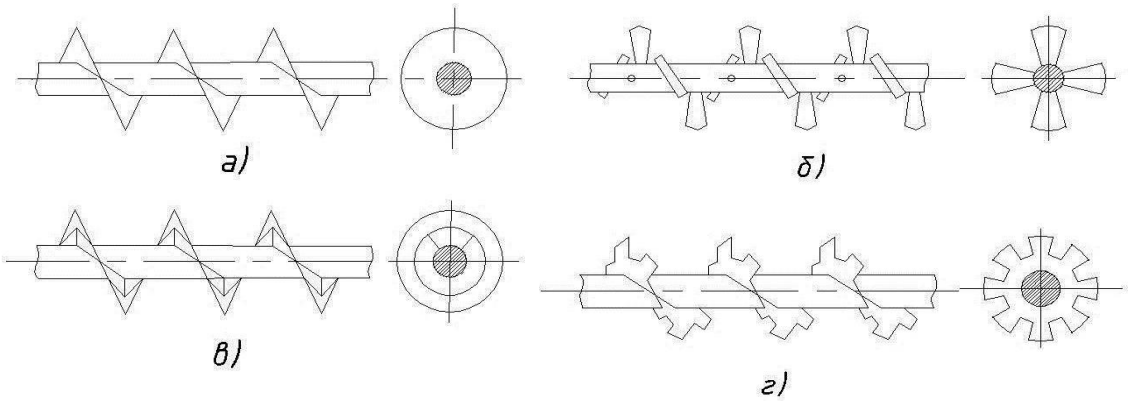

Figure 4. Types of augers

a) integral; b) tape; c) feathered; g) fashionable

These augers are used to grind local fertilizers and ensure that the fertilizer falls between the augers, that is, the pipes direct the fertilizer. The advantage of this device is that it provides the land with the same consistency as the local fertilizer, which is a very low cost and a good harvest in the future.

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