
Asparagus (*Asparagus Officinalis* L) Propagation Technology from Seeds

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Abstract: Asparagus (*Asparagus L.*) is a promising medicinal plant that is not traditional for Uzbekistan, and a large number of vegetable crops are grown throughout Europe, West Asia and North Africa. Young shoots are eaten. In the wild, it grows in temperate regions of the world - North Africa, almost all of Europe (except the northern regions), Asia Minor and Central Asia, North America, Australia and New Zealand. It is grown in the territory of the former USSR - in the European part of Russia (on the sandy banks of the Volga and its tributaries), in the Caucasus and in Western Siberia.

Keywords: Asparagus, propagation from seeds, fertility, growth and development.

Enter. Asparagus is a perennial cold-resistant plant with a rhizome belonging to the asparagus family. After seed germination, the plant develops a fibrous root system consisting of the roots themselves, which absorb nutrients and water, as well as rhizomes, which store nutrients.

Materials and methods. Asparagus berries consist of 2-3 cells, when ripe, it is bright red or orange. It produces 1-2 seeds in each chamber of the fruit. Generally accepted phenological, biometric, agrochemical, agrobiotechnological and statistical research methods were used in this work.

The result and their analysis. When propagating medicinal asparagus from seeds, a few days before planting, it is frozen in warm water at +25+35 degrees for 2 days, then the seeds are wrapped in bags or filter paper and placed in polyethylene bags, and the seeds are sown in a dark place. It is recommended to sow only germinated seeds, then in the spring, the seeds are sown in pre-prepared soil with a row spacing of 25-30 cm, a depth of 3-4 cm, soil temperature +8+12. It should be noted that it is not less than C, if the spring months are cold, the furrows are covered with a film, and the film can be removed after the appearance of grass.

Planting asparagus from seed is not a complicated process. At the beginning of spring, the seeds are soaked in warm water for 2 days with growth stimulants and then cooled. Warmed seeds are planted in well-sifted soil mixed with black sand, rotted manure and humus in a ratio of 2:1:1:1. Then it is covered with 1 cm thick soft soil and watered continuously with a watering can. It can also be covered with glass or cellophane. But during watering, it is necessary to open the top and ventilate a little. It is desirable that the place where the seeds are planted is a place where the sun falls well. It is recommended that the temperature is not lower than 25...27°C for good seed germination.

If the indicated agrotechnical measures are carried out correctly and qualitatively, the seeds will germinate in 25-30 days on average. Then, after the grasses are 15-20 cm, they can be planted in the field. On average, it takes 4-6 years to get a full harvest from asparagus planted from seeds.

We started our experiments by extracting seeds from ripened fruits in February 2023. Initially, black three-sided seeds were isolated from ripened fruits. On February 16, the isolated seeds were frozen in water with a temperature of + 30 C at room temperature (+26 C) for 1 day, and on February 17, the frozen seeds were dried at room temperature for 2 hours (Fig. 1).



Figure 1. The process of soaking asparagus seeds in water

Polyethylene cassettes are filled with biohumus substrate for sowing seeds. There are 35 cells in the cassette, and it is advisable to fill each of them with biohumus without increasing the density. If the density of the substrate in the cells is too high, the means necessary for seed development, i.e. respiration, water evaporation and other biochemical processes, will be disrupted, in this case, the seed germination rate will be very low. Two pre-prepared seeds were placed in each cell of a polyethylene cassette filled with biohumus, and biohumus was sprinkled 2 mm thick from the top of the seeds (Fig. 2).



Figure 2. Planting asparagus seeds in soil with biohumus

We put the finished polyethylene cassette near the window facing the east side of the room with good light, then to keep the moisture level in the polyethylene cassette at a moderate level, the necessary water is poured into the biohumus, after which the humidity (90-100%) is maintained for a long time. In order to provide and ensure the rapid passage of light, the glass is closed over it.

After planting asparagus seeds, biohumus humidity was controlled daily (90-100%) and watered every 2 or 3 days. 15 days after planting the seeds, the first grasses appeared and the remaining grasses began to sprout. After the first grass sprouts, the glass cover on the polyethylene cassette is removed. Biohumus humidity (60-70%) is controlled. At the beginning of the germination process of asparagus seeds, there were few numbers. After the 9th day of the germination process, the germination of the grass was accelerated, and by the

18th day of the germination process, almost 85% of the seeds had germinated, and the remaining seeds remained viable for a few more days. continued, thus increasing the success rate to 95%. Planted in a polyethylene cassette. 67 out of 70 seeds germinated (Table 1).

Table 1 Asparagus seed germination indicator with dates

T/r	The date	Number of germinated seeds	The level of productivit (%)
1	03.03.2023	1	1.5
2	03.04.2023	2	3
3	03.05.2023	4	6
4	07.03.2023	6	8.5
5	09.03.2023	9	13
6	10.03.2023	16	23
7	11.03.2023	25	36
8	12.03.2023	34	48.5
9	13.03.2023	40	57
10	15.03.2023	43	61
11	17.03.2023	50	71
12	19.03.2023	57	81
13	21.03.2023	62	88.5
14	23.03.2023	64	91
15	26.03.2023	67	95

In order to observe the germination of asparagus from its seeds, as an experiment, we carried out the freezing process of plant seeds in 3 different ways, in which the result was 85.7% when we froze asparagus seeds for one day, and 91.4% when we froze them for two days. 95.7% germination was achieved when we planted it after freezing for three days (Table 2).

Table 2 Changes depending on the duration of soaking asparagus seeds in water

Options	Days, in %											
	5	%	10	%	15	%	20	%	25	%	30	%
1 day	-	-	-	-	2	2.8	12	17.1	38	54.2	60	85.7
2 days	-	-	1	1.4	5	7.1	18	25.7	45	64.2	64	91.4
3 days	-	-	2	2.8	6	8.5	23	32.8	54	77.1	67	95.7

Daily temperature, light requirement and humidity of sprouted grasses were monitored.



Figure 3 . Germination of asparagus seeds.

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goes (fig. 3).

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