

## DETERMINATION OF PEANUT SEED FERTILITY IN POMEGRANATE PLANTATION ROW SPACES AND IN LABORATORY CONDITIONS

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**Abstract:** In this article, the results of the process of determining the seed germination of grain leguminous plants in pomegranate plantations of row intervals and in laboratory conditions, at different periods, were presented. In laboratory conditions, the germination of peanut seeds was 60-70%, and pomegranate plantations were planted at different intervals, and different results were obtained.

**Key words:** peanut, laboratory and field conditions, seed, germination, seedlings, pomegranate plantations.

The increasing demand for quality food products also increases the demand for fertile land. This creates the need for productive use of arable land. In our research work, we also carried out scientific research on the cultivation of grain legumes, making good use of the spaces between pomegranate plantations. This makes it possible to protect the land from the consequences of monoculture, increase soil fertility, monitor the vegetation of two plants at the same time, and get an abundant harvest.

Also, the pace of urbanization creates the need for productive use of cultivated areas. Our research is focused on the cultivation of legumes in the rows of pomegranate plantations, and is of scientific and practical importance in solving the above-mentioned problems.

According to the decision of the Cabinet of Ministers of the Republic of Uzbekistan No. 791 of October 4, 2018 "On measures to increase pomegranate cultivation and industry development in Fergana region" "...planting agricultural crops between rows of pomegranate orchards, the scheme of planting seedlings, maintenance, watering, feeding and carrying out agrotechnical activities during the season, development of scientifically based practical recommendations and manuals on the issues of high yield..." is defined as the main task [1].

Based on this, we conducted our research in 2021-2023 at the farm belonging to the Termiz Institute of Agro-Technology and Innovative Development.

Peanut is an annual plant belonging to the legume family, an oilseed. Homeland South America (Brazil). The root of the peanut is an arrowroot, which penetrates deep into the soil and forms nitrogen-accumulating nodules. The stem is herbaceous, 50-60 cm tall, branched, upright, side branches grow in the ground. In each leaf axil there is an inflorescence (shingle). Flowers are bisexual, yellow, golden. The underground

flowers do not open, they pollinate themselves. Flowers above the ground are pollinated from outside. After the flower is pollinated, the bud first grows vertically, then downwards, penetrates the soil at a depth of 8-10 cm, and the fruit (pod) is completed. There are 2-4 seeds in a pod. The weight of 1000 seeds is 200-1500 g (400-500 g on average). One bush has up to 700 pods [2].

Peanut is a heat-loving, moisture-loving, light-loving and short-day plant. It is demanding on sand and fertile soils, does not grow well in saline and swampy lands. The seed germinates at 12-15°C, the grass dies at -1°C. The growing season is 150-170 days. In Uzbekistan, peanuts are planted on irrigated lands, with a yield of 20-40 s/ha. The fruit contains 48-66% fat, 23-38% protein and up to 22% carbohydrates. Its seeds and oil are used in confectionery. Its oil is included in non-drying oils, its quality is equal to olive oil. Stems and leaves are good fodder for livestock and animals. Peanut accumulates biological nitrogen in the soil and increases soil fertility. It is sown in spring (end of April) when the soil temperature rises to 14-15° in the fields plowed and fertilized 2-3 times. Demanding phosphorus and nitrogen fertilizers. 70-100 kg of seeds are used per hectare. It is watered 4-6 times during the growing season. It is cultivated between the rows, it is mowed 2-3 times during the growing season, and if the root neck is buried with soil, the yield increases significantly [2].

Currently, 4 varieties of peanuts are grown in Uzbekistan. These are Lider, Salomat, Mumtoz, Qibray-4 [2].

In our research, the seeds harvested in 2022 were used to check the germination of peanut seeds. A petri dish, filter paper and distilled water were used to check the viability of the selected seeds in the laboratory. It was carried out in 4 options, at a temperature of 10°-30°, with 100 seeds. Fast germination of seeds was observed at a temperature of 25°-30°. The temperature from 10° C to -30° C was used to determine the germination of seeds. The fertility index was calculated in percentages [3].

**Peanut seed under laboratory conditions  
determination of fertility (n-100)**

t° C	Days									
	1	2	3	4	5	6	7	8	9	10
	25.04	27.04	29.04	30.04	1.05	3.05	5.05	8.05	10.05	12.05
10°C	0	0	0	0	3	10	15	25	30	35
15°C	0	0	0	1	9	13	20	26	39	47
20°C	0	0	1	2	12	20	33	39	48	55
25°C	0	1	2	8	20	25	37	44	55	68
30°C	0	1	3	12	24	31	48	63	70	75

At 10°-15°, the first signs began to appear on the 4th-5th day, and on the 10th day, they reached 35%-47%. When the temperature was increased to (25°c-30°C), the seeds began to germinate in 2-3 days. As a result of observations, 7%-8% of every 100 seeds

germinated and died without forming leaves. From the results of the experiment, the optimal temperature for the seeds of the peanut plant in laboratory conditions is (25° C-30° C) and is 60%-70%.

The next experiment was carried out in an open field, that is, between pomegranate rows. Pomegranate plantations are leveled in rows, cleared of weeds, and seeds are planted at a depth of 3-5 cm. The seedlings were watered every day or every other day for germination. The first sprouts from the seeds sown in the third 10 days of April began to appear in 10-12 days. Observation was carried out for 20-25 days. In the first days, 2-3 sprouts sprouted, and there was no death among the sprouted sprouts. At the end of the experiment, seed germination was 70%.

In conclusion, it can be said that the germination index of peanut seeds planted in pomegranate rows was high. Pomegranate bushes played a significant role in maintaining soil moisture. Also, through drip irrigation, the necessary moisture for the vegetation of two plants was provided, and an opportunity to save water was created.

### Literature

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