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THE QUALITY OF CROP SEEDS DEPENDS ON LABORATORY GERMINATION

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Abstract:

This article presents data on germination vigor, laboratory germination and root length from mung bean, chickpea and soybean seed crops and explains the results of this indicator. To increase field germination, laboratory determination of the germination of seeds used for sowing is necessary.

Keywords: mung bean, chickpea, soybean, seeds, germination energy, laboratory germination, root length

The germination of seeds is one of the most important characteristics determining their suitability for planting. Seed germination is an important indicator of the yield, which has a significant impact on the density of shoots, lateral development of plants and other factors.

Seed germination in the laboratory is always higher than in the field. One of the main reasons for this is that optimal conditions (heat, moisture and air) are created for seed germination under laboratory conditions. In the field, various factors influence seed germination. However, the germination of the seeds determined under laboratory conditions is a fairly good indicator of their suitability for sowing.

One of the main factors for obtaining a high-quality yield is the quality germination of crops in the field and their care in due time. For high-quality field germination of seeds, laboratory determination of germination of seeds used in sowing, it is necessary to fully meet the requirements of the state standard.

Use of seeds with high vigour of germination and germination is effective for increasing field germination and viability of seeds, formation of productive plants and increase of crop yield [1; 2; 4].

Laboratory germination of seeds of agricultural crops I, II and III classes should be 90; 85; 80%. Only class I and class II seeds are recommended for planting. Many sources emphasize that the higher the energy of germination, the laboratory germination and the force of growth of seeds, the higher the field germination of seeds.

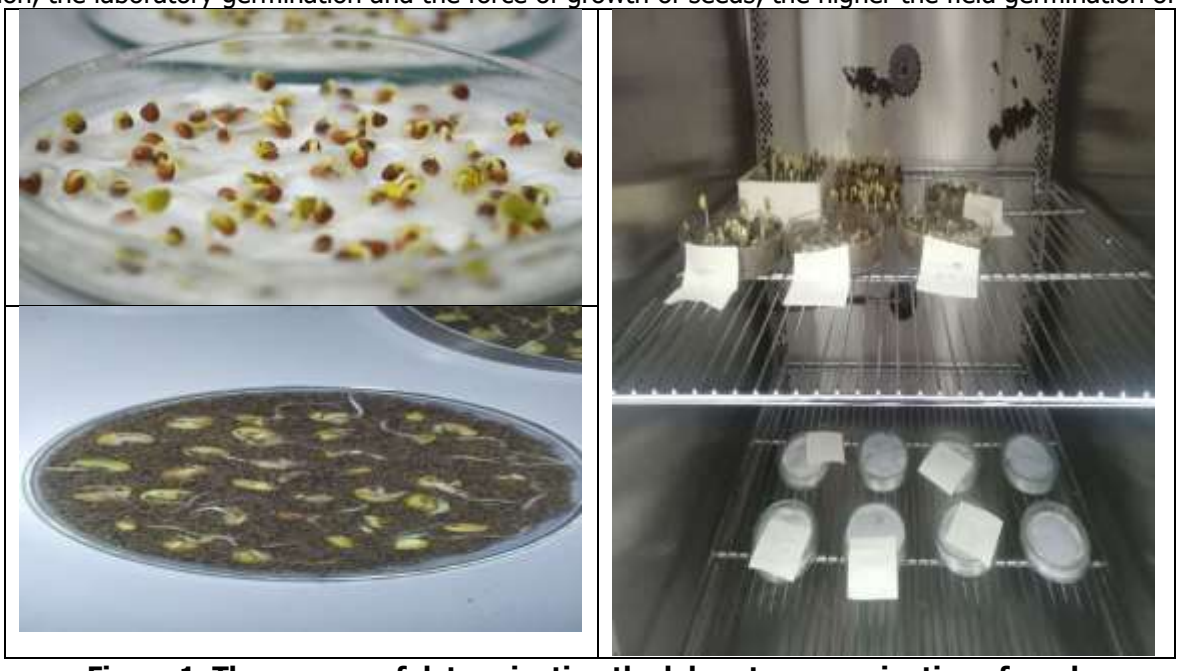

Figure 1. The process of determination the laboratory germination of seeds

Determination of laboratory germination of seeds according to GOST 12038-84 soybean and chickpea sowing in sand, and the sowing of the mat on filter paper at a temperature of 25 0C in 3 repetition of 100 seeds [3].

The energy of germination of the seeds was determined after 3 days and germinated after 7 days in percentage according to the standard requirement of GOST.

According to the results of the laboratory studies, the energy of germination of seeds of agricultural crops for 3 days was 53-90%.

The root is considered a major plant organ and is used to transport water and nutrients to other parts of plants. Drought tolerance is a strong root system. Drought-tolerant varieties have the ability to use soil moisture reserves efficiently through a highly developed root system.

Studying the length of roots is important in increasing crop yields, especially when growing wheat in areas with low moisture content. The maximum root length confirms the presence of moisture from the soil depth and helps to adapt to water shortage conditions [5].

According to laboratory experience, the length of the soybean root Oyjamol (3.02 cm), Baraka masha (5.10 cm), Nuta Polwon (6.10 cm) and Karasuv 350 AMB (7.0) was found to be long.

1-table

Seed germination under laboratory conditions

Laboratory analyses Research Institute of Southern Agriculture.

№	Type of culture	Name of variety	Energy of germination,%	Germination of seeds,%	Length of root, cm
1	Soya	Tumaris-MAN60	64	91	2,84
2		Oijamal	64	89	3,02
3	Mash	Baraka	53	90	5,10
4		Durdon	48	85	4,90
5	Nut	Obad	87	95	5,60
6		Polvan	90	97	6,10
7	Maize	Karasuv-350 AMV	90	92	7,00
8		Uzbekistan 601	87	96	6,15

The laboratory seed germination was 85% and 97% by varieties, and it was found that 91% of Tumaris-MAN-60 soybeans, Baraka masha, Nuta Polwon and Uzbekistan 601 had high laboratory germination, 91%; 96%; 97%. At the same time, it became known that the laboratory germination of Tumaris-MAN-60 soybean varieties, Baraka masha, Nuta Polwon and Uzbekistan 601 in our studies belongs to the first class.

CONCLUSIONS. If we draw a conclusion from laboratory studies, the high laboratory germination of soybeans Tumaris-MAN60, Baraka masha, Nuta Polwon and Uzbekistan corn 601 indicate a high and field germination of these seeds.

LITERATURE USED:

1. Abramov V. S. Determination of quality of seeds by their growth force //Selection and seed production. 1985. 6. P. 42-43
2. Larionov Y. S. Assessment of crop properties and yield potential of grain crops. Chelyabinsk : Chelyabinsk GAU, 2000. 100 p
3. Seeds of rural agricultural crops. Methods of determination of germination. GOST 12038-84.
4. Chazov S. A., Haydukova V. S., Eremeeva V. G. Field germination of seeds of grain crops and methods of its increase //Selection and seed production. 1989. 1. P. 41-43
5. Shahbazi, H.; Bihamta, M.R.; Taeb, M.; Darvish, F. Germination characters of heat under osmotic stress: Heritability and with relation to drought tolerance. Int. J. Agric. Res. Rev. 2012, 2 , 689-698