



INFLUENCE OF INTENSIVE PROPAGATION TECHNOLOGY OF POMEGRANATE SEEDLINGS ON QUALITY INDICATORS.

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Article history:	Abstract:
Received: 20 th October 2024	<p>The pomegranate industry is considered highly profitable. It is necessary to develop the ancient traditions of pomegranate cultivation on the basis of scientific achievements, select and propagate varieties suitable for the soil and climatic conditions of each region, and conduct scientific research on obtaining high yields from them in each household. Pomegranate (<i>P. granatum</i>) is one of the fruit plants cultivated in our country since ancient times. The yield and quality of pomegranates often depend on the quality of the seedlings planted. High-quality seedlings are grown in special nurseries.</p> <p>Today, pomegranates are grown on a total of 14,045 hectares (10,247 ha of agricultural land), of which 7,340 hectares (52 percent) are in the Surkhandarya region. It is planned to produce 97.1 thousand tons of products from these areas. In 2024, it is planned to establish pomegranate orchards on a total of 1,500 hectares across the republic, of which 790 hectares are in the Surkhandarya region and 490 hectares in the Kashkadarya region. These areas will require the cultivation of 1 million 250 thousand pomegranate seedlings of the export varieties "Qazaq" and "Aqdona".</p>
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THE IMPORTANCE AND PROBLEMS OF SCIENTIFIC WORK: Currently, the following pomegranate varieties with a sweet and sour taste are mainly grown in the republic: "Qazaq", "Marvarid" (new), "Aq anor", "Qizil po'choq", "Achchiq anor" and "Qora kayin". In the territories of Sherobod district, the "Qazaq" pomegranate variety is mainly grown.

Today, special attention is paid to the cultivation of subtropical fruits, including pomegranates, in the republic. For this, consistent reforms are being carried out to expand the area of pomegranates, select export-oriented pomegranate varieties and intensively propagate their seedlings, and systematically supply them to pomegranate growers.

In particular, by the Resolution of the Cabinet of Ministers No. 791 dated October 4, 2018, the "Pomegranate Growers" Association was established in Fergana region. This association makes proposals for the organization of pomegranate growing entities not only in Fergana region but also in the regions of the republic, for the propagation of pomegranate seedlings and production and increasing export potential based on advanced, resource-saving agricultural technologies. In Sherobod district alone, 33 out of 48 makhallas specialize in pomegranate growing. Pomegranate growing is also very developed in Sariosiya, Kitab, Mirzaabad and Kuva districts. Pomegranate cultivation is one of the main drivers of agricultural production. However, the demand for high-quality pomegranate seedlings and orchards is increasing day by day. Given this, the establishment of high-quality pomegranate orchards in our country and increasing export volumes remain one of the main problems in horticulture.

This scientific research topic has been widely studied in foreign countries, but there are practically no analogues in the conditions of the republic. This is one of the topical issues of the project.

THE PURPOSE OF SCIENTIFIC RESEARCH: The purpose of the scientific research is to study the impact of intensive technology on the quality indicators of pomegranate seedlings in our country.

SCIENTIFIC RESEARCH TASKS:

- Study of resistance of pomegranate varieties to various stress factors (biotic, abiotic);
- Isolation of pests and pathogens of pomegranate in laboratory conditions, study of their type, development and some bioecological characteristics;
- Selection of export pomegranate varieties. Analysis of soil and water on the lands of pomegranate growing entities, determination of the optimal pH value;
- Determination of the norm of mineral (NPK) fertilizers required for the growth and development of pomegranate seedlings;
- Testing of foliar growth regulators and new preparations against harmful organisms for the cultivation of high-quality pomegranate fruits, establishing regulations for their use and assessing the effectiveness of pesticides;
- Development of agrotechnology for the reproduction of export pomegranate seedlings in special protected structures that generate artificial fog and in vitro conditions;
- Determination of quality indicators and biochemical composition of pomegranate fruits;

THE LEVEL OF UNDERSTANDING OF THE SCIENTIFIC PROBLEM:

There are a number of scientific works in foreign countries on the propagation, care, fertilization, irrigation, and protection of pomegranate seedlings from diseases and pests by Nesterova D.V., (2007); Koblyakov V.V., (1999); Kumar R., Meena R., Sharma B.D., Saroj P.I., (2018); Debjit et al., (2013); Waskar, (2006); Saroj et al., (2008); Chandra et al., (2011); Sharma et al., (2014); Lansky E.P., (2007); R.Attanayake et al., (2018) and A.Sergeeva (2022) on the propagation of seedlings in vitro.

There is little scientific work on pomegranate care in the republic, there are only a few scientific articles by scientists. G. Mamajonov (2024) on the use of mineral and organic fertilizers in pomegranate plants; J. Ochildev (2022) on seedling propagation in vitro; I. Nomozov (2021) on pomegranate cultivation; A. Rakhmatov (2020, 2021) and Sh. Khodjaev (2021) on protection against pests and diseases have published scientific articles.

THE PROPOSED METHODS AND SCIENTIFIC APPROACHES TO PROVIDE A SCIENTIFIC SOLUTION TO THE PROBLEM ARE:

The experiments are carried out using the methods of "Methodology of calculations and phenological observations in experiments with fruit and berry crops" by Boriev et al. (2014), "Methodology of calculations and observations in experiments with fruit and berry crops" by Moiseichenko (1967). In studies on the propagation of pomegranate seedlings in vitro, the methods of J. Dryvir, S. Murodova and R. Artikov are used. The species composition of pests found in pomegranate plants is determined by T. Svinglani (1943), and their bioecology, distribution and damage are determined by Sh. Khodjaev (2004). The species composition and bioecological characteristics of disease-causing fungi are studied by N. Pidoplichko (1977a; 1977b), M. Khokhryakov (1969) and others; the incidence and development of diseases by K. Stepanov, A. Chumakov (1972); A. Chumakov, I. Minkevich (1974); the use of fungicides against pests and diseases, the determination of their biological and economic effectiveness, are based on the methodological manuals of Sh. T. Khodzhaev (2004).

EXPECTED RESULTS AND THEIR SIGNIFICANCE:

The resistance of pomegranate varieties to biotic (diseases and pests) and abiotic (heat, drought and cold) factors is studied.

Pests (suckers, fruit eaters) and disease-causing pathogens that are widespread in the pomegranate biotype are isolated in laboratory conditions, their type, development and bioecological characteristics are studied.

To grow high-quality pomegranate fruits, foliar growth regulators and new preparations against pests and diseases are tested, and regulations for their use are developed.

The optimal period for growing pomegranate seedlings in special protected structures that create a controlled microclimate and the agrotechnology for growing pomegranate seedlings in vitro will be developed.

CONCLUSIONS FROM SCIENTIFIC RESEARCH:

- pomegranate seedlings are not limited in terms of season and number by intensive in vitro propagation of pomegranate seedlings.
- since in vitro seedlings are propagated by microclonal method, the quality indicators of the mother plant are fully manifested in generations.
- due to the use of biostimulants in intensive seedling cultivation, the quality of seedlings and crops is also higher than in traditional seedling cultivation.

- in intensive seedling cultivation, not only seedlings are grown, but also agrotechnologies for their proper cultivation are developed.
- the yield of the grown seedlings also meets the same world standard norms: the biochemical and morphological indicators of the fruit differ in the normal formation.
- in addition, seedlings grown in intensive seedling cultivation are resistant to pests and diseases due to the treatment with hormones.

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2. <https://semena.cc/blog/rejtingi-ovoshhnyh-kultur/luchshie-sorta-supersladkoj-i-sladkoj-kukuruzy/> - This blog features ratings of the best varieties of super-sweet and sweet corn, providing valuable insights into popular cultivars.
3. <https://www.syngenta.ru/products/search/seed-vegetable/crop/sweet-corn> - A product page by Syngenta, offering detailed descriptions of different sweet corn varieties and their agricultural benefits.
4. <https://agroservers.ru/b/kukuruza-zubovidnaya-419812.htm> - A Russian agricultural website discussing the characteristics of dent corn (Zubovidnaya corn), a variety commonly used in livestock feed and industry.
5. https://en.wikipedia.org/wiki/Dent_corn - Wikipedia article on dent corn, explaining its uses in food production, animal feed, and biofuels, with a focus on its unique grain structure.
6. <https://extension.psu.edu/sweet-corn-production> - A Penn State University extension article providing a comprehensive guide on growing sweet corn, from soil preparation to harvesting, focusing on best practices and techniques for optimal yield.
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9. <https://www.cornell.edu/> - A portal for agricultural research and publications from Cornell University, which includes extensive resources on corn production, breeding, and pest management.