

EFFECTIVENESS OF ACCELERATED SEED PRODUCTION OF
EARLY-MATURING “BAHORROY” ONION VARIETY

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Abstract. *This article analyzes the scientific and practical foundations of accelerated seed production of the ultra-early “Bahoroy” onion variety. The study investigated the effect of sowing dates on onion growth and development, overwintering ability, stalk formation, seed yield, and seed quality. Results show that sowing at the end of June to the beginning of July, especially on July 1, led to the highest seed yield (516 kg/ha) and superior quality. This period is scientifically justified as economically optimal for onion seed production.*

Keywords: *Bahoroy variety, onion, seed production, accelerated method, sowing date, seed quality, yield.*

Introduction. In agriculture, achieving high yields and producing high-quality products largely depends on the seed production system. Particularly, improving the seed quality of spring crops requires the introduction of modern agrotechnologies. Accelerated seed production of the Bahoroy onion variety allows for obtaining highly productive, pure-line, disease-resistant seeds. This method focuses on optimizing agrotechnical measures, using resources efficiently, and achieving high results in a short time. The article highlights the

scientific and practical foundations for organizing accelerated seed production of the Bahoroy variety.

Literature Review. In Uzbekistan, requirements for organizing seed production systems, maintaining varietal purity, and quality control are established and serve as legal and organizational guidance for cultivating the Bahoroy variety [1]. Scientific and practical foundations for preparing, storing, and evaluating seed quality of agricultural crops provide a theoretical basis for accelerated seed production of Bahoroy [2,3]. Issues related to developing seed production of onions using intensive technologies, including improving yield and seed quality, have been analyzed; international experience, quality standards, laboratory testing, certification, and local seed system improvements are discussed [4,5].

Additionally, the physiology, viability, and germination capacity of seeds, as well as storage technologies, are scientifically grounded; these are important for assessing the seed quality of the Bahoroy variety. Methods of plant breeding and maintaining biological traits of varieties in seed production are scientifically justified [6,7]. Agrotechnical principles for intensive cultivation of spring crops, including fertilization, irrigation, and crop care, are practically important for accelerated seed production of Bahoroy [8].

Materials and Methods. Research was conducted during 2022–2024 under field trial conditions. The ultra-early Bahoroy onion variety was selected as the object. Plants were cultivated using agrotechnologies recommended by the institute. During growth and development, phenological observations and biometric measurements were carried out. In late summer and early autumn (second half of August and early September), 3–5% of onions sown showed stalk formation. To accelerate this process, studies were conducted to advance

the sowing dates. Sowing dates in the experiments ranged from June 20, 2022, to July 2023. Field trials included 4 experimental variants and 1 control, each on a 14 m² plot with three replicates. Seeds were sown in rows at 70×15 cm spacing, 0.3–0.5 g per m²: Variant 1 – June 20, Variant 2 – July 1, Variant 3 – July 10, Variant 4 – July 20, Control – August 30. Sowing intervals were 10 days. After sowing, pre-irrigation was performed, and all agrotechnical practices were applied timely.

Results. The following indicators were monitored: sowing date and emergence rate (10–75%), seedlings per clove, leaves per plant and length, overwintering survival (October–November and March–May), number and percentage of flowering stalks, flowering and seed ripening stages (10–75%), harvest date, and seed yield (g/m²). Seeds were analyzed in the laboratory for 1000-seed weight, germination, and viability. The study revealed that sowing date significantly affected yield and seed quality. The highest seed yield (516 kg/ha) was obtained from the July 1 sowing, indicating that late June–early July is optimal for sowing.

Yield analysis of accelerated seed production of Bahoroy onion variety (2022–2024)

Variant	Seed Yield (kg/ha)	1000-Seed Weight (g)	Germination (%)	Viability (%)
June 20	417	3.77	85	88
July 1	516	3.80	78	85
July 10	315	3.50	75	78
July 20	225	3.42	72	79
Aug 30 (control)	0	0	0	0

ЭКФ ₀₅	1,8			
Sx%	0,5			

Early sowing (June 20) gave good results (417 kg/ha), but did not fully support physiological development. Yield decreased with later sowings, and the control (August 30) produced almost no seeds, confirming that late sowing is unsuitable. Seed quality (1000-seed weight, germination, viability) depended on sowing date, with the highest values in July 1 and June 20 variants. Overwintering ability was high in all variants (130–132 seedlings/m²), confirming resistance to winter conditions. Flowering and seed formation were most stable and complete in the July 1 variant, providing maximum yield and economic efficiency.

CONCLUSIONS

1. Optimal sowing date is late June–early July (especially July 1), providing the highest seed yield and quality.
2. Early sowing (June 20) produces high-quality seeds but slightly lower yield than July 1.
3. Late sowing (July 20 and August 30) negatively affects yield and quality.
4. Seed quality is closely linked to sowing date; highest quality observed in July 1 and June 20 variants.
5. Overwintering ability is high in all variants (130–132 seedlings/m²).
6. Generative development and seed ripening were most stable in July 1 sowing, ensuring economic efficiency in seed production.

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