

WINTER GARLIC PROPAGATION VIA AERIAL BULBLETS A BREAKTHROUGH IN SUSTAINABLE CROP PRODUCTION

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The research **purpose** is to study the effect of growing area on planting material consumption; evaluate garlic growth and development under various agronomic conditions; analyze plant survival; and determine the number of standard single-clove bulblets, which is important for propagation.

The study sample consisted of aerial bulblets obtained from the “Berechet” cultivar, which was bred from a local population of bolting garlic. The average weight of aerial bulblets was approximately 0.18 g. The following plant stand configurations were used in the study: 286,000 bulblets/ha (B1); 357,000 (B2); 476,000 (B3); 714,000 (B4) - control; and 952,000 (B5)). The feeding area of one plant according to the planting density was (350 cm² (B1); 280 cm² (B2); 210 cm² (B3); 140 cm² (B4) - control; and 105 cm² (B5)).

Upon reaching maturity, in two repetitions, on June 26, ripe single-clove bulbs (sets) were dug up and biometric measurements were carried out. The bulbs were calibrated using sieves separating them into 4 fractions and weighed: less than 1.0 cm, 1.0-1.4 cm, 1.5-1.9 cm, 2.0 cm and more; with the corresponding average weight of 0.7 g; 1.75 g; 3.0 g, and 6.0 g.

The experiments were conducted on typical chernozem meeting the requirements for growing vegetable crops in compliance with generally accepted crop rotation rules without the use of irrigation (1). Sowing was carried out manually in the first ten days of October, at a depth of 4-5 cm. A double-sided strip system (20 + 50 cm) was used, with aerial bulblets spaced at 3 cm, 4 cm, 6 cm, 8 cm, and 10 cm per row. The plot area was 2.74 cm². The experiment was replicated four times.

Conclusion: A step toward garlic self-sufficiency. The use of aerial propagation and vegetative reproduction of garlic through healthy aerial bulblets opens the way to sustainable and highly efficient garlic production in Moldova. These methods

reduce dependence of imported planting material, lower phytosanitary costs, and increased yields. With further development and support, these technologies could make Moldova a regional leader in environmentally friendly and profitable garlic cultivation.

Keywords: Bolting garlic; aerial bulblets, feeding area, growth and development, preservation.

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