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# Garlic (Allium Sativum L.) Variety Development for the Highland Areas of North Shewa, Amhara Region

*Amhara Regional Agricultural Research Institute, Debre Birhan Agricultural Research center P.O.box 112, Debre Birhan*

Ethiopia has a suitable edaphic condition for garlic production. The crop has a paramount importance for seasoning by various biotic and abiotic bottlenecks such as lack of high yielding varieties, non-availability of quality seeds, and prevalence of various diseases. Therefore, the objective of this study was to evaluate and verify the most stable, high yielding and disease tolerant garlic accession for the highlands of North Shewa. Thirteen promising accessions were selected for regional variety trial (RVT) from the regional collection made from North Shewa and North Gondar Zones in Amhara National Regional State. The regional variety trial was conducted in RCBD with three replications for three years and two locations. The study revealed that NG0048/04 accession had outstanding yield performance in almost all test environments, out yielded both the standard "kuriftu" and local check varieties. Moreover, based on AMMI 1, AMMI 2 and AMMI stability analysis the bulb yield of NG0048/04 accession was found more stable as compared to the

agawa D (2022) Garlic (Allium
Areas of North Shewa, Amhara



: AMMI; Bulb yield; Genotype; Qundi garlic variety

Garlic (Allium sativum L.) belongs to the genus Allium in the family of Alliaceae It is grown as an edible bulbous crop throughout the world **1** and is one of the most important Allium crops in terms of production and economic value a er onion **2 .** It has been used since ancient for its' culinary, medicinal, and health bene ts. e origin of garlic is thought to be in Central Asia (India, Afghanistan, West China, Russia) and spread to other parts of the world through trade and colonization (Eric, 2010). Today, garlic is grown in temperate and tropical regions all over the world and many varieties have been developed to suit di erent climates **1 .**

In Ethiopia, garlic plays an important role for dietary as well as medicinal functions. It is regarded as queen of the kitchen and used in preparing foods, particularly some kinds of stews and in making dried foods to improve storability **3 .** Traditionally, it is used in the treatment of headaches, bites, worms and tumors. In Ethiopia, it is widely cultivated around home gardens. But nowadays, garlic production has spread throughout the country, being cultivated both under irrigated as well as rain-fed conditions and it is primarily produced in the country's mid and highland areas. e crop is also produced as a cash crop to earn foreign currency by exporting to Europe, the Middle East, and the USA **4** Nowadays, its production is practiced on some large farms **5** and in the 2020/21 main cropping season, about 15979.54 ha of land is covered under garlic cultivation (CSA, 2021). From the annual country level garlic production of 53,093.99 tons, 44.85% is produced in Amhara Region. Similarly, the North Shewa zone in Amhara Region contributes about 10.2% of the country's annual garlic production area with a production of 13,249.93 tons and with an average productivity of 8.14 t $ha^{-1}$ **6 .**

As compared to world production, the production and productivity of garlic in Ethiopia is very low, which is due to many biotic and abiotic bottlenecks. Lack of improved varieties, non-availability of quality bulb seeds coupled with susceptibility to diseases, the nature of propagation, poor agronomic management practices and lack of irrigation facilities are the most serious causes of the low production and productivity of garlic in the country **5** e varieties released in Ethiopia until now are

trials (RVT) and variety veri cation trial (VVT) were conducted at Debre Birhan and Ankober trial stations of DBARC and the surrounding farmers' elds in 2015 2016 and 2017. e soil of DBARC is Pellic Vertisols while that of Ankober is Cambisols, representing a clay-loam textural class. Faba bean, potato, and barley are the major crops grown, with sheep being the most common livestock in the experimental areas. A detailed climatological and geographic description of the study area is indicated in **1.**

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e regional level garlic accession collection was done by the

IPCA axes only were signi cant and explained the larger portion of the interaction, 86.94%. **13** suggested that the rst two IPCA axes are the best predictive of the model the GxE interaction of this trait is going to be predicted by the rst two IPCA axes only.

which intern gives a higher bulb yield (i.e., 13.03 t $ha^{-1}$ and 6.68-14.62 t