strengthened further when grafting is combined with complementary approaches such as arbuscular mycorrhiza, microbial biostimulants, or vermicompost, which improved nitrogen use efficiency, fruit nutritional quality, and drought resilience in integrated systems.

Future progress in eggplant grafting depends on moving from empirical rootstock choice to more predictive selection based on compatibility, anatomy, stress tolerance, and target production environment. Current evidence shows that rootstock performance is not universal, and some highly vigorous combinations can cause low compatibility or vegetative imbalance, making it essential to match rootstock and scion more precisely. Root anatomical traits such as xylem width, cortex cell number, and root volume also correlate with later yield, so these characteristics can serve as useful criteria in future breeding and screening programs. A second priority is deeper mechanistic and technological development. Omics studies show that grafting responses in eggplant involve transcriptomic, metabolomic, and epigenetic reprogramming linked to fruit quality and vigor, while nursery engineering studies indicate that automation can raise grafting efficiency and standardize seedling quality at commercial scale. Overall, the most promising application prospect is an integrated grafting system that combines improved rootstock breeding, precision nursery methods, and stress-adapted crop management to support sustainable eggplant production under increasingly constrained environmental conditions.

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Conflict of Interest Disclosure

The author affirms that this research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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