



# Climate-Resilient Seedling Production Systems in Ethiopian Highlands Enhancing Survival Rates and Yields

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## Abstract

Climate change poses significant challenges to agriculture in the Ethiopian Highlands, where erratic weather patterns threaten seedling survival and crop yields. Field experiments were conducted in agroforestry farms within the Ethiopian Highlands, employing a randomized block design with control and experimental plots. Survival data and yield measurements were collected over three growing seasons. Survival rates of seedlings improved by 20% in climate-stressed conditions compared to standard practices (90% vs. 70%). Average yields increased by 15% across different agroforestry systems. The climate-resilient seedling production system significantly boosts survival and productivity, indicating its potential for enhancing agricultural resilience in the Ethiopian Highlands. These findings suggest that policymakers should promote adoption of these systems to mitigate risks associated with climate variability in Ethiopia's agroforestry sectors. The empirical specification follows  $Y = \beta_{0+\beta} p X + varepsilon$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** Ethiopia, Agroforestry, Climate-adaptive, Resilience, Germination, Monitoring, Seedling

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