



Evaluating New Turmeric Varieties for Hawai'i: Results from the 2024–2025 Waimānalo Trial

*Ted Radovich, Eric Collier, Alana Marie Barros, Megdalena Perkins, Amjad Ahmad,
Emilie Kirk, Kylie Tavares, Sharon Motomura-Wages, Jensen Uyeda, Rosemary
Gutierrez-Coarite, Jennifer Hawkins, Josh Silva and Kevin Flanagan.*

*Dept. of Tropical Plant and Soil Sciences
University of Hawai'i at Mānoa*

Introduction

Turmeric (*Curcuma longa*), or 'ōlena in Hawaiian, is a culturally treasured and economically valuable crop in Hawai'i. Introduced by Polynesian voyagers, turmeric has been traditionally used in medicine, food, dyes, and spiritual practices. Today, demand for locally grown turmeric continues to grow, fueled by its health benefits—especially its curcuminoids with anti-inflammatory and antioxidant properties—and its potential in fresh and value-added markets (Kirk et al., 2023).



With Hawai'i's climate and access to diverse germplasm, local growers are well-positioned to produce high-quality turmeric. Yet the industry faces ongoing challenges from pests, disease, climate variability, and shifting market preferences. To address these challenges, annual variety trials are critical. They help identify high-performing, resilient varieties adapted to local conditions, provide data-driven guidance to farmers, and support the strategic diversification of turmeric germplasm to reduce risk from monoculture.

Trial Design and Objectives

The 2024–2025 turmeric variety trial at the Waimānalo Research Station evaluated five cultivars using a randomized complete block design with three replications. The goal was to assess the performance of two promising new accessions (18–013 and 18–023) as potential alternatives or complements to the local industry standard, Hawaiian Red. Other entries included Joy and BKK, previously evaluated for quality traits.

Total Yield Results

Total yields were measured in tons per hectare (t/ha), and the mean values (± standard error) for each variety were:

Variety	Mean Total Yield (t/ha)	Standard Error (t/ha)
18-013	35.17	±0.50
Hawaiian Red	33.65	±2.74
Joy	26.57	±2.70
18-023	26.42	±5.41
BKK	12.79	±1.22



Statistical Analysis

ANOVA indicated significant differences among varieties (p < 0.05). Means separation tests (LSD and Tukey's HSD) grouped 18–013 and Hawaiian Red together as top-yielding varieties, followed by Joy and 18–023, and then BKK as a statistically distinct low-yielding group.

Implications for Growers

These findings affirm the value of 18–013 as a high-yielding, stable turmeric variety that could

complement or replace Hawaiian Red in Hawai‘i’s turmeric production. 18–023’s performance, while decent, was less consistent, and further agronomic optimization may be required to stabilize its yield. BKK may still be valuable in niche markets focused on curcuminoid content or processing, but is less competitive in terms of fresh weight yield.

All varieties performed within the expected range for Hawai‘i-grown turmeric, with the top performers comparing favorably to international benchmarks. This underscores the importance of site-specific trials and highlights Hawai‘i’s capacity to adopt and evaluate elite germplasm from global sources.

Conclusion

As market and climate conditions evolve, so must Hawai‘i’s turmeric industry. The 2024–2025 Waimānalo variety trial provides insights to inform grower decisions, diversify the genotypes available, and enhance local production resilience. Continued research and annual variety trials remain essential to support Hawai‘i’s leadership in high-quality turmeric production.

Acknowledgements

We would like to thank the staff at the Waimānalo Research Station and O'ahu County, as well as Ilima Ho-Lastimosa, Cambria Wright, Jaden Yamagata-Santos, Sean Meany, Mitch Robert, Aloha Turmeric and Malama Honua Public Charter School for the technical assistance in planting maintenance and harvest. We also gratefully acknowledge funding from the Hawaii Department of Agriculture and HATCH 8033-H.



References

Kirk, E., K. Tavares, T. Radovich, S. Wages, A. Ahmad, J. Uyeda, R.E. Paull, J. Silva, G. Bryant, E. Collier, K. Flanagan, J.P. Bingham, J. Ellinwood, and J. Sugano. 2023. [Hawai'i turmeric production guidelines](#). University of Hawai'i at Mānoa, College of Tropical Agriculture and Human Resources. VC-9.

Tavares, K., E. Kirk, S. Motomura-Wages, J. Calpito, J.P. Bingham, A.A. Ahmad, and T.J.K. Radovich. 2022. [Genotypic and Environmental Influence on Fresh Rhizome Yield of Turmeric](#) (*Curcuma longa* L.). *Agronomy* 12(11):2703.