CSU POLICY BRIEF
Volume 2, No. 1 (2026) | DOI: 10.5281/zenodo.19081592
ISSN: 3155-6434
e-ISSN: 3155-6442

Improving Machiku Bamboo Shoot Production Through Integrated Farm Management

S&T in Natural Resources

Mylene R. Ermitanio*[1], Froilan A. Pacris Jr.[2], Gladys O. Dalmaceda[1] and Romar R. Banadero[3]

[1]College of Agriculture, Cagayan State University, Gonzaga Campus, Gonzaga, Philippines
[2]Campus Executive Officer, Cagayan State University, Gonzaga Campus, Gonzaga, Philippines
[3]Dean, College of Agriculture, Cagayan State University, Gonzaga Campus, Gonzaga, Philippines

Corresponding Author: *ermitaniomylene@csu.edu.ph*

Key Findings and Policy Implications

- Pruning old bamboo stems and clumps, along with watering, fertilizing, and mulching, helps bamboo grow more shoots than using any method alone.
- Shoots grown this way are bigger and heavier, meaning better quality from Machiku bamboo.
- This method makes shoots appear faster, so farmers can harvest more often and save time.
- Using all these management practices helps farmers grow more bamboo and earn more money.
- Growing bamboo like this is good for the environment and supports local economies.
- It is very important for the government to help farmers or bamboo growers learn and use these better bamboo-growing methods to maximize the bamboo shoot yield.

Background

Machiku (Dendrocalamus latiflorus), an invasive species, is well-known around the world for producing vegetables (shoots). It was discovered that this species produced the tastiest bamboo shoots and was regarded as having the sweetest shoots of all the bamboo species.

Aside from its use as food, Machiku bamboo culm or pole is perfect as a low-cost material source for housing and construction, scaffolding, furniture, handicraft, banana props, fish pens, agricultural implements, pulp and paper manufacturing, toys, industrial products like bamboo tiles and ply board, and many other things.

However, inefficient management practices lead to suboptimal shoot production, limiting economic and environmental benefits.

Research Objectives

- Evaluate the effects of different management techniques on Machiku bamboo shoot production.
- Identify the most effective practice for maximizing shoot yield and quality.
- Provide data-driven recommendations for sustainable bamboo farming.

Methodology

The study was conducted along the Tabungao Farmers Irrigation System at the Bamboo plantation of Cagayan State University - Gonzaga Campus, Philippines. Researchers tested four different methods to see how they affected bamboo shoot growth and yield (number, length, weight) as well as emergence of bamboo shoots.

Forty eight (48) clumps of bamboo with three (3) blocks were applied with different management practices. In each block there were 16 bamboo clumps planted.

Four treatments tested were:
T1: Standard practice (control)
T2: Pruning only
T3: Pruning + fertilization
T4: Pruning + fertilization + watering + mulching

Key Findings


T1-Standard practice


T2-Pruning

T3-Pruning + fertilization


T4-Pruning + fertilization + watering + mulching

- T4 produced the highest shoot yield, demonstrating that integrated management is the most effective approach.
- Shoots from T4 were longer and heavier, indicating improved quality.
- Faster shoot emergence was observed in T4, leading to a more efficient harvest cycle.

Conclusion

After conducting an in-depth study on the patterns of intimate partner violence and the chronic psychosocial enormities experienced by battered women, it is evident that this issue requires urgent attention and comprehensive intervention strategies. The research has highlighted the pervasive nature of intimate partner violence, its detrimental impact on the mental and emotional well-being of victims,

Policy Recommendations

Promote Integrated Management
Encourage bamboo farmers to implement pruning, fertilization, watering, and mulching.

Training and Extension Services
Provide capacity-building programs for bamboo growers.

Further Research
Conduct continuous studies to refine bamboo farming techniques.

Target Policy Actors and Beneficiaries

References

Bamboo Plus. (n.d.). Care and maintenance. https://www.bambooplus.com.au/care-and-maintenance/

Bamboo Sourcery Nursery & Gardens. (2019). Learn about bamboo. https://bamboosourcery.com/

Bareja, B. G. (2010). Bamboo production and propagation methods. CropsReview. https://www.cropsreview.com/growing-bamboo/

Decipulo, M. S., Ockerby, S., & Midmore, D. J. (2009). Managing clumps of Dendrocalamus asper in Bukidnon, the Philippines. In D. J. Midmore (Ed.), Silvicultural management of bamboo in the Philippines and Australia for shoots and timber (ACIAR Proceedings No. 129, pp. 36-45). Australian Centre for International Agricultural Research. https://www.aciar.gov.au/sites/default/files/legacy/node/10532/pr129_pdf_58021.pdf

Fan, L., Zhao, T., Tarin, M. W. K., Han, Y., Hu, W., Rong, J., He, T., & Zheng, Y. (2021). Effect of various mulch materials on chemical properties of soil, leaves, and shoot characteristics in Dendrocalamus latiflorus Munro forests. Plants, 10(11), Article 2302. https://doi.org/10.3390/plants10112302

Troya Mera, F. A., & Xu, C. (2014). Plantation management and bamboo resource economics in China. Ciencia y Tecnología, 7(1), 1-12. https://doi.org/10.18779/cyt.v7i1.137

Editor's Note

This policy brief is based on results of the CSU-funded project "Shoot Production of Machiku Bamboo *(Dendrocalamus Latiflorus)* as Affected by Different Management Practices" This project was implemented by the Cagayan State University - Gonzaga Campus. The CSU - Gonzaga Campus project team is composed of Mylene R. Ermitanio, Froilan A. Pacris Jr., Gladys O. Dalmaceda and Romar R. Banadero.

About CSU Policy Brief

Our policy brief offers an in-depth analysis of contemporary challenges and opportunities within higher education, with a special focus on the unique context of Cagayan State University. Through rigorous research and stakeholder engagement, we examine key areas such as academic innovation, research advancement, community engagement, and administrative excellence. Each recommendation is carefully developed to foster an environment of growth, equity, and sustainability. **This policy brief is published bi-annually.**

Our approach is built on transparency and inclusiveness. By integrating comprehensive data analysis with practical insights from experts and the broader university community, we ensure that our policy recommendations are not only academically robust but also practically implementable. This process underscores our commitment to creating a positive and lasting impact on the university's future.

The policy brief also serves as a platform for translating research outputs into practical policy insights across six strategic thematic areas including Science and Technology in Agriculture, Natural Resources, Education, Food Science and Chemistry, Public Health and Medicine, and Behavioral and Social Sciences. These areas reflect the university's research priorities and address emerging concerns related to agriculture and livestock, environmental management, teaching and learning, food innovation, clinical diagnostics, and community resilience.

While these publications provide science-based interventions for regional and national development, the analyses and recommendations are those of the authors and do not necessarily represent the official positions of Cagayan State University. Any reproduction, distribution, or citation of this work must acknowledge the author and the CSU Policy Brief.

SUSTAINABLE DEVELOPMENT GOALS

Get in touch with us via:

facebook.com/csuktmpo

csu_ktmoffice@csu.edu.ph

csu.org.ph/policybrief

Cagayan State University
Knowledge & Technology Management and Publication Office
RDE Bldg., CSU- Andrews Campus Caritan Sur, Tuguegarao City, Cagayan

POLICY BRIEF
Cagayan State University
Knowledge & Technology Management and Publication Office

csu.org.ph/policybrief

facebook.com/csuktmpo

csu_ktmoffice@csu.edu.ph