POLICY BRIEF
Volume 2, No. 6 | DOI: 10.5281/zenodo.19081588

# The Role of Rooting Hormones in Improving Survival Rates of Bamboo Species

*S&T in Natural Resources*

**Mylene R. Ermitanio*[1], Froilan A. Pacris Jr.[2], Marvin V. Baloloy[1], and Jona L. Asuncion[1]**

[1]College of Agriculture, Cagayan State University, Gonzaga Campus, Gonzaga, Philippines
[2]Campus Executive Officer, 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 trained on proper cutting selection and hormone application.
- Government agencies should support research and adoption of effective propagation techniques to expand bamboo production.

## Background

In an effort to meet the growing demand for bamboo planting materials for environmental restoration, the Cagayan State University in Gonzaga, Philippines, has become a key center for bamboo propagation.

## Research Objectives

The primary objective of this study is to determine the effect of different rooting hormones on the survival rate and overall growth parameters of three specific bamboo species: Giant Bamboo (*Dendrocalamus giganteus*), Machiku Bamboo (*Dendrocalamus latiflorus*), and Spiny Bamboo (*Bambusa blumeana*).

Specifically, this research aims to quantify and compare the performance of each treatment by measuring the following parameters after a three-month period: the average number of new shoots, the average length of shoots (cm), the average number of roots, the average length of roots (cm), and the overall percentage of survival.

## Methodology

The study was conducted in a Randomized Complete Block Design (RCBD) experiment conducted at the bamboo plantations of Cagayan State University in Gonzaga, Philippines.

The study compared the effects of different bamboo plantation ages (3, 5, and 7 years) on the growth of tiger grass. Soil samples were collected for analysis of organic matter, phosphorus, and potassium. Land preparation included strip brushing, followed by staking and hole digging to ensure proper plant spacing. Tiger grass planting materials were prepared from clumps, with tillers propagated in polyethylene bags. The propagated tillers were then planted in a mixture of topsoil and organic fertilizer. Mulching was applied to conserve moisture and suppress weeds.

The plants were managed with fertilization, weeding, and protection from animals. Panicles were harvested when they reached approximately 70 cm in length and were still green and soft.

## Key Findings

The T3-IAA-Seaweed extract treatment yielded the best growth results with the highest average number of shoots (4.67) and longest average root length (41.87 cm), while the T1-ANAA treatment resulted in the highest survival rate (93.33%). The control group surprisingly produced the most roots (51.25), but the T2-GA treatment performed the poorest overall across most metrics.

**Table 1.** Parameters obtain of spiny bamboo using different rooting hormone after three (3) months.

| Treatments | Average Survival rate (%) | Average number of shoots | Average length (cm) of shoots | Average number of roots |
|---|---|---|---|---|
| T0-control | 83.22 | 2.96 b | 74.08 | 51.25 a |
| T1-ANAA | 93.33 | 3.88 ab | 111.75 | 36.25 ab |
| T2-GA | 75.56 | 2.84 b | 99.24 | 20.17 b |
| T3-IAA-Seaweed Extract | 88.89 | 4.67 a | 96.78 | 37.67 ab |

## Conclusion

Rooting hormones, particularly ANAA, significantly enhance bamboo survival rates, making propagation more efficient and cost-effective.

Policymakers should support research, training, and sustainable bamboo propagation methods to promote large-scale bamboo cultivation in the Philippines.

## Policy Recommendations

**Adopt ANAA as a Standard Rooting Hormone**

Encourage the use of ANAA for large-scale bamboo propagation.

**Provide Farmer Training**

Conduct capacity-building programs on bamboo propagation techniques.

**Support Sustainable Alternatives**

Explore and promote natural hormone alternatives for small- scale and organic bamboo farms.

**Invest in Bamboo Research**

Strengthen studies on propagation techniques for different bamboo species.

## Target Policy Actors and Beneficiaries

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## Editor's Note

This policy brief is based on results of the CSU-funded project "The Role of Rooting Hormones in Improving Survival Rates of Bamboo Species" This project was implemented by the Cagayan State University - Gonzaga Campus. The CSU - Gonzaga Campus project team is composed of Froilan A. Pacris Jr., Marvin V. Baloloy, Jona L. Asuncion, Mylene R. Ermitanio

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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

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csu_ktmoffice@csu.edu.ph