

**Department of Agriculture
PHILIPPINE COCONUT AUTHORITY
ZAMBOANGA RESEARCH CENTER**

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Makapuno Comprehensive Technology Development and Commercialization Program

TECHNOLOGY NOTES

What is an embryo-cultured Makapuno coconut seedling?

The embryo-cultured makapuno coconut seedlings are laboratory-grown and screenhouse acclimatized seedlings. Normally, makapuno coconuts do not germinate because of the abnormality in the endosperm (coconut meat). Makapuno palms produce up to 100% Makapuno nuts if planted together and isolated from other coconut palms by a 40m coconut polled barrier.

What is the recommended distance of planting for Makapuno seedlings? How long after field planting before the first harvest?

Makapuno palms belong to the "Tall" variety and are cross-pollinating. In order to promote the pollination among Makapuno palms, it is recommended to plant them closer than usual (8m apart). In plantation areas it is also recommended to plant annual or cash crops in between the palms while they are still young (1-3 years) and not yet bearing. With proper agronomic practices (fertilization, pest and disease control, clean culture), the palms should start to flower after 3-4 years with the first harvest after 4-5 years.

What fertilizer is recommended for Makapuno? What is the rate and frequency of application?

Generally, and in the absence of leaf and soil fertility analysis, the fertilizer recommendation for Makapuno coconut is as follows (per tree per year basis):

Age of palm	Ammonium sulfate (21-0-0)	Muriate of potash or common salt (0-0-60)		
At field planting	150g	100g	or	80g
6 months	200g	150g	or	120g
1 year	200g	300g	or	240g
2 years	400g	600g	or	480g
3 years and above	1.6kg	1.2kg	or	960g

Fertilizer can be applied once (at the start of the rainy season) or split (2x or 4x in a year). Before fertilization, the area around the palm (1m radius) should be ring-weeded. The fertilizer is then broadcast around the palm (0.5m radius at 6mon-1 yr and 1m radius at 2 yrs and above) and covered with soil.

What are the common pests and diseases attacking Makapuno? What can be done to control them?

Rhinoceros beetle (<i>bangangan</i>)	Removal of all potential breeding sites (decaying coconut wood, sawdust, compost) Application of insecticide-treated sawdust on leaf axils no. 1-5 Application of green muscardine fungus (GMF) in breeding sites
Slug caterpillar (<i>pagi-pagi</i>) and other sucking insects	Spray insecticide e.g. <i>Malathion</i> , <i>Diazinon</i> , every 14 days to control the larvae on young palms
Aphids, whiteflies, mealy bugs and other leaf eating pests	Spray systemic insecticide e.g. <i>Hostathion</i> on underside of leaves every 14 days
Leafspot	Spray fungicide e.g. <i>Daconil</i> , <i>Captan</i> , <i>Vitigran Blue</i> every 7days for 4 weeks on affected leaves
Bud rot	Dispose dead palm by burning and drench soil with fungicide e.g. <i>Aliette</i>

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