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WET-LOWLANDS MAINLAND PROGRAMME

Yam Staking



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Introduction

Agronomic Importance of Staking Cultivated Yam Species

Yams have been cultivated for at least 2,000 years in South East Asia, and for a long time in Papua New Guinea. It is thought that **Dioscorea alata** has been in this country for longer than **D. esculenta** as **D.alata** is more widespread and has greater ceremonial importance.

Yams are important crops in the lowlands area, which have marked wet and dry seasons. For example, in the East and West Sepik, Milne Bay, Central and Western provinces. **D. alata** can grow up to 2100 metres but is only important in areas below 1900 metres above sea level. **D. esculenta** is occasionally grown in the highlands but is rarely seen above 900 metres.

What is staking?

Staking is a method of elevating creeping vines above ground level by means of supporting structures. Staking can be constructed using a number of styles. Examples of staking materials for agricultural purposes include dead or live plant poles, strings of wire and rope and metal poles.

Why staking yams?

Staking is essentially important in a crop husbandry for many agronomic reasons, which includes the following:

To allow for maximum sunlight interception for plant photosynthesis, thus to obtain high yielding tubers.

To reduce the spread of soil-borne diseases from attacking the growing plants parts.

To free soil surface from thorny vines, especially for thorny yam specie like **D. esculenta**. Staking of yam is done just before the buried tuber sprouts from the growing



Calophyllum (*Calophyllum inophyllum*)

SUMMARY:

The staking of crops is widely practiced by the farmers in the pacific and serves a functions in both subsistence gardens and commercial cropping.

The type of staking material used is dependent on the type of crops being grown and their cropping cycles and on the availability and access to forest products or other suitable vegetable material.



Gliricidia (*Gliricidia sepium*)



Leucaena (*Leucaena leucocephala*)



Casuarina (*Casuarina equisetifolia*)



Noni (*Morinda citrifolia*)

point. Staking medium can be erected about 20-30 cm away from the planting spot but this spacing may vary with different methods.

Methods of staking yam.

There are a number of methods used in staking growing yam plants. Methods of staking are common in yam growing areas but the medium used for staking differs slightly from one place to another. This is very much depending on the environment. In Madang province for example, farmers in the Begezin area (inland) may use long poles (about 4-6 metres) forming a tripod pattern whereas farmers along the North Coast are subjected to single erected bamboo splits of about one metre long for staking. Information outlined in this booklet should provide options for farmers to choose method that is suitable and applicable to them.

Single Pole Staking



This is when staking is done using detached plant poles, usually chopped from other plants or as part of the growing plants. This method is generally applicable for yam species like *D.alata*, *D.esculenta* and *D.rotundata* with a short growing season of about 7-10 months.

Tripod/Pyramid Staking.



This type of staking is when more than one (1) sticks or poles are put together to elevate the yams above the ground. The poles are staked in a group of three (3) therefore the pattern of the staking is seen as tripod or pyramid. This practice is not commonly used in traditional cultivation. However it now being adopted and used in yam growing areas where the land is scarce, not enough improved soil fertility and also to suppress the growth

of the weeds were labour is expensive.

Crossed Poles (only 2 poles)



This type of staking is when two(2) sticks or poles are tied together over the bar pole that is laid across the centre of the tied out cross poles, this is also called “Trellising” this practice is also used as a traditional staking method in most yam growing areas. A farmer will plant one (1) yam opposite to each other at least a meter or less away from the pole and as the yam vines begin to grow a 2 to 3 meter pole is needed to allow the vine to grow up towards the lapping bar.

Live Staking



Live staking has many advantages over dead staking. Traditionally it has been used to grow **D. numularia**, because this variety has a long crop duration of 1 to 3 years. More recently, however, it has been used for other varieties of yams as well to make up for the shortage of planting materials eg: **D. rotundata**. Live staking means, the tree or the plant does not die, the growing trees or the plants in a slotted area where vines of the yams are elevated up from the ground level. The farmer may plant two (2) to three (3) yam hills (mounds) around

the base of the **Gliricidia** tree (**Gliricidia sepium**), since the **Gliricidia sepium** root system does not grow vigorously. There are quiet a number of live staking trees used in PNG traditional and modern agriculture and they must have the following characteristics as; long trunk, 5-10m below crown, can established easily and grow rapidly, deep roots, do not disturb yam tubers and finally to provide shade and support for yam vines. Some alternative trees for live staking includes;