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**National Agricultural Research Institute
Wet Lowlands Islands Programme**

Lowlands Agricultural Experiment Station
LAES Keravat

Information Centre

P.O. Box 204
Kokopo
East New Britain Province
Papua New Guinea

Telephone: (675) 983 9200 / 9145
Facsimile: (675) 983 9129
Email: outreach.k@global.net.pg
narilli@global.net.pg



National Agricultural Research Institute

Supports for Pepper



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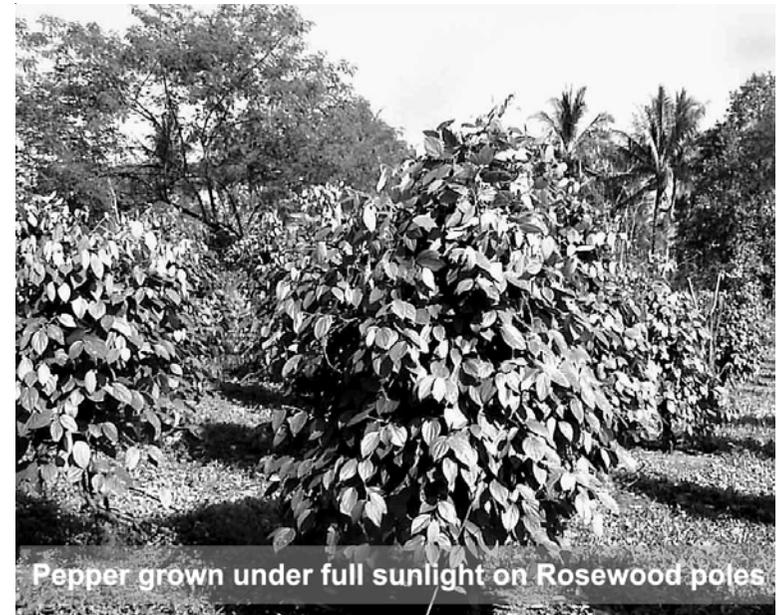
THE INSTITUTE

The National Agricultural Research Institute (NARI) was established by an Act of the National Parliament of Papua New Guinea in July 1996 as a publicly funded, statutory research organisation, to conduct applied and development oriented research on food crops, alternative food and cash crops, livestock and resource management issues. Besides applied and adaptive research, NARI is responsible for providing authoritative technical, analytical and diagnostic services and up-to-date information to the entire agriculture sector in PNG. The major targets are the smallholder semi-commercial farmers in the country.

The mission of NARI is to contribute, through applied research and technical services, to the development of the agriculture sector and realisation of the national goals by identifying, adapting and transferring agricultural technologies and information, so as to:

- Enhance the productivity, efficiency and sustainability of the smallholder agriculture, and
- Improve farmer income, food security and welfare of Papua New Guineans and the nation.

This toktok was written by Jeffrey Binifa, NARI Wet Lowlands Islands Programme in July 2003. The material presented is based on the best information available at the time of printing (December 2003).



Metal posts are not suitable as the vines cannot attach onto the smooth surface of the posts.

Non-living supports should be 2 m (about the height of a very tall person) above the ground and buried deep enough in the ground that they are stable, approximately 0.5 to 1 m deep.



Non-Living Supports

The ideal non-living support for pepper is concrete posts as they will last longer than any other type of supports and the pepper vines will easily attach themselves onto the rough surface. However, cement posts are expensive and in most cases not affordable.

Non-living hardwood posts from trees such as Kwila (*Intsia* species) are very good supports for pepper. It is recommended to use hardwood posts that can withstand rotting up to 20 years or more.

Supports for Pepper

Pepper is scientifically called *Piper nigrum*. It is one of the oldest and important spices in the world. It is produced from the fruit vines. As the pepper vine grows upwards, it requires support. Supports can either be live or non-living, depending on availability and location. The vines cling to the supports by means of aerial rootlets which grow from the base of the leaves (nodes).

Live Supports

The two most commonly used living supports are Rosewood (*Pterocarpus indicus*) and Leucaena (*Leucaena leucocephala*), also called Lantoro in Tok Pisin.

Where **Rosewood** is available in plentiful supply, straight cuttings of 2.5 m to 3 m in length and 7 to 15 cm in thickness are used. The cuttings are planted in the pepper garden at a depth of 0.5 m.

Leucaena can be grown from seeds in the nursery. When the young Leucaena plants are about 2.5 to 3.5 m high, they are dug up and cut back to about 1.6 m height. The roots are cut to about 8 cm length below the ground. The Leucaena plants are then planted in the pepper

garden at a depth of 15 cm. By the time the *Leucaena* trees have reached a reasonable height (approximately after three years), they are cut back to a height of about 2 m above the ground.



Gliricidia (Marmar in Tok Pisin) is sometimes used as support tree for pepper but it is not recommended by NARI because of its fast growth habit and its tendency to fall over under heavy weight when it gets old.

Pruning of Supports

It is necessary to prune the living support on a regular basis to:

- **Maintain the height of 2 m above the ground to ensure easy pepper harvesting, pruning and pest control**
- **Remove side shoots**
- **Maintain 25 to 50% shade at all times**

Pruning of the support trees will depend on how fast they re-grow but it should be done at three to four months intervals.

Too much pruning of the live support will weaken the root system and too much shade will reduce pepper production. This is why the vegetative growth of the support tree should be just enough to keep the support plant alive.

Pepper is more productive without shade. Shade is only needed when the plants are young (during the first two years). When the pepper vines are in full production, shade will affect pepper production. More shade will reduce yield, less shade will increase pepper production.