



Agroforestry Facts Honge



Botanical Name	<i>Pongamia pinnata</i> (L.) Pierre
Name in English	Indian Beah Tree, Karanj
Name in Kannada	Honge
Family	Fabaceae
Seeds Collection	Pods are removed from the trees by beating the branches with sticks and decorticated using mallets or stones. The pods are dried in sun for 2 to 3 days and the seeds are extracted by thrashing the fruits.
Seeds Processing & Treatment	Hot-water treatment at 60°C for 30 min increased germination percentage significantly. Soaking in water over night and scarification, showed an increase in germination.
Nursery	It can be propagated through semi-hard wood (mediate of soft wood and hard wood) and by hard woodcuttings (15 - 25 cm long and 0.5 - 1 cm diameter) comprising 3 - 4 nodes (Fig. 3A). The root initiation and sprouting of cuttings can be induced by treating the cuttings first with a fungicide and subsequently treating with auxins (IBA, IAA, and NAA) at different concentrations ranging from 1.23 to 7.38 mM, respectively, for a maximum of 1 hour duration.



	<p>In grafting, one-year-old seedlings of Pongamia can be used as root stock. The scions can be collected from an elite genotype with the same dimensions as that of the root stock. A wedge-shaped cutting can be made and inserted in the scion made on root stock and kept under polyhouse for 2 months. The grafts can be then taken and placed in hardening chamber. Wedge grafting has been found to be most successful.</p> <p>Pongamia is easily propagated through seeds either by direct sowing in the nursery bed/ polybags during July-August or in situ sowing of seeds in the plantation field (Figs. 4A and B). Potting mixtures consisting of sand, soil, and manure in the ratio of 1:1:1 have been found to yield good results for large scale production of quality planting material. Seedlings attain a height of 25 - 30 cm in their first growing season and transplanting to the field occurs at the onset of rainy season when seedlings are 60cm in height</p>
Plantation Management	<p>Blocks of monoculture plantations in community lands and less productive wastelands, with intercropping in agro-forestry models on productive lands to boundary, row plantations along the agricultural fields, and strip plantations along rail, road, and canals.</p> <p>Pits of 60 x 60 x 60 cm³ are dug for planting, for a total of 500 plants ha⁻¹. Each pit is then filled with soil + 5 kg farm yard manure. One-year-old healthy seedlings (height ca. 60cm), are selected and uprooted with the ball of earth for transplanting in the field (Fig. 4). The onset of the monsoon in June July is the appropriate time for plantation. Three irrigations maybe given in a year when required for better growth and development of the plants. The spacing adopted in avenue plantings is about 8 m between plants. In block plantings, the spacing can range from 2 x 2 to 5 x 5 m. Pongamia seedlings with stand shade very well and can be interplanted in existing tree stands.</p>
Model/Spacing	Ideal spacing 5 x 4 m
Pests, diseases and Management	<p>Leaf spot and blight diseases caused by <i>Fusicladium pongamiae</i> on <i>Pongamia pinnata</i>. The pathogen causes severe leaf deformities. <i>Microstroma pongamiae</i> causes white to cream-coloured spots giving a yellowish appearance to the leaves.</p>
Plant Rotation	30 years



Yield	<p>Starts flowering from the 4th to 5th year of planting, with the yields increasing each year until it stabilizes around the tenth year. The yield per tree can range from about 10kg to more than 50 kg depending on conditions, with an average of 1500 to 1700 seeds per kg. The kernel yield varies between 8 to 24kg per plant per year. Yields of 20-25% of volume are possible using a mechanical expeller.</p> <p>5000-8000 kg ha⁻¹ (Average ~ 6000 kg ha⁻¹)</p>
Uses	<p>Wood is commonly used as fuel wood. Its wood is medium to coarse textured. Pongamia pinnata wood is not considered as durable and it is susceptible to insect attack and tends to split when sown. Thus, the wood is not considered a quality timber. The wood is used for cabinet making, cart wheels, posts, agricultural implements, tool handles and combs.</p> <p>Dried leaves are used as an insect repellent in stored grains. The oil cake, when applied to the soil, has pesticidal value, especially against nematodes and improves soil fertility. It is a preferred species for avenue plantation, controlling soil erosion and binding of soil because of its dense network of lateral roots.</p>
Buyers /Industries	
Harvesting	<p>Grafted tree starts bearing fruits at the age of 4 years and seedling raised trees at the age of 5 to 6 years. In different parts of the country, the harvest period varies from November/December and May/June months.</p> <p>Flowers appear from April to June while pods ripen from March to May the following year (Troup, 1983). The fruits are harvested at different times across the country; mostly during the months of May-June. Seeds are usually harvested in the spring, each seed weighing from about 1.1 to 1.8 grams.</p>
Economic Returns	Rs. 2,00,000/- annually per ha by selling seeds.
Current Market Rate	Rs. 25 – 27 / Kg of seeds