ECHO Asia Seed Fact Sheet

Scientific name – *Flemingia macrophylla*, syn. *F. congesta*

English common names – Flemingia, Wild Hops, Waras Tree, Warrus Tree

Asian common names –

- Chinese: da ye qian jin ba (dialect unknown)
- Indonesian: apa-apa, hahapaan, pok-kepokan (Indonesian); apa-apa (Javanese)
- Japanese: enoki-mame エノキマメ
- Lao: h'öm sa:m müang, thwàx h'è: h'üad, thwàx h'üad (Sino-Tibetan)
- Malay: beringan, serengan jantan
- Tagalog: gewawini, laclay-guinan, malabalatong (Filipino); laclay-guinan (Tagalog)
- Thai: mahae-nok, khamin naang, khamin ling
- Vietnamese: c[aa]y dau ma, cai duoi chon, cây dau ma, Tóp mo' láto, tosp mow lasto

Variety – Local

General description and special characteristics – *Flemingia macrophylla* is a nitrogen fixing, perennial, woody, deep-rooting, leafy shrub with a generally erect growth habit. Multiple stems rising from the base can reach heights of 4 m (13 ft). Highly adapted to acidic soils.

Crop uses (soil improvement) – Flemingia is often used for erosion control on hill-sides. As a nitrogen-fixer, it can serve as a green manure and be useful in alley or companion cropping systems, where its thick, upright stems may also provide trellising for vining or climbing crops.

Crop uses (weed control) – Flemingia makes excellent mulch because the condensed tannins in the leaves resist decomposition, forming a layer of biomass that has been shown to prevent weed seed germination.

Crops uses (livestock production) – Cattle, goats, and sheep have been known to consume the leaves of this tree, especially during dry season or periods of drought; however, due to the tannins it contains, its palatability is limited. *Flemingia macrophylla* coppices well and can recover quickly from cutting as often as every 40 days.

Other uses – Acts as a good windbreak and shade crop on plantations. Provides quality fuel wood. Glandular hairs in dry Flemingia fruits are used to produce an orange dye called waras or warrus, which is used on silk and in cosmetics. Flemingia can serve as a host for the lac insect, which secretes a resin that is the base for shellac. The roots are used for medicinal purposes against ulcers or swelling.

Flowering – Has a short day flowering response and can flower within 6-7 months from planting, although first year seed yields are low. In southern Yunnan in China, the buds and new leaves sprout from February to April and flowering extends from June-August. Pods ripen September to November.

Plant spacing – Planting density varies according to use. In large areas, it can be planted in rows 90 cm (35 in) apart with seeds every 10-20 cm (4-8 in). In hedgerows they are planted closer within the row if erosion control is to be effective.

Production methods – Flamengia is relatively slow growing in the first 3-6 months and cannot compete well in this period. It thus benefits from weeding or mulch. After this period, though, the plant will survive easily and outcompete rivals when left alone. Plants can be coppiced at intervals ideally no less than 40 days. Most commonly used in contour hedgerows for

erosion control.

Known environmental conditions for production – Best growth between 22-28°C (70-82°F), with minimal growth above 36°C (97°F) and below 12°C (53°F). Flemingia grows well from sea level to 2000 m, where it requires a minimum rainfall of about 100 cm but will tolerate up to 2850 mm as long as the soil is well drained. It can survive up to 6 months in a dry season or very poorly drained and occasionally waterlogged soils. It has Mmoderate fire tolerance.

Known soil Requirements – Found naturally on both clay and laterite soils, Flemingia will grow on soil with pH 4-8 and high aluminum concentration.

Known Pests – Flemingia isn't susceptible to any major diseases. It does, however, act as a host to Pigeon-pea pod fly *Melanagromyza obtuse* which attacks Pigeon-peas. These flies, or the fly *Agromyza spp.,* can reduce seed production by laying eggs in green pods.

Seed Saving – Seed pods are dehiscent (break open) when dried, so need to be harvested regularly (twice per week handpicking of ripe pods) before seeds are discharged. Pigeon-pea pod fly *Melanagromyza obtuse* can reduce seed yields if active.

References –

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