



## TEA RESEARCH INSTITUTE OF SRI LANKA

### A Guideline on Establishment and Management of *Derris* as a High Shade Tree for Low Country Tea Plantations

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A mixture of high and medium shade trees is essential to provide shade and green manure to tea gardens. This need is greatly felt at low elevations due to the impact of dry weather and rising ambient temperatures under climate change. The Tea Research Institute of Sri Lanka (TRISL) has recommended different species of high and medium shade trees for low, mid and up country and Uva regions. Owing to various practical difficulties in management of high shade trees such as lopping and damage by wild animals, the introduction of alternative shade tree species was warranted. With this background, the TRISL has undertaken a series of experiments on new shade tree species for different tea growing regions. Having observed promising results at low elevation field experiments, *Brachypterum microphyllum* [*Derris microphylla*] has been identified as an alternative high shade tree species for the low country tea growing regions.

#### **1. Morphology and plant characteristics of *Derris microphylla***

*Derris microphylla* (Family: Fabaceae *cum* Leguminosae) is a nitrogen fixing plant with ascending and umbrella-shaped feathery crown branches. Its branchlets, petioles and buds are

golden brown silky in colour. Leaves are imparipinnate with 19-43 elliptical-oblong leaflets. Flowers are purple (dark red to violet) in colour. Pod has 1-5 brown-green seeds. *Derris* exhibits a slower growth habit than *Albizia*.

## **2. Seed treatment for germination**

*Derris* is commercially propagated by seeds. As the seeds have hard coats that hinder germination, they can be scarified by rubbing them with sandpaper or mixing them with sand in a cloth and rubbing it against a rough surface. After this scarification, the seeds should be soaked in cold water overnight.

## **3. Planting in the field**

The seedlings are raised in black polythene bags by placing three seeds per bag and allowing the most vigorous one to grow for 7-9 months. Well-grown nursery plants are then planted in the field with the onset of monsoons. The size of the planting hole should be 0.6 m in depth with a top diameter of 0.3 m. Dolomite and compost at the rate of 1.0 kg each could be incorporated into each planting hole for the successful establishment in the field.

## **4. Management of shade**

The *Derris* should be initially planted in the field early during soil rehabilitation period at a spacing of 6.0 m x 6.0 m (20 ft x 20 ft) and thinned down to 12.0 m x 12.0 m (40 ft x 40 ft) at the third year after planting of tea. The period of thinning out can be extended if necessary, depending on the canopy establishment of *Derris* plants. As the vertical growth of this plant is slow, pollarding of the main stem (trunk) is not necessary unless it grows into unmanageable heights. Maintaining shade at required level by removing excess side branches is recommended once a year depending on the canopy growth. The effective lifespan of *Derris* is about 20 years and new plants can be established in the field 3 years before the removal of existing plants to maintain adequate shade for tea.

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