EVALUATING NEW TREE SPECIES FOR THEIR POTENTIAL AS SHADE TREES IN TEA PLANTATIONS

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Tea (*Camellia sinensis* (L). O. Kuntze) is a shade loving plant. It has become mandatory to have proper shade in tea plantations to reduce the deleterious impacts of climate change. *Albizia moluccana* is the only recommended high-shade species currently available in low-grown tea in Sri Lanka. Due to the unpopularity of *A. moluccana*, yield loss and death of tea plants were reported in the recent past in the absence of shade. Thus, studies on alternate shade trees for tea plantations are warranted. A preliminary experiment was conducted at Haupe Estate, Kahawatte, in the low country of Sri Lanka to compare the early-stage physiological, microclimatic, soil and yield parameters of tea, under potential new high-shade species, *Cassia nodosa* and *Derris microphylla* grown under three spacings 6x6, 6x9, 9x9 m (six systems) with *Albizia moluccana* grown under 6x6 m spacing (recommended system). The experiment was carried out as a randomized complete block design, with seven treatments. There were no spacing by species interaction identified for all the measured parameters *(p>0.05)*, indicating the two alternative species had similar effects independent of their spacing. Similarly, when the six alternative systems (species x spacing) were compared with the recommended system (*A. Moluccana* 6x6), there were no effects identified *(p>0.05)* for all the parameters measured. Therefore, *D.microphylla* and *C. nodosa* species are equally good at providing the ecological services provided by *A.moluccana* as high-shade in tea plantations irrespective of the spacings utilized. However, it is too early to draw firm conclusion as most of the beneficial effects of shade are associated with adaptive responses which needs long-term repeated assessments.

Keywords: High-shade trees, Microclimatic parameters, Physiological parameters, Soil, Tea, Yield