D-13: Effect of volume of soil and much on seedling establishment in Greenhouse

N Rabeendran[1], T Jeyasingam[2]
([1]Div of Agric Biology & [2]Dept of Botany, Eastern Univ, Vantharamoolai)

The standard size of polybags used in forest nurseries is not suitable for all species. This study reveals the suitable pot size for selected species with respect to plant height, number of leaf production and root development.

Five species studied were *Azadirachta indica* A. Juss., *Acacia auriculiformis* A.Cunn.ex Benth., *Berrya* cordifolia (Willd.) Burret, *Anacardium occidentale* L. *Syzygium cumini* (L.) Skeels. Seeds of the above were planted in different combinations (eight) of pot sizes made up of potting mixture of cowdung, sand and clay with a ratio of 1:1:1 (by parts). Standard size of polybag (10 cm width, 22 cm length) was compared with double of its volume by increasing its width or increasing its length and also the increment in both ways (width and length) to increase the volume to 4-fold. Each treatment was replicated 6 times, and completely randomized. Half of the number of pots were filled with 1 in-depth of coconut husk for mulch treatment. Watering was done twice a day (morning and evening). Height of seedling (height of apical bud from ground level) and number of leaves were measured at weekly interval from 4 weeks after germination to 18 weeks after germination. For destructive sampling, plant from each treatment was harvested randomly once in 2 months to measure taproot length and root volume. Data on height and leaf number were analysed by using SAS package.

Studies showed that overall performance of plant species in relation to height and number of leaves produced were not affected by mulch treatment but pot width: 14 cm and 22 cm are significantly better ($P \leq 0.05$, based on DMRT test) than 10 cm width of pot size. But this differs in individual species tested. Added mulch-treated pot significantly ($P \leq 0.05$) decreased the height and leaf production in *Berrya cordifolia.* In *A. occidentale,* mulch treated pots showed better than pots without mulch in increasing the height and leaf production. In all species tap root start coiling if they were kept more than 4 months.