

B-05: Root distribution pattern of pepper (*Piper nigrum*) in the presence of gliricidia (*Gliricidia sepium* (Jacq).Steud) support trees

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Pepper vine requires a dead or live support for successful growth and the majority of local pepper farmers use Gliricidias as support. Root distribution pattern of pepper as well as gliricidia in such a union is yet to be studied. Therefore, as an initial step, this study was carried out in a 5 year old pepper plantation at the Research Station, Dept. of Export Agriculture, Matale, in 1992. The planting distance was 2.4 m x 2.4 m. For this study 1/8 sector of the cylindrical root environment of each planting point was excavated. Root separation was made on 4 layer basis (0-25, 25-50, 50-75 and 75-100 cm) and at 6 distance classes (0-20, 20-40, 40-60, 60-80, 80-100 and 100-120 cm) from the base. The mean root length density (Lv) in mm/cm³ was tabulated.

The maximum Lv of pepper (4.09 mm/cm³) was observed at layer 2 of the first distance class. A small percentage of pepper roots extended beyond the depth of 50 cm or distance of 80 cm. In contrast, the maximum Lv of gliricidia (2.42 mm/cm³) was observed at layer 3 of the first distance class and the rooting pattern of gliricidia was more extensive. A greater population of gliricidia roots was observed at distances beyond 60 cm and depth beyond 50 cm. The study showed that while most roots of both species are within a distance of 80 cm from the planting point, to a depth of 75 cm, gliricidia had the greater ability to explore a greater soil volume than similar aged pepper vines in a union.