

EVALUATION OF DIFFERENT TYPES OF STEM CUTTINGS OF BETEL AS PLANTING MATERIALS

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Piper betle L. is one of the valuable plants throughout the Asian region which has a social and cultural value from the very history. Betel crop is established mainly using stem cuttings obtained from the top of orthotropic branches. Due to the inability to obtain many stem cuttings per vine, obtaining cuttings for a commercial cultivation has become a major limiting factor in expanding betel cultivation. Therefore, alternatives are required to produce planting materials. A study was conducted at the Intercropping and Betel Research Station, Narammala to evaluate growth performances of betel cuttings obtained from different heights of orthotropic branches under net-house conditions. Two nodal cuttings obtained from four different segments of orthotropic branches were used as treatments and tested using a complete randomized design with four replicates. A similar experiment was conducted in the field to evaluate the field survivability of the cuttings after establishment. The treatments were namely; 1. main stem cuttings which grow as erectly and bear adventitious roots in their nodes (standard), 2. orthotropic side branches, emerging from nodes of a main vine at 1-2 m height from base, 3. orthotropic side branches, emerging from nodes of a main vine at 0.31 m height and 4. orthotropic branches that emerging from base of a vine. The growth performances were evaluated using the parameters such as plant height, number of roots, shoot dry weight, root dry weight, root length and root volume for five weeks. The results showed that for any of the parameters, there were no interactions between time and treatments ($p > 0.05$). The three alternative cuttings used did not show difference in shoot dry weight, root dry weight, shoot height, and root length compared to each other and to the standard cuttings. However, root fresh weight, root volume and number of roots significantly differed among treatments where root fresh weight and root volume were highest in the treatment 2 which was 71% and 70% greater than the standard. According to the results of the field study, all the four types of cuttings showed 100% survivability and were not different in vine lengths. Overall, since there were no many differences identified among alternative cuttings compared to the standard cutting, there is a possibility of using those types of cuttings for the commercial establishment.

Keywords: Field survival planting materials, Growth performance, Stem cuttings