

Potentiality of Litchi-Fodder Based Agroforestry System in Bangladesh

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Abstract : A field experiment was conducted at the Agroforestry and Environment Research Field, Hajee Mohammad Danesh Science and Technology University, Dinajpur during 2013 to investigate the potentiality of three napier fodder varieties under Litchi orchard. The experiment was consisted of 2 factors RCBD with 3 replications. Among the two factors, factor A was two production systems; S1= Litchi + fodder and S2 = Fodder (sole crop); another factor B was three napier varieties: V1= BARI Napier -1 (Bazra), V2= BARI Napier - 2 (Arusha) and V3= BARI Napier -3 (Hybrid). The experimental results revealed that there were significant variation among the varieties in terms of leaf growth and yield. The maximum number of leaf plant -1 was recorded in variety Bazra (V1) whereas the minimum number was recorded in hybrid variety (V3). Significantly the highest (13.75, 14.53 and 14.84 tha-1 at 1st, 2nd and 3rd harvest respectively) yield was also recorded in variety Bazra whereas the lowest (5.89, 6.36 and 9.11 tha-1 at 1st, 2nd and 3rd harvest respectively) yield was in hybrid variety. Again, in case of production systems, there were also significant differences between the two production systems were founded. The maximum number of leaf plant -1 was recorded under Litchi based AGF system (T1) whereas the minimum was recorded in open condition (T2). Similarly, significantly the highest (12.00, 12.35 and 13.31 tha-1 at 1st, 2nd and 3rd harvest respectively) yield of napier was recorded under Litchi based AGF system where as the lowest (9.73, 10.47 and 11.66 tha-1 at 1st, 2nd and 3rd harvest respectively) yield was recorded in open condition i.e. napier in sole cropping. Furthermore, the interaction effect of napier variety and production systems were also gave significant deviation result in terms of growth and yield. The maximum number of leaf plant -1 was recorded under Litchi based AGF systems with Bazra variety whereas the minimum was recorded in open condition with hybrid variety. The highest yield (14.42, 16.14 and 16.15 tha-1 at 1st, 2nd and 3rd harvest respectively) of napier was found under Litchi based AGF systems with Bazra variety. Significantly the lowest (5.33, 5.79 and 8.48 tha-1 at 1st, 2nd and 3rd harvest respectively) yield was found in open condition i.e. sole cropping with hybrid variety. In case of the quality perspective, the highest nutritive value (DM, ASH, CP, CF, EE, and NFE) was found in Bazra (V1) and the lowest value was found in hybrid variety (V3). Therefore, the suitability of napier production under Litchi based AGF system may be ranked as Bazra > Arusha > Hybrid variety. Finally, the economic analysis showed that maximum BCR (5.20) was found in the Litchi based AGF systems over sole cropping (BCR=4.38). From the findings of the taken investigation, it may be concluded that the cultivation of Bazra napier varieties in the floor of Litchi orchard ensures higher revenue to the farmers compared to its sole cropping.

Keywords : potentiality, Litchi, fodder, agroforestry

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