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**Abstract:** The present study entitled “Study on the growth of bamboo and intercrops under bamboo based silvipasture system” was carried out at Rice Research station( w- section) of Birsa Agricultural University, Ranchi. The study was conducted between May to October, 2015. The bamboo species (*Bambusa vulgaris*) were planted 3 years before in the year 2011 and forage crops such as Sudan grass (*Sorghum sudanense*), Napier grass (*Pennisetum purpureum*) and Guinea grass (*Megathyrus maximus*) were taken for the research purpose and they were grown under silvipasture system. The experiment in the combination of bamboo and intercrops of grasses in the silvipasture system was planned with the following objective: (1) To study the comparative growth of bamboo and forage crops. (2) To assess the nutrient status of soil and (3) To study the economics of bamboo based silvipasture system. The growth parameters of bamboo studied in each treatments of experiment include i.e. number of culm, culm height, culm diameter, length of 3rd internodes(cm) and diameter of 3rd internodes (mm) average number of culms per clumps were measured two times i.e. at the time of forage crops plantation and lastly at the time of harvesting of forage crops. The growth parameters of forage crops like plant height (cm), dry matter accumulation and yield were recorded on final harvesting i.e. after six months. The qualities of forage crops like crude protein percent was measured in the laboratory. Design of experimental area was Randomized Block Design with seven treatments. They were : T1 Bamboo + Sudan, T2 Bamboo + Napier, T3Bamboo + Guinea ,T7 bamboo, T5 Sole Sudan , T6Sole Napier, T7 Sole Guinea. The present findings indicated that bamboo based agroforestry systems are viable in degraded or waste land. Among different intercrops, sudan, napier and guinea give higher return under bamboo based agroforestry system. The growth performance of the Bamboo was varies from treatment to treatment under silvipastural system. The mean clump height of bamboo was 217.36cm whereas the maximum height 442.13cm and minimum plant height 148.56cm. The maximum clump height was found in T1 (151.36cm) treatment followed by T2 (130.24cm) and least was found in sole plantation i.e. in T4 (116.60cm). The length and diameter of 3rd internode varies from 10.00cm to 11.09cm and 4.26cm to 4.81cm respectively. The maximum length of 3rd internode of Bamboo was found maximum in T1 (11.09cm) followed by T2 (10.94cm) and minimum in T3 (10.00cm) whereas the maximum length of 5th internode of bamboo was found maximum in T1 (34.57cm) followed by T3 (34.08cm) and minimum in T4 (31.52cm)). The plant height of all the forage in intercrops was more as compare to sole plantation. The height obtained in intercrops was 232.17cm, 139.68cm and 166.92cm in T1, T2 and T3 respectively whereas in sole plantation, the length was 221.37cm in T5 Sole Sudan, 133.49cm in T6 Sole Napier and 148.50cm in T7. The crude protein percent of all the grasses in intercrops was more than sole plantation. The crude protein percent obtained in intercrops was 12.60, 14.03 and 12.05 in T1, T2 and T3 respectively whereas in sole plantation, the crude protein percent was 11.40, 13.23, 12.30 in T5, T6 and T7 respectively. The total yield was found 432.82 qha-1, 126.48 qha-1 , 227.68 qha-1 in T1, T2 and T3 respectively whereas in sole plantation, the yield was 376.39 qha-1 in T5, 121.33 qha-1 in T6 and 231.84 qha-1 in T7. A considerable improvement has taken place in the level of soil nutrient because value of pH, organic carbon and available N, P, K were found more in silvipasture system than sole cropping systems. The dry matter yield obtained in intercrops was 80.16 qha-1 , 81.78 qha-1 and 86.96 qha-1 in T1, T2 and T3 respectively whereas in sole plantation, the dry matter yield was 79.63 qha-1 in T5, 68.20 qha-1 in T6 and 84.51 qha-1 in T7. The total return of bambusa vulgaris and pasture are found maximum in treatment T1 (Rs. 1,22,405.00/ha) followed by T3 (Rs. 89,119.80/ha) and minimum was found in T2 (Rs. 65,858.00/ha) whereas in sole pasture, the maximum total return was found in T5 (Rs. □74,097.00) followed by T7 (Rs. 39,360.00) and minimum was in T6 (Rs. 11,499.25.00). These indicated that in silvipastoral system the total return is more than that of sole forage. Similar trends were found in case of net return. The ascending order of B:C ratio of the treatments was as followed T6>T7> T2>T4>T5>T2>T1.

**Description:** STUDY ON GROWTH OF BAMBOO AND INTERCROPS UNDER BAMBOO BASED SILVIPASTURE SYSTEM

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