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Abstract: The present study entitled – “Studies on Mango based agroforestry system on farmer’s field at Senha Block, Lohardaga District, Jharkhand was carried out at Senha Block of Lohardaga District of Jharkhand, during 2016 – 17 in three years old planted mango orchard. The present study was designed considering the following objectives. 1. Study growth characteristics of mango trees and yields of intercrops. 2. Study soil nutrient status in existing condition. 3. Evaluate the economics of mango based agroforestry system. The study was laidout in randomized block design (RBD) with five replications and six treatments under 100 m² of plot size. Results revealed that the growth and development of mango plants showed significant effects with intercrops. The growth performance of the mango was varies from treatment to treatment under agroforestry system. The maximum (128.30cm) crown height was found in T2 Mango + Potato treatment followed by T3 Mango + Garlic (124.60cm), T1 Mango + Pea (118.50cm), T4 Mango + Tomato (115.20cm), T5 Mango + Watermelon (112.40cm) and least (108.90cm) was found in sole plantation i.e. in T6 Sole Mango. The crown length was also more (132.60cm) in case of T2 followed by T3 (130.40cm), T1 (124.20cm), T4 (122.80cm), T5 (116.30cm) and least (112.70cm) in T6 whereas the crown spread also maximum (128.40cm) in T2 followed by T3 (125.30cm), T1 (120.80cm), T4 (118.70cm), T5 (112.50cm) and minimum (110.60cm) in T6. The maximum (8.6) number of branches per plant was found in T2 Mango + Potato treatment followed by T3 Mango + Garlic (7.8), T1 Mango + Pea (7.2), T4 Mango + Tomato (6.8), T5 Mango + Watermelon (6.6) and least (6.0) in T6 Sole Mango whereas the fruit yield also maximum (3.5q./ha) in T2 , followed by T3 (3.4q./ha), T1 (3.3q./ha), T4 (3.2q./ha), T5 (3.1q./ha) and minimum (3.0q./ha) in T6. The maximum (350q./ha) yield of intercrops was found in T5 Mango + Watermelon treatment followed by T2 Mango + Potato (220q./ha), T4 Mango + Tomato (210q./ha), T1 Mango + Pea (160q./ha) and least (32q./ha) in T3 Mango + Garlic. It is clear that, the growth characteristics of the mango trees were similar trend with respect to crown height, crown length, crown spread, fruit yield and number of branches per plant except the yield of intercrops. Nutrient status of soil before intercrops was non-significant but nutrient status of soil after intercrops was significant effects with intercrops. Available nitrogen content was highest in T1 (Mango + Pea) treatment and lowest in T6 Mango (Sole), available Phosphorus content is highest in T2 (Mango + Potato) treatment and lowest in T4 (Mango + Tomato) treatments, available potassium is highest in T2 (Mango + Potato) treatments and lowest in T6 mango (Sole) treatments and pH was highest in T3 (Mango + Garlic) treatments and lowest in T6 mango (Sole) after intercrops were found. Organic carbon percent was same in T2 (Mango + Potato) and T3 (Mango + Garlic) treatment but lowest in T6 Mango (Sole) after intercrops were found. The maximum (Rs.146, 183.96 per ha) net return was found in T5 Mango + Watermelon treatment followed by T1 Mango + Pea (Rs.120, 009.12 per ha), T4 Mango + Tomato (Rs.70, 808.40 per ha), T3 Mango + Garlic (Rs.61, 450.52 per ha), T2 Mango + Potato (Rs.61, 262.84 per ha) and minimum (Rs.-9,583.92 per ha) in T6 Sole Mango. The maximum (2.62) benefit cost ratio was found in T5 Mango + Watermelon treatment followed by T1 Mango + Pea (2.43), T4 Mango + Tomato (1.65), T2 Mango + Potato (1.48), T3 Mango + Garlic (1.47) and minimum (0.43) in T6 Sole Mango. The finding of the study concludes that there is need to promote agroforestry system in the region. It will help the farmers in enhancing their socio-economic condition. Therefore, in the initial years of mango plantation the farmers’ can be benefited from this agroforestry system through better protection of mango trees from weeds and stray cattle, soil health improvement, additional income, more employment and better food security. The present agroforestry system studied in the farmer’s field may not replicate the same trend in terms of net return and BCR due to market and other influencing factors. However, the agroforestry system for the farmers’ has been recommended as per the findings.

Description: STUDIES ON MANGO BASED AGRO-FORESTRY SYSTEM ON FARMER’S FIELD AT SENHA BLOCK, LOHARDAGA DISTRICT, JHARKHAND

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