

# Effect of Different Organic Manure with Varying Levels of Nitrogen on Growth and Yield of Sarpagandha Grow as Intercrop in Coconut Plantation

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**Abstract**—The present experiment was carried out in a 25 years old coconut plantation of AICRP on Palms, Horticultural Research Station, Mondouri, B.C. K. V., Nadia, during 2006-09 to study the efficacy of different organic manures with varying levels (50% and 75%) of inorganic nitrogen (urea) on growth and yield of sarpagandha grown as intercrop. Four different organic manures namely FYM, vermicompost (VC), mustard cake (MC) and neem cake (NC) were included. The coconut palms were spaced at 7.5 x 7.5 m. The experiment on sarpagandha was laid out in RBD with three replications. Treatment comprised of T<sub>1</sub> (OM<sub>0%</sub> + U<sub>100%</sub>), T<sub>2</sub> (FYM<sub>25%N</sub> + U<sub>75%N</sub>), T<sub>3</sub> (FYM<sub>50%N</sub> + U<sub>50%N</sub>), T<sub>4</sub> (VC<sub>25%N</sub> + U<sub>75%N</sub>), T<sub>5</sub> (VC<sub>50%N</sub> + U<sub>50%N</sub>), T<sub>6</sub> (MC<sub>25%N</sub> + U<sub>75%N</sub>), T<sub>7</sub> (MC<sub>50%N</sub> + U<sub>50%N</sub>), T<sub>8</sub> (NC<sub>25%N</sub> + U<sub>75%N</sub>), T<sub>9</sub> (NC<sub>50%N</sub> + U<sub>50%N</sub>), & T<sub>10</sub> (Control: No manure & fertilizer). Transplanting was done in June and the harvesting was done during early autumn. The fertilizer dose of coconut was 500: 250: 750 g NPK/palm/year.

Maximum plant height (100.6cm) was observed with T<sub>1</sub> treatment (U<sub>100%</sub>) but plants raised with T<sub>5</sub> treatment (VC<sub>50%</sub> + U<sub>50%</sub>) recorded maximum leaf number (119.2), highest root weight/plant (48.2g) and highest root yield kg/ha (2496kg/ha). The plants under intercropping produced more number of leaf (11.9) and bunch (10.8), nut weight (1064 g), copra weight (168 g) and copra yield/palm/year (10.92 kg) indicating positive influence of intercropping on main crop. The nut yield under intercropping was 11375 nut/ha/year as compared to 10675mt under monocropping. The net return/ha from intercrop and monocrop were Rs 81825/- and Rs 26325/ respectively. Substitution of inorganic source of nitrogen (urea) with 50% organic source (8.5 t/ha vermicompost) was found profitable with higher net return.