



Research Article

## Assessment of agroforestry based two-tier-cropping system in Ambala district of Haryana

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**SUMMARY :** In North-Western Indo-Gangetic plains (IGP), Poplar based horti-Agro-Forestry models have been adopted by the farmers. The farmers grow poplar due to its fast growing habit, short duration, compatibility with the different crops, eco-friendly and multi-purpose uses in different industries. Poplar is a deciduous tree and very suitable for horti- agro-forestry system. It has no shading effect on various crops rather adds to soil fertility through its leaf litter. Wheat, oat, sorghum, maize, sugarcane, berseem, turmeric, ginger and potato can easily be grown as inter crops. The results obtained during the course of rotation of six years study (from December 2000 to December 2006) revealed that yield of all the inter sown crops decreased appreciably after two to three years of poplar plantation but this yield loss often compensated by the sale of poplar wood at the end of the rotation. The results of this six year study at KVK farm revealed that in case of poplar plantation the maximum girth size (29.73 inch) was obtained with T<sub>1</sub> (Poplar + Sugarcane) followed by T<sub>2</sub> (Poplar + Turmeric) where the girth size was 28.66 inch, and the minimum girth size (25.06 inch) was with T<sub>5</sub> (Poplar alone). Similarly the maximum timber wood (115.37 t/ha) was also obtained with T<sub>1</sub> followed by T<sub>2</sub> (100.46 t/ha) and the minimum timber wood (54.68 t/ha) was obtained with T<sub>4</sub> (Poplar + Rainfed Wheat/Lentil). Economic analysis showed that the highest net income (Rs.64,355 /ha/annum) was obtained with T<sub>1</sub> followed by T<sub>2</sub> (Rs.59,543 /ha/annum) and the lowest net income (Rs.18,719 /ha /annum) was obtained with T<sub>4</sub> followed by T<sub>5</sub> (Rs. 20188/- ha / annum), where as on the basis of cost of cultivation, the average net return from paddy-wheat rotation which is generally followed in this region was about Rs. 22970 /ha/annum during that period. Hence, the poplar based two-tier cropping system is more economical than the monocropping of agricultural crops and to be a very good alternative to paddy-wheat rotation in Indo-Gangetic plains.

**KEY WORDS :**

Girth size, Timber wood, Net return

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