



## **Bamboo (*Dendrocalamus strictus*) + sesame (*Sesamum indicum*) based agroforestry model: A sustainable livelihood option for farmers of semi-arid region**

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Received: 15 March 2017; Accepted: 18 July 2017

### ABSTRACT

A study on *Dendrocalamus strictus* + *Sesamum indicum* based agroforestry was conducted at ICAR-Central Agroforestry Research Institute, Jhansi (Uttar Pradesh), India during 2007 to 2012 to find out the suitability of bamboo based agroforestry system (AFS) in the semi-arid region. Bamboo recorded survival of 62 to 77% (1st year), 86 to 96 (2nd year) and 100% thereafter. *D. strictus* culm (No.) varied in the range of 178-388 (1st year); 936 to 1439 (2nd year); 1507 to 2134 (3rd year); 2182 to 2901 (4th year) and 2422 to 3215 (5th year, i.e. at harvest stage). Bamboo did not influence the sesame yields during initial two years, however, yield level got reduced during subsequent years. During 5th year intercropped sesame yield got reduced 15.69 (10m × 10m bamboo) and 10.09% (10m × 12m bamboo) as compared to pure crop. Bamboo clump affected the sesame yield substantially and 16.3, 14.3, 7.5 and 0.3% sesame yield reduction was observed at a distance of 1.0, 2.0, 3.0 and 4.0m, respectively, during 5th year. Organic C increased from 3.92 to 6.24 g/kg soil over a period of five years in bamboo based AFS. At harvest stage of bamboo (5th year), highest B:C ratio of 2.83 was observed in 10m × 10m bamboo + sesame followed by 2.59 (10m × 12m bamboo + sesame) and 1.43 (pure sesame). Therefore, bamboo based AFS has economic and environmental advantages over the sole crop and due to this, the system could be one of best alternative livelihood options for farmers of semi-arid tropics.