

## ABSTRACT OF THE PROJECT

1.	Project Code	FRC/XI-12
2.	Name of the Project	Development of agroforestry models in <i>Wrightia tinctoria</i> R.Br. and <i>Gmelina arborea</i> Roxb. as tree species in semi-arid tropics of Andhra Pradesh.
3.	Funding Agency/ Agencies	ICFRE
4.	Institute/ Directorate (ICFRE Hqrs.)	Institute of Forest Biodiversity (formerly Forest Research Centre), Hyderabad
5.	Name and Designation of Principal Investigator	Mr.M.B.Honnuri, Scientist-B
6.	Name (s) and Designation (s) of Co-Principal Investigator (s) and Associates, if any	Dr.G.R.S.Reddy, Scientist-G Dr. A. Ponnambalam, Scientist-C Mr. Sudhir kumar, Scientist-B Mr. N.R. Raveendra Prasad, R.O. Mrs. R. Asha Kumari, RA-1
7.	Division	Institute of Forest Biodiversity (formerly Forest Research Centre), Hyderabad
8.	Project Discipline	Ecology and Environment
9.	Objectives of the Project	<p><b>Long term Objectives:</b></p> <p>a) Study of interactions of tree and crop combination of Agroforestry system based on <i>Wrightia tinctoria</i> R.Br. and <i>Gmelina arborea</i> Roxb in combination with Sorghum and Pigeon pea</p> <p>b) To popularise the above mentioned tree species among farmers.</p> <p><b>Short term Objectives:</b></p> <p>a) To develop <i>Wrightia tinctoria</i> R.Br. and <i>Gmelina arborea</i> Roxb based agroforestry models in semi arid tropics of Andhra Pradesh.</p> <p>b) Test Sorghum and Pigeon pea in above tree</p>

		<p>combinations.</p> <p>c) Study the interactions of allelochemicals in controlled and field conditions</p>
10.	Species involved	<p><i>Wrightia tinctoria</i> R.Br. <i>Gmelina arborea</i> Roxb  <i>Sorghum bicolor</i>, <i>Cajanus cajan</i></p>
11.	Experimental Work	<p>The Institute of Forest Biodiversity has took up the agroforestry studies to study the interactions of tree and crop combination of Agroforestry system based on <i>Wrightia tinctoria</i> R.Br. and <i>Gmelina arborea</i> Roxb in combination with pigeon pea and sorghum. This study was not taken up earlier in this area.</p> <p>Experimental site: Chelmeda village, M-Ramayampet Dist-Medak.</p>
a)	Methods adopted	<ol style="list-style-type: none"> <li>1) Selection of willing farmer in the semi-arid tropical region who can give the land to implement the agroforestry experiment based on <i>Wrightia tinctoria</i> R.Br and <i>Gmelina arborea</i> for Pigeon pea and Sorghum (Jowar) mixed cropping pattern. It is a standard in this region. The spacing of trees is based on nature of species viz., crown spread and crown height and the shade effect and horizontal root spread of each species.</li> <li>2) Collection of material (seeds or cuttings) and raising nursery of seedlings and planting them in the field as per the design.</li> <li>3) Cultivation of agricultural crops, one row of <i>Cajanus cajan</i> (Pigeon pea) and five rows of Sorghum (Jowar) in the inter spaces of trees and its maintenance by weeding, fertilizer application as per the package of practices recommended by ICAR for these crops for the chosen soil.</li> </ol>

		P <sup>H</sup> , E.C meter, Kjeldal apparatus etc.
c)	Scope (States covered)	Andhra Pradesh & Telangana
12.	Date of commencement of the Project	1 <sup>st</sup> April 2009
13.	Date of completion of the Project	31 <sup>st</sup> July 2014
14.	Budget outlay of the Project	Rs. 10.60 lakhs
15.	Expenditure incurred on the Project	Rs. 8.06091 lakhs
16.	Reason for financial deviation	----
17.	Manpower involved	----
(a)	No. of Scientists/officers	Five
(b)	No. of Research personnel	One Field Assistant
(c)	No. of office staff	One (RA-I)
18.	Extension of findings to the User Groups	SFD, FDC, Artisans, Farmers and Society.
19.	Publications from the findings of the Project	Abstract entitled "Development of agroforestry models in semiarid tropics of A.P" was accepted for poster presentation by the World congress on Agroforestry held in New Delhi from 10 <sup>th</sup> to 14 <sup>th</sup> of Feb-2014.
20:	Patents, if any	-Nil-
21	Project summary/achievements/ Findings	Identified, selected two tree crops viz. <i>Wrightia tinctoria</i> and <i>Gmelina arborea</i> and two agricrops as intercrops viz. <i>Sorghum bicolor</i> (Jowar) and <i>Cajanus cajan</i> (Pigeon pea) for the study. Successfully grown agricrops under Agroforestry system as an on farm trail. Collected and recorded data on growth and yield of tree crops and agri crops. The height of <i>W.tinctoria</i> gradually increased from 42.48cm to 199.07cm (sole) and 38.19cm to 198.59cm (intercropped) with the spacing of 12x5m and <i>G.arborea</i> from 106.85cm to 428.11cm (sole) and 113.96cm to 457.56cm (intercropped) with the spacing of 12x3m during the study period. Similarly collar diameter of <i>W.tinctoria</i> and <i>G.arborea</i> also shown increasing trend from 1.01cm to 7.90cm (sole), 0.65cm to

		<p>8.26cm (intercropped) and 1.78cm to 15.34cm (Sole), 1.65cm to 16.09cm respectively during the study period. Recorded data on yield and biomass of <i>Sorghum bicolor</i>, <i>Cajanus cajan</i> and data indicates that maximum Sorghum and Pigeon pea yield was observed in intercrop with spacing of 10x3m under <i>W.tinctoria</i> as tree crop and under <i>G.arborea</i> as treecrop it was with 12x3m spacing. The details of the ranges of mean fodder yield and grain yield are as follows.</p>
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