

# SUCCESS STORIES...2013



**All India Coordinated Research Project on  
Farm Implements and Machinery**  
Central Institute of Agricultural Engineering  
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## **Coconut Tree Climber**

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### **Introduction**

Coconut is a crop of small and marginal farmers since 98% of about five million coconut holdings in the country are of less than two hectare area. India occupies a predominant position in production of coconut with 21% contribution from 15.46% area of the world. The coconut crop is grown in 18 states and three Union Territories of country covering an area of 1.935 million ha of land, with a production of 12,833 million nuts. The major coconut crop acreage is concentrated on the West Coast region of the country comprising the states of Kerala, Karnataka and Maharashtra, followed on East Coast of Tamil Nadu, Andhra Pradesh, Odisha and Pondicherry. The coconut cultivation areas are also traditionally located in the coastal region of Gujarat, Goa, West Bengal, Islands of Andaman & Nicobar and Lakshadweep. About 90% area under coconut cultivation and 90% production of coconut are from the four southern states, viz. Kerala, Karnataka, Tamil Nadu and Andhra Pradesh. Coconut is grown in an area of about 0.3 million hectare in Tamil Nadu with an average production of 3200 million nuts per year. The average yield is about 10000 to 12000 nuts per hectare.

In cultivation of coconut, skilled labours have to climb the trees manually for each and every operation which is laborious, consumes more time and energy and accident prone. It is very difficult to get the required number of skilled labours during peak seasons. Moreover, skilled tree climbers are reducing in number day by day because of the drudgery involved in this operation.

To reduce the drudgery and to increase the safety of the coconut climbers, a manual tree climbing device was developed by Agricultural Machinery Research Centre of Tamil Nadu Agricultural University, Coimbatore under All India Coordinated Research Project on Farm Implements and Machinery.

### **Salient Features of the Device**

Coconut tree climber consisted of two components connected by adjustable belts. The upper component was operated by hand and the lower component by the foot. The upper component was provided with a seating arrangement and the lower component was having provision for holding the foot. The unit was fitted on the coconut tree with the upper component above the lower component.

The upper component slid up or down over the tree by standing on the lower component. Similarly, by sitting in the upper component, the lower component could be slid up or down over the tree. The operator could climb or descend the tree by operating the upper and the lower components alternatively. Since, the operator was safely held against the tree by the upper component, there was no problem of falling down of the operator. Even, unskilled persons could easily operate the device with minor training.

### Specifications

Top frame (LxB), mm	:	1070 x 480, made of 18 mm M.S. Square pipe
Bottom frame (LxB), mm	:	620 x 480, made of 18 mm M.S. Square pipe
Seat	:	Plastic coated tarpaulin
Bushes	:	Rubber
Weight, kg	:	13

The isometric view and top, side and rear views of the tree climber are shown in Figs. 5.1 and 5.2, respectively.

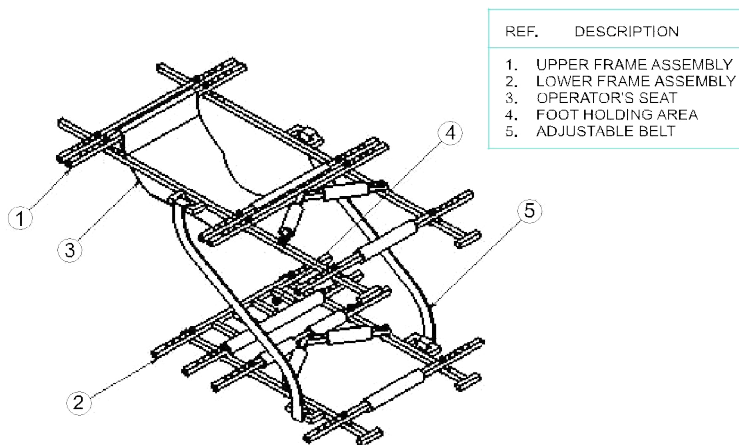
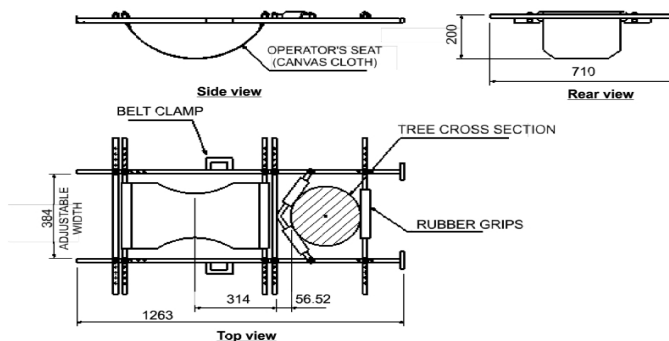


Fig. 5.1. Isometric view of coconut tree climber.



**Fig. 5.2. Top, side and rear views of coconut tree Climber.**

### Performance of the Device

The performance of the tree climber was evaluated at University Research Farm and at farmer's fields. The performance of the tree climber is given in Table 5.1.

**Table 5.1 Performance of coconut tree climbers at farmer's field**

S. No	Parameters	Coconut tree climber	Farmer practice (Manual)
1.	No. of trees climbed	203	-
2.	Labour requirement, man-h/100 trees	16-17	10
3.	Capacity, trees/h	6	10
4.	Height of the trees, m	10	-
5.	Girth variation, mm (trunk circumference)	Max.	1190
		Min.	750
6.	Inclination of trees from vertical, degrees	10-15	-
7.	Effective height of operation, m	10-12	-
8.	Field efficiency, %	86	-
9.	Cost of operation, Rs./tree	5.5	10
10.	Cost of operation, Rs./ha	1050*	800**
11.	Breakdown of equipment	No breakdown. Only operational adjustments are required	-
12.	Remarks of the farmer	Satisfied	-

\*Unskilled labour

\*\*Skilled labour

## Status of the Technology

The coconut tree climber was extensively tested in fields for its feasibility at University research farms and at farmer's fields. Front line demonstrations were conducted at 36 different locations in Coimbatore, Madurai, Erode and Tirpur districts of Tamil Nadu for climbing on 1019 coconut trees under AICRP on FIM scheme (Figs. 5.3-5.5).

The coconut tree climber was released by the State Variety/Implement Release Committee, Tamil Nadu during the year 2006 and 940 prototypes were sold to farmers under Revolving Fund Scheme, Agricultural Machinery Research Centre of TNAU, Coimbatore (Annexure V).



**KVK, Vamban**



**Kanjampatti Village**



**Kalapatti village**

Fig. 5.3. Frontline Demonstraion of coconut tree climber at different villages of Coimbatore district in Tamil Nadu.

### List of manufacturers

The following private manufacturers have taken up the fabrication of coconut tree climbers.

<b>S. No.</b>	<b>Name and address</b>
1.	M/s. Shree Vinayaga Industries No. 3/4, Mariamman Kovil Street T. N. Palayam, P. N. Pudur Coimbatore - 641 041
2.	M/s. SAP Agri Implements 10 A, Devi nagar, Near Quality Mills Udumalai Road, Thozhilpettai Pollachi - 642 003
3.	M/s. KSNM Marketing SF No. 29/1B, Green Home via Oonapalayam, Dheenampalayam Post Coimbatore - 641 109
4.	M/s. Sri Kiruthigai Engineering 27, Dr. Radha Krishnan Street Seera NaickanPalayam Coimbatore - 641 007
5.	M/s. Valampuri Industries 2, Thiyagi Kumaran Street P. N. Pudur, Coimbatore – 641 041

**Supply of the coconut tree climber under Revolving Fund Scheme,  
AMRC, TNAU**

<b>S. No.</b>	<b>Year</b>	<b>No. of coconut tree climbers supplied</b>
1.	2006-07	149
2.	2007-08	279
3.	2008-09	173
4.	2009-10	127
5.	2010-11	49
6.	2011-12	86
7.	2012-13	77
	<b>Total</b>	<b>940</b>