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## The size and employment pattern in betel vine cultivation: An empirical study of Bihar

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### Abstract

In India betel vine is a commercial crop grown under fifty thousand hectares of land. The main betel vine producing states of the country are Karnataka (18%), Orissa and Tamilnadu (11% each), Assam & Bengal (6%each) and Bihar (7%). This crop annually generate income to the tune of rupees 10 thousand million and create about 2 million employment. In Bihar it has been grown under three to four thousand hectares in a special construction (BAREJA) by a single cast (BARAI). The study was conducted in Bhagalpur and Visalia district of Bihar on the basis of higher area. On the same basis from Bhagalpur district two blocks namely Kahalgaon and Pirpainti & from Vaishali district two blocks namely Bidupur and Hazipur were selected for in depth study. From each block one village was selected and nearly 15 percent of betel vine growers from each village formed the sample size of the study. Analysis reveals that on an average 833 labour days per hectare were created in cultivation of the crop. The share of family labour at the overall level 61.35% and hired labour 38.65 %. Out of the total human labour engaged 86.19% were male and 13.81% were female. This has been attributed to the social belief and religious factors for low participation of female in the activities. The major labour utilizing operations were harvesting, packaging and maintenance which constitute about 49.42 %. Due to lack of knowledge growers were not able to make optimum number of labours utilization in their farm and females labours in the activities. The study suggests for establishment of linkages between the growers, extension workers and research person ale, so that employment generations could be increase in general and female participation in particular.

**Keywords:** betel vine, bareja, barai, employment, commercial cultivation

### Introduction

Betel vine (*piper betel* L.) is known by its many names across the country and abroad. It is commercial cultivated in Asian countries. India ranks first in terms of area (50,000 ha.) suggested by Anon (1986) with production in the world. It is the fact that no Hindu religious ceremony is completed without betel leaves. These leaves posses medicinal properties also and beneficial to so many diseases' and the chief sources of dietary calcium. In India it is cultivates in the state like Andhra Pradesh, Karnataka, Assam, Orissa, UP, WB, TN, and Bihar in the good quantity and area. The peculiarity of the crop is that it generates steady income and employment throughout the year and has also generates employment through trade and selling (Meenakshi Sundaram, 1987). The production and trade in Bihar is confined to one particular cast namely barai which accounts for above 90% share. In the state farmers were cultivating the crop by traditional mode under the special construction of bareja. It has reported that about 3500 to 4000 ha. Under area of the crop (V.R., Balasubrahmanyam, 1994). Presently state and national level employment generation is a challenging task. Gradually people of working age are growing rapidly and they named as unemployable youth. At present about 800 million people in the working age group of 18 to 35 years in the country which is largest in the world. As stated earlier betel vine cultivation contributes a significant employment and income. In this back drop the present paper has been planned to study the size and pattern of employment in betel vine cultivation as a major objective. The study is the outcome of a study entitled, production and marketing of betel vine in Bihar conducted during the year 2007.

### Materials and Methods

For purpose of the study, Bhagalpur and Vaishali district of Bihar were selected purposively on the basis of higher area under the crop. In Bhagalpur district it was cultivated fewer than 150 ha. and in Vaishali district under 300 ha. From each district two blocks were selected and from each block one village on the basis of larger area was selected. A list of betel vine growers were prepared from the records of respective block. The details of selection are presente her under.

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<b>Stage 1</b>	<b>District Bhagalpur</b>	<b>District Vaishali</b>
Stage 2	Block -Kahalgaon	Block-Bidupur
	Block -Pirapainti	Block -Hazipur
Stage 3	Village- Bhawanipur	Village-Chhoti yusufpur
	Village- Tarwa	Village- Daudnagar

### Selection of growers

An attempt was made to select the sizeable number of growers but during the course of the village survey for preparing of growers list it was found that the cultivation of betel vine crop is in very less area and it was very difficult to categorise the growers according to their land class size which was ranging between 0.05 ha. to 0.30 ha. as per the available records in respective block office. The village wise selection of growers was done on the basis of probability proportion method and nearly 15 % of betel vine growers were formed the sample size of the study. The details are here under

### Selection of growers in the study area

<b>Selected Village</b>	<b>Total no. of growers</b>	<b>No. of sample growers</b>	<b>Percentage of growers</b>
Bhawanipur	126	19	15.07
Tarawa	134	20	14.92
Choti Yusufpur	109	17	15.59
Daudnagar	115	18	15.65
Total	484	74	15.28

A total number of 74 sample betel vine growers form the sample size from four selected villages. The study was conducted during the year 2003-04.

### Results and Discussions

#### Demographic features of the sample villages

In the Bhagalpur district, Bhawanipur and Tarawa villages were selected which was situated in Kahalagaon and Pirpainti block respectively. Agriculture is the prime source of earning of the village. Bhawanipur village was situated about 15 kms away from the block headquarter and Tarawa village is 3 kms far from the block office. The Chhoti Yusufpur village of vaishali district is situated at about 3kms distance from Hajipur block and Daudnagar is about 15 kms. away from block office (table-1).

It may be seen from the table 1 that total population of Bhawanipur village was 1870 and out of it 50.91 % were male and 49.09 % were female. In Tarawa village the total population was 2,510 and out of it 52.07 % were male and 47.93 % were female. The literacy % was quite low 33.85 % in Bhawanipur and 30.28 % in tarawa village. The SC population of Bhawanipur village was high 17.22 % and only 3.49 % in Tarwa. The ST Population was 0.97 % and 4.11 % in the respective village. Similarly Chhoti Yusufpur population was 3,530. The male and female population constitute 51.87 % and 48.13% respectively. In Daudnagar village the total population was 3064. The male and female percentage was 52.65 percent and 47.35 % respectively. The literacy rate was 40.49 percent and 43.61 % respectively. Only SC population 17.62 percent and 18.87 % in the both village respectively, and no ST population resides in the villages similar findings was observed by Changule, B. A. (1960).

#### Employment Pattern in the sample villages

The analysis of employment pattern in betel vine cultivation was work out as per the set objective. To discuss the pattern

of employment in cultivation of betel vine, the data were categorised into four sub- heads and presented as

1. Operational farm and family size of the selected growers
2. Utilization of family and hired labour
3. Sex wise labour utilizations in cultivation
4. Operation wise labour utilization

#### Operational farm and family size of the selected growers

The above table shows that on an average size farm holding was 0.14 ha. The village wise analysis indicated that in Daudnagar village size of holding was largest 0.16 ha. Followed by, Tarwas village 0.15 ha., Bhawanipur village 0.13 ha. and Chhoti Yusufpur 0.12 ha. The village wise operational farm and family size worked out and presented in table-2. The data shows that across the village sample holding size ranged between 0.12 ha. to 0.16 ha. The table further indicates that the average family size in Daudnagar village was higher 5.45persons followed by Tarawa village 5.15persons, Bhawanipur 4.65 persons and Chhoti Yusufpur 4.25persons and the average family size was 4.88 persons. The analysis indicates a positive correlation between size of operational holding and size of family. The low area under the crop was mainly due to high capital and labour intensive.

#### Utilization of family and hired labour

An analysis has been done to capture the utilization pattern of labour under the betel vine cultivation. The table-3 stated above indicates that on an average per hectare labour utilization in the betel vine cultivation were 833 man days. The share of family labour was 61.35 percent and hired labour was 38.65 %. The village wise analysis showed that the utilization of labour was found higher in Daudnagar village 847 followed by Chhoti Yusufpur 836 Tarawa village 832 and Bhawanipur 817. The utilizations of family labour across the village revels that highest utilization in the village in Tarawa 62.26 % followed by Choti Yusufpur 61.96 Bhawanipur 60.59 percent and Daudnagar 60.57 %. The share of family labour in total utilizations of labour under the cultivation was found higher in all the sampled villages may be due to growers were mostly used own family labour in almost every activities of production and marketing of the crop. The average hired labour was worked out 38.65% which ranged between 37.74% to 39.43 % across the selected villages the hired labourers were used occasionally by the growers. The analysis concludes that the villages which is far from the block office were mostly use family labourer and nearer to the block office uses comparatively higher number of hired labourers in the cultivation of betel vine.

#### Sex -wise labour used in betel vine cultivation

An attempt has been made to work out sex wise utilization of labour in cultivation of betel vine (table-4). The table showed that on an average 833 labour days employed in cultivation of betel vine per hectare in which male labour days accounted for 86.19 % and female 13.81%. It indicates the dominance of male labourers in the cultivations. The village wise analysis showed that in Vaishali district villages, female labourers were employment in the large proportion as compared to Bhagalpur district. It was reported that mainly in Bhagalpur district due to social prohibition of female to enter into the bareja very less number of female labourers were employed in cultivation. However the participation of female in vaishali district was higher due to non restrictions of female labourers under bareja. The overall analysis indicates that male worker were employed in large number as compared to female

workers due to social reasons. In Bhagalpur district growers were reported that the place of betel vine cultivation (Bareja) is considered as a sacred place where God resides. The entry of female inside bareja is strictly prohibited because of their traditional belief of women in the bareja will erode the purity and betel vine leaves will be dried up. In the Vaishali district blind belief about the impurity of women did also prevail but braja samaj was not strongly opposed to women's entry in there bareja. The above facts are the main factor for low utilization of female labour in the study area.

### **Operation –wise labour in betel vine cultivation**

The table stated above shows that across the sampled Villages labour utilisation was found highest in harvesting, packaging maintenance and constitutes between 48.79 percent to 51.89 percent labour employment. The inter culturing operation is also a highly labour consuming operation varied between 14.46 percent to 15.38% across the villages (Table 5). The table also showed that a significant number of labours employed in irrigation, lowering of betel vine, soil addition etc. across the villages. The variation in labourers due to the shape, size, strength, construction, operation, variation etc. across the area. In the bereja, power method of operation was used in very less by the growers mostly manual labourers were utilized. In the Bhagalpur district comparatively less labours days were used in all operation but no marked variation in number of labour days across the village except Daudnagar. The table further showed that on an average 893 labours were utilized for cultivation of betel vine per hectare. The breakup of labour utilization indicates that in construction of bareja on an average 11.67 percent labour were utilized. The next labour consuming activities were irrigation, lowering of vine, soil addition, sticks of vine supporting same

result supported by V. R., Balasubrahmanyam (1994). The maximum number of labours were utilized in harvesting, packaging and maintenance of the crop on an average 49.42 percent.

### **Conclusion**

Analysis reveals that on an average 833 labour days per hectare were created in the cultivation of betel vine. The share of family labour at the overall level 61.35 percent and hired 38.65 percent. It indicates the cultivation has been generating larger employment. The analysis also observed that at overall level out of the total human labour engaged 86.19 percent were male and only 13.81 percent were females. This has been attributed to the social belief strongly in Bhagalpur district. The operation wise analysis of human labour indicates 49.42 % were utilized in harvesting, packaging & maintenance. The above analysis established the fact that due to lack of knowledge betel vine grower were not able to make optimum and female labour use in their farm. In the study area it was observed that there were poor linkages between the growers, extension officials and researchers which affects the labour utilization in particular and production in general. The participation of women in operational work may be ensure by taking proper emphasis on it. In view of medicinal value of betel vine, agro based appropriate pharmaceutical industries may be suggested to establish near the growing areas for employment generation.

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**Table 1:** Demographic Features of sample villages

S. No	Particular	Bhagalpur		Vaishali	
		Bhawanipur	Tarwa	Chhoti Yusufpur	Daudnagaar
1	No. of House holds	371	523	823	684
2	Total population	1870	2510	3530	3064
3	Male population	952(50.91)	1307(52.07)	1831(51.87)	1613(52.65)
4	Female population	918(49.09)	1203(47.93)	1699(48.13)	1451(47.35)
5	Literacy	33.85	30.28	40.49	43.61
6	SC. popln. (%)	17.22	3.49	17.62	18.87
7	ST Popln. (%)	0.97	4.11	0.00	0.00

**Source:** Respective block office and census 2001

**Table 2:** Operational holding and size of family

Village	Avg. Area under betel vine crop (ha.)	Average family size
Bhawanipur	0.13	4.65
Tarawa	0.15	5.15
Chotti Yusufpur	0.12	4.25
Daudnagar	0.16	5.45
All villages	0.14	4.88

**Table 3:** Utilization of labour in betel vine cultivation (ha<sup>-1</sup>)

Village	Total labour used	Family labour used	Hired labour used
Bhawanipur	817	495(60.59)	322(39.41)
Tarawa	832	518(62.26)	314(37.74)
Choti Yusufpur	836	518(61.96)	318(38.04)
Daudnagar	847	513(60.57)	334(39.43)
All village	833	511(61.35)	322(38.65)

**Table 4:** Sex wise utilization of labour in betel vine cultivation

Sample villages	Total labour used	Male labour used	Female labour used
Bhawanipur	817	801(98.04)	16 (1.96)
Tarwa	832	820(98.356)	12(1.44)
Choti Yusufpur	836	603(72.13)	233(27.87)
Daudnagar	847	627(74.03)	220(25.97)
All village	833	718(86.19)	115(13.81)

Note- figure in parenthesis indicates percentage

**Table 5:** Employment pattern in Betel vine cultivation

<b>One Year Operation</b>	<b>Villages (%)</b>				<b>All Average</b>
	<b>Bhawanipur</b>	<b>Tarawa</b>	<b>Chotiyusufpur</b>	<b>Daudnagar</b>	
Bareja construction.	11.84	11.00	11.44	11.16	11.67
Land preparation.	0.73	0.82	0.71	0.60	0.74
Pits making & Digging	1.36	1.34	1.50	1.42	1.37
Vines Planting	0.52	0.58	0.61	0.60	0.53
Fertilizer Application	0.02	0.62	0.61	0.70	0.63
Irrigation	4.50	5.45	4.96	3.72	4.74
Inter culturing	14.46	14.49	15.38	14.87	15.17
Lowering of vine	6.60	6.78	7.19	6.83	7.09
Soil Addition	4.52	4.52	4.86	4.62	4.74
Stick for vine Supporting	3.25	3.19	3.34	3.42	3.37
Pesticide use	0.31	0.54	0.61	0.50	0.53
Harvesting, Packaging, &Maintenance etc.	51.89	50.67	48.79	51.56	49.42
Total Labour Use	100.00(817)	100.00(832)	100.00(836)	100.00(847)	100.00(833)

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