



## MANAGERIAL ASPECTS OF BETELVINE GARDEN

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### Abstract

*Present paper enlightens the scientific management of betelvine garden. It also focuses the different activities of efficient management of betelvine garden. Green revolution and globalization altered the scene of Indian economy. Food grains and commercial crops produced the shape and scope to Indian economy. The adherence of betelvine production created its own monopoly in some parts of India which met the growing demand of other parts of India. The transfer of betel leaves from cultivators to ultimate consumers executed through various middlemen. Betel leaves were marketed as early as possible after harvesting. Betelvine crop was identified as a perennial crop and therefore all necessary activities were discharged throughout the year. On maturity, plucking of betel leaves was done in time and therefore all respondents plucked on the dues. All plucked leaves were arranged systematically in dags, dappa or Karandi. Market conditions and ruling prices governed the plucking of betel leaves.*

**Keywords:** *Betelvine garden, commercial crop, betel leaves*



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### 1. Introduction

Among all countries, India was noted to produce a quality betelvine leaves in making comfortable life of chewers. Betelvine was extensively cultivated in many states of India with significant nativity. The cultivation of betelvine leaves in Sri Lanka had a history of 2000 years. It was cultivated in the western region of Jafana, Kegaile and Gampha. The crop was grown on commercial basis in Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, West Bengal, Kerala, Assam, Bihar, Uttar Pradesh, Madhya Pradesh, Orissa and Tripura. Nearly, about 550 hectares were used for growing betelvine in Sangli district. Assam, Kerala and parts of Karnataka were famous to grow betelvine leaves with areca nut and coconut plantations. In Salem and Tanjore districts of Tamil Nadu and parts of Karnataka betelvine were cultivated in open-conservatories with wind-breaks and live supports. In Karnataka, Maharashtra, Uttar Pradesh and Bihar betelvine was planted on beds in open conservatories. In North India and

some parts of West Bengal betelvine were cultivated in closed conservatories. In these region temperatures during summer rose even above 40° special efforts were made to protect the plants. In Orissa, it was grown in coastal tracts of Puri, Ganjam, Balasove and Cuttack districts. In Rajastan, betelvine was cultivated in a very limited area in Udaspur, Sawai and Madharpur districts in closed conservations. Maharashtra was the noted state for the production and consumption of betelvine leaves. In Maharashtra betelvine were grown in clay and sandy loam. Betelvine production was an important commercial crop of India, Bangladesh, Sri Lanka, Malaysia, Singapore, Thailand, Philippines, etc. Generally, betelvine cultivation based on small holdings contained one and half hectares or less. In entire Sangli district about 550 hectares of land were brought under the cultivation of betelvine. In Sangli district, Miraj and Walva tahsils were only noted for growing betelvine leaves. Even today, small holdings were justified for maintaining and supervising. Cultivators of Sangli district acquainted with the required factors for the smooth growth of betelvine leaves. Although, betelvines favored tropical humidity, Sangli district cultivators grew in several places where irrigation facilities were made available. They provided cool shade; humidity and other feasible atmosphere were created. All the respondents applied for farm yard manures to grow better crop of betelvine leaves. Always, live stock produced better quality of farm yard manures which was identified as a healthy tonic to the crop of betelvine. The branches of live supports such as Shevari *Sesbania aegyptica poir*, Pangara *Erythrina indica lam*, Drumstick *moringa oleifera lam* and mulberry *morus alba linn* were used as feeding material to the live stock in the hands of the respondents. Betelvine cultivation was considered a perennial crop and hence money was an essential factor to meet day-to-day expenses. Due to more needs of money for unavoidable expenses, the cultivators borrowed from intermediaries as an advance. As such intermediaries advanced to betelvine cultivator, the betelvine cultivators compelled to sell betelvine leaves to such intermediaries. All the *dags* (unit of packing) of various betelvine cultivators were assembled together and then they were loaded into trucks or into tempos to send to urban-markets. All *dags* were assembled at evening every-day and on the same day at night they carried to urban market. After harvesting of betel leaves as early as possible, it was necessary to send the leaves to the market for sale. Betel leaves were perishable in nature. Sometimes due to oversupply of betel leaves in the market, growers were unable to get remunerative price. During monsoon, i. e. June to September there was excess supply of betel leaves. The price in this season was generally low. In the month of January, lowering activities were carried out in various betel vine gardens. It affected the supply of leaves. During the January-April period, the price of the betel leaves was moving towards high. The

price was always settled on the basis of the quality of leaves. The price depended on the supply and demand. However, during the festivals, marriage seasons, ceremonial celebrations, the demand for betel leaves was more. The sale of betel leaves was done either through auctions or through negotiations.

## **2. Review of Literature**

### **2.1 Size and Weight of Betelvine Leaf**

In the annual report of All India Co-ordinated Research Project on Betelvine (2000-01) explained that twenty two betelvine clones were collected and stored in the farm of Mahatma Phule Agriculture University at Sangli center. Data revealed that leaf size, leaf area and weight of leaves were more in case of *Bangla* variety compared to *Kapoori* variety.

### **2.2 Return from Betelvine Crop**

Dr. V. B. Rahudkar (1992) reported that annual net profit from sale of betel leaves was Rs. 75,000 to 90,000 per acre. He also suggested 0.10 acre under betelvine cultivation were economical beneficial.

### **2.3 Income from Sale of Betelvine Leaves**

R. K. Chourasia (2001) estimated the sale of leaves of three subsequent years for one acre the sale was Rs. 5,46,100. The total net income was Rs. 2,43,940.

Hinger and others (1987) in Nasik district of Maharashtra reported that net profit was Rs. 32,438 per hectare and 2952.50 man days were required for per hectare.

## **3. Research Methodology**

### **3.1 Objectives of the study**

- To study the management of betelvine gardens in the selected area.
- Suggest remedial measures to the problems of efficient management of betelvine garden.

### **3.2 Hypotheses of the Study**

- The practices of cultivation varied in different parts of India.
- Cultivation of chewable pan requires well experienced knowledge.

### **3.3 Research Design**

#### **3.3.1 Selection of Area**

For the presents study Miraj and Walwa tehsils were selected.

#### **3.3.2 Selection of Villages**

Ten villages were selected with specific purpose for the present study.

### 3.3.3 Selection of Samples

Total sample in two tahsils amounted to 60 betel vine cultivators. The total samples from two tahsils were further classified that 20 cultivators from each of the small size, medium size and large size of groups.

### 3.3.4 Scope of the Study

The present research study was applicable to only Sangli district in which Miraj and Walwa tehsils were selected.

## 4. Results and Discussion

### 4.1 Plant Protection

Betelvine crop was more sensitive and it was victimized to various diseases like mite attack, stem root, root knot and anthracnose. Betelvine crop required frequent spraying to control pesticides and fungicides. All respondents used frequent spraying to protect betelvine from diseases. The details of spraying were given as follows in Table 1.

**Table – 1 Classification of Respondents for Spraying of Pesticides and Fungicides**

Sr. No.	Frequency of Spraying	No. of Respondents	% to Total
1	0 – 2	09	15.00
2	3 – 4	27	45.00
3	5 – 6	22	36.67
4	7 and above	02	3.33
<b>Total</b>		<b>60</b>	<b>100</b>

Source: Primary source

Table no.1 indicated the overall sprays of pesticides applied by respondents to control diseases in betelvine garden. Out of total respondents, 9 respondents i.e. 15 per cent respondents applied maximum two sprays of pesticides during the agricultural year. 27 respondents, 45 per cent sprayed pesticides three to four times to protect from diseases. 22 respondents, 36.67 per cent respondents sprayed pesticides five to six times to protect betelvine crop. But two respondents, 3.33 per cent, spread 7 times during the agriculture year. After spraying pesticides and fungicides respondents were required to stop plucking betelvine leaves for minimum 8 days.

### 4.2 Area under Betelvine Cultivation

Size-group wise area of betelvine cultivation of respondents was given as follows.

**Table – 2 Classification of Respondents by Area under Betelvine Cultivation**

Sr. No.	Size of Group	Betelvine Area (In Acres)	% to Total
1	Small	15	16.13
2	Medium	29	31.18
3	Large	49	52.69
<b>Total</b>		<b>93</b>	<b>100</b>

Source: Primary source

The above Table 2 depicted area under betelvine cultivation of respondents. 60 respondents held 93 acres out of which 15 acres were held by small-size group forming 16.13 per cent of total area under betelvine cultivation of the respondents. Medium-size group held 29 acres at 31.18 per cent of betelvine area. Large-size group held 49 acres at 52.69 per cent of betelvine cultivation. In comparison to the average-holding of all respondents, the average holding of large size group was high.

### 4.3 Production of Betelvine Leaves

Production of betelvine leaves depended on soil quality, variety of plants, disease management, water management, control of humidity in the betelvine garden, age of the vine, training the vines to live support as required at intervals etc. The economic life of the gardens was considered for eight years. In the first year of plantation, yield of leaves was less. Harvesting of betel leaves in the first year started after 3-4 months of plantation. Plucking of betel leaves was done according to type of leaves. *Fapada*, *kalli* and *hakkal* or *gabal* leaves was harvested separately. Size group- wise production of betel leaves was given in Table 3.

**Table – 3 Size Group-wise Dags Produced (per annum)**

Sr. No.	Size Group	Dags Produced			Total
		<i>Fapada</i>	<i>Kalli</i>	<i>Hakkal</i>	
1.	Small	07 ( 10.15 )	55 (79.70)	07 ( 10.15)	69 (100)
2.	Medium	12 (8.39 )	116 (81.12 )	15 ( 10.49 )	143 ( 100)
3.	Large	16 ( 7.41 )	167 (77.31)	33 ( 15.28 )	216 (100)
<b>Total</b>		<b>35</b> <b>(8.17)</b>	<b>338</b> <b>(78.98)</b>	<b>55</b> <b>(12.85)</b>	<b>428</b> <b>(100)</b>

Source: Primary source

Table 3 showed classification of dag produced according to size of group. During the agricultural year 428 dags of various types of leaves were produced. Small size group produced 69 dags of which fapada dags was 07, kalli dags 55 and hakkal dags 07. Medium size group produced 143 dags out of which 12 dags was fapada leaves, 116 dags of kalli leaves and 15 dags of hakkal leaves. Large size group produced 16 dags of fapada leaves, 167 dags of kalli leaves and 33 dags of hakkal leaves. The total of large size group production was 216 dags. The efficiency of small size group in production of fapada leaves was high as compared to medium and large size groups. Fapada leaves had a capacity to fetch maximum price per dag as compared to kalli and hakkal leaves. Medium size group

were efficient in production of kalli dags leaves. Large size group produced more dags of hakkal leaves, the percentage of which was more than small and medium size group. Hakkal leaves did not fetch a reasonable price. Proportion of fapada leaves dags was 8.17 per cent, kalli leaves dags was 78.98 per cent and hakkal leaves was 12.85 per cent.

#### **4.4 Types of Plantations**

In the sample area one-side and two-side plantation of the bed methods were used by the betelvine cultivators.

**Table – 4 Classification of Respondents According to Type of Plantation of Betelvine**

<b>Sr. No.</b>	<b>Type of Plantation</b>	<b>No. of Respondents</b>	<b>% to Total</b>
1	Two side plantation of the bed	43	71.67
2	One side plantation of the bed	17	28.33
<b>Total</b>		<b>60</b>	<b>100</b>

Source: Primary source

Table 4 revealed the classification of respondents according to the types of plantations. Out of 60 respondents, 43 respondents preferred two-side plantation of the bed method forming 71.67 per cent of the total respondents. 17 respondents at 28.33 per cent followed to cultivate betelvine in one side plantation of bed method.

#### **4.5 Weeds in the Betelvine Garden**

Betelvine gardens required free of weeds. Generally weeds were less in betelvine garden due to shade and wind protective locally known as *Tatti*. The weeds were necessary to be removed periodically by hand or by hoe. It was necessary to remove weeds from gardens before monsoons. Before the lowering of betelvine, weeds were removed.

#### **4.6 Irrigation**

Betelvine required frequent but light supply of irrigation kept the land at moist constantly. Farmers who had sufficient water supply all around the year, preferred to grow betelvine crop. Surface irrigation was followed in most of the betelvine gardens. Some gardens were on drip system of irrigation. Betelvine in summer season required more water whereas in rainy season, it required less. In rainy season, proper surface drainage system was required.

#### **4.7 Lowering of Betelvines**

The vines grew to a height of four and four half meters long within a year, their vigor was normal. They needed rejuvenation and this was obtained by lowering the vines to the ground level during February to March. If the height of vine was increased above four meters or above, the leaf was reduced. But the harvesting was difficult and costly. The vine was

coiled carefully in the form of digit 8 and two third part was buried in the trenches dug the supports leaving 0.5 to 0.75 meters top shoots. They were uncoiled to climb up on the live support. After lower the vine light irrigation was immediately to be supplied. Vine coils produced many primary vines. All leaves on a vine, except a few tender ones at the top, were plucked before lowering. After lowering the vines, they were manure and earthed to grow vigorously. The shoots appearing as tillers grew fast and needed training again. The process of training was repeated again till the next lowering. It was usually done at least once a year.

Hence, it grew at regular intervals. By the time, the life of *shevari* plants came to an end. *Pangara* and Drumstick plants grew up to the required height, and the betelvines were trained on these plants. Sometimes, cuttings of *Pangara* were planted to fill the gaps of live support. When the live supports grew at a height of four to five meters, they were topped to provide shade and avoid the training and harvesting costs. The shade was maintained by thinning and pruning of the live supports.

## **5. Conclusions and Suggestions:**

### **5.1 Conclusions**

1. The betelvines were planted according to two side plantation of bed method which produced more betelvine leaves than one side plantation of bed method. On the other hand, betelvines were planted according to one side plantation of bed method produced better quality for marketing as compared to betel vines planted by two side plantation bed method.
2. Large-size group preferred more area for betelvine cultivation. Out of the total grossed cropped area of large-size group, 26.49 per cent under betelvine cultivation followed by medium-size of group at 21.16 per cent and 18.29 per cent of small-size of group.
3. In betelvine cultivation internal and external environmental factors played a major role.
4. Betelvine cultivation required special skills, knowledge and careful attitude. Daily observation and supervision of betelvine garden was felt a most essential element regarding humidity control, harvesting, training, pest control, etc.
5. After spraying of pesticides and fungicides none of the respondents stopped plucking of betelvine leaves for some days.

## 5.2 Suggestions

1. It is necessary to initiate a program of research by the agricultural universities, research institutions to develop new varieties of betelvine which can produce high yield, better quality and disease resistance power.
2. Application of modern and improved agricultural techniques such as water management, pest and fungicides management, effective use of skilled man-power, effective and appropriate use of inputs, proper use of manures and fertilizers etc. are essential for betelvine cultivation at right time.
3. There should be necessary to take proper care for not to pluck betel leaves within seven days when fungicides and pesticides were spread out.

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