



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(7): 1136-1138
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www.thepharmajournal.com
Received: 13-05-2022
Accepted: 16-06-2022

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A study on knowledge level on betel vine cultivation practices in Davanagere district of Karnataka

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Abstract

Betel vine (*Piper betle*) is an ever-green long-lasting creeper. It is scientifically called as *Piper betel* L. and falls in the Piperaceae family, that is black pepper family. The betel vine is dioecious plant (male and female plants are separate), we can find nearly 100 varieties of betel vine in the world, of which about 40 are found in India. In spite of its alienness, the plant is more popular in India than in any other country. Betel vine is one of the important commercial crop of Karnataka grown by small and marginal farmers. The study was conducted in Davanagere district of Karnataka to assess the knowledge level of betel vine growers on cultivation practices. On an average 1,170 ha area and 23,000 lakh leaves were produced in 5 taluks of Davanagere, in that Harihara is highest in both area and production followed by Honnali. Majority of the farmers (52.66 percent) had high level knowledge on betel vine cultivation practices.

Keywords: Betel vine growers, knowledge level, cultivation practices

Introduction

Betel vine is one of the chief commercial crop produced mostly by small and marginal farmers in the states of Assam, West Bengal, Bihar, Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra, Madhya Pradesh, Kerala, Uttar Pradesh and Orissa with a projected area of 53,539 ha. Annual production is worth Rs. 900 crores and valued that about 20 million people earn their livelihood directly or from production, processing, handling, transportation, and marketing of betel leaves in India. Betel leaves worth 30-40 million rupees are marketed to countries like Bahrain, Canada, Great Britain, Nepal, Pakistan, Saudi Arabia, and other European nations. The vast economic scope of the crop can be established by the fact that about 15-20 million people intake betel leaves in India frequently, besides those in other countries of the world, which may add up over two billion customers. Betel farming activities can create employment opportunities for agricultural workers all over the year, helping them to sustenance of their families. Betel vine is one of the most significant commercial crops of Karnataka cultivated by small and marginal farmers. The important betel vine producing districts are Haveri, Davanagere, Tumkur, Bangalore Rural, Mysuru, Dharwad, Shivamogga, Chikmagalur, Uttara Kannada, Belgavi, and Vijayapura. Haveri district tops in Betel vine production trailed by Davanagere, Tumkuru, and Ramanagara during the last 3 years. The average productivity for the last few years is 19.42 lakh leaves/ha. There is variation in the area under Betel vine cultivation during the last 7 years. However, during 2019- 20, it is grown in an area of 1188 ha with a production of 1057 M. Tons with productivity of 8.85 M. Tons/ha. The average shelf life of the leaves is 3-5 days in summer and 5-7 days in winter after harvesting. Being a highly perishable commodity around 35-70 per cent of the gross production is post-harvest losses every year (Rao and Narasimham, 1977) ^[1]. Specifically in the rainy season, a large portion of the leaves remain unsold or sold at a lower price (Guha and Jain, 1997) ^[2]. Moreover, the extra leaves are fed to the cattle and sometimes concealed in the ground to avoid environmental pollution and health threats caused by millions of decaying leaves, which is a total wastage at present. Due to such reason, the farmers try to reduce production by curtailing the agricultural inputs (Guha and Jain, 1997) ^[3]. In recent years, betel vine farmers have been facing numerous problems and not getting yields up to the potential, this is because of the fact that betel vine is being mostly grown in a traditional way by majority of the farmers, but success of betel vine cultivation depends on the knowledge and adoption of recommended package of practices. On the other hand a large part of gains from new farming practices are still remaining unrealized due to lack of awareness about them. Hence it was felt necessary to study the knowledge level of betel vine growers on cultivation practices.

Methodology

This study was conducted in Davanagere district, a top most producer of betel vine in Karnataka. Davanagere district had 5 taluks viz., Harihara, Chennagiri, Jagalur, Honnali, and Davanagere. "Ex post facto design" was adopted in the present research study as the events have already occurred and design was considered appropriate. Harihara and Honnahalli taluk produced highest quantity of betel vine compared to other taluks. Hence, Harihara and Honnahalli were purposively selected for this study. Six villages were selected in Harihara and Honnallitaluk, using simplerandom sampling technique. Those were Hanagavadi, Belludi Banahalli of Harihara taluk and Anaji, Guddadamapura, Kulagatte of Honnahalli taluk. Harihara bypass had a betel vine market. The sampling was done by simple random sampling method. 25 respondents were selected from each of six villages in the total of 150 respondents. The data were analysed using percentage analysis, frequency, mean and standard deviation.

Results and Discussion

Table 1: Questions asked to respondents and their frequency (F) and percentage (P) of right answers n=150

S. No	Questions	F(No.)	P(%)
1	Which type of soil is required to cultivate betel vine?	147	98.00
2	Rainfall required for betel vine cultivation.	144	96.00
3	Planting time of betel vine seedlings.	142	94.66
4	The terminal cuttings should be obtained from how many yearold vine?	147	98.00
5	The length of the cuttings should be around	136	90.66
6	The recommended spacing for betel vine cultivation is	141	94.00
7	The recommended plant population for one hectare is	132	88.00
8	The recommended FYM application per vine per year	146	97.33
9	The recommended NPK application per vine	143	95.33
10	Which fertilizer is best suitable for betel vine cultivation?	142	94.66
11	Trees for shade and trailing are to be planted how many weeks before the planting of betel vine seedlings?	146	97.33
12	Tying the vines along the standards by using	133	88.66
13	Trailing is done, days depending on the growth of wines	136	90.66
14	The best time for irrigation	125	83.33
15	The standing water should be removed from the field within how many hours.	134	89.66
16	Lowering of the vines has to be done at least	130	86.66
17	Lowering should be done in the which month?	128	85.33
18	Which disease is the major problem in betel vine cultivation?	123	82.00
19	The wilt disease in betel vine is cured by using	115	76.66
20	Humidity required for betel vine	112	74.66
21	The chemical used to control mites in betel vine	107	71.33
22	Proper drainage system helps to	117	78.00
23	Watering during nursery stage should be done by	121	80.66
24	Irrigation required for betel vine	117	78.00
25	Rooted vines should be transplanted	126	84.00
26	While planting, how many nodes shall be buried in the soil	126	84.00
27	Trailing is done by tying the vines at intervals of how many cm along the standards.	135	90.00
28	Coil the vines and bury the vines in the ground leaving how many cm length of top shoot.	132	88.00

Table 2: Distribution of respondents according to their knowledge level

S. No	Level of knowledge	No. of respondents	Percentage
1	Low	25	16.66
2	Medium	46	30.66
3	High	79	52.66

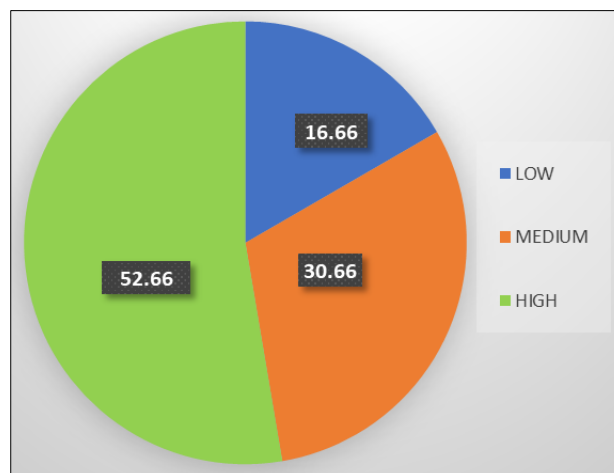


Fig 1: Level of knowledge

Lack of knowledge about any idea prevents an individual to avail of its benefits. Perfect knowledge about an idea or practice helps an individual related to his needs in terms of profitability and productivity. From the table2 presented above, 52 percentage of the respondents had high level of knowledge on different betel vine cultivation practices. 30 percentage of the respondents had medium level knowledge on betel vine cultivation practices where as 16 percentage of betel vine growers had low level of knowledge on cultivation practices. The high level of knowledge of farmers is due to their experience of cultivating this crop for many years. Most of the betel vine farmers had gained knowledge by looking at their fathers and grandfathers. Medium and low level of knowledge might be due to many farmers cultivation have started in recent years.

For analyzing the knowledge level of farmers in detail, certain elementary questions were asked and the respondents were discussed here. 98.00 percentage of the respondents knew that betel vine grows well in clay loamy soil. 96.00 percentage of the respondents ticked right answer about the question regarding the required rainfall for betel vine cultivation which is 250-450 mm. Farmers plant seedlings in the month of June-july month in Davanagere region. 94.66 percentage of the farmers knew this idea, whereas few farmers plant seedlings bit early. Usually farmers obtain terminal cuttings from 2 to 3 year old vines and few farmers prefer 3 to 4 year vines. However 3 to 4 year cuttings is recommended from Horticulture department, Harihara. 98.00 percentage of the farmers responded with right answer. 90.66 percentage of the respondents preferred 20-25 cm cuttings for required length of cuttings for cultivation of betel vine. Though few farmers has adopted 1.00 m X 0.9 m as they have lesser area, the recommended spacing for betel vine cultivation is 1.5 m X 1.5 m. 94.00 percentage of respondents responded with this recommended spacing for cultivation. 88 percentage of the respondents replied with 1,00,000 vines per hectare when asked and surprisingly it matches with the recommendation of state horticulture department. Farmers apply FYM to their field, 97.33 percentage of respondents responded with right

answer (25 tonnes/hectare) when asked about required amount of FYM required for cultivation. NPK recommended for betel vine crop is 50:50:50 kg/ha and 95.33 percentage of respondents replied with right answer. Among the three fertilizers asked for best suitability for their crop, 94.66 percentage of the farmers responded with right answer (i.e.) Ammonium sulphate of potash over urea and ammonium sulphate. Normally, the trees for shading and trailing purpose were planted three months before planting of betel vines which was replied by 97.33 percentage of farmers. Banana fibres were most used for tying the vines along the standards and 88.88 percentage of respondents preferred banana fibres over other materials. When asked about the frequency of trailing depending on the growth of vines, 90.66 percentage of the farmers told right answer as 5-10 days and it is recommended by State department Agriculture. While asked about the question related to suitable time for irrigation, most of the farmers replied with answer that all depends on the availability of electricity, so 83.33 percentage of farmers felt that both morning and evening is suitable for irrigation and it is true that this crop grows well irrespective of the specificity of irrigation time. When asked about the removal of standing water after rainfall, most (89.66 percent) of the farmers preferred to remove it before 2 hours. Regarding the interval of lowering of the vines, respondents (86.66 percentage) answered right answer as once in a year and in the month of November to December (85.33 per cent). Remaining 15 percent gap is due to few farmers prefer to lowering operation bit late or early.

When asked about the major disease affecting the betel vine cultivation, 82.00 percentage of people expressed that wilt as the main threat over other diseases like Powdery mildew and Anthracnose and about the chemical required to cure wilt and applied vitavax (76.00 percentage). While asked about the question related to the chemical required for control of mites in betel vine, 71.33 percentage of the respondents replied wettable sulphur 50WP @ 1g/litre which is the right answer. When asked about the purpose of the proper drainage system 78.00 percentage of farmers choose right answer as removal of excess water. While asked about the watering method during nursery stage 80.66 percentage of the farmers answered as through pipe. Even drip system is most suitable for watering during this stage. While answering the question on irrigation requirement, 78.00 percentage of respondents marked right answer as frequent light irrigation is best suitable for every 8 to 10 days. When asked about the question regarding transplantation of rooted vines, 84.00 percentage of the respondents chosen right answer as near the base of the supporting tree. Regarding the question on number of nodes need be buried in the soil, 84.00 percentage of the respondents replied with right answer as 2 to 3 nodes. About the suitable intervals required for trailing along the standards, 90.00 percentage of respondents answered correctly as 15 to 20 cm. When asked about the gap for coiling and burying the vine in the ground leaving the top shoot, 88.00 percentage of farmers replied with 30 cm which is the right answer.

Conclusion

Nearly half of the respondents (52.66 percentage) were found to have high level of knowledge on the cultivation practices of betel vine. It is due to their longer years engagement in betel vine cultivation and they realized that knowledge is the pre requisite for adoption of new practices. It is suggested that the State Department of Horticulture may make more frequent

contacts for increasing the knowledge about different betel vine practices. The knowledge may also be imparted to the respondents by conducting on-farm training programmes and through mass media. The first generation farmers can gain knowledge by not only by their neighboring farmers but also from regional horticulture department located in Harihara and Honnahalli taluk. In the sampled respondents almost cent percent growers were using their own traditional planting material since long and growing their crops with their indigenous knowledge, skill and their past experiences. It is concluded that information delivery system should be strengthened to increase the effectiveness of existing agricultural research extension and farmers' linkage and more priorities should be given on advocacy, capacity development and integration of information resources.

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