

COMMERCIAL CULTIVATION OF VANILLA IN JHARKHAND

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ABSTRACT

Vanilla is the second most expensive spice traded in the international market after saffron. It is an orchid grown widely as a climber in the forests. In 1835 British introduced it to India. India ranks sixth in production of vanilla in the world. The crop is important for the Indian economy. Vanilla grows better in the areas having an annual rainfall of 150 to 300 cm and a temperature ranging between 25°C to 32°C. Loamy (sandy) and laterite (reddish) soils with plenty of organic matter and proper drainage are essential conditions for the proper growth. Agro-climatic condition of Jharkhand is almost similar to the agro-climatic condition required for vanilla cultivation. Therefore, vanilla cultivation may be adopted by farmers of Jharkhand to improve their economic condition. Altogether in 15 years, total investment in vanilla cultivation is Rs. 3601616 and net profit is Rs. 14644670 per hectare.

INTRODUCTION

Vanilla is the second most expensive spice traded in the international market after saffron. It is an orchid grown widely as a climber in the forests of South East Mexico, Guatemala and parts of Central America (Krishnamurthy et al. 2006). In 1835 British introduced it to India. East India Company started cultivation of vanilla in their spices garden in Tamil Nadu, West Bengal, Kerala, Pondicherry and Assam. The commercially important species are *Vanilla pompona*, *Vanilla plantifolia* and *Vanilla tahitensis*. Of these three species, *Vanilla planifolia* is the most popular and is cultivated for its pods (beans) which are subjected to curing process to produce the characteristic aroma Fig. 1 & 2).

The substance responsible for the unique fragrance and flavour of the vanilla beans is *Vanillin* (C₈H₈O₃). Vanilla today constitutes the world's most popular flavouring agent used in the manufacture of chocolates, ice creams, soft drinks, confectionary, candy, baked foods, puddings, cakes, cookies, liquors, etc. It is also used in perfumery and as a

masking agent in pharmaceuticals. Therefore, the demand for natural vanillin is increasing in the world (George 2000, Sryanarayana 2004).

The global production of vanilla beans in 2001 was estimated at 5,598 tons from an area of 41,025 hectares. India ranks sixth in production of vanilla in the world with 60 million tons (2001). In India, Vanilla is cultivated in Karnataka, Kerala, Tamil Nadu, Lakshadweep, Andaman and Nicobar islands. Karnataka occupies the largest area (1465 ha) under vanilla cultivation in India, followed by Kerala (812 ha) and Tamil Nadu (268 ha). The crop has economic significance in the Indian economy and has significant demand in the international market. The income from the crop has increased by 10 per cent every year (Krishnamurthy and Melanta, 2002).

DESCRIPTION OF THE VANILLA CROP

Vanilla (*Vanilla plantifolia* Andrews or *Vanilla fragrans* Salisb.) is an herbaceous, perennial, climbing orchid belonging to the family Orchidaceae and order Orchidales. Vanilla is the only genus in the family Orchideaceae to

produce edible fruits and is cultivated commercially. It is a perennial crop,

starts yielding from third year after planting and continues to give commercial yield for 12 to 15 years.



Figure 1. Vanilla Flower



Figure 2. Vanilla Beans

AGRO-CLIMATIC CONDITION FOR VANILLA CULTIVATION

Vanilla grows better in the areas having an annual rainfall of 150 to 300 cm and a temperature ranging between 25⁰C to 32⁰C. Areas that receive rainfall for 8 to 9 months with dry climate for the remaining 3 to 4 months are ideal for growing vanilla. Loamy (sandy) and laterite (reddish) soils with plenty of organic matter and proper drainage are

essential conditions for the proper growth.

Vanilla is mainly propagated through shoot cuttings. The vine starts flowering from third year onwards and economic yield starts from fourth year onwards. Flowering starts from December to April and peak flowering is found in April. The matured beans/pods are harvested during October – November. Highly humid atmosphere is required throughout the

year and particularly during the south west monsoon months of May to September (Suryanarayana 2004).

VANILLA AS A CROP IN JHARKHAND

Vanilla can be grown in the forest areas of Jharkhand where trees are sparsely present. It can also be grown under artificial shade provided by shade nets. Shade net houses constructed with stone pillars, provide 50 per cent shade and galvanized iron wire inserted in LDPE (Low density polypropylene ethylene) pipes tied between the pillars on which the vine is trained. Agro-climatic condition of Jharkhand is almost similar to the agro-climatic condition required for vanilla cultivation.

Vanilla does not require much water. It requires well drained soil having pH 6.0-6.5, rich in humus and organic matter. Fortunately, Jharkhand has suitable soil for cultivation of vanilla. Ideal time for its cultivation is May-June. The vine normally starts yielding from the third year after planting and the yield stabilize

by the fifth year. It yields optimum for next 8-10 years.

Thus, it can be concluded that vanilla cultivation can improve the socio-economic condition of the people of Jharkhand.

CALCULATION FOR COST AND RETURN OF VANILLA CULTIVATION

Small farmers

The cash investment & income and profit/loss calculation is presented in Table 1. The net cash initial investment is Rs. (–) 1023308 per hectare. Expenditure for subsequent 15 years is shown in the table 1. Similarly, income and profit/loss calculation is also shown in the table. It is calculated that earning starts from third year. Altogether in 15 years, total investment is Rs. 36, 01,615.9 (36, 01,616) and total earnings is Rs. 1, 82, 46,286. Therefore, net profit is Rs. 1, 46, 44,670. Hence, it is a highly profitable for the farmers of Jharkhand.

Large farmers

Similar to the small farmers, cultivation of vanilla by large farmers is highly profitable as calculated in table 2.

Table 1. Investment Cost and Return calculation for Vanilla cultivation (Small farmers)

Year	Investment/ha (Rs.)	Income/ha (Rs.)	Profit/Loss (-)/ha (Rs.)
Initial Investment	1023308	00	-1023308
1	20894.2	00	-20894.2
2	76196.7	00	-76196.7
3	209874	448085	238211
4	218014	1090620	572606
5	223259	1771650	1548391
6	223259	1771650	1548391
7	223259	1771650	1548391
8	223259	1771650	1548391
9	223259	1771650	1548391
10	223259	1771650	1548391
11	192654	1526523	1333869
12	162547	1326541	1163994
13	132654	1235642	1102988
14	123564	1032652	909088
15	102356	956323	853967

Table 2. Investment Cost and Return calculation for Vanilla cultivation (Large farmers)

Year	Investment	Income	Profit/Loss (-)
Initial Investment	1001583.5	00	-1001583.5
1	19184	00	-19184
2	77672	00	-77672
3	202248.5	493010	290661.5
4	207964	1150440	942476
5	212617	1887600	1674988
6	212617	1887600	1674988
7	212617	1887600	1674988
8	212617	1887600	1674988
9	212617	1887600	1674988
10	212617	1795680	1583063
11	195682	1652310	1456628
12	163525	1426351	1262826
13	156321	1123651	967330
14	142635	1023561	880926
15	123626	982653	859127

PROBLEMS IN VANILLA CULTIVATION

The main problem faced by the small and large farmers are; occurrence of pest and disease, non-availability of skilled labour and high initial cost in pure crop plantation. The non-availability of skilled labour for pollination is the major problem in vanilla cultivation.

The high initial cost in pure crop plantation is the other problem faced by the farmers. The other problems faced by small and large farmers were non-availability of planting materials and non-availability of organic manure. Credit facility for farmers from banks is required for vanilla cultivation. Farmers should be given cultivation, processing, packaging and marketing training also.

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