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# Problems of Pepper Cultivation in Kerala

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Kerala accounts for over 65% of India's total exports of spices. Pepper is the most important spice crop grown in Kerala State.

The area under pepper in Kerala was 118410 hectares (1974-75) which is more than 97% of the total area of the crop in the whole of India. The production of pepper in this State was 27,230 tonnes in 1974-75 which comes to more than 96% of the total Indian production.

Considering that pepper is one of the most important foreign exchange earning commodities, it is necessary that further development of the crop in this State, which is the most suitable region in the country having the requisite agroclimatic conditions for pepper cultivation, should have very important place in the Five Year Plans.

The scientific cultivation of pepper for increased production is intrinsically dependant on the world demand for the commodity, since more than 95% of the production is exported to foreign countries.

The more important problems connected with the cultivation of pepper in the State are detailed.

## 1. Area Under Pepper Cultivation and Scope for Further Expansion.

Kerala is a land hungry State where the preference for the cultivation of a crop basically depends on the net return from its produce. The intensity of cropping in the State is of the order of over 15% and the scope for bringing additional area under pepper as a monocrop is extremely limited.

The area under pepper has remained almost static during the period from 1960-61 to 1968-69 and thereafter increased to 118040 hectares during 1969-70 but subsequent increase in the area till 1974-75 is only marginal.

Area, production and quantity exported during the last 15 years are furnished below:—

| Year | Area '000 Hect. | Production '000 M. T. | Quantity exported M. T. |
|---|---|---|---|
| 1960-61 | 99.75 | 27.03 | 15921 |
| 1961-62 | 99.84 | 26.98 | 20635 |
| 1962-63 | 99.24 | 24.47 | 18400 |
| 1963-64 | 99.38 | 22.42 | 17526 |
| 1964-65 | 99.55 | 22.23 | 18505 |
| 1965-66 | 99.70 | 21.69 | 24477 |
| 1966-67 | 99.70 | 21.41 | 20020 |
| 1967-68 | 99.70 | 21.06 | 25104 |
| 1968-69 | 98.83 | 20.44 | 17775 |
| 1969-70 | 118.04 | 24.40 | 19364 |
| 1970-71 | 117.54 | 25.03 | 15354 |
| 1971-72 | 116.34 | 25.10 | 18747 |
| 1972-73 | 116.34 | 25.15 | 19695 |
| 1973-74 | 118.25 | 27.75 | 29534 |
| 1974-75 | 118.41 | 27.23 | 25933 |

Average whole sale price of pepper per quintal during the period 1960-61 to 1968-69 ranged from Rs. 268/- in 1962-63 to Rs. 445/- during 1968-69. There was a spurt in the price of pepper during 1969-70 to Rs. 640/-per quintal and the price rose to Rs. 1023/- per quintal during 1973-74. Probably the increase in price was a contributing factor for the increase in the area under the crop during 1969-70 and

for sustaining the cropped area from 1969-70 onwards. As in the case of any other agricultural commodity depending mainly on foreign markets, prospects for a considerable higer price sustainable for a length of time is not assured. Increased production all over the world is likely to keep the price depressed, except for unforeseen contingencies.

There are also more competing and remunerative crops like Rubber, Cardamom, Cashew, Tapioca etc. which will inhibit the prospects for further extension of area under pepper. Moreover the Rubber Board and Cardamom Board have attractive programmes for cultivation of the crops and marketing of the produces and naturally farmers are inclined towards the raising of those crops in preference to pepper cultivation.

Considering the above facts, the strategy for area expansion of pepper in Kerala should be on a mixed cropping pattern utilising the available trees in the homesteads as standards and planting suitable trees as standards wherever feasible.

Consequent on the limitations of availability of land for further expansion of area under pepper, increased production of pepper in the coming years will have to be planned for increase in yield per unit by intensive cultivation practices.

## 2. Size of Holdings.

The average size of farm holdings in Kerala is 0.73 hectares against the national average of 2.16 hectares. Majority of the farmers belong to the group of small and marginal farmers. These small farmers have naturally a tendency to raise perennial tree crops and annual or seasonal crops to meet their daily needs and requirements. They will not be generally attracted towards cultivation of pepper under monoculture even if all kinds of incentives and assistance are extended to them.

The greater portion of pepper production is from very small holdings like house compound plantations, consisting of a few to a few hundred vines. The number of such holdings have only increased during the Five Year Plan periods due to the Land Reforms Act and assignment of lands to landless people. The pattern of future pepper development programme should aim at increasing the yield per unit from the existing plantations and also from future plantings. Besides this, encouragement of small scale plantings by growers in their house compounds and in small holdings as intercrop is also necessary.

## 3. Planting Materials for Pepper Cultivation

The total production per vine is limited by the genetical potentialities even with all the required recommended practices of cultivation. In Kerala, average yield per vine is reported to be below 0.25kg. This is attributed to the cumulative result of the ganetic characteristics of the planted varieties, senile stage of vines and inadequate cultivation practices.

The average yield per hectare during the fifteen years commencing from 1960-61 ranged from 207 Kg in 1968-69 to 271 Kg. in 1960-61. During 1974-75, the yield was 229 Kg. per hectare. The level of productivity in the various districts also indicates wide variations from 152 Kg. per hectare in Kozhikode District (1972-73), to 640 Kg. per hectare in the Trichur District (1972-73); the average for the year being 216 Kg. per hectare. The major pepper producing district of Cannanore which accounts for more than 43% of the total area under pepper in the State lags behind with an average of 144 Kg per hectare which is lower than the State average of 216 kg. per hectare (1972-73).

A number of local cultivars exist which have been planted in the different districts of the State.

The most common varieties of pepper cultivated in Kerala are Kalluvally, Balankotta, Karimuda, Narayakodi and Kottanadan. In the world market there is a special preference for pepper produced in Kerala because of its pungency and aroma Some of the varieties like Karimunda and Kottanadan possess outstanding marketable qualities with appreciable level of productivity. Along with the hybrid variety Panniyur I, there should be planned efforts for the popularisation of such varieties also having export potential as desired by farmers.

Panniyur-I is a new hybrid variety envolved for its production potential and other qualities and is capable of giving three times the yield of any other cultivated variety of pepper.

Programmes have been drawn up and implemented during the Plan period from 1968-69 onwards for multiplication and distribution of Panniyur-I rooted

cuttings so far, including 1975–76, about 9.73 lakhs of rooted cuttings of Panniyur-I have been distributed. Schemes have also been drawn up and taken up for implementation for the rapid multiplication of Panniyur-I. A total of 50 million Panniyur-1 cuttings will be available for planting during the Fifth Five Year Plan period.

Programmes for the rehabilitation and replanting of disease affected old plantations and gardens have been planned and will be implemented.

Among the existing plantings those which are the oldest and in which more number of senile or diseased vines exist are located in the District of Cannanore. These low yielding monocrop areas are estimated to require a 50% replanting rate on an average. The new variety Panniyur-I has to be rapidly multiplied and supplied for the purpose.

The replanting programme will have to be sustained in the subsequent years.

**4. Manuring.**

The average yield of pepper per vine in the State is below 0.25 Kg. The maximum productivity during recent times was 217 Kg. per hectare in 1968-69 which itself is lower than the productivity of 500 kg. per hectare recorded in the Karnataka State. One of the main reasons for the low productivity is the traditional methods of cultivation and inadequate manurial application.

The objective of increasing production of pepper can be realised mainly only through increase in the yield per unit by adoption of improved agronomic practices. From the manurial trials conducted, it has been conclusively proved that the yield per unit can appreciably be stepped up by the fertiliser application. At present there is practically no significant fertilizer application for pepper vines in the State.

Under Kerala conditions, the fertiliser application recommended per vine is as follows:—

N. ... 100 gms.

P. ... 40 ,,

K. ... 140 ,,

The annual requirement of fertilisers estimated for 1100 vines per hectare for the entire area under pepper is furnished below:—

N 13025 t - 65125 t in terms of Ammonium sulphate

$P_2O_5$ 5210 t - 28944 t in terms of Super Phosphate

$K_2O$ 18235 t - 36470 t in terms of Muriate of Potash.

The total cost of these fertilisers at the present price of fertilisers will come to Rs. 18.67 crores. Unless credit facilities are provided on an organised basis on easy repayment schedule, no tangible progress with regard to substantial target in any programme of fertiliser application to the pepper crop can be expected.

Application of cattle manure/compost at the rate of 10 Kg. per vine per annum just before the onset of south-west Monsoon and 500 gm. of lime per vine in alternate years is also necessary. These practices also will involve additional costs.

**5. Pests and Diseases.**

Apart from the low yield of pepper in the existing plantings, there are two serious diseases on pepper both of which affect the yield.

Incidence of wilt disease is noticed in the important pepper growing regions of Cannanore and Calicut Districts. In some gardens 30 to 40% of the vines are affected. The presence of this disease is also noticed in Nedumangad and Kanjirappally etc. in the Southern Region. Unless the disease is brought under control by proper remedial measures, the production of pepper in the State will be adversely affected.

"Quick wilt" (Foot rot) disease affects the stem of the vines about 30 cm. above the ground causing death of vines after lose of leaves. The pathogen is a Phytopathore sp (palmivora var) and the control is by sprayings with 1% Bordeaux mixture before the onset of South-West and North-East Monsoon respectively.

"Slow wilt" occurs below the ground with decay of the root system and secondary infections with Fusarium, Diplodia and Colleotricum sp. The causative agent prior to secondary infection is a nematode. Control is by drenching the soil around the root zone of each vine with O. 1% solution of wet cereasan at 2.5 litres per sq. m. once in May-June and again in August-September.

The major insect pest of pepper is the "Pollu flea beetle" (Longitarsus nigripennis) which causes about 3 to 4 percent loss to the crop in some years. The pest can be effectively controlled by spraying with Ekalux (o.1%) or Rogor (o.1%) once in July-August and again in September-October. The first round of spraying could be a combination of any of these insecticides and fungicides such as Copper Oxychloride or Dithiocarbamates (O.2%) as a prophylaxis against fungal "Pollu" as well.

Systematic plant protection should be adopted. Plant Protection chemicals and equipment should be made available on a larger scale. Plant Protection compaigns on an area wise basis have to be organised.

## 6. Pepper Cultivation and Marketing of Pepper.

Pepper production in the State is mostly in the hands of small holders. About 41% of the total holdings are 1 hectare or lesser, 27% of the holdings are of 1 to 2 hectares and 15% are of 2 to 3 hectares. The quantity of pepper produced by majority of individual farmers will very often be too small a quantity for proper processing, storage and marketing at the most advantageous time. This compels the farmers to rely on the itinerant merchants and petty shop keepers in the rural areas who dictate prices to the farmers when the small quantities of the product are offered for sale.

Pepper growers having comparitively larger areas often resort to preharvest sales resulting in neglect of the crop for its proper maintenance. Lack of adequate finance for cultivation purposes is the main factor for compelling the farmers to part with the produce at the preharvest stage.

One of the major problems concerned with the production of pepper is the steep fluctuations in the price of pepper from time to time. The average farm price of pepper during the year 1952-53 was Rs. 932/- per quintal, then it decreased to Rs. 149/- in the year 1957-58 but gradually increased in the subsequent years reaching the level of Rs 616/- in 1970-71 and again declined to Rs. 525/- in the year 1972-73. The price rose again to a reasonable level of Rs. 1000/- per quintal during 1974-75. But the future trend in the price level is quite unpredictible since the international market prices are dependant on many factors.

Co-operative marketing organisations should be set up in important pepper producing areas. These Co.operatives should have scientific storage facilities to market pepper at the most advantageous period and part of the sale price should be paid in advance to the farmers against the stock of produce delivered to the Society. Wherever feasible, production credit facilities also must be handled by the Marketing Societies. There are a few Marketing Societies in the State in the Districts of Trivandrum and Cannanore. Such Societies must be set up in larger numbers and the scope of their activities enlarged, extended and geared to meet future needs so that intensive pepper cultivation practices become more remunerative to the farmers.

## 7. Pepper Cultivation and Research Work.

Research should be conducted for evolving more high yielding disease resistant varieties better manuring and disease control and other aspects of agronomy. Performance of Panniyur-I under ordinary care and management in the field conditions may be taken up under research studies. Studies on cultivars Karimunda and Kottanadan which have comparatively good yielding capacity and which command special preference in the international markets may be undertaken.

Research on cropping systems covering intercropping and mixed cropping may be intensified to reduce the cost of production of pepper. Pepper thrives well as a companion crop with coconut and arecanut. Research on crop mixes suitable for different agro-climatic conditions may be organised widely.

Micro level surveys on a random basis in the different districts may be undertaken to analyse the various problems confronting the pepper growers in the production and marketing sectors of the commodity so that more precise and realistic planning on an areawise basis can be undertaken to meet local requirements covering all aspects.

Reserch on pepper products has also to be undertaken.

**8. Extension Services for Pepper Cultivation**

The Department of Agriculture is providing extension services. Apart from supplying rooted pepper cuttings from the Departmental nurseries, the Department supplies plant protection equipments at subsidised rates to the farmers and stocks pesticides for sale. Demonstration plots to popularise the benefits of systematic application of fertilisers and other cultural practices and plant protection measures against the important pests of pepper are laid out. Package programme for area dovelopment of pepper has also been taken up in units of continguous areas of 1000 hect. each and during the Fifth Plan, the target is 30 such units.

The scope of the abve programme may be enlarged to cover more areas and cultivators.

**9. Financial Assistance for pepper Cultivation**

Most of the pepper plantations in the traditional pepper growing areas have surpassed their economic period of growth and this is one of the main reasons for the declining trend in production.

The investment per farmer for rehabilitation of one hectare of pepper plantation by replanting of 50% of the vines and maintenance of the existing vines would cost about Rs. 12,000/- to 14,000/- during a period of five years. This shows the magnitude of the problem. Huge amounts will be involved under the rehabilitation programme considering the vast areas which require rehabilitation.

Area dovelopment programmes with financial assistance flowing from the Agricultural Refinance and Dovelopment Corporation may be drawn up and implemented.

Credit facilities for the purchase of production requisites like fertilisers and pesticides also will have to be provided.

Problems of pepper cultivation for stepping up the production have to be tackled by co-ordinated efforts on two important aspects.

1. Replanting of old and uneconomic pepper vines with superior planting materials on an organised manner in a phased programme.

2. Adoption of manuring and plant protection in the major producing centres.

Considering the long term perspective, there is imperative need for enlarging the present strategy to benefit at least 50% of the total area under pepper in the State during the Fifth Five Year Plan period itself