PROBLEMS AND PROSPECTS
OF
INDIA'S MAJOR SPICE—PEPPER

Thesis Submitted to the University of Cochin
For the Degree of Doctor of Philosophy
In the Faculty of Social Sciences

UNDER THE SUPERVISION OF

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1978

C E R T I F I C A T E

This is to certify that this thesis is a bonafide record of work carried out by C.A. Jos under my supervision for Ph.D. and no part of this thesis has hither to been submitted for a degree in any University.

(M.V. Pylee)

Cochin Palace,
21--12--1977.

D E C L A R A T I O N

I, C.A. Jos, do hereby state that the thesis "Problems and Prospects of India's Major Spice - Pepper" is my original work and no part of the thesis has hither to been submitted for a degree in any University.

C. A. Jos

(C.A. Jos)

Cochin,
21—12—1977.

C O N T E N T S

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PLATES, CHARTS, GRAPHS AND MAPS

Plates

Charts

Graphs

Maps

APPENDICES

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P R E F A C E

Much work has gone into the preparation and production of this study.

There are agencies and institutions in the country whose work is to collect and compile statistics, keep a watch over market trends and give technical help and guidance in the production and export of spices. In international trade, today, one can never take things for granted.

Given below is a list of the agencies at work:—

1. Ministry of Agriculture, Government of India, New Delhi.
2. Ministry of Foreign Trade, Government of India, New Delhi.
3. Directorate of Commercial Intelligence and Statistics, Calcutta.
4. Directorate of Arecanut and Spices Development, Calicut (Kerala).
5. Spices Export Promotion Council, Cochin.
6. Cardamom Board, Cochin.
7. Indian Pepper and Spices Trade Association, Cochin.
8. Indian Institute of Foreign Trade, New Delhi.

9. Horticultural Research Station, Ambalavayal, Calicut (Kerala).

10. Pepper Research Station, Thaliparamba, Cannanore Dist. (Kerala).

11. Central Food Technological Research Institute, Mysore (Karnataka).

The author had many occasions to visit these institutions to collect relevant data which have been used for comparative study of actual farming operations in the major centres of cultivation of pepper in Kerala.

In the final preparation of this thesis, the author had spent 8 weeks in Delhi to collect materials available with the Ministry of Agriculture and Ministry of Foreign Trade and the Indian Institute of Foreign Trade.

The then Honourable Deputy Minister of Foreign Trade, Sri A.C. George, the Officers and men-in-charge of the agencies mentioned above have been generally helpful. They were willing to discuss the problems and prospects of the export trade in spices.

The short term fluctuation in the export earnings and the resultant economic instability affect the rate of economic growth. In a planned economy this tendency has to be reckoned and appropriate measures have to be taken. The variability of demand and supply and the short term responses

are certainly important in price fluctuations. Equally important are local and political factors. There is hardly a spice not affected by a large fluctuation in prices.

This study is directed to examine how far price fluctuations in pepper can be controlled in the Indian context so as to have a reasonable and stable income for the primary producers which will ensure an adequate encouragement for higher production and better export earnings. In a study of the methods of controlling violent price fluctuations an important question is that whether the present system of management of supply is satisfactory or not. It is more so when the demand is likely to be manipulated by the importers and wholesalers of the foreign countries. Though pepper is the most important of all the spices grown in India, little work has been done so far to study the problems and prospects of this commodity.

METHODOLOGY

To have a comprehensive picture of the problems of this major spice and the strategy for their solutions the study was made from the level of cultural practices to the level of export trade of pepper. To determine as nearly as possible on a scientific basis the cost of production of this spice, surveys of cost of production were undertaken. Since random sampling survey was too expensive and difficult for an individual researcher,the method of purposive sampling was resorted to.

In a continuous belt of pepper cultivation, excluding too small and too big producers, twenty-five producers were interviewed with structured questionnaire, after its pre-test. The data so collected were further tested with additional surveys of ten cultivators in other major districts of Kerala in the production of this spice. It is believed that the information presents a fair average around which costs may be deemed in the years for an ordinary unit chosen to fluctuate.

The production data are collected from the published documents by the Ministry of Agriculture, Government of India. Regarding the price realised by the growers, the f.o.b. prices of the exports were taken as an index even though the producers could be getting much less depending upon the quality of the produce and the terms of bargaining. The producers in Kerala, in general, are fully aware of the price quotations in the leading markets. Another important reason for this procedure is that the f.o.b. prices are more dependable in the process of price setting, since pepper is an export oriented commodity.

The conclusions drawn are the result of proper empirical study and investigation in the fields of cultural practices, area of cultivation and production, costs of

production, the role of middle men, export markets and the issues involved.

My guide for this research work has been Dr. M.V. Pylee, M.A., D.Litt., LL.M. (Harvard), Professor and Head of the Department of Management Studies and the Director of School of Management Studies, University of Cochin. I owe him all the gratitude that I am capable of expressing here because he alone has made this possible.

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CHAPTER - I

INTRODUCTION

Spices have figured in the export trade of India from time immemorial. Ancient Kerala had been famous for her spices and it was her fame as the land of spices that brought foreign peoples and cultures to her shores. Towards the beginning of the Christian era, the Greeks and the Romans carried on extensive trade with Kerala in pepper. Pepper formed the bulk of the west-bound cargo from Kerala. Early in the fifth century A.D. when Rome was besieged by the Goths, a part of the ransom demanded was pepper. Marco Polo, the celebrated traveller of the thirteenth century speaks of the flourishing trade in pepper between Kerala and countries of West Asia and China. It is well known that the lure of the Indian spices was largely responsible in the fifteenth century for the discovery of the sea route to India. Indian spices have paved the way for our contacts with the world outside. The balance of trade in those days was much in favour of India. Although spices are now produced by other nations, India still continues to be the major producer in

the production of pepper which is generally known as India's king of spices. In 1975 India accounted for 28.8 per cent of the world export trade in pepper whereas it was 47.5 in 1960.

The one time importance and the present day problems of India's major spice can be better understood by studying the part that Indian production plays in determining India's share of world production and trade in respect of this major spice. Details showing world production and exports with India's share are given in Table-1.

TABLE - 1

WORLD AND INDIAN PRODUCTION AND EXPORT OF PEPPER
(Quantity in '000 tonnes)

	PEPPER				
	1950	1960	1965	1970	1975
1. World Production	42	59	90	119	136
2. World Export	25	40	70	61.9	86.2
3. India's Production	22	28	35	28	35
4. India's Export	13	19	26	19.4	24.5
5. India's Production as percentage of world production	52.4	48.3	38.9	23.5	25.7
6. Indian Export as percentage of world export	52.0	47.5	37.1	31.4	28.8

Note:- 1. India's production of pepper is based on unofficial/ Trade estimates which are being relied upon by international agencies and institutions.

Source:1. Survey of India's Export Potential of Spices, Marketing Research Corporation of India, 1968, Vol.1, P.7.

2. Tropical Products Quarterly, Commonwealth Secretariat, London, March 1976, Vol.XVII, No.1, P.137.

3. F.A.O. Rome, World Pepper Trade and Outlook, P.W.12, International Seminar on Pepper, Cochin, 1976.

In 1950, the world production of pepper was estimated to be 42,000 tonnes of which India accounted 22,000 tonnes which worked out at 52 per cent. In 1960, this share in world production declined to 48.3 per cent and thereafter it went on further declining till it reached 23.5 per cent in the year 1970. However it has gone upto 25.7 per cent in 1975. In the matter of exports of pepper too the Indian share declined from 52 per cent in 1950 to 47.5 per cent in 1960 and its decline went on to reach the level of 28.8 per cent in the year 1975.

In 1950-51, by the beginning of the first Five Year Plan of India, the exports of spices from India amounted to Rs.255.1 million out of an export of all commodities valued at Rs.6468 million, constituting 3.8 per cent. In 1955-56, it declined to Rs.106.7 million out of an export of Rs.6403 million which constituted only 1.66 per cent. In the first year of the Third Five Year Plan (1960-61) a small recovery was made in the share of export of spices which worked out at 2.63 per cent. It is important to note that the unit value realised per kilogram of spices exported from India declined from Rs.6.88 in 1950-51 to Rs.3.50 in 1960-61. This sharp fall in the unit value of about 50 per cent was mainly the result of fall in pepper prices in the year 1960-61. When 15.4 million kilograms of pepper fetched Rs.204 million in 1950-51, 16.2 million kilograms of pepper brought home a sum of Rs.85

million only in the year 1960-61. This decline in the unit price assumes a greater significance when we look into the movement of index number of wholesale prices of all commodities which was 74.1 in 1955-56 and 100 in 1960-61.

In 1965-66 also, in the share of the exports of spices a recovery was made from 2.63 per cent in 1960-61 to 2.9 per cent and the unit value realised out of exports of spices improved from Rs.3.50 to Rs.3.72 over the same period. In 1970-71, exports of spices contributed only 2.05 per cent of our export earnings, showing again a decline. Though the unit value realised was Rs.8.27 per Kg. in that year, one should not lose sight of the devaluation of Indian Rupee in June, 1966, which was responsible for the upward movement of prices. The index number of wholesale prices of all commodities moved up from 100 in 1960-61 (base year) to 180.6 in 1970-71 which moved up steadily to 306.3 in 1974-75. Table-II gives the movement of export prices of pepper and cardamom with quantities exported for the period 1967-68 to 1975-76.

From the Table No.II it is clear that there were substantial fluctuations in exports in terms of quantity over these years. The unit prices realised out of the exports of these two spices were also subjected to much variations. This mixed trend in prices might be a major reason for varying degrees of production and export of these major two spices of India.

TABLE - II

EXPORT AND PRICE PER KILOGRAM OF PEPPER AND CARDAMOM DURING 1967-68 TO 1975-76.

YEAR	PEPPER		CARDAMOM	
	Quantity '000 tonnes	Rs./ Kg.	Quantity tonnes	Rs./
1967-68	25.06	3.63	1451	48.42
1968-69	18.95	3.51	1291	52.18
1969-70	22.30	5.45	1149	77.70
1970-71	17.97	6.70	1705	65.78
1971-72	19.25	6.21	2147	37.41
1972-73	19.96	5.54	1384	49.45
1973-74	31.65	7.10	1813	63.71
1974-75	26.34	10.99	1626	81.92
1975-76	24.23	13.99	1910	100.38

Source: Director General of Commercial Intelligence and Statistics, Calcutta.

In the matter of the area cultivated and in the matter of output and exports, decline and recovery are a regular feature in all important countries which are producing spices. Changes in weather conditions, incidence of pests and diseases and above all substantial price fluctuations are mainly responsible for this phenomenon. The spices trade is characterised by the inelasticities of supply and demand, especially of short period supply which results in

wide price fluctuations. The primary producers are the worst sufferers in such a situation and all the countries which are producing spices are developing countries. The developmental efforts of these countries demand more and more imports of manufactured goods and capital goods and equipments, leading to acute problems of foreign exchange and unfavourable balance of trade.

The increasing economic instability which retards economic progress, arising out of short-term fluctuations in the export earnings of the primary products of the developing countries has attracted the attention of a large number of economists many of whom have gone to the extent of questioning the validity of the 'theory of comparative cost' which incidentally, advocates a policy of free trade, at least in so far as the developing countries are concerned. A number of studies undertaken in recent years have gone a long way to prove that free trade has resulted only in impoverishing the developing countries further.

While world exports in terms of value, increased at an annual average rate of 13.3 per cent between 1953 and 1969, the exports of the developing countries increased only at the rate of 7.7 per cent in the same period. As a result, the share of exports from developing countries in world trade declined from 28 per cent in 1953 to 20 per cent in 1969.[1]

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1. Ojala, E.M., Proceedings of the 1969 Asian Development Bank Regional Seminar on Agriculture, p.47.

The 1972 reports of the Food and Agricultural Organization says that over the past 20 years the developing countries' agricultural exports have been expanding much less rapidly than those of the more developed countries. During the period from 1965 to 1970 export earnings from agricultural commodities rose by 45 per cent for the developing countries compared to an increase of 130 per cent for the developed countries.

This tendency is not something new to the post war period as is evident from the observations made by Gunnar Myrdal. On the average at the end of the period (from the latter part of the nineteenth century to the eve of the Second World War) a given quantity of the primary goods would pay for only 60 per cent of the quantity of the manufactured goods that it would buy at the beginning of the period.[2] Thus in the export trade of primary produce we find that it is a deal between the strong and the crippled and latter is always at the mercy of the former.

The trend of India's foreign trade also shows a similar pattern. Table-III shows the pattern of India's foreign trade during the period 1950-51 to 1974-75.

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2. Myrdal, G., An International Economy, London, 1964, p.47.

TABLE - III

INDIA'S FOREIGN TRADE

(In Crores of Rs.)

	FIRST PLAN	SECOND PLAN	THIRD PLAN	1967-68 to 1971-72	1972 to 1973	1973 to 1974	1974 to 1975
Imports (c.i.f)	3,615	4,924	6,204	8,957	1,868	2,955	4,468
Exports (f.o.b)	3,044	3,118	3,761	7,113	1,971	2,523	3,304
Exports as percentage of imports	84	63	61	79	105	85	74
Annual average:							
Imports	723	985	1,241	1,791			
Exports	609	624	752	1,423			

Source: Commerce, Vol.124, No.3178, 1st April 1972, P.45

Reserve Bank of India, Bulletin, Vol.XXIX, No.11, November 1975, P.5924.

The weak bargaining power of the developing countries means that, if there is no serious fall in production and supply in trade between developing and developed nations, the former has to accept the price offered by the latter. Added to this, agricultural products are subject to a greater degree of instability of prices when compared to the products of manufacture. Here the price has proved an ineffective regulator in respect of farm products because farmers continue to produce even when prices tend to fall. This is more true in the case of perennial crops like pepper and cardamom with a special variant and physical conditions imposing a rigidity on supply response. At the same time, when prices fall substantially, the production is badly affected resulting in shortage, owing to the cut made in the inputs by the growers as in the case of perennial crops like pepper and cardamom. In the case of annual crops like ginger the growers may look for alternative crops, even though there are certain constraints in doing so, depending upon the location and topography, the age and the availability of other crops maintained by the growers, especially when mixed gardens exist.

The variable costs of perennial crops are often sufficiently low to give them a substantial advantage over alternative crops as long as the fixed investment itself remains in tact. We can expect crops like pepper and cardamom,

as well as ginger, to show relatively low price elasticities of supply in the short run and considerable cyclical price instability. This problem is compounded further if these commodities face low price elasticities of demand as in the case of almost all varieties of spices. Over and above this, most of the farmers face additional uncertainty regarding yields.

One need not blame the developed nations for this. Even in the home economy what we find is that "if manufacturing and agricultural labourers form two non-competing groups, high protection of manufacturing industries may raise the real wages of the workers in these industries at the expense of the othe other factors".[3] Within the country, the prosperity of the business community may be attributed to the closed nature of the economy. Being a closed economy they are assured of monopoly or near monopoly conditions (Example: Indian sugar mills, automobile units, cement, paper etc.) as a result of the protective policies of the Government. The agricultural sector, from this point of view is at a disadvantage. So the members of the business community (including the workers in the principal industries in the organised sector) should for that reason support a policy of supporting the prices of farm produce.

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3. Ohlin.B., Inter Regional and International Trade, P.306, Cambridge, Mass., Harvard University Press, 1967.

The relative level of agricultural prices influences in the long run, the allocation of production resources and hence, the level and pattern of agricultural production. Price relationships affect relative profitability and economic incentives. Relative profitability is a function of the physical productivity of resources in various uses as well as of the relationship among prices of inputs and outputs. Gunnar Myrdal notices that in almost all the advanced countries the non-agricultural majority of citizens are prepared to accept a price supporting policy.[4] In all the developed countries agriculture has become the most administered sector of the economy with its guaranteed prices, its subsidies, its import duties, its non-tariff barriers and a host of other interventions. In the developed centrally planned economies, planning and administrative controls are of course comprehensive.[5] In 1971, F.A.O. observed that though administered prices in agriculture have become almost universal, the prices of farm products rose everywhere less rapidly, and in some instances far less, than the general level of wholesale price".[6]

Peasant families form the basic units of our society and its importance can never be exaggerated in a subsistence economy. Peasant production is the main alternative

4. Myrdal, G., Op. Cit., p.48.
5. F.A.O., Rome, 1972, Agricultural Adjustments in Developed Countries, p.27.
6. F.A.O., Rome, 1971, Agricultural Commodity Projections 1970-80, p.133.

to wage employment. Except in the case of cardamom and a few pepper plantations on a large scale the majority of the producers of India's major spices are small farmers who cannot stand the violent fluctuations of world market prices for the spices. Equally or more important are the problems of the bigger growers of these items of spices. In becoming more a business enterprise as in the case of cardamom estates and pepper plantations, farming becomes in one sense more risky. "As long as current operating expenses constituted no more than say 20 per cent of the value of gross output, a drop of some 20 per cent in the latter in a particular year, due to disease or bad weather caused his income to fall by only a quarter whereas when operating expenses climb to 60 per cent of output a 20 per cent drop in sales will cut his income in half, and out of the income, he has to pay a larger amount than formerly in interest on borrowed capital."[7] Thus the lack of any effective control over the volume of production on the one side and the wide fluctuations in prices in the other, make agricultural production a real gamble and more so in the case of spices.

There is at present, undue emphasis on increasing production in the farm front. The other important aspect ensuring a fair price for the product is often neglected. "When the export expansion of the peasant crops merely reproduced existing production conditions on a larger scale, the

7. F.A.O., Rome, 1972, Op. Cit., p.40.

stimulus to develop was less than it would have been if the expansionary process had entailed the introduction of new skills and more productive re-combinations of factors".[8] The problem then centres round the problem of attaining greater efficiency by the introduction of improved varieties of crop, pest control, use of fertilisers and an incentive to production, based on stable and economic prices. Unlike the past, people are developing new attitudes. They regard work not as an alternative to starvation but as an instrument for gaining access to the modern good living. Technological progress has necessitated a much closer dependence by farmers on those who serve their needs for production purposes. The increased awareness of economic and social disparities between the agricultural and other sectors is quite visible. Farm workers become more insistent on their rights. People living on small farms are only too conscious of the inability of their holdings and prices for their products to provide them with an adequate living. They have started reacting to this situation by joining hands with the mass of unemployed. This is particularly true with the educated mass of the rural population. Generally, it is the young adults who leave the farm sector with the result that the farm population is getting older than the average in other occupations. This tendency is not only true in India but in every country. "Before world war II, even in the most industrialised

8. Meier, G.M., International Trade and Development, (London: Harpur and Row, 1964) pp. 180, 181.

countries the farm population was declining at less than 0.5 per cent per annum, while in several more developed economies it was still increasing until the 1930s indeed in Japan and Australia until the 1950s and in Newzealand till the 1960s".[9]

In a free economy no producer has any idea of what the real social need is for the product that he is producing, though he is market-oriented in making his decisions, as to what to produce, how to produce and how much to invest in this or that line of production. This sort of situation results in a number of problems. In a planned economy, the inter-sectoral balances and the problems of supply and demand and price formation have to be constantly studied. The need for a well thought out and effective price policy will be much greater in the mixed economy. A massive increase in India's exports in the current decade must constitute an essential component of any strategy to achieve self-reliance. The most important factor of a country's ability to export depends upon whether it is able to offer the commodities at competitive prices. At the same time, prices of export goods can be lowered only to a certain extent and certainly not beyond the critical point, when the losses on unit prices are larger than the income obtained through the increase of the volume of sales. An extreme case is cited by the Marketing Research Corporation of India in its "Survey of

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9. F.A.O., Op. Cit., p.38.

India's Export Potential of Spices" with respect to dried ginger. The ex-farm cost (exclusive of profit and pre-investment) of ginger as estimated at Rs.1.87 per Kg. and the realised price (F.O.B.) was Rs.3.74 resulting in a loss of Rs.0.74 per Kg.[10]

In some cases, a single underdeveloped country occupies so important a place in the world market in respect to one commodity, that an increase of it supply would bring down the price substantially and consequently, increase its export proceeds less than proportionately - perhaps even reduce them".[11] In 1970-71 India exported 1764.64 tonnes of cardamom for an amount of Rs.113.35 million realising Rs.64.22 per Kg. In 1971-72 when the exports were increased to 2297.2 tonnes, the unit value realised was reduced to Rs.36.82 per Kg.[12] If the Government follows a policy of administered prices, the monopolised supply of primary commodities may help to some extent to open certain possibilities of influencing prices to its own advantage in greater measure. This is more so if the Government of the exporting country can afford to buy at stable prices the export goods from the actual producer, independently of the effective foreign demand at any particular moment.[13]

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10. The Marketing Research Corporation of India, Survey of India's Export Potential of Spices, 1968, p.18.
11. Myrdal, G., Op. Cit., p.255.
12. Monthly Statistics of Foreign Trade of India.
13. Sacks Ignacy, Foreign Trade and Economic Development, pp. 119, 120.

In the words of Tiber De Scitorszky "Free trade can be shown to be beneficial to the Universe as a whole but has never been proved to be the best policy also for a single country".[14] The natural play of forces in the market will mean proportionately lower prices for higher production. So long as price is inter-related with supply and demand, changes in either supply or in demand or in both should result in price fluctuations. The producers are more concerned with short-term fluctuations rather than long-term tendencies. The variability of demand and supply and the short run responses are certainly important factors in price fluctuations. The inelasticities of supply and demand, especially of short period supply are the principal factors responsible for the wide price fluctuations. The crucial distinctions lie in the variability of demand and supply and in the short run responses of demand and supply to changes in prices. These factors vary much more among primary products and among manufactures than they do between two classes of goods. It is not the total increase or decrease in the supply or demand that matters but the marginal increase or decrease in supply or demand followed by the speculative thinking on the part of the exporters and importers. In the case of pepper, speculative buying in Singapore exerts a profound influence on the world pepper prices. "For example: Lampong pepper selling at 33 cents in mid June 1969 was reported to be selling at 45 cents

14. Tiber De Scitorszky, "A Reconsideration of the theory of Tariffs" - Readings in the Theory of International Trade (American Economics Association Series, 1966) pp.358-359.

on 10, September and 70 cents on 22, September 1969".[15] In the case of spices, two points have to be stressed: (1) Consumption of spices does not change significantly in the short run, (2) There is hardly any spice not affected by fluctuations in prices. What happens is that the inelasticity of demand on the one side and variations in supply from time to time result in violent fluctuations in prices, depending upon spot availability. This is further aggravated by the manipulation of demands placed by foreign countries and other policies of national restrictions. A.I. Macbean observes that (often local and political) factors usually lie behind high export instability.[16] Productivity in agriculture and industry among the developed countries had improved at a much faster rate than among the developing countries. One should not lose sight of the fact that agriculture and relatively simple manufacturing industries have been enjoying in the Western countries and America a degree of protection, which completely protects them against competition from the outside world.[17]

It has been observed that the potential export earnings of producers of primary raw materials are very often restricted by the practice of imposing higher tariffs on

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15. International Trade Centre, (UNCTAD/GATT, Geneva, 1970) Markets for Spices in North America, Western Europe and Japan, P.22.

16. Macbean, A.I., Export Instability & Economic Development, 1966, P.56.

17. Patel, H.M. (The Council for Economic Education), A Policy for Foreign Trade, 1962, P.30.

processed than on raw products, which encourages the importing of such products in raw rather than processed form.[18] Spices in consumer packets or in the processed form like powder, essential oils or oleoresin seldom find favour with the markets of the developed countries because of the high tariff walls.

Gunnar Myrdal has commented on the strong dislike in the advanced countries to do anything to stabilise the price of the raw materials and agricultural commodities of the developing countries.[19] As against this viewpoint H.G.Johnson holds that "though the assumption that less developed countries are subject to exceptional instability of export earnings has become an orthodoxy of development economics, the scattered empirical evidence so far presented in support of it has not been strikingly convincing."[20] The problem has recently been subjected to a major economic investigation by A.I. Macbean who finds that the empirical evidence does not support the orthodox assumption. The empirical study made on the performance of India's export trade in spices proves that the findings of Gunnar Myrdal have greater significance in the Indian context.

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18. Harry, G. Johnson, Economic Policies Towards Less Developed Countries, 1968, p.85.

19. Myrdal, G., Op. Cit., p.46.

20. Harry, G. Johnson, Op. Cit., pp.142-143.

Under the existing conditions, the fluctuations in demand can be adjusted only through price variations, but in the case of India's major spices when prices are high, production is increased considerably and increased production in India and elsewhere reduces the prices, adversely affecting the producers. In the case of perennial crops like pepper and cardamom whose production is inflexible in the shortrun the producers are more concerned with price rather than with the volume of sales. As the principal exporter of these spices, under our study, India is concerned with two variables, namely (1) price and (2) volume of sales. It may well be argued that price is less controllable than volume of production and exports. We should not conceal from ourselves the fact that the natural play of forces in the market will simply mean continued rigidity and stagnation.[21] Prices for the commercial crops will need to be regulated on a consideration of all these aspects.

Having taken into account the general rigidity of the economy, changes in weather conditions, speculative buying and selling and changes in inventories, if price and volume are inter-related by some appropriate measures not only can we solve the problems of violent fluctuations in prices but give good incentive to increased production in a planned way.

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21. Myrdal, G., Op. Cit., p.256.

India, even after a quarter of a century of independence and more than two decades of planned development, miserably failed in securing stable and favourable prices for her products in which she enjoys a controlling position.[22] Both in quality and quantity of her spices, India's position is superior. Yet, we continued in strict conformity with our colonial heritage, only to work and produce for the requirements of the developed countries.

To what extent can we rely on the exporters for securing the maximum returns to the producers? The middlemen including the exporters are satisfied so long as they are able to maintain fairly constant rates of profits. In a peasant economy the middlemen have been able to do so on the external prices of exports.[23]

In a study conducted in this connection by the author in July 1972 it was found that the exporters were not at all concerned with the problem of prices. Seven out of ten were of opinion that export prices did not constitute a problem at all. They were of opinion that except for pepper, the prices were really low and the real problem was that of finding markets for them. In the case of pepper too, there was no problem at all, according to them, since pepper could

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22. Planning Commission, Government of India, 1961, Third Five Year Plan, p.129.

23. Meier, G.M., Op. Cit., p.181.

rely fully upon the rupee payment countries of which the USSR was the most predominent one. They even charged that the producers were not releasing pepper in adequate quantities. The mercantile community can not be expected to be guided by altruistic or patriotic motives and will expect to receive for its efforts in the export market, a return which stands in a reasonable relation with the profits on domestic sales.[24]

Now, the question is whether we can be satisfied with this state of affairs. From the national point of view, certainly not; for the simple reason that we ought to be more interested in the peasants by ensuring reasonable rewards for their efforts. To solve the problem of violent fluctuations in the prices of spices and to maintain a remunerative price level, one should not be guided by the symptoms alone. What is required is to have a proper diagnosis. We should develop pragmatic and experimental habits of modern business or should have Government intervention with far-sighted policies and proper planning. "National Governments should be able to avoid the difficulties of fluctuations by their own policies on the normal or trend values of export prices offsetting fluctuations around these values by alternating accumulations and decumulations of international resources".[25]

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24. Ministry of Commerce and Industry, Government of India, Import and Export Policy Committee Report, 1962, p.62.

25. Johnson, H.G., Op. Cit., p.181.

The dire need for policies of price stabilisation has become all the more inevitable, if not unavoidable. Smoothing producers' income results in (1) reduction of personal hardship (2) reduction of uncertainty (3) reduction of other disincentives to increased production (4) avoidance of inflationary trends (effects) (5) reduction of haphazard and socially disturbing effects on income distribution and (6) avoidance of arbitrary Government intervention. "Fluctuations in retained proceeds from exports may also affect the internal distribution of income, and in different ways for different types of economies".[26]

In advanced countries, notably in U.S.A., the present agricultural price policies have been won as the result of the political power the farmers exert. In the absence of this power the farm sector in most of these countries would for long periods have been poverty stricken and backward. In the words of Gunnar Myrdal, "Prices are manipulated. They are not the outcome only of the forces in the market; they are in a sense "Political" depending also on the regulating activity of the State, of quasi-public and private organisations and of private business".[27] In a planned economy it is imperative and important for the State to interfere in the price system that should serve the nations valuations and objectives. This had been for long in existence in the centrally planned economies. In India the sugar-cane

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26. Meier, G.M., Op. Cit., p.181.

27. Myrdal, G., Economic Theory and Underdeveloped Regions, 1965, p.49.

growers are enjoying a fair degree of protection, very often much in excess, with the result that the growers in the North in comparison with their counterparts in the South seem to be indifferent in the matter of increasing the yield per acre. What we require is not a policy of protection as such, but a policy of price stabilisation which might pay off in the long run in terms of modified quantity fluctuations. It should remove most of the incentives for speculations in stock adjustments in the principal world markets in spices, thus modifying one and the more important source of instability in prices. A few national schemes would suffice to take care of the really serious problem of the fluctuations in export earnings. One must take note of the fact that unstable prices will produce unstable outputs in current or subsequent seasons, depending up on the time taken from planting to commercial cropping.

The basic principle of any national scheme of price stabilisation is to break the connection between the price paid in world markets for exports and the prices and income received by the producers. The logic behind this argument is that variations in the quantity of commodities exported have caused as much instability of export proceeds as have variations in world prices. Harry G. Johnson has admitted that the relative inelasticity of demand for certain primary products suitable for output restricting, price-raising commodity agreements would permit the less developed producers

as a group to increase their real income by exploiting their collective monopoly power and so might benefit them considerably more than trade liberalisation would.[28] Steps have been taken for the formation of community agreements for pepper and cardamom.

The main objectives of these agreements are the following:—

1. To coordinate and stimulate research on technical and economic aspects of production.
2. To facilitate the exchange of information on programmes and policies.
3. To develop programmes for increasing consumption in traditional and new markets, including programmes of cooperation in promotion activities.
4. To further joint action for the relation of tariff and non-tariff barriers and for the removal of other obstacles to trade.
5. To keep under constant review developments relating to supply, demand and prices.
6. To carry out investigations into the causes and consequences of fluctuations in prices and suggest appropriate solutions.
7. To improve statistical and other information on production, consumption, trade and prices.

All these objectives are highly commendable. But all that is good to look at need not be necessarily so useful

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28. Johnson, H.G., Op. Cit., p.154.

or feasible as desired. There are a number of obstacles in the fulfilling of the objectives, whatever might be the attractions of these objectives. The limited number of commodity agreements and the premature collapse of such schemes are indicative of the practical difficulties or the unwillingness on the part of the member countries to pay a substantial premium for the success of the schemes. Export performance is not merely a function of a country's export prices. It also depends on investments in nursing and developing a foreign market and in keeping ourselves well informed of the latest developments in commodity markets all over the world.

We have already noticed that in the short-term, demand for spices is markedly inelastic. Consequently, supplies larger than demand depress prices and prices rise sharply if it is even slightly smaller. "Changes in the business community's view of the relative merits of hand to mouth buying and a cast iron or impregnable stock position are important in price speculations".[29] This leads us to the importance of the distinction between market demand and final demand. For lasting solution the producing countries should be guided by the final demand. The year in which both the market demand and the final demand coincides with each other alone can be taken as the normal year, even though such a thing may not take place so long as the merchant community is under the spell of speculative motive. In the study made by

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29. Row, J.W.F., Primary Commodities in International Trade, 1965, p.40.

the author, mentioned elsewhere, six out of ten admitted that they were living upon gains from speculation than from the reward for their services in the channel of distribution as exporters.

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C H A P T E R - II

P E P P E R C U L T I V A T I O N*

Pepper is produced from the fruits of the pepper vine (Piper nigrum). The pepper vine is a climber and requires a support or standard to climb on. It is a perennial plant lasting for about 20 to 25 years with good yield, even though under favourable conditions it may live up to 60 years. The yield begins to decline from the 20th or 25th year after planting, if the plantation has not been well maintained. This long life of the plant calls for a suitable standard which is usually a tree in India. Usually living trees are used as standards for pepper vines in India, whereas deadwood posts or concrete poles are also used as standards in Malaysia and Indonesia. The living trees not only provide support to the vines but also give them some shade.

Pepper is a plant with a large, stout stem with many branches and a luxuriant, dark or pale green foliage.

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*Source: "Pepper", 1971, Farm Information Unit, Directorate of Extension, Ministry of Food and Agriculture, New Delhi.

The main stem and the branches of the vine hold on firmly to their supports with the aid of small finger like aerial roots sprouting from the nodes of the stem and branches. There are a number of cultivated varieties of pepper peculiar to the different regions of the pepper belt. They are all known by local names.

The pepper growing belt of the south-west coast of India comprises the following regions. (1) The Travancore and Cochin region (2) The Malabar and South Kanara region and (3) The Coorg and North Kanara region.[1] There are many varieties of pepper and a constant association with them is essential to acquire the ability to distinguish between them. The more common varieties cultivated in the Travancore Cochin region are 'Cheria Kaniakadan', 'Valiakaniakadan', 'Karimunda', 'Narayakodi', 'Chola' and 'Kothanadan'. Of these, 'Karimunda' and 'Narayakodi' are gaining popularity, since these two varieties are quick growing and early bearing, but however, seldom live for more than 15 years. The outstanding varieties of pepper cultivated in the second region are 'Kalluvally', 'Balankotta', 'Karinkotta', 'Uthirankotta' and 'Cheriakodi'. 'Kalluvally' is a very hardy variety and is capable of withstanding unfavourable weather conditions and exposed situations and is considered to be the most drought resistant and wilt-resistant pepper of the Malabar region. 'Kottavally' enjoys the greatest popularity among the south Kanara pepper

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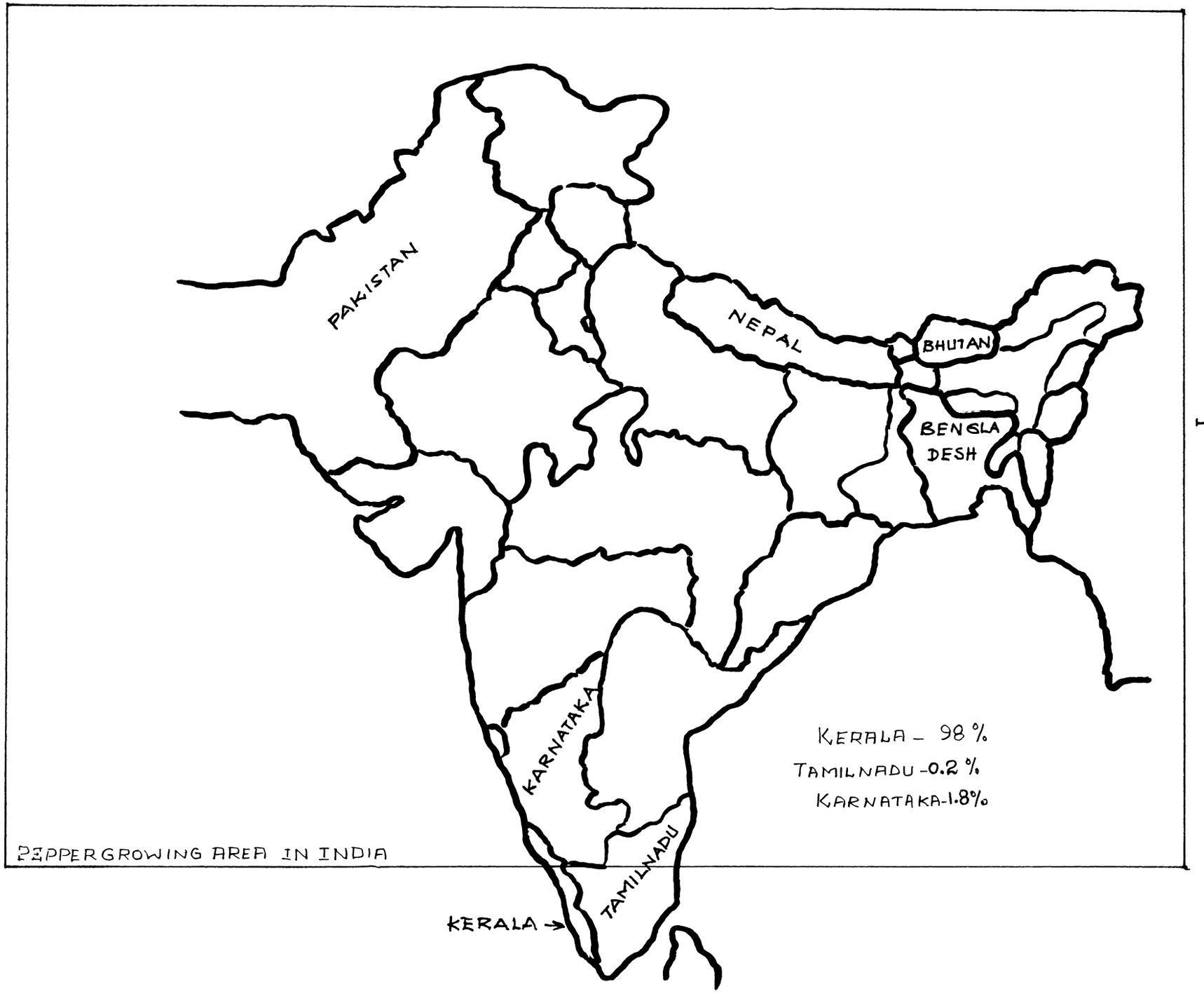
1. Abraham, P., Pepper Cultivation in India, 1956, p.6.


PAKISTAN
NEPAL
BHUTAN
BENGLA DESH
KARNATAKA
TAMILNADU
KERALA
KERALA – 98 %
TAMILNADU -0.2 %
KARNATAKA-1.8%
PEPPER GROWING AREA IN INDIA

Map No. I

growers and is grown extensively on plantation scales in Hosdurg of the Kasargod taluk and North Malabar. 'Kottavally' is also grown in South Vayanad, mixed with 'Kalluvally' and 'Uthirankotta'. The varieties of pepper grown in North Kanara and the adjoining area in the Karnataka State are locally known as 'Malligasera', 'Karemalligasera', 'Doddagya' and 'Motakara'. "A change of environment may also bring about some changes in the characteristics of the varieties. Certain early-bearing varieties may become late bearers when planted in other localities with different environment".[2]

The pepper is a plant of the humid tropics, requiring adequate rainfall, high humidity and a warm climate for its growth. It thrives best in places where the annual rainfall is well over 80" and never less than 50". Pepper can come up in areas with less rainfall provided the rainfall is more evenly spread throughout the year. It can withstand wide fluctuations of temperature as the maximum and minimum temperatures in the pepper growing tracts are 104°F and 50°F respectively.

It can be grown almost from sea level upto an altitude of 3500 ft. Pepper grows best on virgin soil rich in humus content and other plant nutrients. Though clay loams are the soils best suited for the crop it is widely

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2. Abraham, P., Op. Cit., p.26.

grown in red loams and sandy loams overlying the lateritic hill tops of the western ghats. It is necessary that the soil does not dry up completely during the dry months. Alluvial soils which are not subject to flood and water stagnation are also suitable for growing pepper provided the soil is well drained. It is interesting to note that the growers avoid, on slopy land, the slopes facing south, so that the vines are protected from the severe southern sun.

Propagation:

Pepper is generally propagated vegetatively from cuttings taken from runner shoots originating from the base of the vines. Cuttings from lateral shoots at the top portion of the vines may also be used for planting. These vines may not live for more than 15 years. Further, large number of cuttings from planting adversely affects the crops. As a large number of casualities occur by planting the cuttings directly in the field, planting of rooted cuttings is now gaining popularity. In Indonesia, Thailand and Malaysia it is reported that propagation is invariably resorted to by terminal shoot cuttings, and vines for the production of such terminal shoot cuttings are raised in special nurseries.

Three systems of pepper cultivation are generally present in India. The first system consists of clearance of jungle lands and large scale cultivation on the hill slopes.

This is more popular in North Kerala region and South Kanara district of Karnataka. The second system consists of mixed cropping in the home compounds and outlying areas. Under this system, pepper vines are trained on existing trees such as jack, mango, arecanut etc. growing in the gardens. The most important point to be noted in this connection is that the number of vines owned by the individual growers under this system is small and they do not generally take care of the plants. The third system of cultivation is as an inter-crop along with other plantation crops like coffee, cardamom etc. using the shade trees as standards. This is practised more in the high ranges of Kerala and Coorg and North Kanara region where there is the maximum concentration of the plantations. The second method is mostly seen in the Travancore and Cochin region.

Pepper climbs on all rough barked trees and thrives well on common trees like mango, jack, '<u>murikku</u>' (Erthyrina indica), '<u>payyani</u>' (Oroxylon indicum), tamarind, silver oak and such other trees which are mostly found in household gardens. '<u>Murikku</u>' was found to be the most suitable in pepper plantation as evidenced by the plantations of North Malabar and South Kanara. In the Travancore-Cochin region also, '<u>murikku</u>' standards are commonly used in household garden crops of pepper, but an important difference here is that only cuttings or branches of grown up '<u>murikku</u>' trees are planted as standards. The life of the standards raised from such

cuttings is short, rarely more than 12 to 15 years. The pepper growers of Central Travancore reported that 'murikku' is also subject to plant disease and falls down with the healthy vines still on it. It is a twin problem of protecting both the pepper vines and the supporters.

The Malabar and South Kanara variety of Erythrina indica is in all respects more suitable as a standard for pepper vine than the Travancore-Cochin variety. In household pepper gardens as in the Travancore-Cochin region it is always best to have vines growing on large trees such as mango, jack, or tamarind. Such vines are an asset to the owners and could be depended on to give a very steady annual income with very little expenditure. The use of comparatively short lived trees is found very common when extension of a household pepper garden is desired for getting quick returns or if a large-sized pepper plantation is to be raised.

The pepper vine requires little shade except when it is young. It is also desirable for the crop to have a little shade during the hottest part of the year. Regulation of shade is essential and should be attended regularly. It is generally seen that little care is taken in the shade regulation in the pepper growing regions of the West coast. This is mainly due to neglect and ignorance on the part of the growers. There is a lot of difference between the Malabar, South Kanara region and the Travancore-Cochin region

regarding soil and moisture conditions. The rain fall is much more evenly distributed in the Travancore-Cochin region than in the north. This is one of the reasons for a higher yield of pepper in the former region than in the latter one.

Until recently manuring of pepper vines was not considered important. This was so because only virgin forest land rich in humus content was generally chosen for establishing pure pepper plantations. In mixed household gardens also, the need for manuring does not generally arise since digging and manuring take place for one reason or other and the pepper vines are also benefited thereby. Now conditions have changed and the pepper growers have realised the importance of manuring pepper vines to maintain the productivity at a normal level. In the North Kanara and Coorg region where pepper is cultivated as an inter-crop along with other plantation crops the pepper vines receive the benefit of the attention bestowed on other plantation crops.

Elevation, temperature, distribution of rainfall and other climatic factors exert great influence on the flowering and fruiting of pepper vines. The yield of pepper fluctuates widely depending mainly on the seasonal conditions. Timely rainfall is an all-important factor affecting the yield. It is important to note that the pepper growers are very seriously exposed to the risks associated with the vagaries of the climatic conditions.

One of the major factors affecting the production of pepper is "Pollu" (hollow berry) caused by the Pollu Flea beetle. The beetle damages the berries by eating away the entire seed and making the berry hollow or "Pollu" (as it is popularly known). The attack is very serious especially in North Kerala region and in certain years, it is reported, that the resultant loss is as high as 30 to 40 per cent. Where pepper is grown on plantation basis it is generally controlled by regulating the shade and spraying 0.2 per cent D.D.T., once in July and a second time in October. Another major disease affecting the crop is the "wilt". It assumes two forms viz., the "slow wilt" and the "quick wilt". The symptoms of "slow wilt" are decaying of the roots followed by yellowing and shedding of leaves and consequent gradual death of the vine. In the case of "Quick Wilt" infection usually begins on the stem at a height of 30 cm. from the base of the vine. The affected bark often peels off, the leaves turn yellow, wither and drop, leading to the sudden death of the vine.

Wilt is observed to be a major problem in the hill regions away from the coast. The disease is prevalent throughout the pepper belt of Travancore-Cochin region and the Malabar-South Kanara region. It is claimed that the slow wilt can be effectively controlled by drenching the soil around the root zone of the affected vine with 9 to 14 litres

of a solution of wet ceresan in the strength of 1 gm. per litre of water. In the case of "Quick Wilt" either the affected vines are rooted out if it is in small number or 1 per cent Bordeaux mixture is applied in two sprayings before the South-West and North-East monsoon respectively. It is said to be desirable to drench the soil after the South-West monsoon with wet ceresan. Application of 1/2 to 1 kg. of lime per vine is also found to be beneficial in checking the incidence of the disease.

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Spraying operation in pepper gardens

Plate.No.1.

C H A P T E R - III

AREA OF CULTIVATION AND PRODUCTION OF PEPPER

A proper study of any subject is dependent on satisfactory data. One cannot afford to disregard lord Kelvin's warning that one knows very little of anything until one contrives to measure it. Adequacy and accuracy apart, agricultural statistics have to be available on time in order to be useful for planning as well as formulation and implementation of national policies. In the case of pepper, the production estimates floated by trade interests are almost invariably at variance with those of the Government. Reliable advance estimates of likely production are, in fact, a pre-requisite for the formulation of marketing, export and price policies. The National Commission on Agriculture has highlighted the need for preparing "situation and outlook reports" in respect of major crops. Such reports, according to the commission will not only assist the Government in its policy work but will be useful

for farmers, traders and manufacturers. The major objective of this chapter is therefore to provide an appropriate factual frame-work in which the changing conditions of Indian production can be evaluated. The available data as to the area of cultivation and output are not authentic enough to merit satisfactory conclusions.

In a study of pepper crop, the difficulty to make a conclusive study is felt in two respects:

1 (a) The area of cultivation has not been subjected to a thorough study for reasons of its wide distribution and its location in scattered, remote, hilly areas.

(b) Even here, there are estates big and small which are easily accessible and where area of cultivation could be measured properly. But what has been done to study the area of small-scale farming and small size backyard farms in domestic sorroundings is very little.

2. Assuming that the area of cultivation could be measured with some precision and certainty, the crop area is subject to variations year by year, for the price fluctuations often act as a deterrent to the cultivation, particularly with the small-scale producers of pepper. The major portion of the pepper

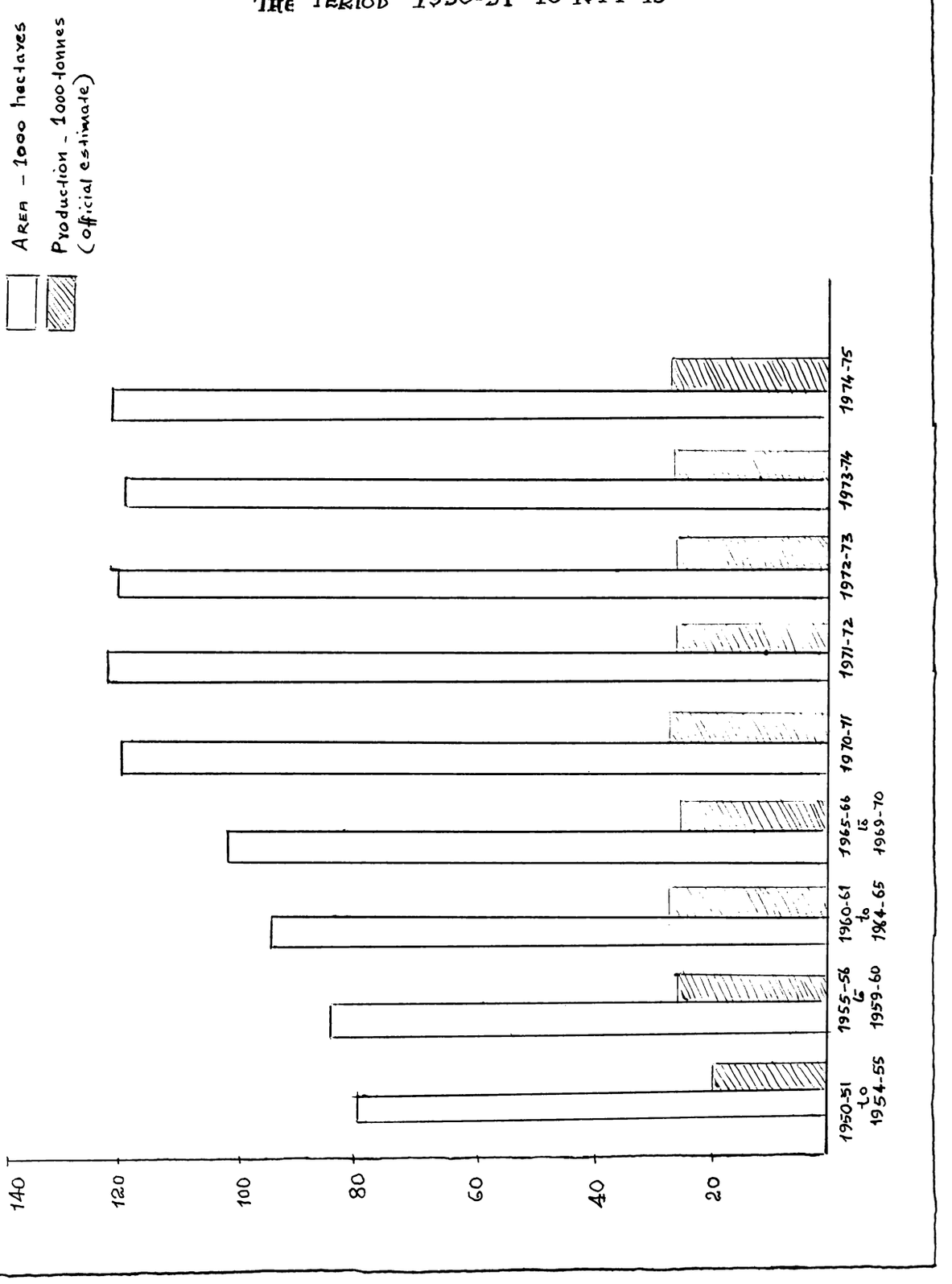
produced in this country comes from the small holdings of the peasantry.

The author should have stressed here the vagaries of weather and monsoon but it is obvious to anybody to merit description. With these constraints, the area of cultivation and production has been estimated by the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, from the year 1949-50, the estimates being continuous and comparable.

During the period 1950-51 to 1955-56 (India's first five year plan) the area of cultivation under pepper continuously increased from 80,000 hectares to 89,000 hectares without any development programme undertaken by the Government. However, some development programmes were carried out in the second, third and fourth five year plan periods. Towards the end of the Second Five Year Plan (1960-61) the area under pepper increased by 13,000 hectares. Though a provision of Rs.1.549 million was made for the multiplication of planting materials of high yielding local varieties in Kerala, Karnataka, Assam and Andamans, only a sum of Rs.0.6 million was utilised for the purpose. The price of pepper which prevailed at that time was also not attractive to the farmers. Hence, increase in acreage might be attributed to the fact that a large number of families from the erstwhile Travancore State settled down in the northern districts of Kerala and

Chart No. I

Trend in Area and Production of Pepper during the Period 1950-51 to 1974-75



took up pepper cultivation along with other crops. In the Third Five Year Plan (1960-61 to 1965-66) though an amount of Rs.2.281 million was spent for pepper development programmes in Kerala and Karnataka, with the object of bringing 6700 hectares additionally under pepper cultivation and raising the production by 2,000 tonnes, the area under pepper remained almost the same as it was in the beginning of the plan. The production, instead of recording an increase, had actually declined by about 5,000 tonnes. In the following years there had been a substantial increase in the area of cultivation. The table No.I gives the area, production (with the estimates made by the Indian Pepper and Spices Trade Association, Cochin) and average yield for the period 1950-51 to 1974-75. Incidentally, the official estimate is much less than the trade estimate. The estimate prepared by the trade includes the stocks maintained by the big producers, wholesalers and exporters which are released by them from time to time depending upon price factor. However, international agencies and institutions like Food and Agricultural Organisation of the United Nations, Rome and Tropical Products Institute, London accept the trade estimate for purposes of compiliation and computation. One has to admit that at present, data on production, area of production, yield, internal consumption of pepper and crop forecast are woefully inadequate.

TABLE - I

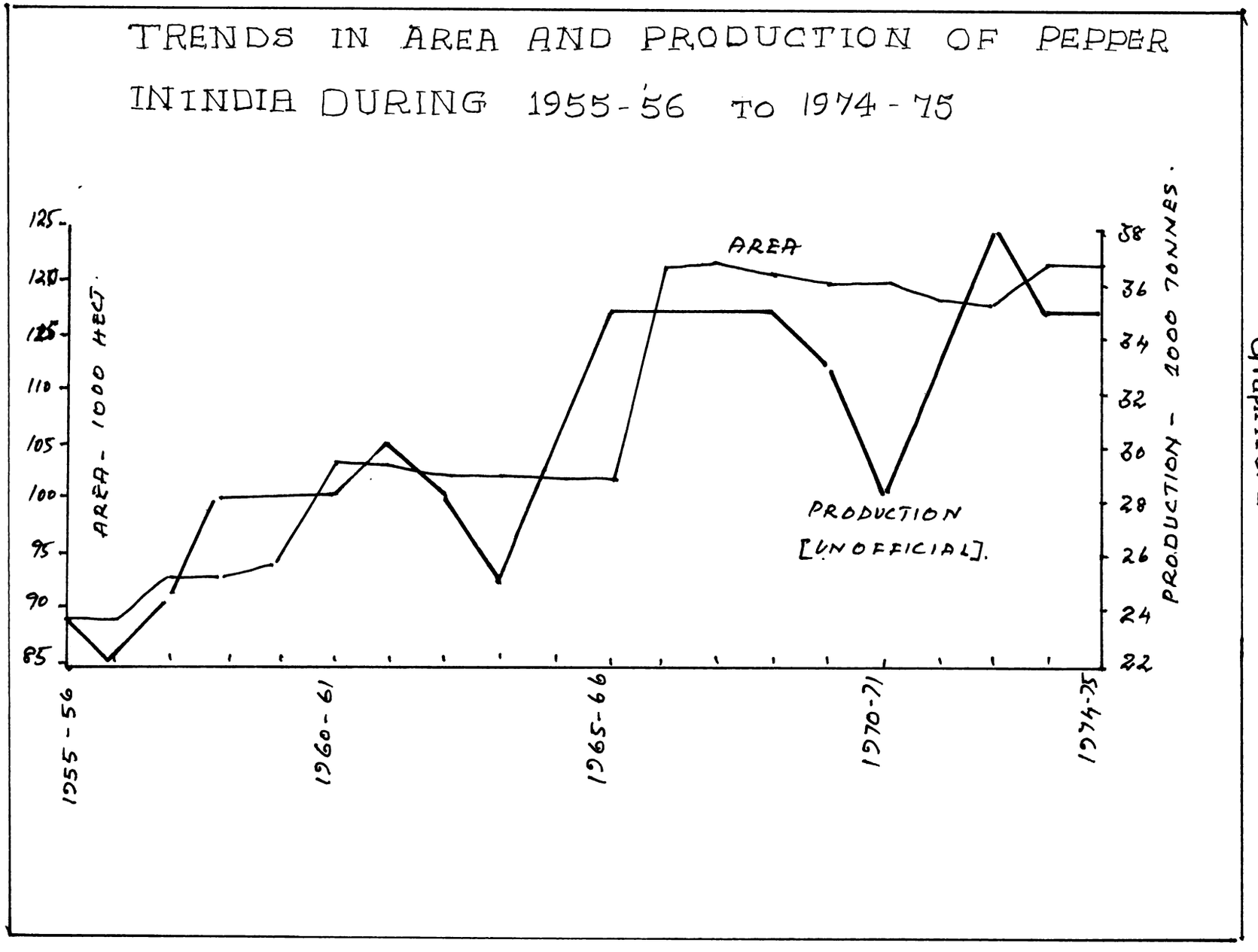
THE TREND IN AREA, PRODUCTION AND AVERAGE YIELD OF PEPPER

DURING 1950-51 TO 1974-75

Year	Area 100 hect.	Production		Average Yield per Hect. in Kg.
		Official Estimate[1] '000 tonnes	Trade Estimate[2] '000 tonnes	
1950-51	80	21.00	-	263
1951-52	82	23.00	-	280
1952-53	82	23.00	-	280
1953-54	84	24.00	-	286
1954-55	86	26.00	-	302
1955-56	89	28.00	24.00	315
1956-57	89	27.00	22.00	303
1957-58	93	27.00	24.00	290
1958-59	93	26.00	28.00	280
1959-60	94	28.00	28.00	277
1960-61	103	28.40	28.00	272
1961-62	103	28.40	30.00	275
1962-63	102	26.10	28.00	256
1963-64	102	24.10	25.00	256
1964-65	102	24.00	30.00	235
1965-66	102	23.25	35.00	228
1966-67	121	27.03	35.00	223
1967-68	122	26.38	35.00	216
1968-69	121	25.66	35.00	212
1969-70	120	25.46	33.00	212
1970-71	120	26.16	28.00	218
1971-72	119	26.16	33.00	220
1972-73	120	26.19	38.00	218
1973-74	122	28.70	35.00	235
1974-75	122	28.15	35.00	230

Source: 1. Spices Export Promotion Council, Cochin.

2. Indian Pepper and Spices Trade Association, Cochin.

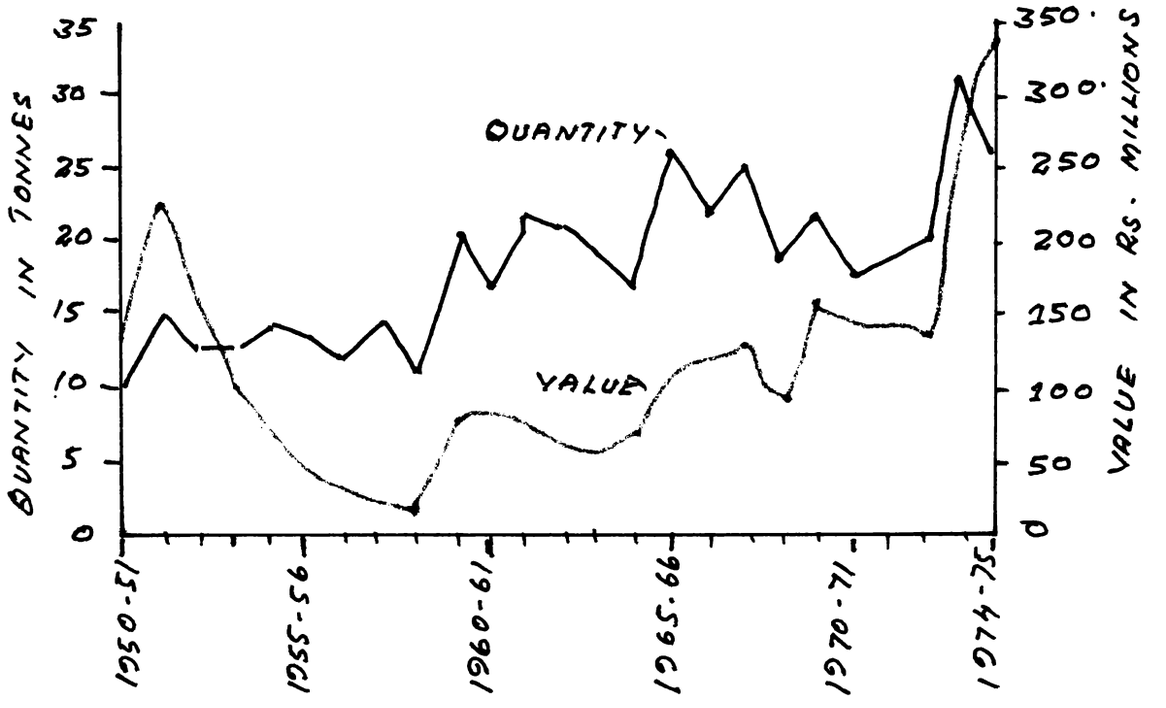

TRENDS IN AREA AND PRODUCTION OF PEPPER
INTINDIA DURING 1955-56 TO 1974-75
AREA - 1000 HECT.
PRODUCTION - 2000 TONNES.
AREA
PRODUCTION
[UNOFFICIAL].
125
120
115
110
105
100
95
90
85
38
36
34
32
30
28
26
24
22
1955-56
1960-61
1965-66
1970-71
1974-75

Graph No. I

It is clear from Table No.I that the increase in the area has not resulted in proportionate increase in production. It is important to note that in the case of pepper, the freedom on the part of the growers is limited to effect changes in the area of cultivation and more so in a short period, since it is a perennial plant, and having spent a large sum on its rearing up, they are mainly concerned with current costs of production. But in the long run they are certainly influenced by the real returns from their investments on this plantation. The producers' income as determined by the unit value realised by the peasants is, no doubt, a significant factor in the matter of the area brought under cultivation and the inputs applied. There are other crops which compete with pepper and this adversely affect the area under pepper cultivation. In Kerala, the competition from other cash crops is a real threat to the development of pepper plantations.

The index number of wholesale prices of pepper with 1952-53 as the base year steadily declined from 45.7 in 1954 to 21 in 1958 and this decline in prices compelled the producers to look upon other crops. This neglect continued for long, till the end of the second five year plan (1960-61). During the period 1963-66 prices began to improve from 32.4 in 1963 to 43.3 in 1966. A close study of the movement of the index number of wholesale prices of pepper

Graph No. II



QUATITY AND VALUE OF PEPPER EXPORTED

FROM INDIA : 1950-'51 TO 1974-'75

together with the developments in the area of cultivation and production during the same period leads us to the following conclusions (1) when the prices realised are at higher levels (abnormal) the fluctuations in the prices are also much more pronounced and (2) declining prices naturally tell upon the area under cultivation in the long period.

The impact of the price fluctuations is felt in the output level of pepper. Even though there was steady increase in the area of cultivation under pepper from 89,000 hectares in 1955-56 to 103,000 hectares in 1960-61, the production remained the same as at the level of the year 1955-56 viz. 28,000 tonnes. In other words, the yield per hectare declined from 315 Kgs. to 272 Kgs. Unit value realised from exports of pepper from India during the period 1950-51 to 1974-75 is given in Table No.I in Appendix-I.

In a purposive sample survey conducted by the author in 1973, covering all the districts of Kerala and important areas of pepper cultivation with a structured questionnaire to make an on the spot study of the methods of pepper cultivation, cultural practices and the cost of production of pepper, it was revealed that the pepper growers in the districts of Trichur and Ernakulam of the Kerala State showed a negative approach for the development of pepper cultivation during the period 1955-56 to 1961-62. They

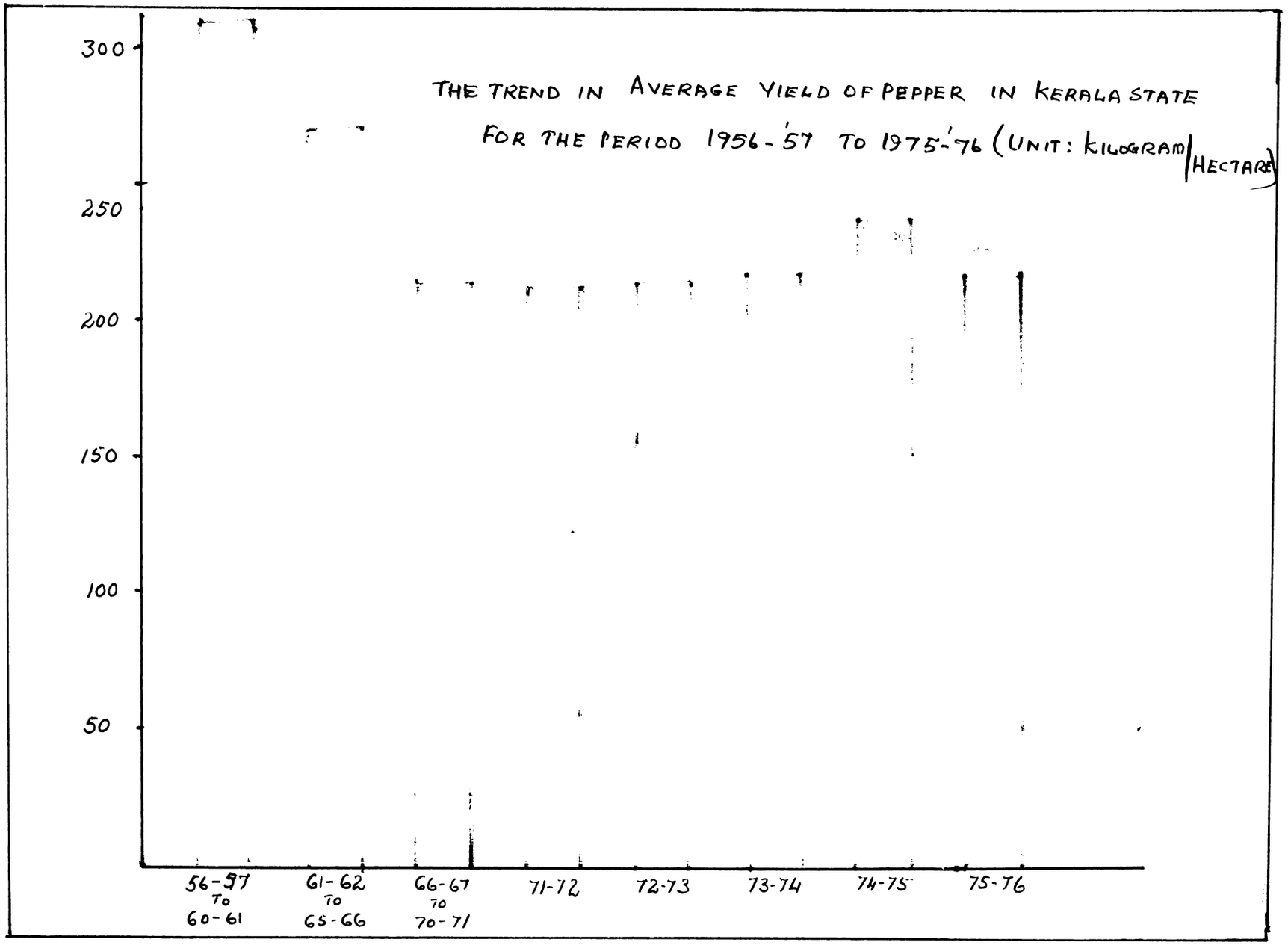

THE TREND IN AVERAGE YIELD OF PEPPER IN KERALA STATE
FOR THE PERIOD 1956-'57 TO 1975-'76 (UNIT: KILOGRAM/HECTARE)
300
250
200
150
100
50
56-57 TO 60-61
61-62 TO 65-66
66-67 TO 70-71
71-72
72-73
73-74
74-75
75-76

Chart No. II

1955-56 to 1960-61 and remained more or less at the same level till the year 1965-66. The depression in prices was mainly responsible for this phenomenon. However, there was an increase in the area under pepper during the period 1965-66 to 1974-75 from 102,000 to 122,000 hectares. An important point to be noted is that the increase in area during the period 1955-56 to 1960-61 did not result in any appreciable increase in production. The production remained stationary at the level of 28,000 tonnes whereas the area under cultivation was increased by 14,000 hectares. In other words, the average yield per hectare declined from 315 Kg. to 272 Kg. during the period 1955-56 to 1960-61. Area, production and yield (with index) of pepper in India for the period 1949-50 to 1972-73 is given in Table No.III in Appendix-I.

Eventhough the area under pepper cultivation remained almost stationary till the year 1965-66, the yield per hectare continually declined from 272 Kgs. per hectare in 1960-61 to 228 Kgs. in 1965-66. The year 1966-67 witnessed a substantial increase in the area of cultivation of pepper. None-the-less, the yield per hectare continued to decline till the year 1969-70 when it reached the lowest yield per hectare with 212 Kgs. per hectare. Thereafter, it improved in the succeeding years owing to better prices available in the market. According to the official estimate, the yield per hectare works out at 235 Kgs. in 1973-74 and 230 Kgs. in 1974-75.

District-wise area, production and yield of pepper in Kerala State (Area in hectares, production in tonnes, yield in kilograms per hectare) for the period 1970-71 to 1974-75 are given in Annexure No.I.

Apart from the problems arising out of climatic vagaries and ecological factors the most important problem facing pepper production is the low yield and consequent high cost of production. The cultivation of pepper in India is of the most primitive form. The only thing the farmer does is the planting of pepper cuttings at the base of any tree in the homestead garden. Little attention is given to the crop subsequently. A more intensive form of cultivation especially in Cannanore and Calicut districts of Kerala, is to grow the vines as a pure plantation on a shading standard like Erythrina Indica. Even here the operations include only land clearing, digging round the vine once a year and shading and training, in the first two years of planting. Manuring is seldom done in the majority of the cases. The traditional practice in these cases of pure plantations was to use virgin lands under forests on hill slopes. No replanting was practised. The situation is however changing. The Land Reforms Act has curtailed the scope for the practice of raising pepper vines on the hill slopes on plantation basis.

The average size of farm holdings in Kerala is 0.73 hectares against the national average of 2.16 hectares.

The vast 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 needs and requirements. They are not generally attracted towards cultivation of pepper under monoculture, even if all kinds of incentives and assistance are extended to them. Encouragement of small-scale plantings by growers in their house compounds and in small holdings as an inter-crop is the only way of increasing the pepper production as far as, at least, Kerala is concerned.

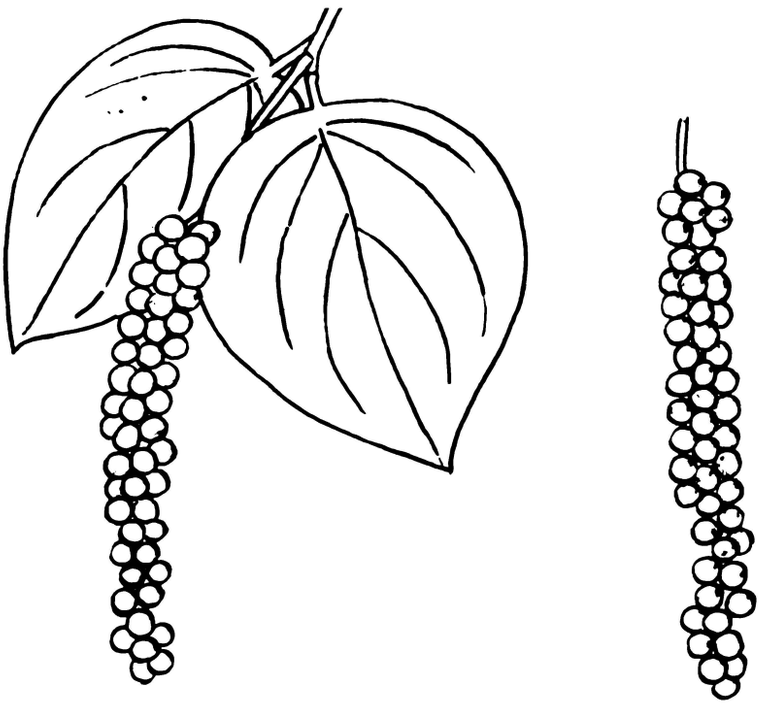
In Kerala, average yield per vine is reported to be below 0.25 Kg. This low yield is attributed to the cumulative result of the genetic characteristics of the planted varieties, senile stage of vines and inadequate cultivation practices. The Malabar Black pepper is a mixture of berries from a large number of different varieties of pepper grown mostly in the State of Kerala viz. 'Karimunda', 'Kalluvalli', 'Balankotta', 'Kottavalli', 'Karinkotta', 'Cheriakodi', 'Uthirankotta', 'Cheriakanjakadan', etc. Many of the pepper cultivars grown in India are either chance seedlings or mutations, selected for desirable characteristics and maintained by vegetative propagation. The clonal method of propagation has made it possible to fix the vigour and other characters of the cultivars. Thus of all the variability now found in the commercial varieties or cultivars many have been derived from a

limited number of genotypes originally selected from chance seedlings. It is not surprising that the variability in the cultivated type is very low in comparison to that in wild types. In some varieties the spikes may be long, but few in number or with loosely packed berries whereas in others a large number of short spikes may be formed. With the object of evolving a better strain of pepper capable of yielding more than the common varieties under cultivation, efforts were made at the Pepper Research Station at Panniyur, Taliparamba, in Cannanore District, Kerala State.

A technique of controlled hybridisation was perfected for the first time at the Pepper Research Station, Panniyur in 1954. After a prolonged field study of the performance of about 30 different parental combinations, the Uthirankotta-Cheriakanikkadan combination which is now known as 'Panniyur-1' was adjudged the best. This hybrid possesses the good characteristics of both 'Uthirankotta' and 'Cheriakanikkadan' and is capable of a big boost in the production of pepper in India. It is fast growing and early bearing and begins to yield even from the second or third year of planting. Its spikes are very long with closely set big berries. It has been tried at different agricultural stations in the State and the results were quite encouraging. The mean yield for a period of five years of 'Panniyur-1' was found to be 7.331 Kg. (green) whereas that of 'Kalluvally' (local popular variety) was only 1.751 Kg. (green). The chief

Bearing "Panniyur I" Pepper Vine.

Plate-No-2



PANNIYUR-I
SPIKES

Plate.No.3

characteristics of this hybrid vine 'Panniyur-1' in comparison with those of 'Kalluvally' is given in Annexure-II. Thus the productivity potential of 'Panniyur-1' is indeed tremendous.

Apart from the low yield of pepper in the existing plantings, there are two serious diseases of pepper both of which affect the yield. Incidence of wilt disease is noticed in the important pepper growing regions of Cannanore and Calicut Districts. The presence of this disease is also found in Nedumangad and Kanjirappally etc. in the Southern Region. Losses of upto 20 per cent are generally reported in some plantations and it is not uncommon to see plantations completely destroyed. Another major factor affecting the production of pepper is "pollu" (hollow-berry) caused by Pollu Flea beetle. The beetle damages the berries by eating away the entire seed and making the berry hollow. The pest is very serious especially in North Kerala and in certain years, it is reported, the damage is as high as 40 per cent.

According to the Directorate of Agriculture, Kerala State, pepper production in the Kerala State is mostly in the hands of small holders. About 41 per cent of the total holdings are one hectare or less, 27 per cent of the holdings, 1 to 2 hectares and 15 per cent, 2 to 3 hectares.* The quantity of pepper produced by the majority of individual farmers will very often be too small a quantity for proper processing,

*Source: Anantha Narayana Iyer, R., "Problems of Pepper Cultivation in Kerala", International Seminar on Pepper, 1976, Cochin, P.PN-20.

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 farmers when small quantities of the product are offered for sale. Pepper growers having comparatively larger areas, often resort to pre-harvest sales resulting in the neglect of the crop and its proper maintenance. Lack of adequate finance for cultivation purposes is the compelling force for parting with the produce at the pre-harvest stage.

State-wise distribution of area, production and yield per hectare in India during the period 1968-69 to 1974-75 is given in Table No.IV in Appendix-I.

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ANNEXURE - II

CHIEF CHARACTERISTICS OF PANNIYUR-1 COMPARED WITH KALLUVALLY

	Characteristics	Panniyur-1	Kalluvally
1.	Maximum yield per vine obtained for the past five years	10.500Kg. (green)	5.590Kg. (green)
2.	Minimum yield per vine obtained for the past five years	5,325Kg. (green)	0.931Kg. (green)
3.	Mean yield for the past five years	7.331Kg. (green)	1.751Kg. (green)
4.	Mean length of the spike	16.2cm.	10.8cm.
5.	Mean number of berries per spike	98	65
6.	Percentage of bi-sexual flowers	87.7	53.4
7.	Weight of 100 green berries	16.8gm.	12.4gm.
8.	Value of 100 green berries	17.0 C.C.	12.0 C.C.
9.	Percentage of dryage	32.8	31.4

Source: Results of the experiments tried at different agricultural stations, published in Arecanut and Spices, Vol.III, No.7, July-Sept. 1971, P.13.

C H A P T E R - IV

VARIETIES AND FORMS OF PEPPER

MALABAR BLACK PEPPER

When black pepper is the end product, the colour, outward appearance and flavour are very important. The largest amount of pepper is consumed in this form. For black pepper, the berries are picked while still immature and dried. The entire berry is used for this kind of spice. As the berries dry, the skin wrinkles and turns black. When ground, the pepper corns give a powder of light and dark particles - a combination of the dark skin and light coloured core.

A major portion of the world's black pepper comes from the South-Western shore of India, known as the Malabar coast. The pepper from the Southern Districts of Kerala is generally called "Malabar" while the pepper of the Northern Malabar coast is known as Tellicherry Pepper. The former is highly aromatic with a distinctive fruity bouquet. There are chemical properties responsible for its excellent aroma, flavour and pungency. As with the Tellicherry Black Pepper,

in addition to possessing the excellent flavour and pungency properties noted above in Malabar Pepper, it is characterised by what the pepper trade calls "bold" berries-large, very regular and good looking specimens. Both Malabar and Tellicherry peppers are marketed only as Black Pepper. The odour quality of pepper is also an important consideration. This depends not only on the amount of oil present, but also on the constitutional make up of the oil.

LAMPONG BLACK PEPPER

Pepper grown in Indonesia is named after the Lampong district of south-eastern Sumatra wherein its cultivation is centred. It is quite uniform in its properties. This pepper compares with Malabar in pungency and flavour. The berries are small and thin shelled and are suitable for machine decortication. Ground lampong black pepper is relatively light in colour. Sarawak of the Federation of Malaysia, along the north-western coast of Borneo is the home of Sarawak Black Pepper. Ground Sarawak Black Pepper is a very light coloured product, mild in flavour, low in volatile oil, non-volatile ether extract and Methylene Chloride extract. Brazil is the latest producer of Black Pepper. It has a relatively smooth surface and a characteristic appearance. The outer skin is black and the centre of the berry very white. This causes a sharp black and white contrast in the appearance of the ground pepper. It is low in steam volatile oil and non-volatile Methylene Chloride

extract and its flavour characteristics makes this pepper less desirable than the Tellicherry Malabar and Lampong varieties.

WHITE PEPPER

It is estimated that the world trade in white pepper is about 6 to 8 thousand tonnes. Sarawak, Muntok and Brazilian white peppers are well-known in world pepper trade. This product is specially used in the production of those items where black particles are not desirable. White pepper is also being used in some European countries and is preferred for its mild flavour. It also gives a finer ground due to higher starch content. Traditionally white pepper is made from red ripe or nearly ripe pepper fruits as compared to black berries. This makes it easier to remove the skin. After they are picked at the ripening stage, these mature berries are soaked in water for 2 - 3 days to loosen the skin and then rubbed to remove it entirely. The cores are then washed and dried in the sun. Yields of about 22 per cent dry product on the weight of fresh berries are obtained. It is also possible to produce a white type of pepper from dried black pepper corns by removing the skin in a machine. This is known as "Decorticated Black Pepper". It can be used interchangeably with white pepper from a colour standpoint, but in flavour, it is more reminiscent of Black pepper. The Indian berries are not easily husked or decorticated.

Harvesting ripe pepper is a problem, since the soft fruits drop off from the spikes or will be eaten by birds. Hence, in some places, fully mature, but still green pepper is harvested and soaked in running water for about a week and subsequently treated the same way as ripe pepper. Some varieties of pepper grown in the Far Eastern countries are said to give black pepper with easily removable husks. Dehulling such black pepper would be an easy and an year-round process for making white pepper. Recently, Central Food Technological Research Institute, Mysore has developed a new type of white pepper which has got the wrinkled skin still in tact. It is reported that it resembles black pepper, except for colour. On grinding, it gives a light coloured powder, just like the traditional white pepper powder. The aroma is much superior to the odour of many white pepper samples and the microbial is minimum. However, it does not have the smooth creamy appearance of white pepper made from ripe fruits. The economic advantage of this new process is that a higher yield is obtained (about 28 per cent of green pepper) compared to the traditional yield (22 per cent). It is claimed that this process is fairly simple, capable of being adopted by even small growers.*

MUNTOK WHITE PEPPER

Muntok White Pepper has its own characteristic aroma and a relatively mild flavour. It is produced in the

*Source: Lewis, Y.S. and others, "The need for Growing Pepper Cultivars to suit Pepper Products", International Seminar on Pepper, 1976, Cochin, P.PG-4.

island of Bangka which lies off the south-eastern coast of Sumatra. The entire crop traditionally goes into white pepper production. White pepper is also produced in Brazil and in Sarawak. The Brazilian White Pepper when ground is lighter in colour and less pungent than Muntok White Pepper. The major share of Sarawak crop is normally reserved for white pepper. Pepper from Sri Lanka is characteristically high in volatile and non-volatile oil content which makes it favoured by the extraction industry.

PEPPER OIL AND OLEORESINS:

This is the most appropriate place to describe the new technological advances which have been made in the last two decades in the field of pepper processing with oleoresins. An oleoresin is prepared from a spice or herb by extraction with a selected volatile, organic solvent after which the extracting medium is completely removed under vacuum, if permissible residual solvents are used. Oleoresins, therefore, differ from the corresponding oil in that a different method of preparation has been employed. This process results in a mixture of the essential oil, the organic soluble resins and the related materials present in the spice in combination with whatever non-volatile fatty oil the original spice or herb may contain, depending on the type of solvent used for extraction.

Oleoresins, therefore, contain all the flavouring principles present in the original spice or herb material. The constituents in the spice which are responsible for pungency are not present in the essential oil since they are not volatile; only the oleoresins which include these principles will provide the complete flavour effect. By their very nature oleoresins have built-in stability to high temperature applications. Oleoresins may be employed in food products by direct addition in proportion to its spice equivalent or replacement value.

In some cases, it is desirable to distribute the oleoresin product on the surface of a dry edible carrier. Any dry, edible material can be used for this purpose and the most commonly employed are salt and dextrose. Soyabean protein, starch, milk solids and the like may be used to distribute the oleoresin product. When ground spices or sodium nitrite is added with the oleoresin, it is commercially known as dry soluble seasoning. This concentrated dry soluble is then added to additional dry material which, after mixing, will result in the finished product.

THE ADVANTAGES OF OLEORESINS:—

1. Uniformity of flavour:

The use of the extractives tends to minimise variations resulting from crop year to crop year and with the age of the raw material.

2. Stability:

When natural spices are stored over a long period of time especially in the ground form, the volatile essential oil present is likely to be lost through evaporation or through polymerization and oxidization. When extracted, these effects are minimised, especially losses arising out of volatilization.

3. Storage:

The equivalent flavouring of a large quantity of voluminous spice is usually obtained from a small container of the Oleoresin-type product.

4. Micro-biology:

Oleoresin-type products are not only bacteria-free but free from mould, fungus or other contaminants, sometimes found in the raw spices. Spices can be made bacteria-free, but it involves somewhat elaborate sterilization techniques.

5. Economy:

Since the oleoresin carries with it the entire flavouring portion of a spice, there is no loss in its flavouring virtues which is not the case with spices, no matter how finely ground they are. Savings in transport cost, in storing space and in maintaining the flavour in tact result in considerable economies.

Oleoresins are not consumed in domestic kitchens and they are in demand from large-scale processors of food manufacturers in the developed countries. There are varieties and grades of oleoresins made and marketed in the developed countries. All these varieties and grades have been evolved over the last two decades. Every manufacturer has developed his own techniques for producing these varieties. The extractors in the developed countries, namely, U.S.A., Canada, West Germany, Britain and Japan, have been offering certain organoleptic qualities to the flavour of food manufactures. By virtue of the fact that the variety of spices and the processing conditions are different in the spice producing countries, the organoleptic qualities of the oleoresins, namely the flavour and odour, are bound to be different from the flavour and odour of oleoresins produced in the developed countries. The foreign consumer, who is very particular of the quality of his product will be satisfied only with that quality and grade of oleoresins with specific characteristics and properties. The manufacturers of oleoresins in the developed countries are better placed in this regard in as much as they can offer tailor-made products based on their own research and development. It is also an important factor that the supplies like solvent, fuel and chemicals are more expensive in spice producing countries, although spices are cheaper than they are in the developed countries. At present, the market for oleoresins has been tapped by the extractors in the consuming countries. Hence

the newly installed plants in the spices producing countries have to compete with the established units in the oleoresin consuming countries.

The extent to which oleoresins are used in the food industries of importing countries and the speed at which the change from natural spices to spice extracts takes place are the two important factors that are likely to determine the future of pepper economy. Simply by switching from natural ground pepper to oleoresin, the pepper requirements of the food industry might be cut off considerably. If it is assumed that each tonne of oleoresin when dispersed on a suitable base, can be used to replace 16 tonnes of ground spice due to the greater availability of flavour than in the ground product, in order to produce the flavour/pungency equivalent of 1000 tonnes of pepper, only 62.5 tonnes of oleoresins will be needed (i.e. 1000 divided by 16). But only 500 tonnes of pepper will be needed from which to extract it.

In spite of all these advantages enjoyed by oleoresins, oleoresin extraction presents a number of problems in the world pepper economy. There are varieties and grades of oleoresins made and marketed by the oleoresin extraction industry in the developed countries. Every manufacturer has his own techniques for producing these varieties and each one enjoys his own market. The extent to which oleoresins are used in the food industries of importing countries and

the speed at which change from natural spices to spice extracts takes place cannot be reasonably estimated. Any attempt to quantify these changes even after giving a due weightage will be based on the subjective impressions of the investigator. In many of the important pepper consuming countries like United States, United Kingdom, Federal Republic of Germany and Italy, the rate of population increase has been declining steadily and significantly over the past few years.

Different situations exist in each importing country in terms of the structure of its trade, its national preferences and forms of pepper utilisation. Thus for example, in the United Kingdom, Lampong light pepper are favoured by oleoresin extractors, since it gives the best yield, weight for weight. If an oleoresin is required for dispersing on a rusk base as is the case in Italy, Indian pepper, particularly the highly priced Tellicherry Extra Bold, is preferred. Scandinavian countries show a preference for Indonesian Muntok. The bland and yet characteristic flavour of Brazil pepper seems to be appreciated in the United States. Though its flavour is not favoured in the United Kingdom it is widely used to blend with and lighten other ground peppers. Infrequent supplies of white pepper from China are well received in the United Kingdom for its flavour, appearance, cleanliness and above all, competitive prices. Though quality and source of the material are important factors, the dominant and increasingly important consideration in the determining

the quantities of particular types of pepper shipped to almost any given market of the world is price. In addition to considerations of appearance, the chemical properties of pepper are gaining importance in recent years, since the flavour of pepper is dependent on two factors, the volatile oil responsible for the spicy odour and piperine, the alkaloid responsible for the biting taste.

GREEN PEPPER

Of late, there has been a growing demand for canned or bottled tender green pepper from countries like Japan and U.S.A. The canned, bottled and bulk packaged green pepper in 35 litre PVC Jerry Cans fetch about 6 - 10 times the price of normal black pepper and hence there appears to be quite a bright future for it as a relatively new venture in spice technology. Thus, processing of tender green pepper is quite a promising line in spice technology. Its prospects can further improve, if the season of availability of green pepper could be extended to 4 - 6 months by developing suitably early, mid and late season varieties of pepper low in peperine and starch content.

During the year 1973-74, India exported 10.82 tonnes of canned pepper valued at Rs.96,000. Exports in 1974-75 amounted to 10.366 tonnes valued at Rs.1,66,500. During the year 1975-76, India exported 96.89 tonnes of

canned green pepper valued at Rs.1.098 million. U.S.A., U.K., Belgium, Netherlands, France, West Germany, Finland, Denmark, Newzealand and Japan are the important importers of this item. In 1976-77 the export of this item reached the level of 175 tonnes valued at Rs.2.1 million. Dehydrated green pepper is another new venture in the export trade of pepper. It is reported that during the year 1976-77 India exported 59.84 tonnes of dehydrated green pepper valued at Rs.3.538 million. Of the total exports of this new item West Germany alone absorbed 54.4 tonnes followed by France with 3.5 tonnes.

PEPPER AND PEPPER POWDER IN CONSUMER PACKAGES:

With the increase in world travel and people living either temporarily or permanently in foreign countries, food habits of the people have undergone considerable changes. One of the major components of the demand for pepper is the household demand for it as a condiment. Broadly speaking, the consumption of pepper may fairly be equally divided between the household and institutional sectors, since consumption-at-home statistics are not available. This shows the scope for exporting pepper in consumer packing.

The advantages of exporting in retail packing are that by establishing a brand name, an exporter creates a steadier and continued demand for his product whereas in bulk he is at the mercy of the commodity buyer, to whom price seems to be the primary consideration and which makes him

switch his buying from one country to another. Retail packing may also be instrumental in securing an increase in unit value of the commodity exported. With large supplies available for export and the advantage that labour is cheap compared to the developed countries, the potential for exporting pepper in consumer packing are enormous. These advantages are, however, partly lost due to the fact that packing materials acceptable to the consumers in overseas markets are very expensive. Other problems in exporting pepper in consumer packages are the following:

1. Presence of well established repacking houses in most of the developed countries with a vast net work of branches.
2. Lack of distribution channels.
3. Tariff Barriers.

In order to overcome these difficulties, a strategy that would put ans in competition with marketing companies overseas, keeping in mind the consumer's requirements and specifications, has to be worked. Creation of seller-buyer understanding, collaboration with foreign firms in respect of marketing and distribution channels may also be considered to solve the marketing problem. Exporters trying to pioneer the export of pepper in retail packages deserve all encouragements by way of giving import entitlement for packaging materials and other benefits.

C H A P T E R - V

COST OF PRODUCTION OF PEPPER

Pepper comes from the dried mature fruit of a perennial climbing vine. Although the vines begin to yield from the third year, they attain the full bearing stage around the seventh year.

There is hardly a village in Kerala without some pepper cultivation. More than 90 per cent of the pepper grown in Kerala are in the home stead gardens or in the back-yard areas of the households. Varieties of vines propagated, types of supports used, methods of manuring all vary from region to region. Pepper is also grown as a pure plantation in the north, especially in the 'Hosdurg' in Kasargode Taluk of Cannanore District. In the south in the Meenachil Taluk of Kottayam District also pure pepper plantations are found. In all other districts of Kerala pepper is found to be cultivated as a mixed crop in the homestead gardens of the peasants. All this makes impossible the determination of average cost of production on a scientific basis. Yet, the

author made an earnest attempt to determine what the reasonable cost of production is from the point of view of the owners of pepper gardens under normal cultural methods and practices. Another important problem is the variations in yield rate from place to place and from year to year. Barring the influences of rainfall and climate, the average yield per standard varies with the type of support used, variety of the vines used, age of the standard etc. It also depends on the plants whether they are healthy or diseased, manured or unmanured.

It was also observed that high average yield was obtained from using the standards of Jack, Mango, Payyani, Elavu, Pezhu as supports. Although Murikku was the commonly used support in Kerala State, the yield rate of standards against these supports were found to be lower than that from the standards against these supports mentioned above. This seems to be obvious from the fact that the surface area or the girth and the height of the supports like Mango trees, Jack trees etc. mentioned above are much more than that of Murikku. They accommodate more vines trained on to them and grow to a good height which results in high average yield per standard. But this may not affect the yield per acre in view of the fact that a large number of Murikku supports can be accommodated in an acre against the other supports mentioned above.

High average yields were obtained from the varieties of Kuthiravalli, Karuvilandi, Chumala, Kottavalli, Kottanadan, Chole, and Padappan. Although Karinkotta and Balankotta were the most commonly used types of pepper vines, their yield rates were found to be lower than that of the other varieties mentioned above. The average number of vines trained on to one standard depended largely on the type of standard used.

The Marketing Research Corporation of India estimated in 1968 the average yield per acre as 772 Kg., with 400 standards per acre, for a representative plantation.[1] The survey conducted by the author in April - May 1973 showed that the pepper gardens maintained on a plantation basis had an average yield rate of 400 Kg. and hence this yield rate is taken for the purpose of calculating the average cost of production of pepper. (In this connection one has to make note of the fact that the yield is generally subject to crop cycle of good, poor and medium. This fact was emphasised by many of the growers.)

The cost of cultivating and maintaining the pepper vines for the first 5 years is estimated at Rs.3,250/- in the year 1973 which would work out at Rs.4,800/- in 1976, taking into account the rise in wages and cost of materials

1. The Marketing Research Corporation of India, Survey of India's Export Potential of Spices, 1968, Vol.II A, P. A.37.

and fertilisers. The annual break-up of this level of expense is given elsewhere.

This estimate of expenditure has been worked out by interviewing twenty-five producers with a structured questionnaire in centres like Payyannore, Taliparampa and Hosdurg, all in Cannanore District. This was further tested with further surveying of areas like Kattapana in Idukki District, Nedumangad in Trivandrum District and Kanjirapally and Palai of Kottayam District and Muvattupuzha of Ernakulam District. In the survey, it was found that growers of pepper had become conscious of the application of fertilisers and pesticides. It was also not uncommon to hear from the small growers in scattered areas that pepper had no cost of production except the wages paid for the harvesting, drying, storage and transport.

The cost of production from the seventh to the fifteenth year is approximately the same as in the seventh year itself, unless the crop is subjected to some disease. The yield level also roughly remains the same on an average, i.e., about 400 Kgs. per annum.

It has been indicated above that the initial cost during the first five years works out at Rs.3,250/- and Rs.4,800/- for the year 1973 and 1976 respectively. These figures have been arrived at after making provision for the

interest that will become chargeable year after year, on the annual investment, at 10 per cent rate of interest. No allowance is made for the overhead expenses in the form of structures, buildings, tools etc.

This initial block capital has to be spread over for a period of eight years during which period alone the plantation gives a fair yield of 400 Kgs. of pepper per annum. If this is done according to the discounted cash flow technique, at the rate of 10 per cent, the annual charge would be Rs.609/- and Rs.900/- for the years 1973 and 1976 respectively. Over and above this, the producer should recover from current earnings, the current annual expenses involved in cultural practices, manuring, gathering, drying and bagging the pepper which works out Rs.930/- and Rs.1,350/- for the years 1973 and 1976, per acre respectively. In all, therefore, the producer must recover Rs.1,539/- and Rs.2,250/- for the years 1973 and 1976 respectively as costs from the produce per acre. Estimated cost of cultivation for raising and maintaining one acre of pepper based on purposive sampling held in 1973

		May 1973	May 1976
Wages of Men	-	Rs.5.00	Rs.8.00
Wages of Women	-	Rs.3.00	Rs.6.00

Particulars	Men Nos.	Women Nos.	1973	1976
			Rs. Ps.	Rs.Ps.
Cost of cultivation in the First Year:-				
1. Preparation of the ground	20		100.00	160.00
2. Pitting	8		40.00	64.00
3. Cost of Polls			180.00	240.00
4. Fixing Polls	8		40.00	64.00
5. Weeding and digging(2 times)		30	90.00	180.00
6. Land Tax			2.00	2.00
Total			452.00	710.00
Add: Interest @ 10% per annum			45.20	71.00
			497.20	781.00
Cost of cultivation in the Second Year:-				
1. Cost of vines @ Rs.50/- per thousand for 400 standards @ 5 vines per standard			100.00	100.00
2. Pitting	8		40.00	64.00
3. Planting		15	45.00	90.00
4. Shading	8		40.00	64.00
5. Weeding and digging(2times)	10	12	86.00	152.00
6. Mulching	8	2	46.00	76.00
7. Field care			60.00	80.00
8. Land Tax			2.00	2.00
Total			916.20	1409.00
Add: Interest @ 10%			91.62	140.09
			1007.82	1549.09

Particulars	Men Nos.	Women Nos.	1973	1976
			Rs. Ps.	Rs. Ps.
Cost of cultivation in the Third Year:-				
1. Filling up the vacancies @ 15% of the vines planted			27.25	38.10
2. Shading	8		40.00	64.00
3. Weeding and digging (2 times)	10	12	86.00	152.00
4. Manures and Manuring			180.00	200.00
5. Shade sloping	15		75.00	120.00
6. Cost of pesticides and application			40.00	60.00
7. Mulching/Field care etc.	8	2	46.00	140.00
8, Land Tax			2.00	2.00
Total			1564.57	2325.19
Add: Interest @ 10%			156.46	232.51
			1721.03	2557.70
Cost of cultivation in the fourth year taken as in the 3rd year			496.75	776.10
Total			2217.78	3333.80
Add: Interest @ 10%			221.78	333.38
			2439.56	3667.18
Cost of cultivation in the fifth year taken as in the previous year			496.75	776.10
Total			2936.31	4343.28
Add: Interest @ 10%			293.63	434.35
			3229.94	4777.61
The capital expenditure for the Five years is taken as			3250.00	4800.00

It is assumed that in the sixth year, the cost of maintenance including the interest on capital investment will be met out of the revenue available from the pepper cultivation.

Particulars	Men Nos.	Women Nos.	1973	1976
			Rs.Ps.	Rs. Ps.
Cost of maintaining one acre of pepper plantation from the seventh year onwards:				
1. Shading	8		40.00	64.00
2. Weeding and digging	10	12	86.00	152.00
3. Shade sloping	15		75.00	120.00
4. Manures and manuring			104.00	200.00
5. Cost of pesticides and application			45.00	60.00
6. Harvesting, Drying and bagging.			494.00	634.00
7. Field care			60.00	90.00
8. Plantation tax			20.00	20.00
9. Land Tax			2.00	2.00
	Total		926.00	1342.00
Cost of maintaining one acre of yielding pepper plantation for one year is taken as			930.00	1350.00

The cost of production from the seventh to the fifteenth year is approximately the same as in the seventh

year itself, unless the crop is subjected to some disease. The yield level also roughly remains the same. Hence the total cost of establishing pepper plantations in six years has to be spread over 8 years on the basis of discounted cash flow. Thus the cost of production of one kilogram of pepper is computed as follows:

	1973 Rs. Ps.	1976 Rs. Ps.
Cost of maintaining one acre of yielding pepper plantation for one year	930 00	1350 00
Spread over of the establishment cost	609 00	900 00
Net cost of production of estimated yield of 400 Kgs.	1539 00	2250 00

It is important to note that no allowance is made for the value of land on which the vines are grown. There are difficulties in assessing the value of land as such in difficult locations and different regions. The acute scarcity of land for raising pepper on plantation basis, the predominence of small-scale growers of pepper who make use of their backyards and small plots of land for pepper cultivation and the real and serious competition from other crops make it all the more difficult to have any kind of valuation of land either used for pepper, or usable for pepper cultivation. Further no allowance is made for the overhead expenses which cannot be scientifically or adequately assessed since pepper cultivation is still in the hands of poor

peasantry who follow traditional practices of cultivation. Over and above this, the producer should be compensated for the supervision he has to bestow upon his pepper garden for timely action. If these costs are quantified, though arbitrarily, in the absence of other methods, as equivalent to 50 per cent of the net cost of production the fair cost of production will work out as follows:—

	1973 Rs. Ps.	1976 Rs. Ps.
Cost of maintaining one acre of yielding pepper plantation for one year	930 00	1350 00
Spread over of the cost of establishing	609 00	900 00
Net cost of production of estimated yield of 400 Kgs.	1539 00	2250 00
Net cost of production of 1 Kg. of pepper	3 85	5 63
Overhead charges including the provision for the use of land @ 50% of the above	1 93	2 82
Producers margin of profit @ 33 1/3% of the net cost of production	1 28	1 88
Fair cost of production	7 06	10 33

The year-wise estimate of cost of production of pepper for the year 1976 is given in Annexure No.I.

It may be added that this estimate of cost of production is on the basis of the working of representative farms studied. But unfortunately, at present, the all India yield rate is only 220 Kgs. per acre whereas the yield rate obtained in the farms surveyed is 400 Kgs. per acre. In any case, it is not too difficult to conclude that if yield rate is increased to similar levels on all acreage under pepper, this may form the basis for our selling price after providing adequate margins for cleaning, processing and export agents' commission.

In view of the details above, it is apparent that the cost of production of pepper is likely to vary widely from plantation to plantation and household to household depending upon the level of productivity per acre and the level of inputs used. We have already seen earlier that when pepper prices were uneconomic many marginal producers went out of business. Since pepper is not an annual crop, the varying annual average cost of production also cannot be an important determinant of the current price level. The variable annual cost involved in maintaining vines and the spread over of the cost of establishing the plantation can only form the floor for determining the current price level, the actual price level being determined by the current levels of supply and demand. The average level of production over a few years will, however, be influenced by the average level of prices that may come to be observed over a 5 to 10 years

period. In the short run, the cost of production is not likely to be an important factor in the determination of price.

Farm prices are determined solely by the relationship between available supply and market demand. One of the leading characteristics of exports of primary produce is their persistent tendency to undergo large fluctuations both in volume and prices. If the primary producers are to be benefited, pricing has to be made controllable, or else a poor crop with high prices or a fair crop with low prices would mean the same to the growers.

At present the all India yield rate is only 220 Kgs. per acre whereas the yield rate obtained in the plantations surveyed is 400 Kgs. per acre. This naturally suggests that pepper cultivation in India requires better methods of cultivation and more of inputs. There is immense scope for increasing the yield per acre and lowering the cost of production per unit of output.

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ANNEXURE - I

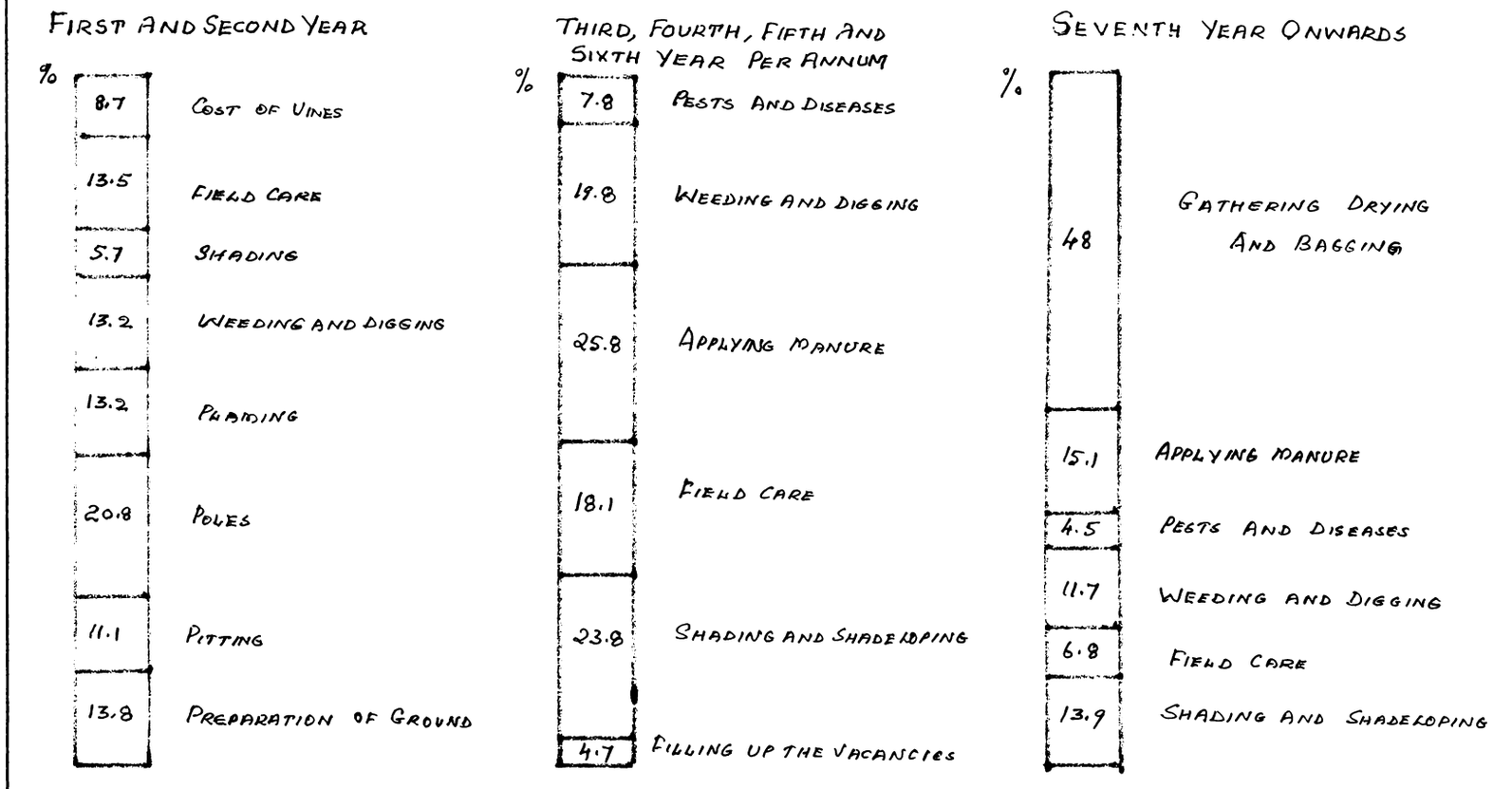
YEAR-WISE ESTIMATED COST OF PRODUCTION OF PEPPER FOR THE YEAR 1976

Item	Cost	Percentage
	Rs.	
First and Second Year		
Preparation of ground	160	13.8
Pitting	128	11.1
Poles	240	20.8
Planting	154	13.2
Shading	64	5.7
Weeding and digging	152	13.2
Field care including mulching	156	13.5
Cost of vines	100	8.7
Total (for two years)	1154	100.00
Third, Fourth, Fifth and Sixth year per annum		
Filling up the vacancies	38	4.7
Shading and shade lopping	184	23.8
Weeding and digging	152	19.8
Manuring	200	25.8
Pests and diseases	60	7.8
Field care including mulching	140	18.1
Total (annual average)	774	100.0

Item	Cost	Percentage
	Rs.	
Seventh year onwards		
Shading and shade lopping	184	13.9
Weeding and digging	152	11.7
Manuring	200	15.1
Pests and diseases	60	4.5
Harvesting, drying and bagging	634	48.0
Field care	90	6.8
Total (annual average)	1320	100.0

COST OF PRODUCTION OF PEPPER IN INDIA - 1976

COST PER ACRE



TOTAL FOR TWO YEARS Rs.1154

TOTAL (ANNUAL AVERAGE) Rs.774

TOTAL (ANNUAL AVERAGE) Rs. 1320

AVERAGE YIELD PER ACRE : 400 KG

AVERAGE MARKET PRICE : Rs. 14.125/KG.

Chart No. III

Plate No. 4

CHAPTER - VI

DOMESTIC PRICES

A satisfactory, detailed analysis of the price data in respect of pepper as in the case of many other agricultural commodities is rather difficult for want of adequate authentic and strictly comparable price statistics over a period of time for a sufficient number of markets. The existing commercial grades differ widely. Comparable data are therefore, lacking. On the basis of available data, only general conclusions and broad trends can be indicated. The study of price fluctuations over time may be made either to determine trends over long periods or variations during different seasons of the year.

The wholesale prices of pepper prevailed at the four important assembling wholesale markets of Alleppey, Cochin, Calicut and Tellicherry are given in Table No.I.

TABLE - I

AVERAGE ANNUAL WHOLESALE PRICES OF PEPPER FOR THE PERIOD 1966 TO 1976 AT THE ASSEMBLING MARKETS OF ALLEPPEY, COCHIN, CALICUT AND TELLICHERRY

Year	Price (Rupees per quintal)
1966	389.50
1967	348.25
1968	339.00
1969	447.25
1970	641.75
1971	632.75
1972	524.75
1973	623.25
1974	1005.75
1975	1120.50
1976	1412.50

Source: Directorate of Arecanut & Spices Development, Calicut.

From a close study of the price data set out in the table given, it will be observed that the level of prices has not been stable, at all, even though the fluctuations are mild in some years. The prices moved up and down and more frequently and violently. When prices moved within narrow ranges during the period 1966-68, subsequent changes in

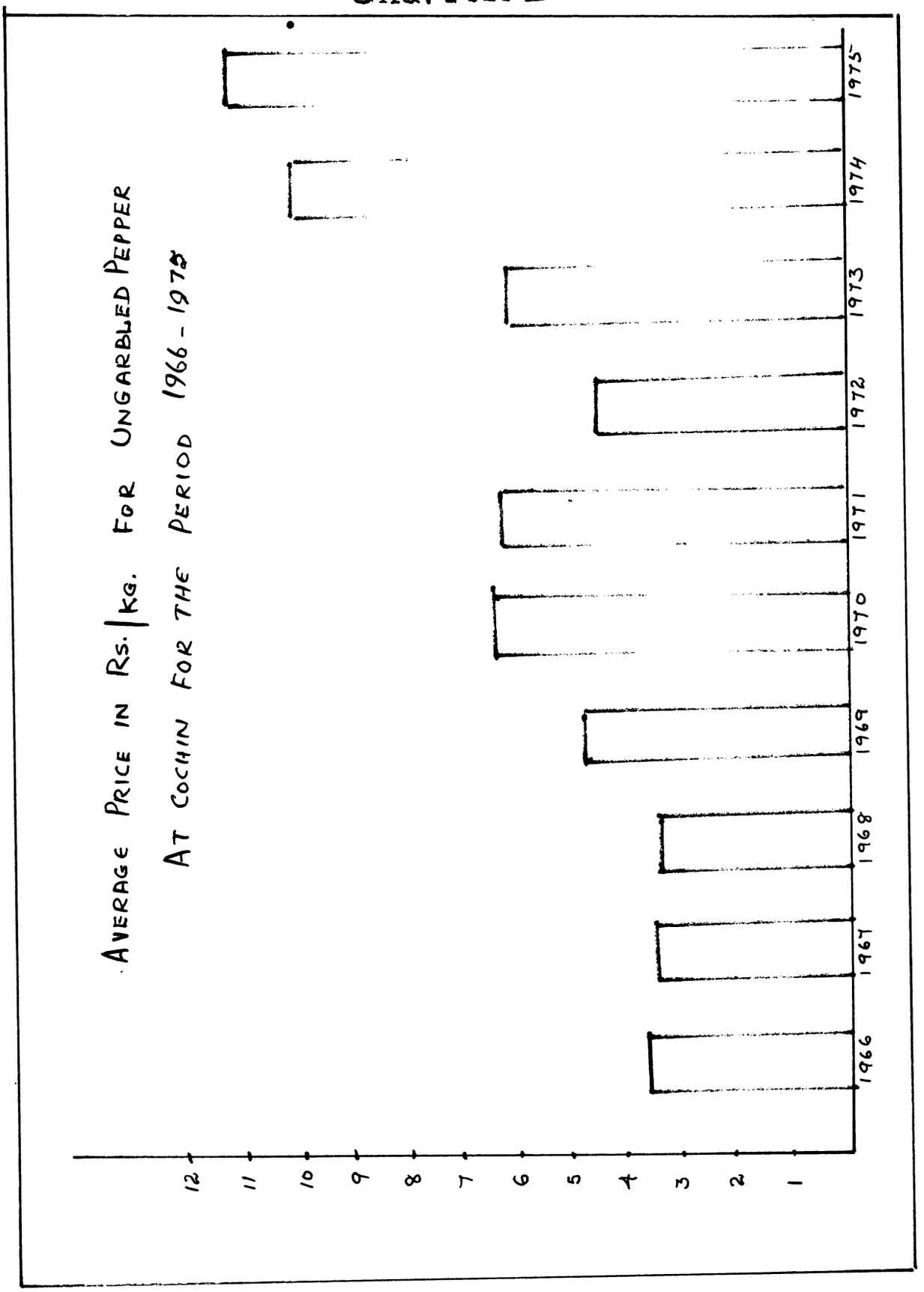
prices were much more pronounced in the upward direction. The rise is particularly noticeable during the year 1970 due to the fact that Indonesia could export only about one sixth of her previous year's exports on account of serious crop failure in that country. During the years 1971 and 1972 the prices declined because of better production in producing countries especially in Malaysia. From 1973 onwards the prices have risen considerably. The sharp increase in prices of many spices has become a global phenomenon since 1973 and this increase in prices of pepper cannot be attributed to any shrinkage, either in the world production or the world export, eventhough there may be variations in individual cases. It is very likely that world pepper prices may stabilise at the present level for some more time.

Generally speaking, the prices are depressed in the months of January-February. This is attributed mainly to the fresh arrivals in the market. Over and above this, immediately after bulk imports of pepper in U.S. in the months of October-November, the foreigners are waiting for placing their orders for fresh imports, depending on the settlement of the price for the season. Thereafter, prices generally register an increase in the months of July-August, following cessation of arrivals in the market and off-take by consuming centres. Later, prices improve and stay at a higher level with frequent fluctuations depending on foreign demand, till the arrival of next crop in January-February. Crop expectations

of the foreigners in the producing countries like Indonesia, Sarawak (Malaysia) and Brazil and the annual output of pepper in these countries are important factors in influencing the market quotations and the wholesale prices prevailing in the important producing markets in India. Early or late arrivals of season, stock positions at New York, Singapore and London are other important factors that influence fluctuations in the Indian markets, especially at Cochin.

Annexures I to IV give average monthly wholesale prices of pepper in four important producing markets for the period 1966 to 1976. In the years 1966, 1970 and 1973, August recorded the highest prices, whereas June-July witnessed the same in the years 1971, 1972 and 1973 and in the last three years November fetched the highest price for pepper in India. During this period of 11 years under review, the months of May, September and October recorded the highest price only once. During the year 1972, however, the usual seasonal fluctuations were very much eclipsed by the steady fall in prices due to the slump in the pepper trade. It will be noticed that the range of variation in monthly prices is fairly wide as in the case of many other agricultural commodities. For instance, the difference between the average maximum and minimum prices in 1974, amounted to 33 per cent of the average annual mean whereas it went up to 39.6 per cent in 1976, in the Cochin market. The Cochin market

Chart No. IV


AVERAGE PRICE IN RS. / KG. FOR UNGARBLED PEPPER
AT COCHIN FOR THE PERIOD 1966 - 1975
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1
2
3
4
5
6
7
8
9
10
11
12

serves as a barometer of pepper trade, situated as it is between the producing areas and also as the leading exporting centre, the market has acquired a very important position. Pepper prices prevailing at Cochin market influence the prices in the pepper assembling markets.

The Port-wise export of pepper from India during the period 1973-74 to 1975-76 is given in Table No.II.

TABLE-II

PORT-WISE EXPORTS OF PEPPER FROM INDIA DURING THE PERIOD 1973-74 TO 1975-76

(Quantity in Metric Tonnes)

Ports	1973-74	1974-75	1975-76
Cochin	27407.31	25528.18	23184.14
Alleppey	2112.17	15.19	Nil
Bombay	1062.91	656.04	999.67
Madras	90.00	Nil	0.42
Calicut	15.05	9.58	12.73
Calcutta	7.31	1.22	0.65
Mangalore	316.81	45.57	Nil
Tuticorin	Nil	Nil	0.24
Total	31011.56	26255.78	24197.25

Source: The Spices Export Promotion Council, Cochin.

It is certain that ecological factors will prevent any major shift of land devoted to spices towards other

crops. But all the same it is likely that some shifting of acreage takes place when the prices of spices move in different direction than the prices for other agricultural commodities. For example, shifting of land either way in the case of pepper is more pronounced than in the case of cardamom. In the Idukki district of Kerala and in many parts of the high ranges where coffee and pepper are cultivated, this shifting of land for or against one crop takes place very often depending upon the movement of price trends. This is an area in which detailed research may yield good results and suggest the extent to which acreage under pepper and coffee move away from these commodities as the prices for these decline and move in favour of these commodities as the prices for these move up.

Some of the producers interviewed, particularly in the Idukki district in 1973 gave the impression that many of the marginal producers of cardamom were seriously engaged in the shifting of land in favour of pepper for the simple reason that the cardamom prices were at the lowest level at Rs.37.41 per kg. in the year 1971-72. Surprisingly enough, we also find that the area under pepper has increased from 119,000 hectares in 1971-72 to 120,000 hectares in 1972-73 and 122,000 in the succeeding years. The improvement in the f.o.b. prices of pepper from Rs.3.51 per kg. in 1968-69 to Rs.5.45 per kg. in the following year and subsequent upward trend in pepper prices was also responsible for this tendency.

The shifting land in favour of pepper was not confined to Idukki district alone; it has taken place in other districts also where pepper growing has been considered as an economically viable proposition. It is wrong to believe that no shifting of land from pepper in favour of other crops takes place since pepper is a vine and is a long-term crop with the average life of 15 years. On the contrary we have evidences of shrinkage in acreage under pepper when the prices are unremunerative. This has taken place in the first half of 1960s when prices steadily declined from Rs.4.88 per kg. in 1960 to Rs.2.88 per kg. in 1963-64, the fall in acreage under pepper amounted to 1,000 hectares. It was during these years that many pepper growers of Ernakulam and Trichur districts actually destroyed their pepper vines for better use of their scarce land. If an imbalance in the price index between different spices as also between pepper and other agricultural crops persists, there may be a gradual reduction in the acreage devoted to pepper.

It may, however, be added that the worsening terms of trade for any particular product vis-a-vis other products reflects either that the demand for that product is slackening vis-a-vis its supply position or its productivity is increasing causing a reduction in the cost of production and, therefore, in its price. But the prevailing factor so far has been the slackening of demand vis-a-vis the supply position which may increase because of significant improvements

that may take place in the major pepper producing countries, particularly in Malaysia and Indonesia. But whatever causative factors for the worsening terms of trade for pepper it will be best to remedy the situation by correspondingly reducing the cost of production which can only be done by increasing the yield per unit of land devoted to pepper.

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CHAPTER - VII

EXPORT PRICES

The following table gives the average unit value of exports earned by the leading exporting countries in terms of U.S. cents per kilogram.

TABLE - I

AVERAGE UNIT VALUE OF EXPORTS

(U.S. Cents per Kilogram)

Countries	1966-'70 (Average)	1971	1972	1973	1974
India	82.8	112.4	93.2	103.7	143.6
Indonesia	61.5	105.7	84.0	122.0	152.9
Malaysia (Sarawak)	63.5	77.3	78.6	117.5	144.9
Brazil	74.7	86.1	88.8	123.2	168.4
Malagasy	72.3	114.3	92.9	124.3	150.0

Source: F.A.O., Rome, World Pepper Trade and Outlook, International Seminar on Pepper-1976, Cochin.

It.is clear from the table that Indian pepper was the best priced for its quality, during the period 1966-72. In the years 1973 and 1974 Indian pepper popularly known as Malabar Black Pepper, though maintained its quality, failed in securing the first three ranks in terms of average unit value of exports. In the year 1974, it realised the minimum average unit value of exports. The United States has emerged as the largest importer of Indian pepper in 1974 followed by the U.S.S.R. While U.S.S.R. is importing almost her entire requirements from India under Rupee payment arrangement, the U.S. is making larger imports of her requirements from Indonesia than from India, if adequate supplies were available from Indonesia. Table-II gives the U.S. and the U.S.S.R. imports of Black and White pepper for the years 1973-1974.

TABLE-II

Country of Source	U.S.		U.S.S.R.	
	1973	1974	1973	1974
	(In thousand pounds)			
Brazil	8316	8461	-	-
India	11475	18552	20011	17061
Sarawak	11	-	-	-
Indonesia	32265	16321	-	2535
Singapore 1/	4764	12396	-	-

1/ Re-exports.

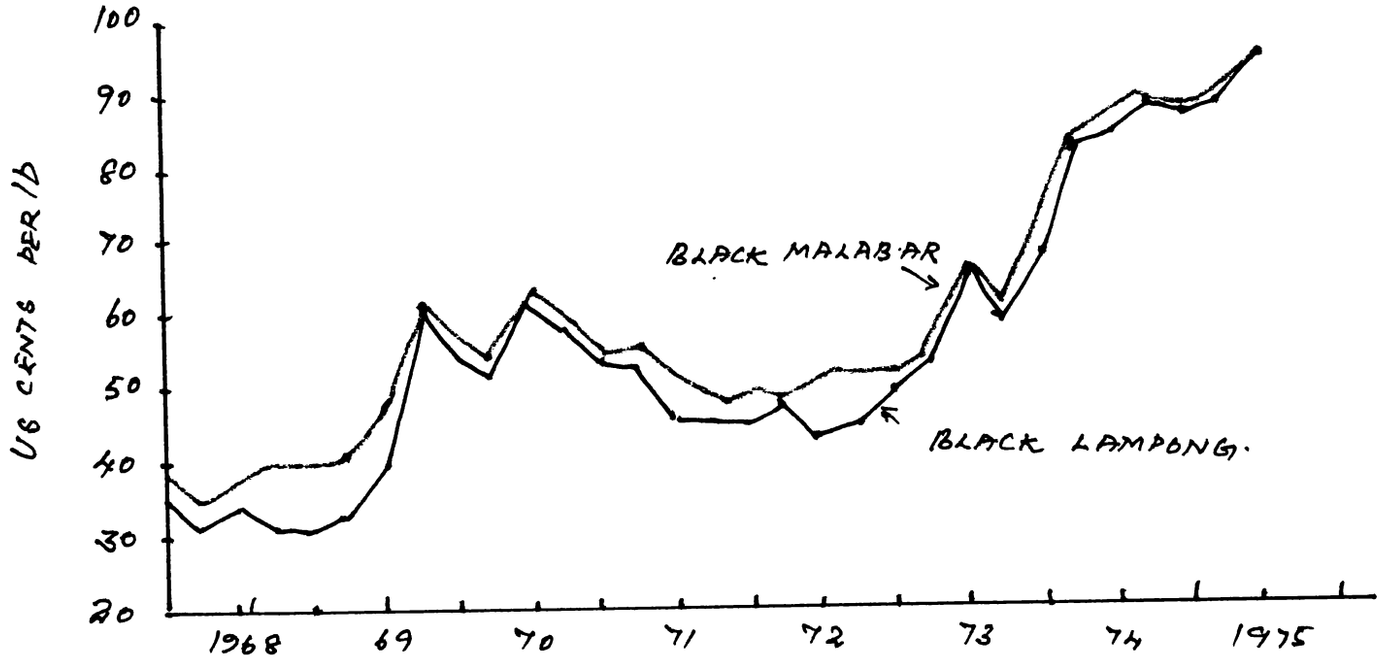
Source:- Foreign Agriculture Circular - Tea and Spices, FTEA 1-76, April 1976, P.14, U.S. Department of Agriculture, Foreign Agricultural Service, Washington.

Two points are clear from this table: (1) the United States gets its pepper mainly from Indonesia, India and Singapore depending upon the availability of supplies. (2) The U.S.S.R. mainly depends on India for her requirements and her eyes are set on Indonesia in case Indian pepper becomes too dear. As far as India is concerned, more than 50 per cent of her exports are shared by the U.S. and the U.S.S.R. Indonesia directs her pepper to the U.S. to the extent of 54 per cent of her exportable surplus. Brazil and Sarawak also offer substantial quantities of pepper to New York market. Hence, New York becomes the nerve centre of the world pepper prices followed by Cochin and Singapore, being centres of dispersion.

Table No.V in the Appendix-I gives spot prices of pepper at New York during the period 1968 - 1976.

Table-III gives the average annual prices of Malabar, Lampong and Sarawak pepper in the above mentioned markets for the years 1966-67 to 1974-75.

TREND OF QUARTERLY AVERAGE PRICES OF BLACK MALABAR AND BLACK LAMPONG - NEWYORK SPOT, 1968 - '75



Graph No. III

TABLE - III

AVERAGE ANNUAL PRICES OF BLACK PEPPER IN WORLD MARKETS

(Rupees per quintal)

Year	Cochin Garbled	New York Malabar-Lampong		Singapore Lampong-Sarawak	
1966-67	396	614	623	534	539
1967-68	363	605	538	448	455
1968-69	351	572	500	362	395
1969-70	545	901	795	597	544
1970-71	670	949	968	755	696
1971-72	621	904	781	712	679
1972-73	554	837	746	648	636
1973-74	730	1092	1095	846	741
1974-75	1099	1548	1514	1068	905

Source: Directorate of Arecanut & Spices Development, Calicut, Kerala.

It is here observed that the prices of Malabar pepper are generally higher than those of Lampong, in New York and of Sarawak in Singapore. In fact, Indian pepper enjoys high reputation in foreign markets in respect of its quality and thus commands a premium over others. While considering the trend of annual prices, it will be seen that prices of Malabar, Lampong and Sarawak have shown a fair degree of correspondence with frequent and wide fluctuations. During the years under study, major increases were however,

during 1969-70, 1970-71, 1973-74 and 1974-75 and falls during 1968-69 and 1972-73. Prices of Malabar in Cochin and New York which stood at Rs.396 and Rs.614 per quintal respectively during 1966-67, though fell steadily to a minimum of Rs.351 and Rs.572/- in 1968-69, went up subsequently and reached the maximum of Rs.670/- and Rs.949 in 1970-71 respectively registering an increase of 91 per cent and 66 per cent in two years, 1969-70 and 1970-71. The sharp increase in prices was due to the drastic fall in the Indonesian crops in the years 1969 and 1970. The fall in Indonesian production exceeded 62 per cent on an average for the two years. The consequent revival of demand from America for Indian pepper and the simultaneous entry of U.S.S.R. into the Indian markets added to the rising prices. On reports of improvement in world supplies, thereafter, due to better crop in producing countries especially in Malaysia prices started declining and came down to Rs.554/- and Rs.837 for Ma. Malabar Black at Cochin and New York respectively. Again, prices went up and reached Rs.730/- and Rs.1099/- in Cochin in 1973-74 and 1974-75 respectively. Correspondingly, the prices of Malabar pepper in New York rose to Rs.1092/- and Rs.1548/- in the years 1973-74 and 1974-75 respectively. This increase in prices at Cochin and New York amounted to 98 per cent and 85 per cent respectively over a period of two years vis-a-vis 1973-74 and 1974-75.

Prices of Lampong Black pepper in New York and Singapore which stood at Rs.623/- and Rs.534/- per quintal

during 1966-67 declined to Rs.500/- and Rs.362/- respectively in 1968-69 due to increase in world supplies caused by a bumper crop in Indonesia. The production in Indonesia was an all time high in the year 1968, amounting to 46,700 metric tonnes. However, on reports of poor harvest in Indonesia in the following year, there was substantial increase in the prices of Lampong black pepper in New York and Singapore to the level of Rs.968/- and Rs.755/- in 1970-71 registering an increase of 93 per cent and 100 per cent respectively during the period 1968-69 to 1970-71. Prices of Lampong black pepper at New York and Singapore receded later to Rs.746/- and Rs.648/- respectively in 1972-73 due to liquidation of stocks and on reports of better crop in the producing countries. The years 1973-74 and 1974-75 witnessed again a substantial rise in Lampong prices in New York and Singapore to the level of Rs.1,514/- and Rs.1,068/- respectively in the year 1974-75. Prices of Sarawak of ASTA quality in Singapore, which showed a steady downward trend from Rs.539/- per quintal in 1966-67 to a minimum of Rs.395/- in 1968-69 due to substantial increase in world supplies, rose thereafter to Rs.696/- in 1970-71. The prices declined thereafter for two years and then showed upward trends.

The recent upward trend in the prices of pepper is mainly due to the inflationary conditions prevailing all over the world which started with the oil price hike. This is evident from the fact that world production of pepper had

been steadily on the increase with some individual variations in the case of India and Indonesia. Irregular supplies from the producing countries from time to time on the one hand and the variability of demand on the other hand result in violent fluctuations in prices depending upon spot availability. This is further aggravated by manipulation of demands placed by foreign countries and by the speculative trading both in producing and importing countries. For example, "Lampong pepper selling at 33 cents in mid June 1969 was reported to be selling at 45 cents on 10th September and 70 cents on 22nd September 1969 in Singapore".[1]

A high degree of year to year variability in the prices of a commodity, has a direct impact on the producer's income. The world trade of pepper is not very large, there is variation in production from year to year and most of the pepper is meant for exports. These factors with the wide speculation over surplus or deficit in annual supplies lead to violent changes in world prices. Pepper, being a perennial plant shows relatively low price elasticities of supply in the short run and considerable cyclical price instability. This problem gets further complicated when it faces low price elasticities of demand. "The increase in net imports of pepper in most countries coincided with a decline in the real cost of pepper at the import stage".[2] This finding of FAO

1. Markets for Spices in North America, Western Europe and Japan, P.22, UNCTAD/GATT - Geneva, 1970.
2. Trends in Consumption of Pepper in the main importing Countries, P.5, Committee on Commodity Problems: PE 72/3, FAO, Rome, 1972.

is based on the analysis of data regarding the imports of pepper over the period of 1955-70. Vagaries in supply and elements of speculation are the twin problems connected with world prices of pepper. In a rising market, producers are paid more than an economic price and the gear is reversed when the supply is supposed to be slightly higher than the demand, resulting in a greater instability in prices. This is accentuated by the fact that the big wholesalers and exporters make their profits mainly from price fluctuations than for their services as such. In an interview made by the author with the leading exporters of pepper at Cochin eight out of ten openly agreed with this point of view.

Even if the production uncertainties are removed, price uncertainty may cause fluctuations in turn. The price uncertainty may be measured in terms of coefficient of variation. The coefficient of variation of yearly prices calculated from the average annual prices, given below, indicates that during the last nine years, from 1966-67 to 1974-75, Malabar and Lampong have experienced higher degree of price variation than Sarawak.

TABLE - IV

COEFFICIENT OF VARIATION OF YEARLY PRICES OF PEPPER

Market	Variety	Coefficient of Variation %
Cochin	Malabar Garbled	37.16
New York	Malabar	30.91
	Lampong	35.44
Singapore	Lampong	30.32
	Sarawak	23.67

It is clear from this table that the highest degree of coefficient of variation is found at Cochin for Malabar Garbled at 37.16 per cent. The main reason for this phenomenon is the attitude or expectations of the wholesalers and exporters at Cochin regarding the available supplies of Indonesian pepper in the New York market and the demand from the U.S.S.R. and East European countries for Indian pepper. In the New York market, Malabar black pepper experienced less variation in prices than Lampong black pepper mainly because of irregular supplies from Indonesia owing to frequent and serious changes in production levels. In Singapore, Sarawak of 'ASTA' quality has the minimum of variations in prices because of a greater degree of regularity in both supply and demand.

High degree of variation in the prices introduces an element of risk and indecision as it upsets the pattern of consistent growth in the production of crops. The impact of price fluctuations can be fully seen only when we look into the production level. Whenever the cultivators are hopeful of improvement in the prices of pepper, they adjust their efforts to raise the unit yield through intensive efforts. The average yield of pepper in kilograms per hectare had declined from 272 in 1960-61 to 212 in 1968-69. Thereafter it has shown some increase to 220 in 1972-73 and 230 in 1974-75. The ups and downs in the yield per hectare always correspond with changes in prices. Over the last twenty-five years the

lowest price for pepper was in 1957-58 at Rs.194/- per quintal and thereafter pepper prices were characterised by frequent fluctuations, at a lower level. The result was a continuous fall in the yield rate during the period 1956-57 to 1973-74 with some exceptions here and there.

In this connection one should not lose sight of the fact that the plantation industry lives and moves and has its being under, not one, but two climates — Nature's climate made in the skies above and the man made climate here below. If the sky-made climate is inhospitable in one region, it is propitious in another. If it is unfavourable in one year, it is bountiful in the next or the one thereafter. Man made climate is entirely different. It knows no seasons. It is continuous, unpredictable and unrelenting. People may claim a measure of success in foreseeing and coping with these two types of climates. But the pepper growers have felt helpless against the vagaries and vicissitudes of these climates. Pepper crop is highly susceptible to price fluctuations in the market. Fluctuations in prices coupled with the rise in cost of production may lead the cultivators to neglect their crop. In order to meet the growing foreign demand and to make its cultivation economically viable, the prices of pepper need adjustment in such a manner as to make it reasonable to the consumers and producers and all the more reliable to the latter. Pepper consumption has become world wide and accurate data relating

to world demand is still wanting. But it is simple and clear logic that if the exportable surplus available with the producers is in excess of the requirements of the consuming countries, there is no reason why pepper prices should harden in the manner it did since May 1973.

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C H A P T E R - VIII

GRADING AND QUALITY CONTROL OF PEPPER

In international markets, many types and grades of Black and White pepper are recognised. These are traditionally identified mainly by the ports from which the grades are exported or the region where pepper is grown. Varieties like the Malabar and Tellicherry from India, the Black Lampong from Indonesia, Sarawak from Malaysia and Brazalian are well-known in the world markets. The different varieties are used in different proportions depending upon the pungency, piperine content and price. In a market economy, the decisions as to final sale are made by individual consumers and thus the consumer is the master. His likes and dislikes are of great concern to the producer. In modern days of wider markets, it may often cost more to move goods from farms to consumers than to produce the same. It is more so in case of those agricultural commodities which are bulky and have world-wide demand. The scatered nature of pepper production concentrated in a few countries like

India, Indonesia, Malaysia, Brazil etc. on the one hand and its world-wide demand on the other further add to its marketing costs. In the case of Black Pepper of India, Agmark grades have been formulated on the basis of garbled and ungarbled berries, extraneous matter, pin heads, light berries and moisture contents. Any type of Black Pepper can be exported from India provided the extraneous matter and moisture content do not exceed 7 per cent and 12 per cent respectively. During monsoon months, i.e., from 15th May to 30th September, a tolerance of 5 per cent is allowed in respect of moisture. Standard grades are prescribed by the Agricultural Marketing Adviser to the Government of India, under the provisions of the Agricultural Produce (grading and marking) Act 1937. The pepper grading and marking rules came into force as early as 1963. There are at present 15 specific grades, one non-specific grade and two grades for ground pepper.

In the peak year of pepper export from India, 1973-74, the total number of packets bearing Agmark was 468.3 thousand. In the subsequent two years, however, the number of packets agmarked amounted to only 374 thousand and 362.6 thousand respectively, following a shrinkage in pepper exported from India. The average quantity of pepper exported per packet works out 686 kgs. for the three year period 1973-74 to 1975-76. Tellicherry Garbled Black Pepper is characterised by what the spice trade calls "bold berries-large,

very regular and good looking specimens, in addition to the excellent flavour and pungency properties of the Malabar Pepper. This grade traditionally commands the highest price among peppers. Apart from the sausage makers of Italy, recently the pepper millers of U.S.A. have come forward in increasing numbers for this grade of pepper. The table given below shows the percentage share of different grades of pepper exported from India during the years 1974-75 and 1975-76.

TABLE

PERCENTAGE OF DIFFERENT GRADES IN TOTAL QUANTITY OF PEPPER AGMARKED

Grades	1974-75	1975-76
Tellicherry	4.5	6.8
TGSEB	0.8	1.3
TGEB	3.5	5.4
TG	0.2	0.1
Malabar Garbled	87.6	85.0
MG_1	87.4	85.0
MG_2	0.2	Neg.
Malabar Ungarbled	2.6	4.5
M UG_1	1.4	2.7
M UG_2	1.2	1.8
Garbled Light	3.4	1.7
GL - 1	0.4	0.4
GL - 2	3.0	1.3
Pinheads	0.9	1.8
PH - Special	Neg.	0.6
PH - 1	0.9	1.2
Others	1.0	0.2
Total	100.0	100.0

Neg. = Negligible. Source: The Spices Export Promotion Council, Cochin.

It is clear from the above table that the bulk share of our exports of Black Pepper comes under the grade of Malabar Garbled-1 which accounted for 87.6 per cent in 1974-75 and 85 per cent in 1975-76. The superior grade of Tellicherry Bold accounted only for 4.5 per cent in 1974-75 and 6.8 per cent in 1975-76. What is more important is that Malabar Garbled and Tellicherry Bold together accounts for about 91.4 per cent on an average. This shows that Indian pepper is still regarded as a quality product characterised by the traditional virtues and valued by overseas buyers. In years to come, the share of these grades is likely to go up, since the inferior grades will find its market in India itself. The development of spices extraction industry in India and the various uses to which the inferior grades are being put in foreign countries being developed at home are likely to increase the home demand for these inferior grades of pepper. In the case of the exports of light berries, it is quite evident that the percentages share of exports, has been almost halved in 1975-76 over the previous year. At the same time, the percentage share of the exports of Pin heads has doubled, since there is no market for the same in the country. The strict quality control and pre-shipment inspection enforced by the Pepper Grading and Marking Rules under the provisions of the Agricultural Produce (grading and marking) Act 1937 are also responsible for this pattern of development in the export trade of pepper.

The Directorate of Marketing and Inspection keeps on studying the analytical results of the various samples and also the trade requirements in order to revise the specifications from time to time. Accordingly, the Indian shippers as well as the importers all over the world have not only an identical and precise concept about the size of berries, moisture content, light berries, pin heads, extraneous matter but also of general characteristics of Indian Black Pepper for such grades. These grades prescribe not only physical and chemical grade specifications but also their analytical tests and methods and thus eliminate the element of personal prejudices and errors also. The importers are also confident that the same shall be enforced by the Government of India through the Directorate of Marketing and Inspection, making them feel care free about the quality of goods which they contract to import from Indian shippers.

Quality control under Agmark for Black Pepper was introduced with effect from January 1, 1963. Inspection is an adjunct to quality control and the same can be cut down to a bare formality, if the goods are graded and packed properly by the authorised packers according to prescribed specifications. It is remarkable to note that India is the first country to have quality control and pre-shipment inspection in pepper at the export level. The world acceptance of quality standards under Indian Agmark gives further encouragement for setting an objective of replacing quality

standards set by individual markets abroad preferably with the backing of international institutions like Food and Agricultural Organisation and the Pepper Community. The number and stages of inspection may differ from country to country keeping in view that they do not cause any impediment in the smooth flow of goods and also that the quality of the goods is maintained.

Constant consumer surveys on quality products would augment the traderwith required gadgets to capture the market by feeling the pulse of the consumer. It is for the market research to find out the dynamic quality requirement of the consumer through several sensitivity programmes. Quality of a product is a weapon of competition. Quality in competition can take many forms, but has not been well exploited in the field of world marketing of pepper. The opportunities to exploit quality aspect in marketing of pepper include:—

1. Thorough knowledge of what is "Market Quality" and use of this knowledge to aid in striking a balance between cost and quality, and value and quality.

2. Development of a positive quality reputation through "invariable" delivery of conforming product.

3. Advertising the foregoing performance through propaganda and information.

It will be noted that accomplishment of these objectives involves participation in virtually every sphere of the trading activity. If quality is a team work job, it is more so when it is taken at a global level. Efforts on these lines, then, drift from the trading activity of a country to the trading activities of countries. It is now time to think that there must be international co-operation to inculcate quality consciousness among the world-wide consumers of pepper.

Details regarding grade designations and definitions of quality of pepper is given in Appendix-II.

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C H A P T E R - IX

THE SIZE AND THE PATTERN OF EXPORTS OF PEPPER

The Size of Exports:

The level of exports of pepper from India has shown a mixed trend over the last twenty-five years. The annual average level of exports during the period 1951-56 was of the order of 13612 tonnes. The period 1951-56 was taken as the starting point in this study because this period corresponds to our First Five Year Plan. During the Second Five Year Plan, that is, during the period 1956-61, the annual average level of exports of pepper from India increased to 15686 tonnes. During the Third Plan, that is 1961-66, this average further increased to 21022 tonnes. There was only a marginal increase in the annual average level of exports during the period 1966-71, which worked out at 21118 tonnes. This shows that the level of exports of

pepper from India was gradually rising over these years. When we look into the year-wise export performance in the matter of pepper an entirely different picture will be seen. The exports of pepper in 1951-52 which stood at 15153 tonnes was surpassed only in 1959-60 at the level of 20676 tonnes. During the period 1951-52 to 1960-61 the levels of exports fluctuated within a range of 11671 tonnes in the year 1958-59 and 20676 tonnes in the year 1959-60. During the period of next five years, that is, from 1960-61 to 1965-66 the range of fluctuations was from 17202 to 26305 tonnes and thereafter the fluctuations continued, the maximum of 31648 tonnes being in the year 1973-74, an all time record in the pepper trade of India. The levels of exports in the following two years showed a declining tendency. The table below gives the annual level of exports during the period 1951-52 to 1975-76.

Year	Exports (in tonnes)	Averages for 5 years (in tonnes)
1951-52	15153	
1952-53	12607	
1953-54	12965	13612
1954-55	13998	
1955-56	13336	
1956-57	15079	
1957-58	13803	
1958-59	11673	15686

Year	Exports (in tonnes)	Averages for 5 years (in tonnes)
1959-60	20676	
1960-61	17202	
1961-62	21620	
1962-63	20868	
1963-64	18938	21022
1964-65	17391	
1965-66	26305	
1966-67	21785	
1967-68	24868	
1968-69	18952	21118
1969-70	22297	
1970-71	17697	
1971-72	19248	
1972-73	19958	
1973-74	31648	24284
1974-75	26341	
1975-76	24226	

Source:- Monthly Statistics of the Foreign Trade of India, Department of Commercial Intelligence and Statistics, Calcutta.

The table below gives zone-wise exports of pepper from India during the period 1971-72 to 1975-76.

It is clear from Table No.2 that the exports of pepper from India to the ECM countries have increased by more than three times over the period 1971-72 to 1973-74. This increase was mainly because of the all time record exports of pepper from India. In the years of 1974-75 and 1975-76, owing to the fall in exportable surplus of pepper in India and consequent higher prices, the exports to these countries declined. However, exports in the year 1975-76 were higher than in the year 1971-72 by about 32.85 per cent in terms of percentage share of exports of pepper from India to the ECM countries.

The exports of pepper from India to the East European countries were the lowest in the year 1972-73 with 13359.12 tonnes and the highest in 1975-76 with 15439.93 tonnes for the quinquennium ending 1975-76. But in terms of the percentage share of India's exports of pepper to these countries was the highest in 1971-72 with 77.89 per cent. It declined continuously to 47.16 per cent in 1973-74 and then improved to 57.69 per cent and 63.73 per cent in 1974-75 and 1975-76 respectively.

In the case of American Zone, India's exports of pepper made considerable progress during the period 1971-72 to 1975-76. It increased from 2019.78 tonnes in 1971-72 to 9154.41 tonnes in 1973-74, though it declined to 5009.58 tonnes in the year 1975-76. However, the exports to the

American Zone increased from 10.49 per cent in 1971-72 to 20.68 per cent in 1975-76 in terms of the share of India's pepper export trade, though it was 28.73 per cent in the year 1973-74. The recent decline in the exports of pepper to this Zone is mainly the result of the shrinkage in the exportable surpluses available.

Countries in West Asia imported pepper from India within a range of 567.08 tonnes in the year 1972-73 to 1664.08 tonnes in the year 1973-74. It is interesting to note that these countries are most likely to import pepper from India at the present level of 5.56 per cent of India's exports of pepper as it was 5.43 per cent in the year 1971-72. In terms of quantity, of pepper exported from India to these countries increased from 1046.18 tonnes in 1971-72 to 1346.03 tonnes in 1975-76.

The exports of Indian pepper to the East Asian Countries also showed significant improvement during the period 1971-72 to 1975-76. It increased from 53.48 tonnes in 1971-72 to 1664.08 tonnes in 1973-74, though it steadily declined to 469.70 tonnes in 1975-76. What is more important is that the East Asian Countries which were importing only negligible quantities of pepper from India in the immediate past have emerged as important buyers of Indian pepper under the leadership of Japan, though the imports of pepper by Singapore from India have significantly declined.

The countries of the African Zone and Australia and the Oceanic Zone also have increased their imports of pepper from India during this period. The countries taken together imported only 80.72 tonnes in the year 1971-72, whereas the imports by these countries went up to 198.14 tonnes in the year 1975-76, after reaching the level of 793.13 tonnes in the year 1973-74.

Table-VI in the Appendix-I gives the world's balance-sheet of production and consumption of pepper in the year 1973, India's peak year of pepper production.

The study of exports of pepper to different zones reveals that Indian pepper is in increasing demand all over the world. The main problem is the inadequacy of supply to meet the growing demand for pepper. If India wants to retain its traditional markets for pepper and to maintain the rising trend of supplying pepper to new markets, India has to increase its production and exports at least to the levels attained in the year 1973-74. A target of 30000 tonnes of pepper for exports seems to be quite essential for this purpose by the year 1980-81. In view of the growing demand for internal consumption another 15000 tonnes of pepper will be needed making the total production in the order of 45000 tonnes by the beginning of the next decade.

The analysis of the value realised from the export of pepper to different destinations also shows that it has

moved only within narrow ranges during this period 1971-72 to 1975-76. The only exception to this generalisation is in the case of exports of pepper to East Asian Countries where the unit value realised was lower than in the case of other countries.

The country-wise details of the volume of exports of pepper to different destinations from India over the period 1971-72 to 1975-76 are given in Annexure-I.

The details of value of exports to different destinations from India over the period 1971-72 to 1975-76 are given in Annexure-II.

It will be seen that though our exports of pepper have shown a gradual improvement in terms of quantity, subject to fair amount of variations from year to year, we could not achieve the annual average of earnings that was observed during the First Five Year Plan, that is, over the period 1951-56, till the year 1967-68. The annual average earnings during 1951-56 were observed to be of the order of Rs.127.7 millions. This level of annual earnings declined to the level of about Rs.50.8 millions per annum during the period 1956-61 inspite of the fact that over the same period our exports in terms of volume increased. The level of earnings has since shown a gradual improvement and over the period 1961-66, the annual average earnings increased to Rs.76.9 millions. Only in the year 1967-68, the annual

earnings from the export of pepper from India exceeded the annual average earnings during the First Five Year Plan, that is from 1951-52 to 1955-56. The devaluation of Indian Rupee effected in June 1966 was also partly responsible for this increase in earnings.

After recording a set back both in the volume of exports of pepper and annual earnings there from in 1968-69, the annual earnings from pepper export reached a new peak at Rs.161.9 million in the year 1969-70. This level of annual earnings steadily declined during the subsequent years till the year 1973-74 when it reached a new record at Rs.295.3 millions. In the year 1971-72, the level of annual earnings was lower than that of the year 1970-71 inspite of the fact that over the same period our exports in terms of volume increased. The year 1974-75 witnessed the highest peak in the level of annual earnings from the export of pepper from India, though an all time record was created in terms of the volume of exports in the year 1973-74.

The table below gives the annual level of earnings from exports of pepper together with the average F.O.B. value during the period 1951-52 to 1975-76.

Year (Annual Average)	Value (Rs. '000)	Average F.O.B.Value (Rs. per M.Ton)
1951-52 to 1955-56	127712	9382
1956-57 to 1960-61	50787	3238
1961-62 to 1965-66	76865	3656
1966-67	118263	5429
1967-68	130983	5226
1968-69	97159	5127
1969-70	161906	7261
1970-71	152485	8486
1971-72	149250	7702
1972-73	143099	7170
1973-74	295308	9331
1974-75	344762	13068
1975-76	338837	13987

Source: Director General of Commercial Intelligence and Statistics, Calcutta.

Trade Pattern:

During the last decade, there has been a steady remarkable shift in the pattern of trade, with the East European countries emerging as leading importers of pepper from India followed by U.S.A. Exports to U.K. and Western Europe were not significant except to Italy. During 1962-63 exports of pepper to U.S.A. accounted for about 31 per cent while the share of East European countries including U.S.S.R.

was about 34 per cent. During 1965-66, the share of U.S.A. was 22 per cent while East European countries accounted for 50 per cent. During 1968-69, there was a drastic fall in exports to U.S.A. whose share came down to a negligible quantity of 3 per cent, while the share of East European Countries increased to 71 per cent. In 1971-72 U.S.S.R. alone accounted for 48 per cent of our pepper exports. Exports to U.S.A. had a recovery during the period 1972-73 to 1974-75 and then declined from 22.7 per cent in 1974-75 to 15.5 per cent in 1975-76. During the same period, exports to U.S.S.R., though it declined in the years 1972-73 and 1973-74, increased from 28.6 per cent in 1974-75 to 42.3 per cent in 1975-76. The shift in the direction of export was attributed to the better offer from the East European Countries, especially from the U.S.S.R. coupled with stiff competition from other producing countries in traditional markets like U.S.A., Western Europe etc.

An important aspect of India's exports of pepper in recent years to be particularly noted is the increasing imports made by Saudi Arabia over the last seven years. The exports of pepper from India to that country steadily increased from 2 tonnes in 1968-69 to 20 tonnes in the subsequent year. Though there was a decline in the exports of pepper to Saudi Arabia in 1974-75, it made a forward leap to reach the level of 434 tonnes in the year 1975-76. Another notable feature is the decline in exports of pepper

from India to Singapore from where it is being re-exported to the leading pepper importing countries of the world. The exports of pepper from India to Singapore declined from 1359 tonnes in 1973-74 to 578 tonnes in 1974-75 and 277 tonnes in 1975-76.

The share of important countries in India's pepper trade is given in Table No.III.

The above analysis shows that:

(i) there has been an increasing trend in exports even-though the growth is not proportionate to the growth in world trade

(ii) there has been wide fluctuations in quantity, value and prices of pepper exported from India

(iii) Even though exports to U.S.A. have picked up from the year 1973-74, the East European Countries are still the major buyers of Indian pepper now and

(iv) India cannot with her present production fully satisfy the demand of both the East European markets and the American and West European markets.

Export of Oils & Oleoresins of Pepper:

A study of pepper will be incomplete if one fails to make note of the technological developments that took place in the last two decades in the field of spice extraction. The market for spice extracts encompasses a wide

segment of manufacturers of food and drugs. In general, however, the oleoresins are sold to the seasoning (compounding) industry who furnishes the individual food manufacturer with a particular flavour made up specifically for him. It is reported that about 50 per cent of the imported pepper is used for extraction purposes in the developed countries. The world market prices of oleoresins vary and much depends on the needs and terms and conditions of the buyer and seller.

Realising the need to export pepper in the processed form, a few units have already been set up in India for the manufacture of oils and oleoresins and these products are being increasingly exported. The table showing export of oils and oleoresins of pepper from India for the past four years is given below:—

EXPORT OF OILS OF PEPPER FROM INDIA

(Quantity in tonnes - Value '000 Rs.)

Countries	1972-'73		1973-'74		1974-'75		1975-'76	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
Japan	0.122	29.016	0.486	127.461	0.100	27.923	-	-
Australia.		-	0.020	3.566	-	-	0.010	1.017
U.S.A.	-	-	-	-	0.817	138.686	0.270	32.880
W.Germany	-	-	-	-	0.164	23.011	0.450	56.417
France	-	-	-	-	0.043	11.907	-	-
Canada*	-	-	-	-	-	-	0.270	114.292
Tanzania	-	-	-	-	0.010	1.250	-	-
U.K.	-	-	-	-	-	-	0.005	0.464
Total:	0.122	29.016	0.506	131.027	1.134	202.777	1.005	205.070

*The figures related to Canada requires clarification, since the value realised seems to be much higher than the unit value obtained from other destinations.

EXPORTS OF OLEORESINS OF PEPPER

(Quantity in tonnes - Value '000 Rs.)

Countries	1972-'73		1973-'74		1974-'75		1975-'76	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
Australia	0.096	7.419	-	-	-	-	-	-
U.S.A.	46.441	2812.680	20.210	1569.610	35.834	3764.260	34.180	3549.898
Japan	0.080	6.659	1.090	87.262	1.030	96.758	0.102	12.488
Israel	0.100	7.699	0.110	10.766	-	-	-	-
West Germany	-	-	0.500	42.894	-	-	1.500	166.741
Denmark	-	-	-	-	0.300	34.257	-	-
Canada	-	-	-	-	0.907	99.205	5.500	758.215
Austria	-	-	-	-	0.009	0.851	-	-
Kenya	-	-	-	-	-	-	2.400	286.090
TOTAL:	46.677	2834.457	21.910	1710.532	38.080	3995.331	43.682	4783.432

Source: The Spices Export Promotion Council, Cochin.

It may be seen from the above two tables that the value of these products exported have increased from Rs.2.8635 million during 1972-73 to Rs.4.9785 million during 1975-76.

However, the main hurdle in the way of developing exports of these products is the international marketing problem. The nature and magnitude of this problem has been already discussed elsewhere.

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Countries	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
VI. AMERICAN ZONE							
U.S.A.	2818.67	4305.67	1130.50	2606.00	7735.97	5973.89	3755.77
Canada	933.14	909.42	889.28	1329.14	1416.94	1471.10	1253.81
Trinidad	-	2.03	-	-	1.50	9.50	-
Venezuela	0.98	-	-	-	-	-	-
Chile	0.40	-	-	-	-	-	-
Bermuda	-	-	-	-	-	25.40	-
Peru	-	-	-	-	1.50	9.50	-
TOTAL	3753.19	5217.12	2019.78	3935.14	9154.41	7483.39	5009.58
Total Export of Pepper	22,296.8	17,969.7	19,247.5	19,958.2	31648.1	26341.4	24,226.00

Source: D.G.C.I.S., Calcutta.

Countries	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
VI. AMERICAN ZONE							
U.S.A.	22508.37	37041.65	9123.24	18536.88	74710.76	77945.09	52140.87
Canada	1408.95	7522.55	6598.66	9839.97	12495.92	19171.88	17897.76
Trinidad	-	12.21	-	-	15.11	108.11	-
Venezuela	6.14	-	-	-	-	-	-
Chile	3.90	-	-	-	-	-	-
Peru	-	-	-	-	-	47.82	-
Bermuda	-	-	-	-	-	261.85	-
TOTAL	23927.36	44576.41	15721.90	18376.85	87221.79	97534.75	70038.63
Total Export of Pepper	161905.6	152484.7	148249.8	143099.4	295308.4	344761.7	338836.6

C H A P T E R - X

WORLD DEMAND FOR PEPPER

MAIN FACTORS:

There is a general impression that demand for spices is inelastic per capita, meaning demand rises with population and hardly with anything else. According to the analysis of past data made by the F.A.O., Rome, the main factors explaining the rise in the net imports of pepper over the period 1955-70 were the rise in population and income and the fall in real prices of pepper.[1] Speculative motives on the part of big wholesalers and importers, though they play an important part in the determination of short-term market prices, seldom influence the demand in the medium-term period. Year to year variations in demand probably owe something to the decision concerning the size of stock. Some stocks will always be necessary for trade purposes but the remainder is probably related to expected price levels, interest rates, anticipation concerning exchange rate fluctuations and such other factors.

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1. F.A.O., Rome, International Seminar on Pepper 1976, Cochin, World Pepper Trade and Outlook, p.w.12.

Most of these factors are extremely difficult to quantify but it is safe to say that the observed prices already discount a large amount of the anticipated disturbances. It is therefore reasonable to relate changes in stock levels to expected changes in prices. These may be reflected in current and legged prices. It would be expected that stocks and current prices are positively related so that the calculated price elasticity of demand for pepper import is probably understated because the expected negative price elasticity of consumption is partly offset by the expected positive price elasticity of demand for stock of pepper.

The demand for pepper comes from retail sales for home consumption and from food processors and institutional users. The price elasticity of demand for pepper for home consumption and as an ingredient in processed food products is supposed to be low. But the income elasticity for the products using pepper may be expected to be generally high, though this could vary considerably from country to country. Adding the two demands for pepper, therefore, gives the expectation that price elasticities will be small and income elasticities in general higher than those of price.

Younger people in the developed countries are showing a marked preference for recipes which contain more spices and the pattern of their purchases has shown an

increase in volume of packaged spices purchased and also a preference for blends which, like barbecue spice for example, are used in rather larger quantities than the sum of constituent spices mixed in older household consumption.[2] Food manufacturers and processors also are beginning to realise that traditional foods and sauces can be spiced more heavily in the interest of non-conformity to make them different from competitive brands.

It is difficult to conclude how significant this trend will be in the immediate future though it is certainly likely to show itself markedly. "The belief is entertained by those who have forecast this trend as scientifically as possible that an annual rate of growth of demand by 3.5 per cent is likely, of which roughly 2 per cent is attributable to population and 1.5 per cent to a genuine preference for more seasoned foods".[3] In order to assess the medium-term outlook of the demand for pepper, F.A.O. undertook a study which examined the trends in net imports of the ten largest importers of pepper. After identifying the principal factors affecting the demand for pepper in these countries and on the basis of assumed rates of growth of income and population, detailed projections upto 1980 were made of the net import demand for pepper at various price levels. The results of the study are given below in Table-I.

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2. The Marketing Research Corporation of India, Survey of India's Export Potential of Spices, Vol.II, 1968, pp. A 60, 61.
3. The Marketing Research Corporation of India, New Delhi, Survey of India's Export Potential of Spices, Vol.II, 1968, p. A 61.

TABLE - I

NET IMPORTS OF PEPPER 1968-70 AND PROJECTED 1980

	1968-70	Net imports of pepper Projections to 1980 at stated changes from 1970 prices				Rate of growth of net imports		
		-20%	-10%	constant	+ 10%	+ 20%	1955-57 to 1968-70 (percent per year)	1968-70 to Constant 1970 prices per year
	(Thousand metric tonnes)							
United States	23.81	32.00	31.78	31.56	31.29	31.12	2.7	2.6
Canada	2.68	3.04	3.02	3.00	2.98	2.96	3.5	3.4
Federal Republic of Germany	5.95	8.47	8.36	8.25	8.13	8.02	3.9	3.0
France	4.02	6.17	6.13	6.08	6.04	6.00	4.8	3.8
United Kingdom	3.17	3.33	3.27	3.21	3.15	3.10	1.4	0.1
Italy	2.68	4.69	4.68	4.66	4.64	4.65	4.9	5.2
Netherlands	0.86	1.54	1.52	1.51	1.49	1.47	6.2	5.3
Japan	2.27	7.20	7.19	7.18	7.17	7.16	16.4	11.0
Argentina	1.15	2.27	2.35	2.33	2.31	2.30	4.0	6.8
Morocco	2.15●	3.46	3.34	3.22	3.09	2.97	3.9●	3.4
Total	48.14	72.17	71.00	71.00	70.29	69.73	3.5	3.8

● 1967-69 base

Source: Trends in Consumption of Pepper in the Main Importing Countries, F.S. Committee on Commodity Problems, Document CCP: PE 72/3, F.A.O., Rome, 1972.

Comparing the rates of growth of net imports over the past with those projected for the period 1968-70 to 1980, it is clear that all but Italy and Argentina are likely to slow down their net imports. The overall rate of growth for the ten countries taken together is almost the same as over the period 1955-57 to 1968-70, at about 3.6 per cent. The average rate of growth of net imports for most of the countries has been smaller for the period 1968-70 to 1980 than for the period 1955-57 to 1968-70. But the overall average does not fall because of the greater importance by 1970 of the faster growing group of countries led by Japan.

The effect of different prices is rather small proving price elasticities of demand for pepper are small and income elasticities higher than those of price. With a 20 per cent cut in deflated unit values, the rate of growth during the period 1968-70 to 1980 would rise only to 3.8 per cent per year; with a 10 per cent cut the rate would be 3.7 per cent. For a 10 per cent increase in deflated unit values the projected growth would go down to 3.5 per cent, and to 3.4 per cent per year if deflated unit value rose 20 per cent.

One should be fully aware of the fact that all these projections are subject to qualifications in so far as they assume constancy of many of the real factors which

go into the determination of demand. However, these projections do provide some indication of the markets which are likely to act and react. The study also indicates that the demand in these major importing countries is, in general, likely to rise at much the same rate as in the past.

U.S.A. AND CANADA:

The United States is the World's largest importer and consumer of spices used in food products. U.S. per capita consumption of spices over the decade of the sixties, has increased from 18.4 to 28.8 ounces.[4] This continuing growth in U.S. spice usage is attributed to several factors such as high income levels especially among persons who tend to spend rather than save any additional income and who spend a particularly large share of their income on food, clothing and other necessaries, increasing population, a growing demand for "convenience" food items and changing consumer tastes. Institutional usage is the fastest growing segment of the spice business, primarily reflecting the popularity of "convenience" foods and the increasing number of people eating out, especially as the result of the proliferation of the restaurant field by the quick service "hamburger" and "sandwich-type" establishments. The most important spice

4. U.S. Department of Agriculture, Foreign Agricultural Service, Washington D.C., Foreign Agriculture Circular, FTEAI-72 March, 1972, p.22.

consumed in the United States is pepper. Black pepper is the only spice that is believed to be utilised in 100 per cent of U.S. homes. Of the total volume of pepper consumed in the United States, one-half goes into retail sales for home consumption, and the balance to food processors and institutional users.[5]

The Canadian market, about a tenth of U.S. size, is broadly influenced by American purchase patterns and a strategy for the United States must be deemed to cover both the countries.[6] There is already a Commonwealth preference for Indian against Indonesian pepper in Canada, and to this extent it will be easier to retain or expand the Indian pepper market here. Though there was somewhat more sentiment for Indian pepper as such in Canada, at present, Indonesian (Lampong) pepper is being bought in preference to Malabar Black pepper.

Applying a rate of growth of net imports of 2.6 per cent for the U.S. market and 3.4 per cent for the Canadian market, the likely demand level of pepper in 1980 has been estimated at about 28,500 and 2,900 tonnes respectively for these two countries as against the average of about 23,600 and 2,000 tonnes during the period 1966-70. The

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5. International Trade Centre, 1970, Markets for Spices in North America, Western Europe and Japan, p.7.

6. Survey of India's Export Potential of Spices, Op. Cit., p. A.61.

import level in these two countries during 1974 is observed to be at 25,111 tonnes in U.S.A. and 2,577 tonnes in Canada. The import level in U.S.A. is in line with the general level of imports into this country for a number of years in the past whereas it is a little out of line in the case of Canada. It is stated that both in Vancouver and Toronto in Canada grinders and processors might have attempted to build up stocks in view of competition and imports from United States.

The level of imports into these two countries during the period 1966-70 accounted for 21 per cent of the world's total imports of 117,200 tonnes of pepper. This level of imports during the period 1971-73 also worked at 21.9 per cent showing that these two countries would continue to import pepper at least at much the same rate as in the past. To share this level of market and share it in a big way is, therefore, to be an integral part of India's overall strategy for exports of pepper in the next few years. India's exports of pepper to the U.S.A. which stood at 6,470 tonnes and formed 31 per cent of its total exports in 1962-63 declined to the lowest ebb at 593 tonnes which formed only 3 per cent in 1968-69. However, it has gone up to 24.4 per cent in the year 1973-74, though it declined in the following years.

U.S.S.R.:—

Taking into account the change in population as also the change in the level of consumption of pepper, the level of pepper requirements of the U.S.S.R. may go up. It is not population, but greater affluence, that will dominate the consumption pattern. During the period 1966-70 the average annual imports of pepper amounted to 9.5 thousand tonnes and this was entirely from India. But in the year 1971 the imports into U.S.S.R. declined to 6.9 thousand tonnes and thereafter rose to 11.7 thousand tonnes in the year 1972. However, the imports of pepper in the succeeding years went on declining. This pattern of ups and downs in the imports of pepper into U.S.S.R. is not something new. During the period 1964-65 to 1967-68, the levels of imports of pepper from India to the U.S.S.R. showed a similar trend. From 5,000 tonnes in the year 1964-65 it rose to 8,029 tonnes in the next year whereas it declined to 5,263.3 tonnes in the year 1966-67 and then jumped to the level of 12,570 tonnes in the year 1967-68. The main reason for this phenomenon was nothing but the price factor. Whenever the f.o.b. prices of pepper in India were relatively at higher levels, the U.S.S.R. imports of pepper declined and it reacted sharply on the downward movement of prices in India. According to the F.A.O. study, the average unit value of exports, in terms of U.S. cents per kilogram, realised by India for the period 1966-70 was 82.8 and the U.S.S.R. imports of pepper amounted to 9.5

thousand tonnes on an average. When the price rose to 112.4, the imports of pepper from India declined to 6.9 thousand tonnes. In the year 1972, when the price declined to 93.2, the U.S.S.R. imports of pepper rose to 11.7 thousand tonnes and thereafter the imports of pepper declined continuously since the prices moved upwards. This shows that as far as the U.S.S.R. is concerned the price elasticity of import demand is very much high and this is the case with all centrally planned economies.

In the beginning of the last decade the imports of pepper into U.S.S.R. hardly exceeded 3,000 tonnes and the present day imports have been increased by about three times indicating that the level of consumption of pepper has already gone up. With increasing relaxations on consumer expenditure in the U.S.S.R., it is most likely that the growth rate in per capita consumption of pepper will be higher than the growth rate observed during the last decade. Taking into account all these factors it may be fairly estimated that the U.S.S.R. will require by 1980 about 12,000 tonnes of pepper.* The levels of income and affluence on one side and the price elasticity of import demand on the other, should be taken

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* This estimate will appear to be a conservative one in view of the imports of the order of 12,570 tonnes of pepper by the U.S.S.R. in 1967-68. But imports at this level appear to be abnormal in the context of the past and present perspective for imports into U.S.S.R. and an estimate of 12,000 tonnes for 1980 may be considered to be appropriate.

into account while the rate of growth in pepper imports into U.S.S.R. is to be estimated.

The exports of pepper to the U.S.S.R. is a market insurance against fears of overproduction in the short period, though it provides India with non-convertible currency. It may even be necessary in years of increased demand while production has not yet, as at present, caught up to negotiate other possibilities of supply. The U.S.S.R. market might in special circumstances, be opened to Indonesian pepper provided a corresponding reduction in competition in the United States is ensured. Thus for example in the year 1973, U.S.S.R. imported about 300 tonnes of pepper from Singapore, and 1,150 tonnes from Indonesia in 1974.[7] The percentage change in price in 1974 over 1973 was 38 in India and 25 in Indonesia and hence this course of action was taken by the U.S.S.R. This is evident from the fact that while the U.S.S.R. met all her pepper requirements from India in 1973, her imports were made up both from India and Indonesia in the year 1974. When India's commitments to countries paying in convertible currencies preclude full supplies to the Soviet Union, this is the only course open to that country for meeting its requirements of pepper. Normally, trade between India and U.S.S.R. takes place by way of bilateral trade agreements between the two countries and no obligation exists either for the sale or for

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7. U.S. Department of Agriculture, Foreign Agricultural Service, Washington D.C., Foreign Agricultural Circular, FTEAI-73, April 1973, p.18 and FTEAI-76, April 1976, p.14.

the purchase of pepper. But the U.S.S.R. market is far too important for it to be denied supplies on any account other than their non-availability.

EASTERN EUROPE (Other than U.S.S.R.):—

Eastern Europe is also becoming an important importer of Indian pepper. The average annual level of imports into Eastern Europe other than U.S.S.R. was of the order of 4.9 thousand tonnes during the period 1966-70. The maximum level of exports of pepper from India to the East European countries other than U.S.S.R. reached 7,654.44 tonnes in the year 1974-75 under the leadership of Poland with 2,758.65 tonnes. The maximum level of exports to these different countries observed during the last five years are as follows:-

Country	Level of imports (tonnes)	Year
Poland	2,758.65	1974-75
Czechoslovakia	1,580.19	1974-75
Yugoslavia	1,519.09	1973-74
Rumania	1,290.99	1974-75
Hungary	1,109.93	1973-74
Bulgaria	699.83	1973-74
East Germany (G.D.R.)	554.88	1974-75
Total:	9,503.56	

During the period 1970-71 to 1975-76, the maximum level of exports to these countries reached in the two consecutive years, 1973-1975. This shows that there is a remarkable increase in the imports of pepper into these countries over the period 1966-70. The above table also suggests that in peak years, these countries imported over 9,500 tonnes of pepper though the average level of imports into these countries is observed at 5,543.6 tonnes per year during the period 1969-73. It is likely that these countries will demand pepper in the order of 8,000 tonnes by the year 1980. Almost all of these countries meet their entire requirements from India with an exception here or there for a small quantity. As in the case of U.S.S.R. market for Indian pepper the East European countries provide India with steady markets for her surpluses of pepper. Though the spectacular increase of prosperity and the consequent likelyhood of greater demand from these countries provide immense scope for large-scale imports of pepper, one should not lose sight of the fact that their imports are limited by political desisions made by these centrally planned economies. However, it is quite probable that the total demand in the U.S.S.R. and the East Europe will be of the order of about 20,000 tonnes by 1980 and India can meet the entire requirements of these markets.

WESTERN EUROPE:—

The level of demand for pepper in Western Europe is also likely to increase in the next few years, though the

rate of increase is not likely to be fast except in Italy and France where population is becoming increasingly pepper conscious. In view of the fact that the Italian population is increasingly making use of pepper in its various foods, the per capita level of consumption in Italy has already moved up from 32 grams per person during the period 1954-56 to about 47 grams per person in 1964-66. This level of per capita consumption might have gone up to 60 grams for the present. The average annual level of imports of pepper into Italy was 2.68 thousand tonnes during the period 1966-70. This has gone up to 3.3 thousand tonnes during the period 1971 to 1974. According to the study made by the F.A.O., it is observed that the rate of growth of net imports of pepper in Italy works out at 5.2 per cent, surpassed only by Netherlands with 5.3 per cent, in Western Europe. The average annual imports of pepper into the Western Europe including the United Kingdom worked out at 22.3 thousand tonnes for the period 1966-70. This level of imports showed a steady increase over the subsequent years and reached the level of 31.8 thousand tonnes of pepper in the year 1974. Among these countries, West Germany whose average annual imports were 5.8 thousand tonnes for the period 1966-70, steadily increased its imports to the level of 7.9 thousand tonnes in the year 1974. The rate of growth of net imports of pepper during the period 1969-70 to 1980 at constant prices of 1970 is estimated at 3 per cent. Similarly, France too has continuously increased its imports of pepper from the average annual imports of

3.9 thousand tonned during the period 1966-70 to 5.4 thousand tonnes in the year 1974. The rate of growth of net imports of pepper over the period 1965-70 to 1980 works out at 3.8 per cent.

The rate of growth of consumption of pepper in Western Europe is definitely higher, as is seen now, than the rate of growth of consumption in the U.S.A. This is because of the fact that the present level of per capita consumption of pepper in Western Europe is about half the per capita consumption level of pepper in the U.S.A. Another important factor is that the rate of growth of national income in most of the Western countries is observed to be higher than the rate of growth of national income in the United States which is currently 3.5 per cent. In view of these tendencies for increased pepper consumption in Europe, it is estimated that the demand in the West European countries excluding the United Kingdom will be of the order of about 30,000 tonnes by 1980.

THE UNITED KINGDOM:—

As in the U.S.A., in the United Kingdom also the level of increase in consumer expenditure is close to the level of increase in national income. The imports of pepper into the United Kingdom was less by 10 per cent over the previous year in 1974, though it had increased from 2.9

thousand tonnes in 1971 to 4.1 thousand tonnes in the year 1973. It is also important to note that the annual average level of imports of pepper into United Kingdom was only 3.17 thousand tonnes during the period 1968-70 and the rate of growth of net imports of pepper over the period 1968-70 to 1980 has been estimated to be only 0.1 per cent by the study made by the F.A.O. in 1972. This could be attributed to the general economic slow down. While no duty was paid on pepper imports after 1965 from any source, under the common tariff procedures, with the enlargement of the European Economic Community, pepper was charged with a 4 per cent customs duty in 1974, which eventually will be increased to the full tariff of 10 per cent in July 1977, except those imports for the manufacture of essential oils and resinoids. By encouraging the use of essential oils and oleoresins, which have a stronger flavouring effect than the same quantity of whole pepper, the common policy measure might reduce the growth rate of the overall consumption of whole pepper.

The United Kingdom market has today become much more cost conscious than ever before. The sharp fall in the imports of pepper into United Kingdom from 4.1 thousand tonnes in 1973 to 2.9 thousand tonnes in 1974 was the result of an increase of 29 per cent in terms of price of Sarawak white pepper in London. At the same time, the increase in prices at Cochin for Black garbled pepper was 64 per cent, followed by 44 per cent at New York for Black Lampong over the same period. According to Andrew M. Jones of Tropical Products

Institute, London "the quest for cost savings has caused one or two manufacturers to abandon the use of pepper or pepper oleoresins as a source of "Heat" in certain products. These firms have switched to cayenne which, although it does not provide the same flavour spectrum as pepper, imparts greater pungency at reduced cost on a weight for weight basis".[8]

A number of statistical analysis have been produced in recent years correlating changes in the quantity of pepper supplied to individual consuming countries with a variety of factors including national propensities to spend, GNP and changes in population. Perhaps the most significant of these factors is population change, particularly in the case of countries with well developed and sophisticated food manufacturing and processing industries. This has an important implication in terms of likely levels of future demand for pepper in the United Kingdom. Average of annual population changes per thousand inhabitants in United Kingdom* is given below:

1961-66	+ 6.5
1966-71	+ 5.3
1971-74	+ 2.7

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8. Andrew H. Jones, Trends in the Consumption of Pepper Products, International Seminar on Pepper, Cochin, 1976, p. MG.25.

*Source: "The Guardian" Newspaper, London, 3-2-1976, quoted by Andrew H. Jones, Trends in the consumption of pepper products, International Seminar on pepper-1976.

Although exact figures are not available, it is reported that there is an actual net decline in population since mid-1974. It will be the first time that the United Kingdom population has fallen in peace time. The level of demand in the household sector is not likely to increase at any significant rate; the level of demand for pepper from the institutional consumer may increase.

All these indicate that the level of consumption of pepper in the United Kingdom is not likely to increase to any appreciable extent. On the contrary, it may stabilise at the level of the average annual import of pepper during the period 1966-70, at 3.2 thousand tonnes.

It may, however, be mentioned that a large proportion of this demand is for white pepper. It is estimated that the demand for white pepper may be in the range of 85 to 90 per cent. But since white pepper is also the produce of the same vine as the black pepper, and the increased supply of one merely results in the corresponding reduced supply of the other, no separate supply and demand balance for the white pepper need be generated. It is likely that a large part of this demand will be met from sources currently producing white pepper, such as Sarawak and Brazil.

PEPPER MARKET IN OTHER COUNTRIES:—

The level of demand for pepper in other countries is bound to increase both on account of the population factor

as also on account of increase in national income that is taking place in these economies. This is based on developments, in the recent past, taking place in various countries in Africa and Asia where pepper was always neglected as a spice. There is a spectacular growth of demand for pepper in these countries. Japan has emerged as a major buyer in Singapore and Malaysia. Argentina and Morocco can enjoy the pride of place with their imports nearly doubled in 1974 over the previous year.

The West Asian Countries seem to have found new values in pepper if the steep increase in demand in these countries in the recent past acts as a guide. Saudi Arabia occupies nearly 80 per cent of the Arabian Peninsula, extending from the Arabian Gulf (Persian Gulf) in the east to the Red Sea in the West, and from the borders of Syria, Iraq and Kuwait in the north and Oman in the south. The population of Saudi Arabia has been estimated in 1971 at 7.74 million with a population growth rate of 1.7 per cent per annum.

The National Income of this country has been reckoned at 2,303 million U.S. dollars in 1968. The range of per capita income in Saudi Arabia is understandably wide with nomads living in small places at one extreme and some of the wealthiest people of the world at the other extreme. With rising incomes and standards of living imports of consumer goods including spices will be increased considerably.

Availability of the best quality products from all parts of the world at highly competitive prices has made Saudi consumers both quality and prices conscious. Geographical proximity, traditional, cultural and trade relations with Saudi Arabia can prove to be an asset for India in expanding her pepper trade.

Kuwait is the most affluent country in the West Asia and its per capita income of $3200 (1967) is the highest in the world Kuwait with a population of 0.73 millions with a population growth rate of 6.8 per cent is by itself a small market for pepper as compared to Saudi Arabia. But in view of its convenient location at the head of 'Persian Gulf' and its nearness to eastern parts of Saudi Arabia, Iraq and Iran with which it is connected by land routes, Kuwait has a re-export trade in this region. The comparatively low import duties and liberal financial accommodation extended by the banks to the importers provide further fillip to the Kuwaiti trade to undertake large-scale imports when favourable market conditions prevail in the neighbouring markets.

Kuwaitis are more modern and progressive in outlook as compared to conservative Saudis and Arabs of other countries in the Gulf region. In view of this Kuwait is regarded as a 'pace setter' for the popularisation of the products in other countries in the region. In other words, Kuwait constitutes the 'focal point' of trade in the Gulf region.

Iran, Iraq, Dubai, Bahrain and Qatar are the other countries in this region and all of them enjoy a fair degree of affluence ever since the discovery and exploitation of petroleum in this region. The exports of pepper from India to the West Asia (Middle East Zone) rose from 567.56 tonnes in 1972-73 to 1,692.82 tonnes in 1973-74, the peak year of India's pepper exports. In the subsequent years, this level could not be maintained mainly because of shrinkage in the exportable surpluses in India and the stocks built up by these countries. However, in the light of the facts mentioned above, the West Asia proves to be potential market for pepper in a big measure. The maximum level of exports to some of these countries observed during the period 1970-71 to 1975-76 are given below:

Country	Level of imports (tonnes)	Year
Saudi Arabia	433.88	1975-76
U.A.R.	495.91	1974-75
Sudan	533.66	1971-72
Bahrain Island	87.77	1975-76
Kuwait	100.00	1973-74
Iran	224.24	1973-74
Iraq	99.63	1974-75
Dubai	152.65	1973-74

From this table it is clear that since the year 1973-74 the imports of pepper into these countries have shown a significant increase.

In the world pepper trade, a substantial quantity is being imported for the purpose of re-export. During the period 1966-70, the level of average annual re-export of pepper reached 34.6 thousand tonnes whereas the total world exports of pepper amounted to only 79.6 thousand tonnes. Of these re-exports of pepper, Singapore alone is credited with 32.8 thousand tonnes. During the same period, the total world imports amounted to 117.2 thousand tonnes thereby showing some discrepancy in balancing the total world exports and the total world imports. The same trend continued in the subsequent period 1971 to 1974. Hence, it is difficult to ascertain the level of total world net imports of pepper. However the total exports of pepper from the producing countries alone can be taken as more reliable in estimating world trade of pepper. Accordingly, the world trade of pepper, at present, may be taken as 95,000 tonnes on an average. The world demand for pepper has tended to grow at a faster rate than anticipated as is evident from the pressure on prices during this period. This increase in demand for pepper is mainly owing to the increase in the population and national income of many developing economies of the African and Asian countries.

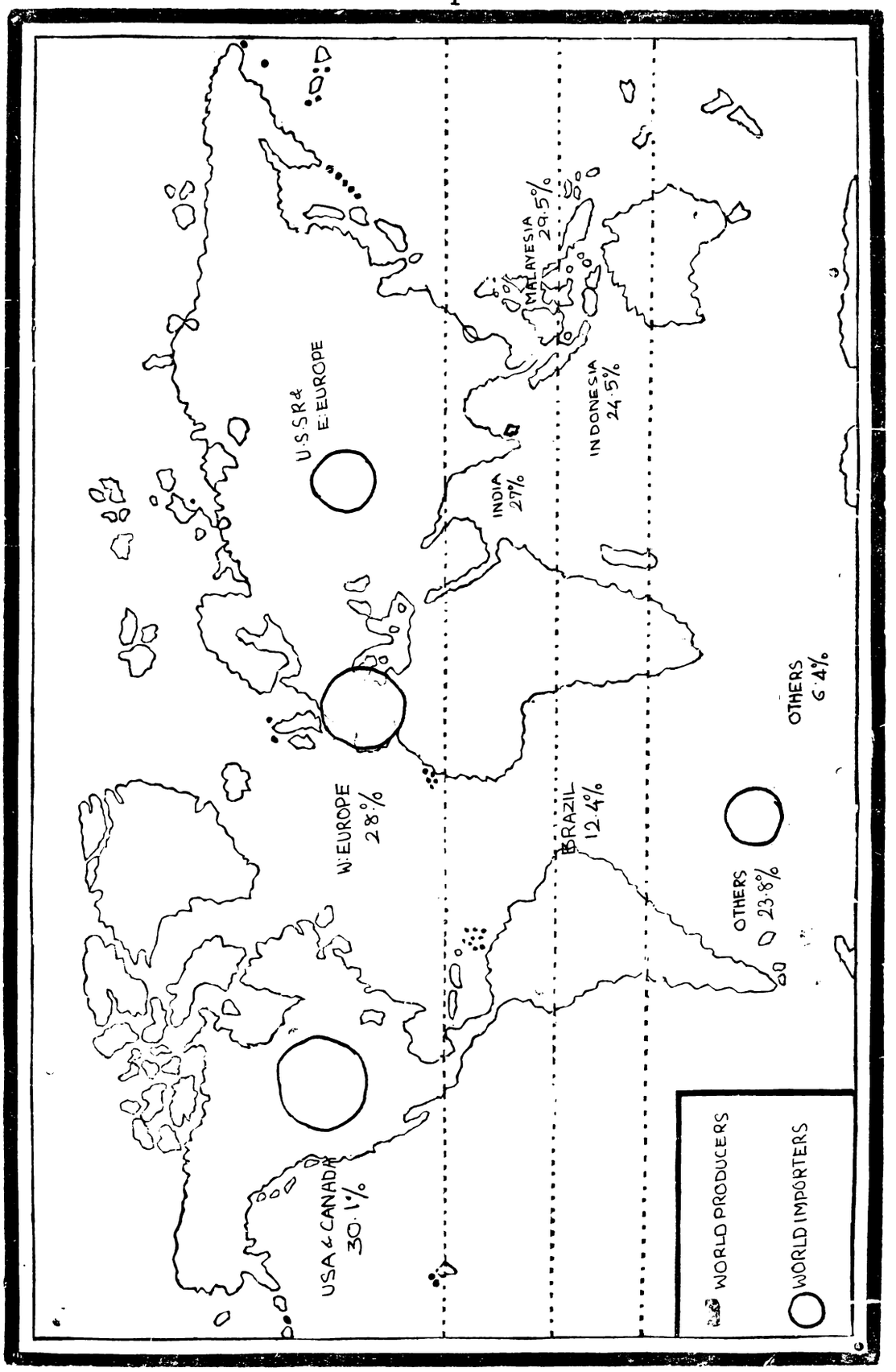
During the period 1966-70, the countries excluding U.S.A. and Canada, East European countries (including U.S.S.R.) and west European countries (including United Kingdom) accounted for the import of 18.3 thousand tonnes of pepper, on an average. This level of imports has gone upto 24.1 thousand tonnes, on an average for the years 1971 to 1974. Thus we find that there is a phenomenal increase in the demand for pepper in these countries. Yet, the level of consumption in these countries is less than 25 grams per annum. It would not be unrealistic to expect consumption level there to improve gradually to about 40 grams in course of time. Hence, the level of demand for pepper in these countries may be estimated at about 35,400 tonnes by the year 1980.

GLOBAL DEMAND:—

Keeping in view, the estimates presented in the paragraphs above the global level of demand for pepper is estimated as follows:—

Year	Demand
1966-70 (Average)	82,600
1971-74 (Average)	94,150
1980	120,000

Map No. II


U.S.S.R & E.EUROPE
MALAYESIA 29.5%
INDONESIA 24.5%
INDIA 27%
W.EUROPE 28%
BRAZIL 12.4%
OTHERS 6.4%
OTHERS 23.8%
USA & CANADA 30.1%
WORLD PRODUCERS
WORLD IMPORTERS

WORLD PRODUCTION:—

In the last three or four years, world production of pepper has not fluctuated to the same extent as it had in much of the 1960s. In that decade, for example, output in 1968 had risen by a third to reach a record of 142.7 thousand tonnes, but in the following year, it fell by a fifth when a slump in production in Indonesia was only partly offset by a rise in that in Malaysia and Sri Lanka.[9] Since the beginning of this decade, the world output of pepper is on steady increase, though on a small scale. While world pepper production continued its moderately rising trend in 1974 with increase in all of the major producing countries, the production in India declined since 1973. World production of pepper in 1974 has slightly exceeded the level reached in 1972 and consolidated in 1973, the period during which production incentives in a number of countries came to bearing. At present the production is by some 10 per cent, above the 1971 level.

The main component of the marked fluctuations in world output during the 1960s, notably in 1967-69, had been Indonesia, traditionally the world's foremost producer. Indonesian output during that decade varied enormously, from a peak of 57.9 thousand tonnes to a trough of 46.4 thousand

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9. The Commonwealth Secretariat, London, Plantation Crops, A Review No.14, 1973, p.184.

tonnes in 1964. Since then, 1968, was the only year in which the crop approached the level existing in the first half of the decade, output being depressed by the effects of disease in 1967, 1969 and 1970.[10] In Indonesia, "foot-rot" disease is almost endemic in the black pepper producing area of Lampong, output in the white pepper producing area of Lanka has been adversely affected by "pepper yellows". The Indonesian Government continues to put major emphasis on disease control and rehabilitation of old plantings. Production is also being encouraged, it is reported, by the provision of better credit facilities for the small holder and by the formation of co-operatives. As a result of this development programme and remedial actions taken by the Government, the production is expected recover to the level of 34 thousand tonnes by the year 1980 out of which something like 30 thousand tonnes of pepper will be available for exports.

In India, during the period 1966-70, according to unofficial estimates the level of production of pepper was of the order of 33.8 thousand tonnes. Thereafter, output has remained at a higher level despite a fall in the reported area under pepper, the apparent improvement in yields reflecting greater use of fertilisers and improved varieties. These two aspects should become more important in the near future,

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10. Commonwealth Secretariat, London, Plantation Crops, No.14, 1973; p. 177.

following the distribution of the hybrid pepper, "Panniyur-1" on an increasing scale. Attractive prices also act as an incentive for greater use of fertilizers to augment the total production. It will not be too much to expect for India to produce something like 45 thousand tonnes by the year 1980. Since the internal consumption keeps on increasing from 12 thousand tonnes to 15 thousand tonnes, the surplus for exports might be about 30 thousand tonnes.

Malaysia accounted for 24.3 thousand tonnes in the period 1966-70 which had been improved to 28 thousand tonnes in the years 1971 and 1972. Though it declined to 24 thousand tonnes, the year 1974 witnessed an all time record production of 30 thousand tonnes. The pepper subsidy scheme established early in 1972 is expected to benefit some 2,000 farmers. Higher production was also facilitated through the relaxation of the credit terms granted to small holders by the Sarawak Development Finance Corporation, as this would have led to a greater application of fertilizers and increasing use of the more disease resistant varieties being developed by Government research units. All these factors should help to reach the level of production of about 35 thousand tonnes by the year 1980. Since local consumption is not large and no official data are available on the actual level of production, a quantity of 33 thousand tonnes of pepper might be available for exports.

AVERAGE WORLD PRODUCTION OF PEPPER
1966 - '70

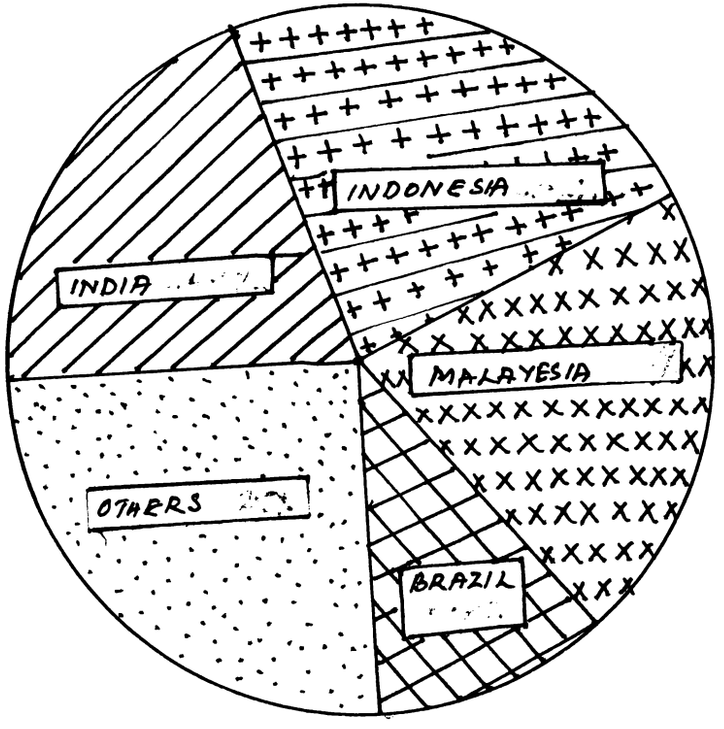

Chart No. V

AVERAGE WORLD EXPORTS
OF PEPPER 1966-'70

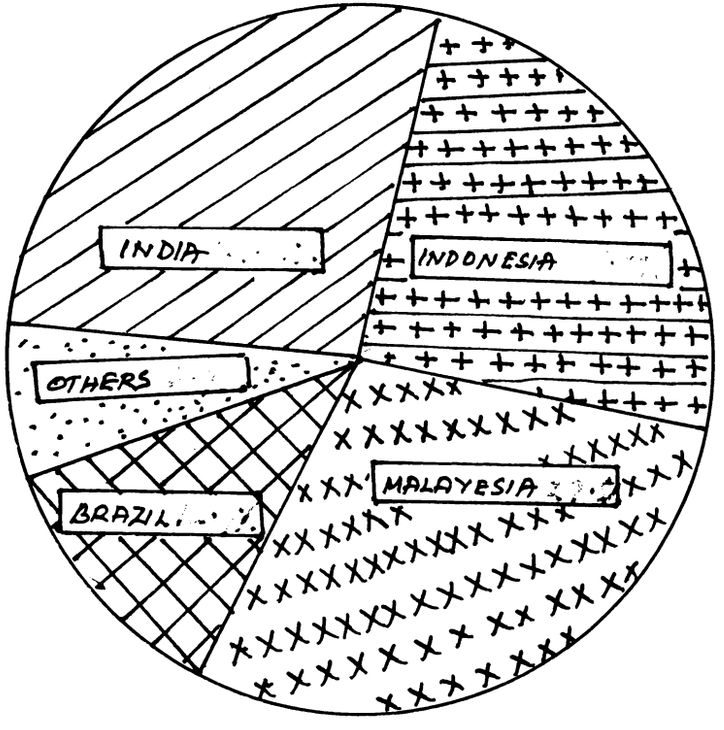

Chart No. VI

In Sri Lanka, pepper production has increased substantially, doubling during the course of the 1950s and increasing by a further 50 per cent during the following decade. Despite the increase in production, cultivation was rather neglected during much of the 1960s. Recently, it has been viewed by the Ministry of Plantation Industries as a suitable crop for further developments as part of the country's diversification programme, and various extension and rehabilitation schemes are under way. At present almost all the crop is grown for domestic consumption and in future increased exports are quite likely. Elsewhere in Asia, production of pepper is rather negligible. In recent years while output in the Khmer Republic (Cambodia) is estimated to have fallen substantially, in South Vietnam there has been stagnation at a lower level than experienced during the first half of 1960s. Thailand is probably the largest of the remaining pepper producers in Asia but no details of the crop are available. However, the F.A.O. has estimated that these countries have together produced 14.6 thousand tonnes in the years 1966-70 on an average, of which the average annual level of exports was only 1.0 thousand tonnes of pepper. In the years 1971-74, no improvement was noticed on the front of production. But the average annual level of exports was lesser during this period.

In Africa, pepper is grown in the Malagasy Republic and, in much smaller quantities in various other

countries like Kenya, Ethiopia, Zaire, Cameroon, the Central African Republic, the Ivory Coast and Nigeria. From the average annual level of production of 4.1 thousand tonnes in the years 1966-70, it increased to about 6.0 thousand tonnes in the year 1974, in these countries. Only in the Malagasy Republic has there been a regular and substantial surplus for export. The Malagasy crop had increased markedly during most of the 1960s and thereafter it continued to increase in a modest scale. The coffee and pepper project started on the east coast of the Republic in 1967 has raised the area under crop considerably and it is expected to increase production to 7 thousand tonnes of pepper by 1980. With the increased production of pepper in the Malagasy Republic, the exportable surplus from this continent would be about 6.5 thousand tonnes.

Brazil is the only large pepper producer in the Americas, being ranked fifth in the world. The production remained relatively small until the 1950s, when it rose swiftly. There was an upward trend in the following decade until 1968 when plant disease led to the uprooting of vines. The average annual level of production during the period 1966-70 worked out at 12.5 thousand tonnes which could possibly have considerably increased to 18.5 thousand tonnes in 1973 and 1974 as a result of the vigorous replanting programme initiated then. It is expected that the pepper production in Brazil may reach the level of 22 thousand tonnes

by the year 1980. Elsewhere on that continent, pepper production is still small, but in various countries, such as Guatemala, the Honduras Republic, and British Honduras, an upward trend has been reported. Hence one may conclude that this Continent may contribute something like 18.5 thousand tonnes of pepper to the world market by the year 1980.

If these estimates come to be true in the absence of violent attacks of plant diseases and abnormal climatic changes the global supply can be computed as follows:

Year	World Production	World Exports
1966-70 (average)	116,200	79,600
1971-74 (average)	130,000	95,450
1980	159,500	120,000

INDIA'S SHARE:—

In the world trade of pepper, India contributed 27 per cent during the period 1966-70 and this share declined to 22.9 per cent in the years 1970-74 mainly because of the fall in exports in the years 1971 and 1972, and partly because of the increase in the shares of other major exporting countries. The fall in the exports of pepper from India was not

the result of shrinkage in production of pepper in India. On the contrary, the increased home consumption of pepper in India is quite evident. When India could export about 63.6 per cent of her production in the years 1966-70 on an average, this percentage could not be increased inspite of an increase in production from the average annual level of production of 33.8 thousand tonnes in 1966-70 to 36.4 thousand tonnes in 1971-74. This means that the average annual level of home consumption has gone up from 12.3 thousand tonnes in 1966-70 to 13.5 thousand tonnes in 1971-74. At this rate of growth of internal consumption of pepper in India, something like 15 thousand tonnes of pepper will have to be set apart for meeting internal requirements by the year 1980.

If India wants to maintain her share in the world trade of pepper in 1980 at the same level as in the years of 1966-70, the Indian production has to be increased to 47,400 tonnes. Even if this share of exports in the years 1971-74 is to be maintained in 1980, a minimum of 42,600 tonnes of pepper has to be aimed at. Indian exports of pepper as a percentage of world exports has steadily declined from 52 in 1950 to 47.5 in 1960; it further declined from 31.4 in 1970 to 28.4 in 1975. A modest target of 25 per cent of world exports of pepper in the year 1980 would need India to produce 45,000 tonnes of pepper keeping 15,000 tonnes for home consumption and 30,000 tonnes for exports. Had India produced 40,000 tonnes by now it would have enabled India to supply

the entire requirements of the new expanding markets in East Europe without recourse to restrictive measures.

The total world demand has tended to grow at a rate faster than production growth rate. This created conditions of relative scarcities from time to time during the last 4 years. This will incidently explain the pressure on prices during this period. Prices have, in fact, moved up by more than 100 per cent during a relatively short span of 4 years. If it was the consumer who let down the producer during the last two decades, it is the producer who is letting down the consumer in the present decade.

From the discussions made elsewhere, one can estimate the total demand for pepper today at the level of 100,000 tonnes. If the producers of pepper have not been able to register this much of trade, there is just one explanation - inadequate supplies. The total world trade must be, now somewhere around 85,000 tonnes. The balance represents the level of unsatisfied demand. It would not be unrealistic to assume that the total world pepper trade will show the same tendencies for growth in future too. In fact, the recent developments are highly encouraging and one is led to believe that there is tremendous growth potential for pepper trade. The real need today is to improve production. There is a slight resentment amongst the consumers for the current price level. The producing countries should not mind a small decline in prices if it can enable them to increase consumption of this vital spice especially in relation to new markets.

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ESTIMATED WORLD PRODUCTION
OF PEPPER -1980

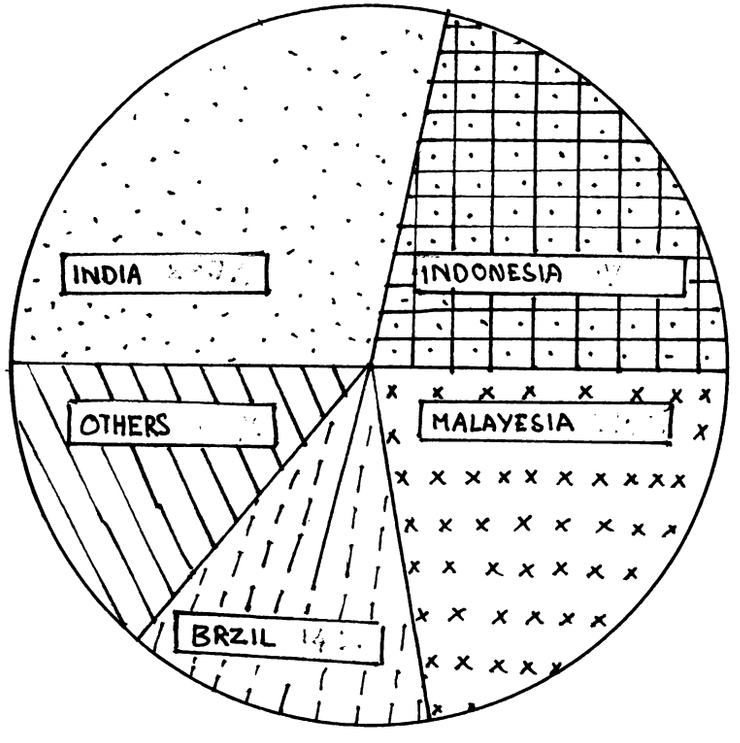


Chart No. VII

ESTIMATED WORLD EXPORTS
OF PEPPER -1980

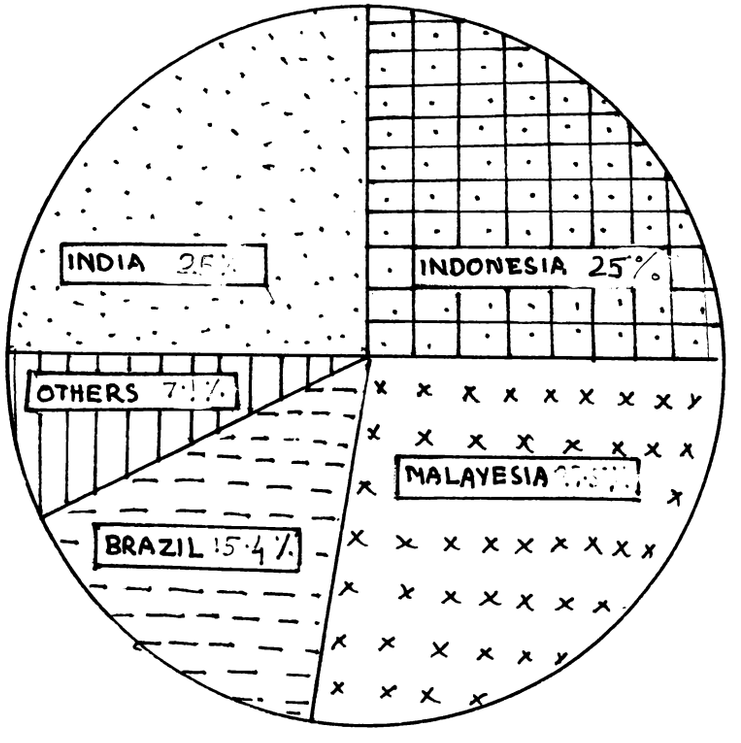
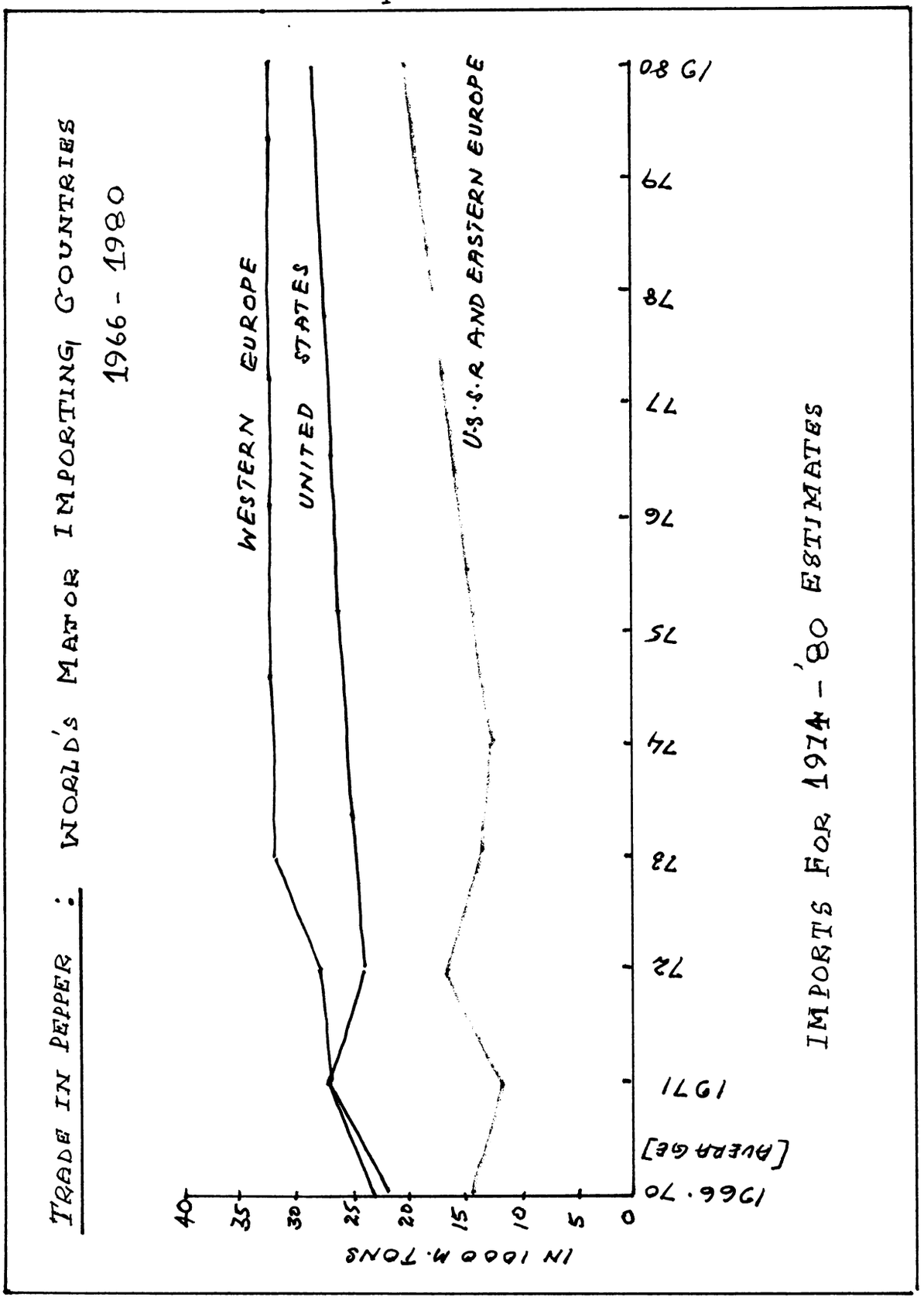


Chart No. VIII

Graph No. IV (a)


TRADE IN PEPPER : WORLD'S MAJOR IMPORTING COUNTRIES
1966 - 1980
WESTERN EUROPE
UNITED STATES
U.S.S.R AND EASTERN EUROPE
IN 1000 M. TONS
40
35
30
25
20
15
10
5
0
1966-70 [AVERAGE]
1971
72
73
74
75
76
77
78
79
80 G/
IMPORTS FOR 1974 - '80 ESTIMATES

CHAPTER - XI

A POLICY FOR THE DEVELOPMENT OF TRADE IN PEPPER

Pepper and Cardamom are currently running at or near a peak in foreign exchange earnings among spices exports. The foreign exchange earnings out of the exports of spices from India steadily increased from Rs.305.6 million in 1972-73 to Rs.727.2 million in the year 1975-76, the share of pepper increased from Rs.143.1 million to Rs.338.8 million and that of cardamom from Rs.68.4 million to Rs.193.8 million over the same period. During the period 1973-74 to 1975-76, the share of pepper and cardamom together accounted for 72.61 per cent on an average of the earnings of foreign exchange out of the exports of the spices from India, as against 66.15 per cent during the period 1971-72 to 1972-73. Table No.I give the value of exports of spices with the percentage shares of pepper and cardamom.

TABLE - I

VALUE OF EXPORTS OF SPICES FROM INDIA DURING THE FINANCIAL YEARS 1971-72 TO 1975-76 (VALUE: '000 Rs.)

Commodities	1971-72 Value	1972-73 Value	1973-74 Value	1974-75 Value	1975-76 Value
Pepper	148249.8 (44.37)	143099.44 (43.61)	295308.43 (53.05)	344761.74 (57.04)	338836.63 (45.10)
Cardamom (Small)	80306.8 (21.94)	69464.91 (22.40)	115528.00 (20.86)	133232.42 (21.28)	193836.80 (26.55)
Cardamom (Big)	1666.3	1018.19	1390.88	948.83	1225.72
Chillies	19222.0	3531.45	4101.66	3162.48	31806.37
Ginger	27531.0	20993.88	25592.96	35127.14	41049.38
Turmeric	29042.4	18205.70	36506.49	41441.14	42119.42
Curry Powder	7016.7	7552.16	7392.19	10733.32	11211.01
Coriander Seed	1551.4	2040.43	3022.71	2795.25	3459.12
Cumin Seed	23590.7	9198.14	24567.72	12052.90	20153.68
Celery Seed	12440.3	7580.20	13555.16	11854.70	11471.74
Fennel Seed	3445.7	2544.68	9360.58	3957.80	5571.34
Fenugreak Seed	2713.11	2091.74	3764.08	3579.16	3961.71
Garlic*	2369.4	825.00	1811.60	699.70	2549.05
Aniseed	64.14	73.24	238.73	208.80	117.58
Cassia	2349.3	3302.59	6996.74	8039.00	2392.86
Mace[1]	24.74	-	7.04	-	-
Tejpat	178.7	20.41	357.02	322.91	742.50
Misc. Spices	4145.2	11919.97	4556.28	8241.57	11331.50
Oils of Spices	91.63	122.24	193.21	256.06	668.30
Oleoresin of Spices	48.66	3017.59	1798.87	4510.17	4723.59
TOTAL	366047.87	305611.96	556052.35	625925.09	727248.28

* Including Powder

Note: Figures in the brackets show the percentage value of the total export earnings.

Source: D.G.C.I.S., Calcutta.

In the case of pepper the decline from the peak volume of export of 31,648 tonnes in 1973-74 has been steep. The volume figure was only 26,341 tonnes in 1974-75 and 24,226 tonnes in 1975-76 but rises in unit prices have helped to offset the drop in volume. In the case of cardamom also the exports declined from 2,147 tonnes in 1971-72 to 1,910 tonnes in 1975-76 and rises in unit prices have more than offset the drop in volume. It is a major conclusion of this study, that in pepper and cardamom, India has not adequate production to supply all the demands currently available at an "advantageous" price; that is, profitable areas of expansion of exports exist for these two major spices which currently are not exploited because sufficient supplies are not available.

Production growth must be extended beyond exports growth to permit a rise in domestic consumption. During the period 1966-67 to 1970-71 the exports of pepper from India amounted to 79.12 per cent of the production (trade estimate) which declined to 68.99 per cent during the period 1971-72 to 1975-76 on an average in spite of an increase in the unit value realised. In the case of cardamom, there is an increase in the percentage of exports out of total production during the period 1971-72 to 1975-76 over the period of exports of cardamom. Table No.II gives percentage share of exports of pepper and cardamom out of the total production of these two major spices.

TABLE - II (A)

PERCENTAGE SHARE OF EXPORTS OF PEPPER OUT OF THE ESTIMATED PRODUCTION DURING THE PERIOD 1956-57 TO 1975-76.

Year	Production ('000 tonnes)	Exports (tonnes)	Average Percentage of Exports over 5 Years
1956-57	22	15079	
1957-58	24	13903	
1958-59	24	11673	61.28
1959-60	28	20676	
1960-61	28	17202	
1961-62	30	21620	
1962-63	28	20388	
1963-64	25	18938	71.02
1964-65	30	17381	
1965-66	35	26305	
1966-67	33	21785	
1967-68	35	24868	
1968-69	35	18952	79.12
1969-70	30	22297	
1970-71	28	17697	
1971-72	33	19248	
1972-73	36	19958	
1973-74	35	31648	68.99
1974-75	35	26341	
1975-76	35	24226	

Note:- (1) The production estimates are adopted from information supplied by the Pepper and Spices Trade Association, Cochin.

(2) Export figures - D.G.C.I.S., Calcutta.

TABLE - II (B)

PERCENTAGE SHARE OF EXPORTS OF CARDAMOM OUT OF THE ESTIMATE PRODUCTION DURING THE PERIOD 1964-65 TO 1975-76

Year	Production	Exports	Percentage of Exports over Production
1964-65	2200	1503	68.32
1965-66	2000	1134	56.70
1966-67	2700	1590	58.89
1967-68	2400	1451	60.46
1968-69	2100	1291	61.48
1969-70	3170	1705	56.78
1971-72	3785	2147	56.72
1973-74	2780	1813	65.22
1972-73	2670	1384	51.83
1974-75	2900	1626	56.07
1975-76	3000	1910	63.67

Source: The Cardamom Board, Cochin.

Over the years, since we have fallen from our peaks, a major factor has been the rise in domestic consumption. It has not reduced the volume of the export surplus over a period of, say 5 years, but has markedly affected price and, therefore, some competitive capacity, till the

year 1974-75. Since the year 1974-75, the major problem of these two major spices was the sheer inadequacy of supplies. Once the world supplies are in balance with the world demand, as it is bound to happen, both volume and price of our spices exports might turn on our capacity to fill the production gaps already noticed. The only manner in which export prices can be maintained both competitive and stable is to provide safe margins for export after meeting all reasonable domestic needs.

Though there is no general relation between income and the consumption of spices, there are fairly steady associations of consumption of spices with income growth in the same country. There is practically no case discernible of a country's suddenly changing its eating habits of the exclusion of spices. There are apparent fluctuations as between two or three years largely to be explained by variations in stocks or inventories, but the general pattern is one of growth of each market in terms of population accelerated by preferences of younger people. It is in view of this associations that it has been possible to build up a global rate of consumption in the light of probable income growth in each of the markets concerned.

The Table No.III gives the growth of population in terms of per cent per annum.

TABLE - III

RATE OF GROWTH OF POPULATION

(Per cent per annum)

Countries	1950-'60	1960-'70	1970-'80
North America	1.8	1.3	1.1
Canada	2.2	1.9	2.0
Japan	1.0	1.0	1.1
Western Europe	0.6	0.9	0.8
Eastern Europe	0.8	0.7	0.8
U.S.S.R.	1.8	1.3	1.0

Source: Agricultural Commodity Projections 1970-'80, p.116, F.A.O., Rome, 1971.

Spice consumption either between countries or in the same country does not change or fluctuate violently; it is quite otherwise with spice prices. Prices of spices are sometimes quite stable over short periods like two or three years, but over a decade there is hardly a spice not affected by a large amplitude in price fluctuations. One might conclude that the inelasticity of demand is offset by large variations in supply from time to time so that "spot" availability often dictates sharp changes in prices in leading markets. The stabilisation of prices thus emerges as a particular problem in this area. On balance, sellers prefer stability: it would seem that buyers, contrary to general opinion, as witnessed

by the buyers of cardamom in Kuwait in the year 1971-72, are also disturbed by these fluctuations and would be willing to evolve a policy, as always advocated by the American Spices Trade Association, New York, to reduce their severity. Only speculators or traders with speculative motive have an interest in price fluctuations and unfortunately world spices trade is under the spell of speculative motive because of its inherent characteristics, though it is on the decline in the recent years.

Vagaries in supply and elements of speculation are primarily responsible for violent fluctuations in prices. Cyclical fluctuations in supply and therefore in prices are established facts; but short-term fluctuations are more important. Can we develop a predictive model of price structure taking into account:

(1) changes in anticipated supply and

(2) speculative motive after giving due weightage for each? (One has to recall the importance of Singapore and its speculative environment in this connection).

Any attempt to quantify these two factors which bear essentially a qualitative character will be based on the subjective impressions of the investigator.

World economy has changed from being production-oriented to being market-oriented. In market development, the functions of economic analysis and market research have

assumed a greater significance than ever before. They include:

(a) provision of the facts and forecasts necessary for formulating basic market development policies,

(b) identifying the specific problems and potentialities of the product in its various markets in order to provide guidelines for sales promotion, public relations and technical research programmes,

(c) evaluation of the effectiveness and impact of the activities planned and carried out under these programmes and

(d) developing techniques for allocating the budget most effectively to operational divisions, national offices and major programme activities.

To discharge these functions in a scientific and systematic manner it is desirable to have a single Board or Corporation concerned solely with all aspects of growing, developing and selling the spices in general. In India pepper and cardamom are being looked after by a multitude of agencies and organisations. To cite a few, the Spices Export Promotion Council, Cochin; the Cardamom Board, Cochin; The Central Plantation Research Institute, Kasargode; Directorate of Arecanut and Spices Development, Calicut are already in the field. The Central Food Technological Research Institute, Mysore, the various agricultural research stations,

all are engaged in one way or other in the cause of pepper, cardamom and other spices. There is a strong need for the integration and unification of various agencies to make them useful and worthwhile. We find a number of different organisations in this area and the result is too often confusion and considerable waste of money. In spite of these organisations and institutions what is really lacking in spices production and export trade is a forward programming in its real sense, though some of them, notably the Spices Export Promotion Council, the Cardamom Board and the Central Food Technological Research Institute have made much valuable contributions to the cause of spices trade.

Improvement in the quality of population forecasts, developments in the gathering of national income statistics, better understanding and measurement of the income and price elasticities of demand have made the study of market behaviour a science. At present, none of the agencies, probably with the exception of the Cardamom Board, are either competent or equipped with necessary tools and information to take up such a venture. An integrated Spices Board/Corporation alone can do this challenging task with a fair degree of success.

The increased awareness of economic and social disparities between the agricultural and other sectors is quite visible. Farm workers have become more insistent on their rights. They have generally been under-privileged in respect of schools, hospitals and other welfare provisions.

People living on small farms are only too conscious of the inability of their holdings to provide them with an adequate living. They have reacted to this situation by transferring to other occupations as far as opportunity offers. Generally, it is the young adults who leave their holdings. The farm population is getting older than the average in other occupations and this is more so in the case of cardamom plantations and pepper gardens, however small they might be.

People are developing new attitudes. They regard work not as an alternative to starvation but as an instrument for gaining access to the modern good living. Technological progress has necessitated a much closer dependence by farmers on those who serve their needs for production purposes. Backward and forward linkage has thus already emerged. "In becoming more a business enterprise, farming becomes in one sense more risky. As long as current operating expenses constituted no more than, say 20 per cent of the value of gross output, a drop of some 20 per cent in the latter in a particular year, due to disease, or bad weather, caused his income to fall by only a quarter whereas when operating expenses climb to 60 per cent of output a 20 per cent drop in sales will cut his income in half, and out of income he has to pay a larger amount than formerly in interest in borrowed capital".[1]

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1. F.A.O., Rome, 1972, Agricultural Adjustments in Developed Countries, p.40.

Administered prices in agriculture has become almost universal. It is alleged that price has proved an ineffective regulator in respect to farm products because farmers continue to produce even when prices fall substantially. The ideal farm price policy has to encourage efficiency and technological progress. This is known as a system of self-adjusting administered price. In all the developed market economies, agriculture has become the most administered sector of the economy with its guaranteed prices, its subsidies, its acreage allotments, its marketing quotas and a host of other interventions. In the Developed Centrally Planned Economies, Planning and administrative controls are ofcourse comprehensive. In the case of India itself plantation crops like tea and coffee are getting better treatment under the able guidance of the concerned commodity boards. All these call for the important and imperative need for the constitution of a Spices Board in the place of different agencies and organisations for the promotion and development of pepper and cardamom industries in particular and those of other spices in general.

With regard to a policy for price stabilisation, farmer sponsored bodies can seldom survive, since marketing activities are highly competitive and much more complex than any other economic activity in the field of internationally traded commodities like pepper and cardamom with a very high degree of market sensitivity.

The basic principle in any national price stabilisation scheme is to break the connection between the price paid in world markets for exports and the prices and incomes received by the producers. Variations in the quantity of commodities exported have caused as much instability of export proceeds as have variations in world prices. Unstable prices will produce unstable outputs in current or subsequent seasons, depending on the time taken from planting to commercial cropping. Often the price paid for the other crops may be just as important as the price of the exported cash crop. This we have experienced both in the cases of pepper and cardamom along with other cash crops.

The national price stabilisation scheme may assume any one of the following forms, either independently or in combination with others. They are:

(1) Marketing Boards

(2) Stabilisation Funds

(3) Variable export duties and subsidies and

(4) Buffer Stock Policy.

Prices are determined basically by the interaction of supply, from new crops and from stocks, and of demand, both for consumption and stockpiling. In the case of pepper, stockpiling is important particularly in Singapore and then in Rotterdam, Hamburg and London. "Quotations had fallen to relatively low levels during 1967 and in 1968 but an anticipated fall in world production in 1969 led to the purchase of

pepper for stock, and prices started to recover during the last quarter of 1968. The realisation that production in 1970 would probably be no longer than that of 1969 meant that quotations moved sharply ahead during the second half of 1969. Conversely, the significant revival in output forecast for 1971 resulted in destocking, and prices started to decline in the last few months of 1970. Sales from stock continued, and quotations followed a downward trend virtually throughout 1971. This was reversed during 1972, however, when constraints in various producing areas meant that supplies became restricted".[2]

Apart from the advantages of reduction of haphazard and socially disturbing effects on income distribution, reduction of uncertainty, reduction of other disincentives to increased output and avoidance of inflationary effects, price stabilisation might pay off in the long run in terms of modified quantity fluctuations. It would also remove most of the incentives for speculative stock adjustments and thus modify one possible source of instability.

The philosophy of producing the same product for less cost seems to be an inadequate driving force for economic growth. The new marketing strategy should be not for profit alone but for growth also in which there is a continuing planned effort to enlarge the size of the market. In

2. The Common Wealth Secretariat, London, Plantation Crops - 1973, A Review, p.182.

modern marketing, the sales agency should enjoy considerable freedom in making pricing decisions, defining pricing objectives, formulating pricing policies and deciding pricing strategies as well as setting specific prices. Pricing objectives are all the more essential to:

(1) ensure a reasonable return on investments

(2) stabilise prices

(3) hold a market share and

(4) meet or keep out competition at a reasonable level.

One of the leading characteristics of exports of pepper and cardamom has been their persistent tendency to undergo large fluctuations both in volume and prices. If the producers of these spices are to be benefited in the long run, pricing has to be made controllable or else, a poor crop with high prices or a fair crop with low prices would mean the same lot to the growers. Strategy determination must be regarded as an overall management decision which will influence and require facilitating policies affecting both production and marketing activities. Many exporters do not have any definite export policy but would export whenever they find prices are attractive abroad. Data collected during the survey by the author in 1973 also revealed that some parties who were exporting pepper or cardamom three years back when the internal prices were lower than the export market prices have since given up exports with the rise in internal prices.

The relative level of agricultural prices influences the allocation of production resources and hence the level and pattern of agricultural production. Price relationships affect relative profitability and economic incentives. Relative profitability is a function of the physical productivity of resources in various cases as well as of the relationship among prices of inputs and outputs.

Pepper and cardamom which are perennial plants represent a special variant of physical conditions imposing a rigidity on supply response. The variable costs of these plantations are often sufficiently low to give them a substantial advantage over alternative crops as long as the fixed investment remains almost in tact. These crops show relatively low price elasticities of supply in the short run and considerable cyclical price instability. Any price stabilisation programme is likely to change the terms of trade rather than simply to serve as a stabilisation device. If the terms of trade could be turned in favour of these commodities and thereby production is increased then the extra income so generated can be taxed away for development purposes.

Buffer stocks or fixation of minimum export price will hardly achieve the objective of stabilising prices of a commodity like pepper which is very sensitive to developments taking place elsewhere. In the case of cardamom, the

situation is different. It is logical to suppose that India which still has more than two-thirds of world trade can control the cardamom prices provided the export strategy is well defined and her efforts in this direction are well co-ordinated. One major observation which emerges from the study of India's share of markets abroad, in the case of cardamom, is that India's foreign markets are really limited by only one major competitor, Guatemala. It is broadly true that if we could deal successfully with the competition of that country, India can bring the movement of world cardamom prices well under her control.

The development of a strategy in the export of pepper, cardamom and other spices alone can minimise, if not wholly remove, the hardships caused by violent price fluctuation. It is proposed in this connection to constitute a Spices Board which should be well equipped with facts and figures regarding the world supply and demand conditions of these spices. The Board must also undertake systematic studies on the average yield per acre and the cost of production of spices grown and exported from India atleast in important regions every year in time. Eventhough there may be difficulties in the early periods, as years go by experience gained and appropriate techniques developed in a scientific manner, a higher degree of perfection can be attained in ascertaining the price which is fair both to the producers at home and the consumers abroad. It is then left to the Government of India

to make the necessary adjustments in the tax structure so as to have a stable, reliable and an economic price for the producers. Eventhough there may be variations in the quantum of taxation from year to year, it will be balanced during a period of 5 to 7 years with the added advantage of securing a reasonable price for the producers which alone will help the production to increase according to a given plan.

Programming agricultural development is particularly difficult because of the extreme variability which exists in agriculture. Increased agricultural production requires positive incentives to farmers and a positive response of the part of the farmers to those incentives. Though cyclical fluctuations are well established, short-term fluctuations are more important. Hence, what is required is the development of a predictive model of price structure which would be impossible in agriculture so long as the Government feel shy of intervening in the price setting process. In view of these facts, the functions of the proposed Spices Board would be:

(1) To provide the facts and forecasts necessary for formulating basic market development policies.

(2) To identify the specific problems and potentialities of the product in its various markets in order to provide guidelines for sales promotion, public relations and technical research programmes.

(3) To evaluate the effectiveness and impact of the activities planned and carried out under these programmes.

An important development in domestic marketing of agricultural export products has been the establishment of marketing boards which, in many developing countries, are statutory organisations. The system has emerged as a powerful instrument of trade promotion and many countries' exports have been enhanced by this system through inter-alia production planning, quality improvement and co-ordination of marketing activities. Indeed in the case of cardamom, the efforts of Cardamom Board, Cochin have been quite successful very recently.

International promotional action has been wanting both in pepper and cardamom. Multinational bodies like the Pepper Community are the ideal for joint promotional efforts by producing countries interested in generic promotion, that is to increase the total consumption of the spices like pepper or cardamom. Joint promotional efforts call for the establishment of an appropriate international machinery. Firstly, the aims and objectives of promotional action in so far as they relate to expanding long-term consumer demand for pepper or cardamom (and not the maximisation of market share of a supplying country or a brand) call for multinational endeavour, and secondly, co-operation permits economies of scale, as

sales promotion activities involve heavy financial outlay even to achieve a minimum of impact. International promotional action is not a new idea. It has been in operation through multinational bodies for a number of agricultural commodities such as coffee, tea and sugar. These co-operative ventures indicate the need for, and demonstrate the importance of such efforts.

In the particular case of pepper, which is by far the most important spice in international trade, both in terms of volume and value, the production and export of which is yet dominated by Malaysia, Indonesia and India, and to a lesser extent by Brazil, there appears to be good scope for joint promotional activity.

Both at home and abroad there exists the need for popularising the use and consumption of spices. In case of a possible glut in the international market for spices grown in India, a larger home market would act as a cushion to absorb the shock that might be generated. It is easier and more economic to engage in promotional activities in common, for all the spices which are having an exportable surplus in India. To adopt a common programme for the generic promotion of these spices and to discharge the functions of a major Commodity Board, an integrated Spices Board has to be brought into operation.

With the world-wide reputation of Indian pepper, other spices too can move faster than at present in the world markets under the direction and control of the Spices Board. Moreover, the demand for many of these spices are complementary in character and the benefits of promotional activities can be shared by all resulting in considerable economies and greater propaganda value since one particular spice advertises for the other.

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CHAPTER - XII

CONCLUSIONS AND RECOMMENDATIONS

PRODUCTION:-

According to the official estimates of area under pepper cultivation, there has been an increase of about 20,000 hectares over a period of the last 15 years. But the production has not increased commensurate with the increase in area. The main reasons for this are:

1. Heavy loss of crop due to wide-spread incidence of pests and diseases and
2. Many of the newly planted gardens have not reached bearing stage.

The present production of pepper in India is not at all adequate to meet the demand from Eastern Europe, U.S.A., Canada and some of the West European countries. Besides, the internal demand is also on the increase.

1.2 Even allowing for some success with the much celebrated strain of Panniyur-1, an assured crop of 45,000 tonnes by 1980 (15,000 tonnes for internal consumption and 30,000 tonnes for export) will probably not be obtained

except with incentives. The strategy for increasing the production should, therefore, revolve around increasing the productivity and income of the pepper growers. Pepper is mainly a homestead crop and the importance in providing a cash crop in the context of rural development must be emphasized. Being small and marginal farmers the resources of these farmers are limited. Therefore long-term and short-term credits for improving pepper production should be made available in a substantial measure and on liberal terms.

1.3 There is little scope for increasing the area under pepper in the major producing State, namely, Kerala; however, potential areas are reported to exist in the States of Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra, Orissa, West Bengal, Assam, Andaman Islands and Goa. The success of pepper cultivation has already been established in Karnataka, Tamil Nadu and Andhra Pradesh, while the suitability of the crop is yet to be established in the other States. A detailed survey of the potential areas in the States of Karnataka, Tamil Nadu and Andhra Pradesh is called for.

1.4 There appears to be good scope for raising pepper as an inter-crop in other plantations, namely, Coffee, Arecanut, Coconut etc. and steps already initiated in this line have to be intensified.

1.5 The average yield which was around 290 Kgs. per hectare during 1957 has come down to about 230 - 235 Kgs. in recent years. The yield is known to vary widely in different areas, depending on soil fertility, varieties grown, cultural practices etc. Replacing the existing poor yielding varieties with 'Panniyur-1' can result in phenomenal crop increases. It is obvious that produce from the new variety will not be available for the next 4 to 5 years. To increase production in this period, greater reliance has to be placed upon other agricultural inputs like fertilizers, irrigation and pesticides.

1.6 Systematic adoption of suitable cultural, manurial and plant protection measures also can help increased productivity. But the majority of pepper growers overlook such essential operations, partly due to ignorance and mainly due to lack of necessary finance. Giving due consideration to the above, the magnitude of crop losses due to pests and diseases and taking into account the increasing cost of inputs, it would be desirable to arrange the supply of pesticides and fertilizers at subsidised rates.

1.7 The eradication of wilt disease which is reported to cause destruction of vines to the extent 10 to 30 per cent, should receive immediate attention. Pollu Beetle which is reported to cause as much as 40 per cent losses in cases of serious pest incidence requires to be controlled on a priority basis.

1.8 The data available on area and production are miserably inadequate and there is need to collect accurate statistics by improving and strengthening the data collection machinery. The proposed Spices Board should be entrusted with this work and the work of market intelligence.

PRICES:—

The level of pepper prices has not been stable, even though the fluctuations are mild in some years. The prices used to move up and down and move frequently and violently. High degree of variation in the prices introduces an element of risk and indecision as it upsets the pattern of consistent growth in the production of pepper.

2.2 The stabilisation of prices of pepper both at home and at international level is a necessity. The producing countries through the Pepper Community should work for a long-term stabilisation of price in the world market.

2.3 At the national level, farmer sponsored bodies can seldom survive, since marketing activities are highly competitive and much more complex on the field of internationally traded commodities, like pepper with a high degree of market sensitivity. At the same time, administered prices in agriculture has become almost universal.

2.4 Variable export duties should form an integral part of a national price stabilisation scheme, in this context. Fixation of minimum price, creation of stabilisation fund, or buffer stock policy may hardly achieve the objective of stabilising prices of pepper.

2.5 After ascertaining in a syetematic and scientific manner the price which is fair both to the producers at home and the consumers abroad, by the proposed Spices Board, the State may make the necessary adjustments, from time to time, in the tax structure so as to have a stable, reliable and an economic price for the producers.

THE SIZE OF WORLD TRADE:--

The per capita consumption of pepper in the largest markets in the Western Europe with the exception of Italy and Netherlands tends to remain stationary. The United States per capita consumption of pepper has slightly increased due to several factors such as high income levels among persons who tend to spend rather than save any additional income, increasing population, a growing demand for "convenience" food items and changing consumer tastes.

3.2 In countries which are growing fast and are set on the stage towards mass consumption, a significantly steeper rate of growth of consumption of pepper has been demonstrated.

In Japan, the market for black pepper could grow for the current decade at a rate of 11 per cent per year, whereas in Argentina, Soviet Union and many States of Eastern Europe the rate of growth of demand for pepper is likely between 5 to 6 per cent per year.

3.3 In the light of these tendencies the world trade in pepper would reach the level of 120,000 tonnes in 1980 as against an average of 95,000 tonnes during the period 1971-'74.

INDIA'S SHARE IN WORLD TRADE:—

India is currently meeting a declining share of world trade in pepper. While India supplied nearly half the pepper in world trade in 1954, the Indian share of world pepper trade declined to 25 per cent in 1974. If world demand should rise as expected to 159,500 tonnes by 1980 and world trade to 120,000 tonnes, export of 30,000 tonnes from India would maintain her share in that year, as at present.

4.2 A minimum export performance of 30,000 tonnes is estimated for 1980. Domestic consumption of that year may not be less than 15,000 tonnes. This suggests that production should be about 45,000 tonnes in 1980. In view of the fact that in 1973-74, our peak year by volume, India exported 31,648 tonnes of pepper these estimates are quite modest and well within our reach.

DIRECTION OF TRADE:—

During the year 1975-76, India directed 63.73 per cent of her pepper exports to East European Zone including U.S.S.R. which was only 47.16 per cent during the period 1973-74. Excessive reliance on one market is not at all desirable because the U.S.S.R. and the East European markets can be switched off as a result of political decisions at the top.

5.2 Diversification of our pepper trade will pay better dividends in the long run. Attempts should, therefore, be made to recover the Italian and the United States Markets and also increase our exports to other countries like Canada, Japan from where convertible currency may be earned.

5.3 Though India cannot with her present production fully satisfy the demand of both the East European markets and the markets mentioned above, a judicious distribution of available supplies is called for.

5.4 India's major market is U.S.S.R. and Eastern Europe and hence a minimum of 50 per cent should go to these countries and the remaining 50 per cent may be directed towards the strategic markets described above.

LIGHT PEPPER & PIN HEADS:—

Pepper grading and Marketing Rules under the provisions of the Agricultural Produce (Grading and Marketing) Act 1937 prevent light berries being mixed up with other grades of pepper for export in excess of two per cent. At the same time, the development of spices extraction industry in India causes an increase in the home demand for this grade of pepper.

6.2 There is no market for pin heads inside the country and therefore, these are exported to other countries at an appropriate low price. While the percentage share of exports of light pepper has been almost halved in 1975-76 over the previous year, it has doubled in the case of pin heads.

6.3 India being a producer country should not impose restrictions on the consumption of its own produce, allowing the home market to grow well within our limits.

6.4 While the exports of pin heads deserve all encouragement to our own advantage, the domestic consumption of light pepper should go unrestricted so that all foreign demand for "bold" peppers can be met and larger foreign exchange earned.

QUABITY CONTROh:—

India is the first country to have quality control and pre-shipment inspection in pepper at the export level. The world acceptance of quality standards under Indian Agmark gives encouragement to move further in this direction.

7.2 Under a system of quality control, the number and stages of inspection may differ from country to country. Attempts should be made for setting an objective of replacing quality standards set by individual markets abroad preferably with the backing, direction and control of the pepper community.

7.3 Efforts on these lines, then, drift from the trading activity of a country to the trading activities of countries. It is now time to think and act to have international co-operation to inculcate quality consciousness among the world-wide consumers of pepper.

PRODUCT DIVERSIFICATION:—

Production and export of oils and oleoresins of pepper will increase the value added portion in the total consumer outlay on pepper and pepper products.

8.2 The consumers of oleoresins are large-scale processed food manufacturers in the developed countries. They

prefer the product made by producers in the consuming countries because these producers are in a position to offer tailor-made products based on their own research and development.

8.3 The feasibility study should, in detail study the market for pepper oil and oleoresins in the developed countries.

8.4 Since more and more sophisticated varieties of finished products will have to be evolved to satisfy discriminating consumers, constant research and development will have to be undertaken by the producers.

8.5 It is estimated that the world trade in white pepper is about 6 to 8 thousand tonnes. Considering the economics of producing white pepper in India at present it is not desirable to enter into this field. However, experiments for economic production of white pepper deserves encouragements.

8.6 Though canned and bottled green pepper is now being imported into Europe, America and Australia packaging and freight charges are prohibitively high. The Central Food Technological Research Institute, Mysore has recently developed a product known as dehydrated green pepper. It is claimed that the green colour remains stable for fairly long periods with a higher percentage of oil and piperine content. This is an area which has to be explored and exploited in detail.

8.7 There are numerous advantages in exporting pepper in retail packaging and the potential for exporting the same are enormous. At the same time, there are difficulties in competing on an overseas market on the basis of prices alone and making headway in markets where prices may not be the primary consideration. Therefore, we have to work out a strategy to market our products, keeping in mind the consumer's requirements and specifications, and by conducting consumer opinion surveys, sampling surveys etc. The markets in America, Middle East and South East Asia provide excellent opportunities for this course of action.

SPICES BOARD:—

The existing Spices Export Promotion Council and Cardamom Board should be replaced by a Spices Board. The various agencies and institutions which are at work for the development of spices production and trade can be well integrated into a single organisation which may have various departments for specific functions.

9.2 The Spices Board should take on a priority basis steps to improve production, area and yield statistics.

9.3 Attempts should be made to build up an integrated marketing centre of pepper so that international quotations

are properly displayed and information regarding international demand, supply and prices is dessiminated quickly.

9.4 The major objectives of the Board should be to study economics of pepper and other spices production, the incidence and impact of Central and State taxation on this sector and also the facilities and incentives desired for increasing production and exports of spices from India.

9.5 The Board should be associated with the quality control authorities, the pepper community and the Ministries of Food and Agriculture and Commerce.

9.6 A cell of this Board should evolve a technique for ascertaining the standard cost of production of pepper and other spices from year to year and this cell should form itself into an advisory body for cost reduction.

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APPENDIX - I

TABLES

TABLE - I

UNIT VALUE REALISED FROM EXPORTS OF PEPPER FROM INDIA

1950-51 TO 1974-75

Year	Quantity in Tonnes	Value in '000 Rs.	Unit value (Rs./Kg.)
1950-51	9,800	128200	13.08
1951-52	15,100	232200	15.38
1952-53	12,600	160600	12.75
1953-54	12,600	127100	10.09
1954-55	14,000	69800	4.99
1955-56	13,300	47000	3.54
1956-57	11,700	33900	2.90
1957-58	14,700	30100	2.05
1958-59	10,800	22900	2.11
1959-60	20,600	81700	3.97
1960-61	17,202	84966	4.84
1961-62	21,620	80770	3.74
1962-63	20,868	65706	3.15
1963-64	18,935	58887	3.11
1964-65	17,381	67939	3.85
1965-66	26,305	111022	4.22
1966-67	21,785	118263	5.43
1967-68	25,063	130963.1	5.22
1968-69	18,952	97159.4	5.13
1969-70	22,297	161905.6	7.21
1970-71	17,697	152284.7	8.43
1971-72	19,248	148249.8	7.73
1972-73	19,958	143099.44	7.17
1973-74	31,648	295308.43	9.33
1974-75	26,341	344760.0	13.01

Source: Figures for the period 1950-51 to 1959-60. The Marketing Research Corporation of India, Survey of India's Export Potential of Spice, 1968, p.A.125.

For the period 1960-61 to 1974-75, Department of Commercial Intelligence and Statistics, Calcutta.

TABLE - III

AREA, PRODUCTION AND YIELD (WITH INDEX) OF PEPPER IN INDIA

ALL INDIA: 1949-50 to 1972-73

(Base: Triennium ending 1961-62 = 100)

Year	Area ('000 hectares)	Index of area	Production ('000 tonnes)	Index of Production (weight=0.15)	Yield (in Kg. per hectare)	Index of yield
1949-50	79	79.4	21	75.7	266	95.3
1950-51	80	79.8	21	73.6	263	92.2
1951-52	82	81.7	23	81.4	280	99.6
1952-53	82	81.7	23	77.8	280	95.2
1953-54	84	84.2	24	85.8	286	101.9
1954-55	86	85.8	26	96.4	302	112.4
1955-56	89	89.0	28	100.4	315	112.8
1956-57	89	89.5	27	99.6	303	115.5
1957-58	93	93.5	27	97.0	290	103.7
1958-59	93	93.7	26	96.3	280	102.8
1959-60	94	94.8	26	95.7	277	101.0
1960-61	103	102.6	28	102.2	272	99.6
1961-62	103	102.6	28	102.1	272	99.4
1962-63	102	102.1	26	93.7	256	91.6
1963-64	102	102.1	24	86.2	235	84.2
1964-65	103	102.7	24	86.9	236	84.4
1965-66	102	102.2	23	88.9	226	80.9
1966-67	121	102.3	27	82.5	224	80.5
1967-68	122	101.8	26	78.9	215	77.3
1968-69	121	101.0	26	76.7	212	75.9
1969-70	120	100.3	25	76.1	212	75.9
1970-71	120	100.0	26	78.2	218	78.0
1971-72	119	98.8	26	78.2	221	79.1
1972-73	119	99.0	26	77.9	220	78.7

Source: Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, Estimates of Area and Production of Principal Crops in India, 1974.

TABLE - IV

BLACK PEPPER: STATE-WISE DISTRIBUTION OF AREA, PRODUCTION AND YIELD PER HECTARE IN INDIA - 1968-69 TO 1974-75

Year	Kerala	Tamil Nadu	Karnataka	All India
AREA: ('000 Hectares)				
1968-69	119.1	0.2	1.9	121.2
1969-70	118.1	0.2	2.0	120.3
1970-71	117.6	0.2	2.2	120.0
1971-72	116.3	0.2	2.1	118.6
1972-73	116.3	0.3	2.2	119.0
1973-74	118.3	N.A.	N.A.	121.72
1974-75	118.4	N.A.	N.A.	121.82
PRODUCTION: ('000 Tonnes)				
1968-69	24.6	0.1	1.0	25.7
1969-70	24.4	0.1	1.0	25.5
1970-71	25.0	0.1	1.1	26.2
1971-72	25.1	0.1	1.0	26.2
1972-73	25.1	0.1	0.9	26.1
1973-74	27.8	N.A.	N.A.	28.7
1974-75	27.2	N.A.	N.A.	28.2
YIELD PER HECTARE (in Kgs.)				
1968-69	207	N.A.	N.A.	212
1969-70	207	N.A.	N.A.	212
1970-71	213	N.A.	N.A.	218
1971-72	216	N.A.	N.A.	221
1972-73	216	N.A.	N.A.	220
1973-74	235	N.A.	N.A.	235
1974-75	230	N.A.	N.A.	230

Source: Directore of Arecanut and Spices, Calicut, Kerala.

TABLE - VI

WORLD BALANCE SHEET OF PRODUCTION AND CONSUMPTION OF PEPPER: 1973.

(India's Peak Year of Exports of Pepper)

(in '000 tonnes)

EXPORTERS	IMPORTERS					Estimated consumption in the producing countries.	Total production (5+6)
	U.S.A. & Canada	West Europe	U.S.S.R. & East Europe	Other Countries	Total		
	1	2	3	4	5	6	7
India	6.59	4.38	13.59	3.39	27.95	11.05	*39.00
Indonesia	14.66	8.36	-	2.43	25.45	3.05	28.50
Sarawak	Neg.	2.93	-	19.88	22.83	1.17	24.00
Singapore 1/	2.50	8.10	-	12.28	22.88	-	-
Brazil	3.77	5.79	0.62	3.58	13.76	4.74	*18.50
Malagasy Republic	-	-	-	3.19	3.19	1.11	4.30
Sri Lanka	-	-	-	0.52	0.52	0.48	1.00
TOTAL	27.52	29.56	14.21	45.27	116.58	21.60	115.30

* Unofficial estimate.

1/ Re-exports

Source: Foreign Agriculture Circular
F.A.O.

TABLE - VII

PERCENTAGE SHARE OF SELECTED COUNTRIES & REGIONS IN PEPPER PRODUCTION & EXPORT

Countries/ Regions	1966-70 (average)		*1980	
	Production	Export	Production	Export
India	20.09	27.01	28.66	25.00
Indonesia	23.15	24.50	21.66	25.00
Malaysia	20.91	29.52	22.20	27.50
Other Far East	12.56	2.26	8.92	1.66
Latin America	10.76	12.44	14.01	15.42
Africa	3.53	4.27	4.46	5.42
All Countries	100	100	100	100

*Estimates.

TABLE - VIII

WORLD BALANCE SHEET OF PRODUCTION AND CONSUMPTION OF PEPPER ESTIMATED FOR 1980

PRODUCTION	(Tonnes)
World Total	1,57,000
Indonesia	34,000
India	45,000
Malaysia	35,000
Other Far East	14,000
Latin America	22,000
Africa	7,000
EXPORTS	
World Total	1,20,000
Indonesia	30,000
India	30,000
Malaysia	33,000
Other Far East	2,000
Latin America	18,500
Africa	6,500
Imports	
World Total	1,20,000
U.S.A. & Canada	31,400
U.S.S.R.	12,000
East Europe	8,000
West Europe	30,000
United Kingdom	3,200
Other Countries	35,400

TABLE - IX

PEPPER - SOME IMPORTANT MAGNITUDES

(Figures in per cent)

	1950	1960	1965	1966-70 (Average)	1971-73 (Average)	1980**
1. World Exports as per cent of world production	59.5	69.0	77.8	68.5	72.2	76.4
2. Indian production* as per cent of world production	52.4	48.3	38.9	20.1	28.4	28.7
3. Indian Exports as per cent of Indian production	59.1	67.8	74.3	63.6	60.0	66.7
4. Indian Exports as per cent of world exports	52.0	47.5	37.1	27.0	23.6	25.0
5. Major competitors-percentage shares in world exports:						
a)Indonesia	24.0	32.5	18.6	24.5	25.5	25.0
b)Malaysia	12.0	10.0	25.7	29.5	29.1	27.5
c)Brazil	-	5.0	11.4	12.4	16.3	15.4
d)Others	12.0	5.0	7.2	6.4	5.5	7.1
Total(including India)	100	100	100	100	100	100
6. Major importers - percentage shares in world imports:						
a) U.S.A. & Canada	56.0	50.0	31.4	30.1	29.7	26.2
b) West Europe	20.0	20.0	21.4	28.0	31.0	27.7
c) U.S.S.R. & East Europe	Neg.	17.5	18.6	18.1	15.5	16.6
d) Other countries	24.0	12.5	28.6	23.8	23.8	29.5
TOTAL	100	100	100	100	100	100

** Estimated
* Unofficial estimates

Source: 1. Survey of India's Export Potential of Spices.
2. Papers and proceedings of the International Seminar on Pepper, 1978.

TABLE - X

PEPPER: PRODUCTION, UTILISATION AND TRADE

('000 tonnes)

	1966-70 (average)	1971	1972	1973	1974 (prelim.)	Change 1973 to 1974 (Percentage)
PRODUCTION						
World Total	116.2	121.5	130.9	133.0	134.6	+ 1
Far East	99.6	103.6	110.0	109.6	110.1	+ 1
India*	33.8	34.0	36.5	39.0	36.0	- 8
Indonesia	26.9	24.3	30.8	28.5	29.2	+ 2
Malaysia	24.3	28.0	28.0	24.0	30.0	+25
Other Far East	14.6	*17.3	*15.3	*17.5	14.9	-15
Latin America	12.5	13.5	14.5	*18.5	18.5	-
Africa	4.1	4.4	5.8	* 5.5	6.0	+ 9
EXPORTS						
World Total	79.6	89.1	92.7	96.5	103.5	+ 7
Far East	66.3	68.7	73.0	77.7	82.2	+ 6
India	21.5	16.9	20.7	28.0	25.9	- 7
Indonesia	19.5	22.9	24.4	23.7	25.5	+ 8
Malaysia	23.5	28.8	27.8	24.3	30.4	+25
Other Far East	1.8	0.1	0.1	1.7	0.4	-
Latin America	9.9	17.3	14.3	13.8	15.5	+12
Africa	3.4	3.1	5.4	5.0	5.8	+16
RE-EXPORTS						
World Total	34.6	37.0	35.4	25.0	30.0	+20
Singapore	32.8	35.0	33.7	22.9	28.0	+22
Others	1.8	1.8	1.7	2.1	3.0	+43
IMPORTS						
World Total	117.2	127.8	130.2	120.2	125.9	+ 5
Developed countries	50.8	60.8	50.0	65.2	65.4	-

	1966-70 (Average)	1971	1972	1973	1974 (prelim.)	Change 1973 to 1974
Western Europe	22.3	26.6	27.9	31.8	31.8	-
EEC	17.6	20.5	22.2	24.5	24.3	- 1
France	3.9	4.6	4.9	5.3	5.4	+ 2
Germany, Fed.Rep.	5.8	7.1	7.6	7.7	7.9	+ 3
Italy	2.6	3.1	3.2	4.0	2.9	-27
United Kingdom	3.2	2.9	3.7	4.1	3.7	-10
Others	2.1	2.7	2.8	3.3	4.4	+33
Other Western Europe	4.7	6.1	5.7	7.3	7.5	+ 3
Other Developed countries	28.1	34.2	32.0	33.4	33.4	-
Canada	2.0	2.1	2.2	2.2	2.6	+18
United States	22.6	27.2	24.0	25.1	25.4	+ 1
Japan	2.0	3.0	3.5	4.1	3.0	-27
Others	1.9	1.9	2.3	2.1	2.4	+14
Developing countries	50.9	53.7	52.3	39.8	46.2	+16
Latin America	3.7	5.2	4.4	3.9	4.5	+15
Near East	5.7	4.9	5.3	4.8	5.2	+ 8
Far East	37.8	38.8	37.8	21.4	32.0	+17
Singapore*	33.8	35.8	34.7	24.2	28.0	+16
Other Far East	4.0	3.0	3.1	3.2	3.5	+ 9
Africa	3.7	4.7	4.7	3.7	4.5	+22
Centrally planned countries	15.5	13.3	18.0	15.3	14.3	- 7
U.S.S.R.	9.5	6.9	11.7	9.3	8.2	-12
Other Eastern Europe	4.9	5.3	5.2	4.9	5.0	+ 2
China	*1.1	*1.1	*1.1	*1.1	1.1	-

*Unofficial estimate.

	1966-70 (average)	1971	1972	1973	1974 (prelim.)	Change 1973 to 1974
VALUE OF EXPORTS			(Million U.S. dollars)			
World Total	55.6	82.2	78.7	109.6	154.6	+ 41
Far East	46.3	65.3	61.7	87.6	121.0	+ 38
India	17.8	19.0	19.3	29.0	37.2	+ 28
Indonesia	12.0	24.2	20.5	29.0	39.0	+ 34
Malaysia	-	-	-	-	-	
Sarawak	13.9	20.8	20.6	26.8	42.8	+ 60
Others	0.8	1.1	1.1	1.2	1.5	+ 25
Other Far East	1.8	0.2	0.2	1.6	0.5	-
Latin America	7.4	14.9	12.7	17.0	25.1	+ 54
Africa	1.9	2.0	4.3	5.0	7.5	+ 50
AVERAGE UNIT VALUE OF EXPORTS			(U.S. cents per Kilogram)			
India	82.8	112.4	93.2	103.7	143.6	+ 38
Indonesia	61.5	105.7	84.0	112.0	152.9	+ 25
Malaysia						
Sarawak	63.5	77.3	78.6	117.5	144.9	+ 23
Brazil	74.7	86.1	88.8	123.2	168.4	+ 37
Malagasy	72.3	114.3	92.9	124.3	150.0	+ 20
PRICES						
Cochin Black garbled(Rupees per 100Kg.)	438	656	545	647	1058	+ 64
Singapore Sarawak white(Singapore dollars per picul 60.48 Kg.)	147	175	180	229	271	+ 18
London Sarawak white(New pence per Kg.)	38	48	53	76	98	+ 29
New York spot black Lampong(US cents per lb.)	41	50	46	57	82	+ 44

Source: World Pepper Trade and Outlook, F.A.O. International Seminar on Pepper-1976.

APPENDIX-II

EXTRACTS FROM PEPPER GRADING AND MARKETING RULES 1967

SCHEDULE-II

Grade designations and definitions of quality of garbled Malabar Black Pepper

Grade Designation	*Extraneous matter not exceeding (per cent)	Light berries not exceeding (per cent)	Moisture content not exceeding (per cent)	Central characteristics.
1	2	3	4	5
99% M.G. Grade 1	0.5	2.0	11.0	Shall be the dried mature berries of Piper nigrum grown in South India, garbled dark brown to dark black in colour, nearly globular with a wrinkled surface the deepest wrinkles forming a net work on the dried berry. It shall be free from mould or insects or any other adulterant.
M.G. Grade 2	0.5	5.0	11.0	

* These comprise dust, chaff, pickings and other foreign matter. Pinheads will be regarded as an extraneous matter.

SCHEDULE-III

GRADE DESIGNATIONS AND DEFINITION OF QUALITY OF UNGARBLED MALABAR BLACK PEPPER.

Grade Designation	*Extraneous matter not exceeding (per cent)	Light berries not exceeding (per cent)	Moisture content not exceeding (per cent)	General Characteristics.
M.U.G.Grade 1	2	7.0	12.0	Shall be the dried mature berries of Piper nigrum grown in South India, Colour varying from brown to black with a wrinkled surface. Shall be free from insects.
M.U.G.Grade 2	2	10.0	12.0	

*These comprise dust, chaff, pickings and other foreign matter. Pinheads will be regarded as extraneous matter. Tolerance for mouldy pepper upto 1%.

SCHEDULE-IV

GRADE DESIGNATIONS AND DEFINITIONS OF QUALITY OF GARBLED 'LIGHT BLACK PEPPER'

Grade Designation	Extraneous matter* not exceeding (per cent)	General Characteristics.
G.L.Grade Special	2	Shall be the dried berries Piper nigrum grown in South India, dark brown to dark black in colour and garbled. They shall be well dried and free from mould or insects.
** G.L.Grade 1	3	
***G.L.Grade 2	6	

Pepper which floats where stirred with alcohol water mixture or specific gravity 0,80 to 0.82 at 25°c.

* These comprise dust, chaff, pickings and other foreign matter.

** 'Pinheads' upto 5% allowed.

*** 'Pinheads' upto 10% allowed. This grade is for export only.

SCHEDULE-V

GRADE DESIGNATIONS AND DEFINITIONS OF QUALITY OF PINHEADS(*)

Grade Designation	Extraneous **matter not exceeding (per cent	General Characteristics
P.H.Grade Special	3	Shall be wholly derived from the spikes of Pipper nigrum grown in South India. They shall be reasonably dry and free from insects. The colour shall be from dark brown to black.
P.H.Grade I***	6	

(*) Pinheads are under developed and or broken berries of Black Pepper.

** These comprise dust, chaff, pickings and other foreign matter.

*** This grade is for export only.

SCHEDULE-VI

GRADE DESIGNATION AND DEFINITION OF QUALITY OF BLACK PEPPER (Non-Specified).

Grade Designation	Extraneous matter(*) not exceeding (per cent)	General Characteristics
1	2	3
N.S.Grade X	4**	Shall be wholly derived from the spices of Pipper nigrum grown in South India, Different qualities of pepper can be mixed in different proportions in accordance with orders from buyers.

(*) These comprise dust, chaff, pickings and other foreign matter. Pinheads will be regarded as extraneous matter.

** Extraneous matter determined analysis of any sample shall be ~~mmm~~ specified in the Certificate of grading if so desired. This grade is for export only.

SCHEDULE-VII

GRADE DESIGNATIONS AND DEFINITIONS OF QUALITY OF TELLICHERRY GARBLED BLACK PEPPER

Grade designation	Size(**)(Diameter) of holes in m.m. of the sieve on which retained)	(***)Extraneous matter not exceeding(per cent by wt.)	Light berries not exceeding (percent by wt.)	Moisture content not exceeding(percent by wt.)	General Characteristics.
T G S E B (Tellicherry Garbled Special extra bold).	4.75	0.5	2.0	11.0	Shall be the dried berries of Piper nigrum, grown in South India, garbled, dark brown to dark black in colour, nearly globular with a wrinkled surface the deepest wrinkles forming a net work on the dried berry. It shall be free from mould or insects or any other adulterant.
T B F B (Tellicherry Garbled extra Bold)	4.25	0.5	3.0	11.0	
T G (Tellicherry Garbled)	4.25(50%min.) 4.25(50% max.)	0.5	3.0	11.0	

(**) Tolerance allowed for the next lower size 5% (In T.G. (Tellicherry Garbled). The tolerance for both the sizes taken together will not exceed 5%.)

(***) These comprise dust, chaff, pickings, and other foreign matter.

SCHEDULE-VIII

GRADE DEGISNATIONS AND DEFINITIONS OF QUALITY OF UNGARBLED 'LIGHT BLACK PEPPER' (=)

Grade designation	Extraneous matter* not exceeding (per cent)	General Characteristics
1	2	3
UGL Grade Special	2.0	Shall be the dried berries of Piper nigrum grown in South India, dark brown to darm black in colour and ungarbled. They shall be well dried and free from insects.
xx UGL Grade 1	3.0	
xxx UGL Grade 2	6.0	

(=) Pepper which floats when stirred with alcohol-water mixture of specific gravity 0.80 to 0.82 at 25°c.

* These comprise dust, chaff, pickings and other foreign matter.

xx 'Pinheads' upto 5% allowed.

xxx 'Pinheads' upto 10% allowed. This grade is for export only.

SCHEDULE-IX

GRADE DESIGNATIONS AND DEFINITION OF QUALITY OF BLACK PEPPER GROUND

Grade designation	Definition of quality special characteristics				General Characteristics
	Moisture per cent by weight maximum	Total Ash per cent by weight max.	Acid Insoluble Ash per cent by weight max.	Grude fibre per cent by weight.	
Standard	12.0	7.0	1.2	18.0	Black pepper, ground shall be material obtained by grinding black pepper whole. It shall be free from admixture, from mould growth insect infestation or musty odour. It shall be free from coarse particles and ground to such a fineness that the whole of it passes through a 500 microne sieve.
General	12.5	8.0	1.2	18.0	

Source: Directorate of Marketing and Inspection, Nagpur, Ministry of Food & Agriculture, Government of India.

APPENDIX -III

QUESTIONNAIRE ISSUED TO EXPORTERS OF SPICES AT COCHIN

1. It is believed that the following factors are reasons for the difficulties felt in foreign trade in spices. Please rank them according to their order of importance.

Factor	Rank the difficulties in order of importance
a) Spices prices are too high	
b) Prices are too unstable	
c) Lack of standardisation and non-acceptance of "Agmark" by the foreigners.	
d) Excessive competition by the Indian exporters	
e) Other factors, if any.	

2. Would the availability of more information about (a) crops, (b) supplies and (c) markets helps to stabilise prices?

3. What specific information do you think would be useful in stabilising prices?

4. Please state your view about forward trading in spices.

5. Are prices manipulated by dealers in the market? If the answer 'Yes' please state what action can be taken?

6. It has been suggested that Government should establish minimum prices for spices.

   a) Is this desirable? Gove the answer in the form of 'Yes' or 'No'

   b) Is this feasible? (Yes/No)

   c) Would this be useful in stabilising prices? (Yes/No)

7. Can we design international standards for various kinds of spices? If the answer is 'Yes' please give detailed suggestions. If the answer is 'No' please give your reasons.

8. Do you consider that the formation of commodity agreements would help the producers to get better prices?

9. Could spices be processed before export?

   State what are the lines of such processing activities?

10. The following factors have been mentioned as reasons for high prices of Indian spices. Please rank them according to their order of importance.

    a) Greater demand prevailing in the home market.

    b) High incidence of export duty.

    c) Abnormal profits made by the middle men.

    d) High labour and transport costs.

    e) High cost of export credit.

11. Do you consider that smuggling and switch trade take place in spices?

12. Do you favour a system of variable tax on export of spices for maintaining the stability of prices in the home market?

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APPENDIX - IV

QUESTIONNAIRE ISSUED TO GROWERS OF PEPPER

Name of the Grower :

Name of the Village :

Name of the Taluk & District :

Area of Cultivation :

Types of Vines :

Number of Standards per Acre :

Wages for Men :

Wages for Women :

Investments During the First Year

Preparing Land			Pitting			Poles	Fixing Poles			Weeding			Total
Men No.	Women No.	Total Rs.	Men No.	Women No.	Total Rs.	Rs.	Men No.	Women No.	Total Rs.	Men No.	Women No.	Total Rs.	(3+6+10+13) Rs.
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Investments During the Second Year

Cost of Vines Rs.	Pitting			Planting			Shading Rs.	Weeding & Digging			Mulching Rs.	Field Care Rs.	Total (1+4+7+8+11+12+13) Rs.
	Men No.	Women No.	Total Rs.	Men No.	Women No.	Total Rs.		Men No.	Women No.	Total Rs.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Investments During the 3rd, 4th & 5th Years.

Replanting			Shading	Weeding & Digging			Field care & Manuring	Manure & manuring	Shade lopping	Pesticides & application.	Total (3+4+7+8+9+10+11)
Cost of Vines	Planting	Total		Men No.	Women No.	Total Rs.					
Rs.	Rs.	Rs.	Rs.				Rs.	Rs.	Rs.	Rs.	Rs.
1	2	3	4	5	6	7	8	9	10	11	12

Cost of Maintaining One Acre of Pepper Plantation for the Succeeding Years

Shading	Weeding&Digging			Shade lopping	Manure & Manuring	Pesticides & Application	Field care	Harvesting, Drying and Bagging	Total (1+4+5+6+7+8+9)
	Men	Women	Total						
Rs.	No.	No.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	2	3	4	5	6	7	8	9	10

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