

Export Problems of Bananas and Planning for Production

by

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Importance of Bananas in the Export trade of India: Of all fruits in India, banana requires the most urgent attention as a matter of highest priority for initiating developmental schemes with the special objective of export to earn the much needed foreign exchange for the country. First and foremost, there is hardly any country in the world in which banana is not a popular fruit generally among the people. Secondly, with no other fruit is there a possibility of such full control over planning for production in relation to export demands as in banana. While most fruits are seasonal, in the case of banana, production can be obtained in almost any part of the year from some State or other growing bananas in the country. Also, in certain large areas of the Indian peninsula, planting of bananas can be so staggered all through the year that shipments would be possible during every month of the year from those areas. No other fruit produces such heavy tonnage per acre as banana does. In package programme areas of the Madras State, by proper use of fertilisers, irrigation and plant protection practices, 20 tonnes of bananas per acre have been obtained on the average. It is almost impossible to obtain such bulk production per unit area in any other fruit within such short period as within one year of planting.

While other fruits cannot equal banana in foreign exchange earnings per unit area of production, the potential foreign exchange earnings compared to other agricultural commodities which have established themselves in the export trade are very revealing from Table I below:

TABLE I

Estimate of foreign exchange earned by a unit of 1,000 acres of each of the following commodities which are important in foreign trade in India

Banana (at the rate of Rs. 682.50 per tonne FOB price offered by Japanese importers for shipping in wooden crates or cardboard cartons)		99.37 lakhs (approximately one crore)
Sugar	...	25.2
Coffee	...	19.7
Cashew kernels	...	12.0
Pepper	...	4.3

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Banana and sugarcane are comparable from the point of view of duration of the crop, intensity of cultivation and costs involved. One acre of bananas under proper cultivation can give 20 tonnes, as already mentioned. However, providing a margin it can be safely stated that 15 tonnes of exportable bananas per acre can be obtained.

As against this, an acre of sugarcane under good irrigation and intensive cultivation on the average gives about four tonnes of raw sugar, which have been sold in recent times before devaluation at the rate of Rs. 400/- per tonne and thus, per acre the earning of foreign exchange was at the rate of nearly Rs. 1, 600/- which amounts to Rs. 16/- lakhs per unit of thousand acres. When revised according to exchange rates after devaluation, this becomes Rs. 25.2 lakhs. The foreign exchange earning from sugarcane are possible only after industrial processing through factories into sugar, whereas in the case of bananas, the harvested bananas are packed and exported as such. India is almost the home of bananas and for centuries the Indian farmers have known how to cultivate bananas profitably. The banana growing areas of India lie in the banana belt of the world with ideal climate and natural resources suitable for commercial cultivation of bananas.

India's position in world production and export trade in bananas: India ranks second among all banana growing countries of the world next only to Brazil as can be seen from Table II which furnishes annual production and export figures for bananas in the several countries of the world :

TABLE II
Production and Export in the various countries

Name of the country	Production of bananas '000 tonnes	Export of bananas '000 tonnes	Percentage of production exported
<i>Latin America :</i>			
Ecuador	2109	1028	48
Honduras	972	378	39
Columbia	508	147	29
Panama	452	251	56
Costa Rica	434	292	67
Dominican Republic	400	177	44
Guatemala	163	90	55
Brazil	5429	217	40
Jamaica	260	177	68
Martinique	180	151	84
Guadeloupe	163	158	97

TABLE II (Contd.)

Name of the Country	Production of bananas '000 tonnes	Export of bananas '000 tonnes	Percentage of production exported
<i>Africa:</i>			
Somalia	91	76	83
Ivory Coast	150	123	82
Eastern Cameroon	73	43	59
Western Cameroon	87	85	98
<i>Others:</i>			
Canary Islands	305	305	100
Taiwan	135	53	39
India	2337	9	0.4
World Total	19700	4053	20.7

But, as far as the actual picture of export is concerned, with all the potentialities of bananas mentioned above, only 0.4 per cent of the production in India has till now been exported in a year as against 40 per cent in Brazil.

The table would also reveal how banana has been developed in certain countries so as to play a major role in the economy of the country and in the earnings of foreign exchange. Thus, all the production in Canary Islands is exported. In the case of Western Cameroon and Guadeloupe, 98 per cent and 97 per cent respectively of the total production are exported. In the case of Ecuador, 48 per cent of the production is exported and as far as the total quantity exported per year is concerned, Ecuador tops the list and monopolises nearly 25 per cent of the world export trade. Thus, while ranking second in the whole world in production, India stands at the very last as far as export is concerned and even this volume of export may be considered as very insignificant. This indicates the stage of infancy in which the banana export trade stands at present and the big leeway it has to make if India wants to utilise the great potentiality of this fruit as the best foreign exchange earner of all agricultural commodities in India.

Import demands of different regions of the world: Table III shows the trends of import demands of the different regions of the world as they are estimated around 1970. These figures were prepared by a study group of the F. A. O. While this table shows the trends for further increase in demand by importing countries, it does not reveal the full picture as the statement has excluded U. S. S. R. and Eastern Europe. Actually, the

U. S. S. R., particularly with its vast population, is the most important potential importer of bananas, specially from India. For almost six months in the year, because of the climatic conditions, there are not adequate fruits within large parts of that country. Because of certain political factors and lack of traditional trade, the U. S. S. R. and East European countries have entered into very little trade in bananas with exporting countries which are largely under western influence. It is here that India has to utilise this special advantage and make a proper survey of the eventual potential market and organise production on a long range basis through a proper understanding with the U. S. S. R.

TABLE III

Estimate of Import Demand for Banana Around 1970.

	North America	EEC	Mediterranean	Rest of West Europe	South America	North East and North America	Japan	Rest of world @	Total
Total consumption 1960-'62 (thousand tons)	1845	1078	247	571	255	37	256 ^b	33	4322
Per Caput consumption 1960-'62 (Kilograms)	9.1	6.2	3.7	6.4	5.9	1.1	2.7 ^b	10.0	6.1
Expected population growth to 1970 (compound rate per annum)	1.8	0.8	0.9	0.6	2.1	2.5	1.1	2.2	1.3
Expected increase in real per caput income (compound rate)	2.0	4.5	4.5	3.0	2.0	2.0	5.0	1.5	...
Increase elasticity	0.1	0.5	1.0	0.5	0.4	2.0	1.5	0.1	...
Estimated per caput consumption 1970 (kilograms)	9.3	7.7	5.5	7.4	6.4	1.6	4.9	10.2	7.2
Estimated total consumption 1970 (Thousand tons)	2204	1448	396	696	333	64	510	41	5692
Average annual rate of increase in total consumption (compound) between 1948-'52 and 1953-'57	2.3	14.0	7.7	16.0	2.5	10.8	±	18.0	6.4
1953-'57 and 1958-'62	3.0	10.1	6.4	4.2	4.9	7.0	±	6.9	5.2
1960-'62 and 1970	2.0	3.3	5.4	2.3	3.0	6.3	8.0	2.4	3.1

¹ Excluding U. S. S. R. and Eastern Europe and a number of minor importing countries for which income data were not available.

@ Mainly New Zealand.

* 1963

± Not relevant due to artificial restriction of imports prior to 1962.

TABLE IV
Imports of Bananas into Japan by country of origin

	1960		1961		1962		1963		1964		1965	
	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)
Ryukyu	19	2,393	170	15,814	40	3,942	26	2,070	57	4,774	33	3,054
Taiwan	41,016	2,265,044	64,953	36,17,318	49,061	2,728,332	51,617	2,858,034	186,909	11,623,659	3,15,240	19,648,642
Honduras	22	2,834	20	2,631	...	...	341	30,695	...	...	...	...
Costa Rica	1,057	86,476	...	...	...	...	...	...	...	...	...	...
Panama	172	10,624	3,398	1,99,687	...	...	...	...	...	...	...	...
Ecuador	13	617	4,873	3,03,077	32,880	1,740,100	2,03,423	10,471,045	160,554	8,026,222	34,237	1,792,175
Fiji Island	...	...	...	...	61	4,998	234	14,386	...	...	...	...
Others	88	4,232	616	31,317	566	34,762	7	399	...	...	...	...
China	..	..	..	..	..	..	..	..	..	..	2,879	1,34,596
South Vietnam	..	..	..	..	..	..	..	..	..	..	327	12,205
North Vietnam	..	..	..	..	..	..	..	..	..	..	28	673
Thailand	..	..	..	..	..	..	..	..	..	..	4,270	205,842
Malaya	..	..	..	..	..	..	..	..	..	..	13	486
Singapore	..	..	..	..	..	..	..	..	..	..	86	4,594
Philippines	..	..	..	..	..	..	..	..	..	..	10	562
Tonga	..	..	..	..	..	..	..	..	..	..	490	27,466
Total	42,387	2,372,219	74,030	4,169,844	82,698	4,512,194	2,55,648	13,376,629	3,51,847	19,860,852	357,613	21,830,275

* CIF value in yen (300 yen equal one dollar and 48 yen equal one rupee) Source: Customs Bureau.

The special position of Japan in import of bananas and the scope for India as exporter: The data in Table III do not also give adequate idea of the increasing consumption of bananas in Japan whose standard of living has been rising higher and higher. The table however brings about the fact that the rise of import demand between 1960—'62 and 1970 is the highest as far as Japan is concerned among all the countries for which tabulation has been made. This position in Japan is more clearly reflected in Table IV which shows how imports of banana into Japan have risen through the years from 42,387 metric tonnes in 1960 to 357,613 metric tonnes in 1965, more than eight times. The table also indicates how Taiwan has been consistently the major exporter of bananas to Japan and how it has not been able to meet the full demands of that country and how on account of this fact, Ecuador starting with a mere 13 tons in 1960 has reached a peak of 2,03,423 metric tons in 1963 dominating even Taiwan in that year as an exporter to Japan.

One of the disadvantages which Taiwan suffers from, in spite of its favourable geographical nearness to Japan, is the occurrence of periodic cyclones which adversely affect the position of Taiwan which is not able to assure supplies of bananas to Japan according to the needs of the latter either all through the year or consistently year after year. An investigation into the several factors connected with banana trade in Japan reveal certain features which are in favour of India *viz*, the lack of capacity of Taiwan to meet all the demands of Japan, its uncertainty of supply even normally during several months in the year and the havoc caused periodically to banana plantations by hurricanes and cyclones. The bananas from Ecuador are generally of the 'Gros Michel' variety but the taste of the Japanese people has been oriented for a long time towards the 'Cavendish' variety which is supplied from Taiwan and which can be supplied from India. The position is that if large scale supplies of 'Cavendish' bananas are assured by India, to that extent the Ecuadorian bananas can be replaced.

TABLE V

Imports of Banana into Japan by Country of origin by month in 1965

	Taiwan		Ecuador		Thailand		Others	
	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)
January	7,359	4,67,369	5,206	2,48,551	83	5,340	8	567
February	8,366	5,29,051	958	43,319	565	27,403	16	1,195
March	26,128	16,58,225	149	8,840	288	14,643	275	15,426
April	46,345	29,30,013	...	...	...	...	267	14,848
May	65,268	41,44,104	...	...	198	8,897	43	1,727

TABLE V (Contd.)

	Taiwan		Ecuador		Thailand		Others	
	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)	Qty. (M/T)	Value* (1000)
June	64,295	40,03,795	...	...	229	11,576	46	1,782
July	37,210	22,20,782	...	...	28	1,326	38	1,424
August	17,685	10,80,537	...	...	39	1,788	47	1,945
September	9,967	6,15,202	3,371	1,60,781	132	5,820	95	6,313
October	10,068	6,14,480	5,838	2,91,920	564	31,917	580	32,380
November	12,412	7,51,765	7,837	4,27,489	1,577	71,095	1,785	78,345
December	10,135	6,33,385	10,876	6,13,345	572	26,037	667	29,226
Total	3,15,238	1,96,48,678	34,235	17,94,245	4,275	2,05,842	3,867	1,85,178

* CIF Value in Yen (360 Yen equal one dollar and 48 Yen equal One Rupee)

(Source: Customs Bureau, Ministry of Finance, Japan)

Altogether, there is a long range possibility, if India goes about organising its banana production in a dynamic manner of providing eventually a regular annual supply of atleast two lakh tonnes of bananas to Japan. This is a moderate estimate. On the basis of Rs. 682.50 per tonne F. O. B. price for bananas (packed in wooden crates or cardboard cartons) that has been received by the Banana and Fruit Development Corporation Ltd., through the assistance of the Indian Embassy in Tokyo, the foreign exchange earning from two lakh tonnes would amount to Rs. 13.66 crores which is not a small sum for an economically hard-pressed country like India as far as foreign exchange is concerned.

For producing two lakh tonnes of bananas per year, on a mathematical basis of 15 tonnes of exportable bananas per acre under conditions of intensive cultivation, 13,333 acres are required. However, to get at one time, fruits of uniform maturity of 70 per cent for export and of uniform size and quality and to leave a margin for adverse seasonal factors which often occur, three times the above area atleast should always be maintained and this would amount to 39,999 acres or 40,000 acres for meeting the long range needs of one country viz., Japan alone and this area has to be round about the major ports of the East Coast of the Indian peninsula for quicker access to Japan.

While the picture of the potentiality of banana exports and its practicability is so encouraging with regard to just one country like Japan whose payment in hard currency of U. S. dollars is also a superior advantage, the possibilities of organising production to Russia and East European Countries through the major ports of the West Coast are again immense.

Progress in exports from India: As against such great possibilities of export, the concrete achievements of exports upto date are shown in Table VI as effected by the Co-operative Societies in Maharashtra and Gujarat States, who pioneered in the export of bananas.

.. TABLE VI

Exports by the Co-operative Societies in Maharashtra State and Gujarat State

Year	Persian Gulf.		West Pakistan		Qty in Tonnes	Total value in lakhs of Rs.
	Qty in Tonnes	Value in lakhs of Rs.	Qty in Tonnes	Value in lakhs of Rs.		
1962—'63	5,328	14.9	5,941	16.9	11,269	31.8
1963—'64	6,042	18.3	2,285	8.0	*10,730	36.0
1964—'65	7,002	26.4	...	...	8,396	31.6

* This includes 2,403 tonnes of bananas shipped to Italy and U. S. S. R. but which did not reach the destination in good condition.

While these efforts in export of bananas to Persian Gulf areas have been made by the Co-operative Societies in Maharashtra and Gujarat States, the first successful attempt in exporting bananas to Russia was made by the State Trading Corporation in the year 1965 with the co-operation of the above Co-operative Societies. The State Trading Corporation contracted with Messrs. Prodimorg, Moscow for export of 1,000/1,200 tonnes of bananas to U. S. S. R. at Rs. 745/- per tonne C. I. F. in September–December, 1965 on experimental basis. To fulfil this contract three shipments were made. A brief account of each shipment is provided below which would prove of interest.

First Shipment: The first shipment was made through a chartered vessel M. S. 'FRIGORA' on 23rd October 1965, from the Bombay port. The ship reached Odessa after 15 days on 8th November 1965. 195.155 tonnes of bananas were delivered. There were three holds in the boat and the qualitative acceptance of bananas holdwise was as follows.

Hold No.	Accepted Good quality.	Rejected over ripe.	Rejected Sub-Standard.
I	86.4%	11.9%	1.7%
II & III	84.8%	13.5%	1.7%

Second Shipment: The Second shipment was made through the same chartered vessel M. S. 'FRIGORA' on 6th December, 1965 from Bombay port; but a small quantity of about 20 tonnes of bananas was also loaded on the Steamer at Magdella port which is six miles from Surat which is easily accessible to the banana plantations in Bardoli. A quantity of 300.839 tonnes was delivered at Odessa. The qualitative acceptance from this shipment was as follows:

Hold No.	Accepted Good Quality	Rejected	
		Sub-Standard	Over-ripe
I	88.3%	10%	1.7%
II & III	87.7%	10.2%	2.1%

Third Shipment: The Third shipment was made on the 16th December 1965 through m. s. 'ALBANY' in which two holds had been hired. While the two previous shipments were done with hands packed in wooden crates, a part of it was packed in polythene bags. A total quantity of 449.903 tonnes was delivered at Odessa and qualitative acceptance was as follows:—

Hold No.	Accepted Good Quality	Rejected	
		Sub-Standard	Over-ripe
II Hold	93.4%	5.3%	1.3%
IV Hold	94.5%	4.3%	1.2%

The result of examination of bananas packed in polythene bags stacked separately was as follows:—

(i) Good bananas	88.7%
(ii) Sub-standard	9.1%
(iii) Over-ripe	2.2%

The cost of the three consignments of bananas consisting of 1,045 tonnes exported to the U. S. S. R. by the State Trading Corporation worked out to Rs. 11.57 lakhs C. I. F. against C. I. F. realisation of about Rs. 6.85 lakhs resulting in a loss of Rs. 4.72 lakhs which works out to a loss of Rs. 451.6 for every tonne of bananas exported.

The main reason for the losses was the high ocean freight which amounted roughly to Rs. 600/- per tonne on the first and second shipments and approximately Rs. 480/- per tonne on the third shipment and also the high cost of wooden packing cases which works out to Rs. 250/- per tonne.

The State Trading Corporation entered into an arrangement with the Co-operative Societies of Maharashtra and Gujarat States for supply of bananas at the guaranteed price of Rs. 300/- per tonne F. O. B. stowed basis with a no claim bonus of Rs. 50/- per tonne to be paid in the event of goods arriving at the destination in good condition with the State Trading Corporation paying for the wooden cases each of which carried 11 kg of bananas. The rates accepted by the Co-operative banana growers should be considered as concessional for the experimental shipping and these prices would not hold good for the year 1966.

Structure of import costs: It would be interesting to study the structure of import cost of bananas and the figures for this are available for Japan for 1965 in Table VII.

TABLE VII

Bananas average Import costs in Japan in 1965.

	Ecuadorian Bananas		Taiwan Bananas	
	Per Metric Tonne		Per Metric Tonne	
	In Yen	In Rs.	In Yen	In Rs.
F. O. B.	25,700	535.42	32,170	670.21
Freight	26,780	557.91	19,150	398.96
Insurance	120	2.05	153	3.19
C. I. F.	52,600	109.583	51,473	1072.45
Tariff 70%	36,820	767.08	36,021	750.44
Landing	3,260	67.91	3,617	75.35
Misc. Charges	4,726	98.46	2,209	46.02
Importers Charges				
Commission	2,222	46.29	...	...
Total	99,628	2075.58	93,320	1944.17

* Cost at Port. Source: Economic Section, Horticultural Bureau, Ministry of Agriculture, Japan.

Starting with F. O. B. price of Rs. 535.42 for Ecuadorian bananas in 1964, the final cost for the importer has become Rs. 2,121.46 which is almost four times the F. O. B. price. The figures are more or less similar for Ecuadorian bananas in 1965. The CIF prices of both Ecuadorian and Taiwan bananas are almost the same in 1965 and the ultimate total cost for both Ecuadorian and Taiwan bananas are almost double the CIF prices in both

the cases. The freight cost for Ecuadorian banana has worked out to Rs. 557.91 per metric ton which is above the F. O. B. cost of bananas itself. Over and above this, Japan imposes a tariff of 70 per cent over the CIF cost which amount to Rs. 767.08 per metric ton in the case of Ecuadorian bananas. It can be seen that ultimately the price of bananas at the producing centres in an exporting country becomes a relatively smaller part of the ultimate price structure in the importing country.

Market Prices in Japan: Table VIII gives wholesale prices of bananas in the Central Wholesale Market of Tokyo.

TABLE VIII
Wholesale price of Bananas in 1963-'65 (Monthly average at Tokyo Central Wholesale market) (Price per kilogram)

	1963		1964		1965							
	Ecuador Yen	Taiwan Rs.	Ecuador Yen	Taiwan Rs.	Ecuador Yen	Taiwan Rs.	Ecuador Yen	Taiwan Rs.	Ecuador Yen	Taiwan Rs.	Ecuador Yen	Taiwan Rs.
January	113	2.35	139	2.90	107	2.23	141	2.94	112	2.33	144	3.00
February	126	2.62	150	3.12	110	2.29	153	3.19	109	2.27	136	2.83
March	149	3.10	148	3.08	109	2.27	152	3.17	110	2.29	130	2.70
April	164	3.42	144	3.00	111	2.31	136	2.83	...	...	128	2.67
May	136	2.83	131	2.73	90	1.87	134	2.79	...	...	140	2.91
June	113	2.35	158	3.29	97	2.02	127	2.65	...	...	130	2.70
July	105	2.21	153	3.19	75	1.56	125	2.60	...	...	138	2.87
August	79	1.65	125	2.60	84	1.75	133	2.77	...	...	145	3.02
September	113	2.35	137	2.85	113	2.35	128	2.67	155	3.23	151	3.15
October	86	1.79	102	2.12	103	2.15	143	2.98	147	3.06	146	3.04
November	109	2.27	144	3.00	79	1.65	145	3.02	113	2.35	132	2.75
December	102	2.12	151	3.15	...	...	150	3.12	...	...	...	...
Year												
Average	116.4	2.4	140.2	2.9	98.0	2.04	138.9	2.89	...	...	...	...

360 Yen equal one dollar and 48 Yen equal one Rupee

Source: Tokyo Central Wholesale Market Report

Note: Normally, Taiwan bananas sell 20 to 30 per cent higher than those from Ecuador. This was not true, however in May and June 1963 during the cholera epidemic in Taiwan.

Cost of prices situation in India: No doubt, the present rates of foreign exchange operate to some extent in favour of the exporters but the losses to exporters of bananas are likely to continue unless certain steps are taken to remedy the situation.

Let us now take for example the offer of F. O. B. price which the Banana and Fruit and Development Corporation Ltd., has received from the Japanese importers for bananas packed as hands in wooden crates *viz.*, 91 dollars per metric tonne, which works out to Rs. 68,250. The following minimum costs are involved in fulfilling the responsibilities of accepting this FOB price per tonne :

	Rs.
1. Price to the grower per tonne	... 400.00
2. Transport charges per tonne	... 50.00
3. Cost of wooden crates per tonne	... 300.00
4. Labour charges for packing, loading, unloading etc, per tonne	... 25.00
	<hr/> 775.00
FOB price offered by importers	... 682.50
	<hr/> 92.00

However, in fluctuating conditions of prices and wages existing in the country at present, the loss is likely to go up. The two large items of costs are the price of the bananas and the cost of the containers. In the case of the containers, while India has experimented with wooden crates to hold 11 kg of bananas, most of the bananas in the world trade have moved towards cardboard cartons as containers. India would have eventually to fall in line with the requirements of consumer countries and start as early as possible with cardboard containers at reasonable prices for packing bananas. Ways and means have to be found to significantly reduce the cost of packing.

TABLE IX

Estimated Acreage of Bananas in India (acres)

Kerala	... 1,05,453
Madras	... 80,798
Maharashtra	... 52,000
Assam	... 51,694
Andhra	... 28,196
Gujarat	... 21,090
West Bengal	... 18,756
Mysore	... 16,913
Orissa	... 4,000
Other States	... 29,000
Grand Total	<hr/> 4,07,810

Banana should be planted in rotation with other crops. In coastal areas where periodic cyclones are likely to occur, the Dwarf Cavendish bananas would be most suitable and the relatively high costs of staking of taller varieties of bananas are eliminated. An annual foreign exchange of 80 crores of rupees could be expected from the total of 80,000 acres of Dwarf Cavendish bananas suggested to be developed.

Problems of Shipping: It is not enough to produce, but this highly perishable commodity has to be transported over the seas in as quick a time as possible in special boats called banana boats whose speed is not below 14 knots per hour, which maintain in their holds, temperature of 52° to 56°F, 85 per cent humidity and which provide aeration to the extent of 18 air-blasts per hour to remove constantly the accumulation of carbon-di-oxide. There are boats of varying capacities of 500 tonnes and above to 3,500 tonnes or so of nett weight of bananas. India does not at present possess on its own, even a single small boat of 500 tonnes. This deficiency requires to be made good.

Cost of Production: Table XII provides details of cost of production of Dwarf Cavendish per acre in Madras State with comparative costs of production of sugarcane under similar situations of climate and irrigation. Investigations seem to be required for cutting down costs of production or maximising production so that the cost of production of bananas per unit will be reduced. In fact, apart from export this is of very vital importance since additional production of bananas at reasonable costs in the country would make the fruit available to the common man at a lower price than at present.

TABLE X

Cost of Production of "Dwarf Cavendish" per acre under North Arcot conditions in Madras State.

	Rs.	P.
1. Cost of production of "Dwarf Cavendish" (Work Sheet for the cost of production enclosed)	1,800	00
2. No. of plants per acre (6' x 6' Spacing)	1,200	
3. Total No. of good bunches that can be harvested:		
First Cutting	...	100
Second Cutting	...	400
Third Cutting	...	400
Fourth Cutting	...	100
Total Bunches (14 Tonnes)	...	1,000

TABLE X (Contd.)

4. Average weight per bunch	14kg at 60% Maturity.
	Rs. P.
5. Ruling market wholesale price (Average) per bunch	4 00
6. Nett return per acre: Income	... 4,000 00
Expenditure	... 1,800 00
Net profit	... <u>2,200 00</u>

Detailed work sheet of cost of production of "Dwarf Cavendish" per acre under North Arcot conditions:

I. PREPARATION OF FIELD AND PLANTING:

	Rs.
Ploughing (3 times at Rs. 15/- per time)	45
Basal dressing of farm yard manure (20 Cartloads)	80
Digging Pits (on an average 1200 of 6' x 6')	100
Refilling and preparing pits to receive suckers	15
Planting	100
Cost of planting Suckers	50
	<hr/> 390 <hr/>

II. AFTER CULTIVATION:

	Rs.
(i) Weeding after the first month of planting	20
Top dressing with farm yard manure 20 cartloads	80
Spreading and incorporation	20
(ii) Weeding about a month after top dressing with farm yard manure	25
Application of groundnut cake one metric tonne	500
(iii) Weeding about a month after GNC application	25

III. APPLICATION OF MANURES:

Urea (150 kg)	10
Potash (200 kg)	70
Cost of Application of basal and top dressing of manures and fertilisers.	50

IV. WEEDING ABOUT A MONTH AFTER APPLICATION OF CHEMICAL FERTILISERS:		
		Rs.
Pruning of unwanted suckers and covering bunches against sun scorch by dried leaves		100
Spraying against leaf spot.		15
V. IRRIGATION: (WHEN THERE ARE NO RAINS, IRRIGATION IS GIVEN ALMOST ON ALTERNATE DAYS)		
Electric charges for lifting water		250
Guiding water and watch		150
Harvesting and other miscellaneous expenses		30
	Grand Total	1,800

Data on cost of production on sugarcane as well as gross return and net income per acre as furnished by the Director of Agriculture, Madras :

Preparatory cultivation	...	...	70.00
Seeds and sowing	...	...	300.00
Manures and manuring	...	...	300.00
After Cultivation	...	...	100.00
Plant Protection	...	...	30.00
Irrigation	...	...	150.00
Harvesting	...	...	300.00
		Total Cost of Cultivation	1150.00

Yield per acre	...	40 tonnes
Value per unit	...	53.60 per tonne
Straw	...	...
Gross Return	...	2,144.00
Net Income	...	994.00
Duration	...	12 months

Conclusions and Recommendations: Considering the continuing national need for foreign exchange and considering that banana compared to all other agricultural and horticultural commodities can earn the largest amount of foreign exchange per unit area, the following steps should be taken to establish Indian banana in the foreign markets and a centrally sponsored scheme should be initiated on the following lines.

1. Without adequate supplies of bananas of the exportable variety, trade with foreign countries cannot be stabilised. For this reason, bananas of the 'Dwarf Cavendish' variety should be developed to an extent of 10,000 acres around each one of the following ports *viz.* Calcutta, Vizakapatnam, Madras, Pondicherry, Tuticorin, Cochin, Mangalore and Goa. In the Forth Five year Plan, plantings may be phased at the rate of 1,000 acres per year and in the subsequent Five Year Plan, the rest of the area may be taken up. The total area may however be redistributed among the States as a result of consultations with them. The area under this variety in Maharashtra and Gujrat States together is estimated to be around 50,000 acres and production in these areas should be further intensified and new plantings encouraged as near the ports as possible. Additional production will be useful both for export and for controlling internal prices of fruits. Immediate steps should be taken to bring some areas under the co-operative sugar factories situated in the vicinity of ports under bananas in rotation with sugarcane as in Jamaica.

2. The development of bananas around each port should be so directed that the areas under this crop are contiguous so that plant protection measures through aerial spraying as in modern banana growing countries are possible, the produce is pooled easily, packing centres are reduced and farmers are contacted by exporting agencies without difficulty.

The new expansions of banana cultivation suggested above should be brought under Co-operative organisations so that the producers get the best returns without the middle-men's profits and so that the exporting costs are not inflated by the intervention of merchants acting as middlemen.

4. Short term loans should be provided at a minimum rate of Rs. 750/- per acre to cover the new areas planned for production of export. Fertilisers and plant protection chemicals should be earmarked for these banana areas and their supplies assured. Fifty per cent of the short term loans should be in kind towards the supply of fertilisers and plant protection chemicals. Liberal long-term credit should also be made available for banana growers for sinking new wells and deepening old wells so that irrigation facilities are adequate for an intensively irrigated crop like the banana.

The Government could provide adequate loans to Government supported exporting organisations so that they could directly register the growers, provide the loan and other incentives and enter into agreement with them regarding prices and the marketing of their produce.

5. For expansion of production on a large scale, proper organisation has to be set up for the quick supply of planting material of the 'Dwarf Cavendish' variety of bananas and for establishment of centres of multiplication of banana suckers on adequate scale, as this is a fundamental requirement for the expansion of this exportable variety of banana to fulfil the targets. For every 1000 acres of new area planted, there should be propagation centres of 100 acres each.

6. An organisation with technical personnel should be built up to guide the cultivation of bananas on modern scientific lines so that the production per unit area is maximised and the quality in every aspect such as uniformity of size, colour, taste and durability is improved. Selected horticulturists should be deputed to Jamaica, Ecuador, and Panama to study banana cultivation and techniques for export for a period of six months.

7. In acres devoted to cultivation of bananas for export, research projects should be initiated for trying new varieties of bananas from abroad, and for tackling all the problems of soil, fertiliser, tillage irrigation, harvesting, maturity standards *etc.* Research should be altogether mainly diverted towards increasing production per unit area and reducing cost of production.

8. Research should also be adequately strengthened to deal with the problems involved in packing, road and railway transport of bananas from the growing centres to the port. The main objective should be to evolve import substitutes for fungicidal treatment to bananas before packing, to evolve suitable card-board containers for bananas at the lowest possible costs, and to evolve cheapest materials to be used for padding, in transport of banana bunches from field to packing centres and in transport of packed bananas through trucks and railway wagons to the port.

9. The railway authorities should design wagons most suitable for carrying bananas to the port with proper ventilation, humidity and control of temperature and the number of wagons may be increased with the increase in export trade.

10. The Government of India may arrange for the present, proper adjustment of the holds of some of the Indian Boats in relation to temperature, humidity and air-blasts *etc.*, so as to carry smaller quantities such as 100 tonnes, for market development so that huge investments are not risked by shipping large quantities into new foreign markets, without testing the markets. The shipping corporation should also simultaneously make

arrangements for purchase or manufacture of a 500 tonne and a 1,000 tonne banana boats and to make these boats available in the first few years to exporting agencies at concessional rates so as to develop trade.

11. Facilities in the selected ports should be improved for handling bananas.

12. While on an estimate, one crore of rupees of foreign exchange can be earned for every 1,000 acre of bananas, which are thus the easiest and about the best source of foreign exchange, it is however inevitable under the present circumstances of high internal prices of the commodity and the containers *etc*, and high costs of freight of chartered boats that the Government of India provides adequate subsidy to exporting agencies to cover up their losses or provides adequate incentives for the same purpose. The subsidy may be based on actual costs involved.

13. Above all, to achieve the targets of production envisaged, to organise and guide internal production and to select suitable areas for such production, to provide loans and other incentives to growers and orient them towards export, to organise necessary supplies of inputs required for targeted production, to initiate research projects, to act as liaison with States for improvement of roads and communications between developmental areas and the ports, to bring about necessary improvements and facilities in ports in handling a highly perishable produce, to mechanise loading of bananas into boats, to effect improvements in railway facilities, to arrange for shipping at reasonable cost, to organise market development for Indian bananas in the several foreign countries, to provide subsidy in the first few years to meet losses if any and to eventually make banana export highly profitable not only from the point of view of earning foreign exchange but also from the point of view of the exporting agencies whose interest cannot otherwise be sustained, it is recommended that a Statutory Central Banana Development and Marketing Board is established by the Government of India with financial, administrative and policy making powers to be able to fulfil all the obligations mentioned above.

14. The production programme should be a Centrally Sponsored Project.
