COCONUT - AN IMPORTANT OIL BEARING NUT

Paramjit Singh
Assistant Commissioner (Hort.)
Ministry of Agriculture, Government of India
New Delhi - 110 001

Ind Coc Jl 22(9) 2-5

In India the major source of vegetable oils isthe seasonal oil seed crops viz. groundnut, rapeseed and mustard, sesamum, safflower, nigerseed, soybean, sunflower, castor and linseed which are grown over an area of about 21.6 million ha with a production of 17.9 million tonnes. The production of these oilseed crops had stagnated around the mark of 10 million tonnes till 1980-81. It was only during 1981-82 that the barrier of 10 million tonnes of oilseeds production could be crossed when it reached the mark of 12 million tonnes. Then in 1988-89 this 12 million tonnes mark could be surpassed when the production was recorded as 17.89 million tonnes. The dependence of these crops on monsoon, no break through in varietal improvement and inadequate prices and market support to farmers were the factors that resulted in slow growth rate in the past. It should be a matter of concern for the policy makers that even today only about 18 per cent of the area under oilseeds is irrigated. This was only 8 per cent till 1975-76.

2. Production of edible oils in the country during 1980-81 was only 25.60 lakh tonnes and the country imported 10.74 lakh tonnes during that year to meet the demand for edible oils. The year-wise demand and availability of edible oils could be seen in Table-1.

3. During 1987-88, the domestic production of edible oils was only 34.73 lakh tonnes against estimated demand of 55.49 lakh tonnes. Therefore, to bridge the gap between demand and supply, the country had to resort to heavy imports to the extent of 18.19 lakh tonnes. There was a substantial increase in domestic production of edible oils in 1988-89 which was a record of 46.84 lakh tonnes. This was made possible due to record production of groundnut, rapeseed and mustard and soybean. The estimated demand during that year was 57.83 lakh tonnes thus leaving a gap of about 11 lakh tonnes and thus country could manage with import of only 3.73 lakh tonnes. The per capita availability of edible oils in India is only about 5.2 kg. per year as against 22 kg. in the developed countries. Though the imports are serving our immediate needs this cannot be continued due to continuous heavy drain on our foreign exchange.

4. The increase in population and purchasing power of people will result in increased demand for vegetable oils, particularly for edible purposes. This will consequently widen the supply demand gap or at least the existing gap will persist unless sustained efforts are made to achieve adequate growth rate in the production of edible oils in our country. Thus there is urgent need for paying more attention on the perennial sources of edible oils other than the seasonal oilseeds. It is in this context that the coconut

Table 1: Availability and demand of edible oils in India, 1980-81 to 1989-90
(lakh tonnes)

Year	Production of edible oils	Imports	Availability of edible oils	Estimated demand for edible oils
1980-81	25.60	10.74	36.34	NA
1981-82	32.19	9.95	42.14	NA
1982-83	27.28	11.50	38.78	45.00
1983-84	32.82	16.34	49.16	47.00
1984-85	34.46	13.68	48.14	49.00
1985-86	29.64	11.79	41.43	52.00
1987-88	34.73	18.19	53.92	55.49
1988-89	47.97	3.73	51.70	57.83
1989-90	45.90	6.07(P)	51.97	60.22

P = Provisional

Source: a) Production of edible oils as estimated by Dept. of Civil Supplies on the basis of ratios given in the Report of the Study Group on "A long term edible oils plan" brought out by the Dept. of Civil Supplies.b) Demand projections made by professional body of Oil Technologists Association of India. c) Imports of edible oils as published by Dept. of Civil Supplies.

which is a perennial source of edible oil assumes importance and deserves better attention for its genetic improvement and development.

5. Coconut (*Cocos nucifera*) is an important oil bearing nut, a perennial source of oil which is traditionally grown in our country. It is cultivated in the entire coastal belt and also in some suitable interior tracts. About 40 per cent of the total production of coconut is utilised for copra manufacture for oil extraction. Rest of the coconut production is used in the form of raw nuts and edible copra. The estimated oil production from coconut during 1989-90 was about 3.36 lakh tonnes which is more than most of the major seasonal oilseeds like sesamum, safflower, niger, soyabean, sunflower, etc. The contribution of coconut oil to the total edible oil production is only next to groundnut and rapeseed and mustard. **Table 2** shows the area, oil production and yield in terms of oil per ha of major oilseeds.
6. Coconut area is about 6.7 per cent of the total area under edible oil seeds and it contributes 7.3 per cent of the total edible oil production in the country even when only 40 per cent of the production of coconut is utilised for oil extraction. Compared to all the seasonal oilseeds, coconut has the highest unit productivity and stable production. With average level of management, the traditional cultivars of coconut have production potential of about one tonne of oil per ha per annum. The production potential of hybrids and some improved cultivars have a potential of 1.5 to 2.0 tonnes of oil per ha per annum under rainfed conditions. Besides, coconut is less susceptible to vagaries of weather than other seasonal edible oil seeds. Although well distributed rainfall is important for higher production of coconut, the adverse effects of unfavourable weather are not likely to be so pronounced as in the case of other seasonal oilseeds.
7. Besides, the use of coconut for edible oil production, the coconut oil is also used for household toiletary purposes. Coconut oil is considered superior to all other oils and fats for soap making. The consumption of coconut oil in the soap sector and other areas such as pharmaceuticals, paint industry, manufacture of creams, cosmetics, perfumeries, etc. has, of late, considerably decreased due to availability of cheaper imported as well indigenous oils. Coconut oil could play an important role in the oil economy of our country as an important substitute and ease pressure of demand on fats and oils in the traditional sector where quality-wise the coconut oil is still preferred, if suitable policy measures are taken and sustained efforts are made for increasing production and price control.

Table 2: Area, production of oil and yield in terms of oil per ha of major edible oilseeds

Name of the oil seed	1988-89			1989-90		
	Area (lakh ha)	Oil production (lakh tonnes)	Yield* (kg/ha)	Area (Lakh ha)	Oil Production (lakh tonnes)	Yield* (kg/ha)
1. Groundnut	85.29	22.23	260.1	87.07	18.62	213.8
2. Mustard & Rapeseed	48.32	13.39	277.1	49.89	12.61	252.8
3. Sesamum	24.48	2.12	86.6	23.61	2.23	94.4
4. Safflower	8.16	0.87	106.6	8.60	0.96	111.6
5. Niger	6.04	0.37	61.2	6.23	0.37	59.4
6. Soybean	17.34	1.39	80.2	21.34	1.54	72.2
7. Sunflower	11.04	1.33	120.5	14.22	2.13	149.8
8. Coconut	14.25	3.14	220.4	15.10	3.36	222.5

* Estimated

Coconut and Oil palm

8. Oil palm is undoubtedly the richest source of vegetable oil in the world. In Malaysia the average annual productivity ranges between 2.5 and 4.0 tonnes of oil per ha. The oil palm plantations of Oil Palm India Ltd. in Kerala gives an average yield of 2.5 tonnes of oil per hectare per year. In Andaman & Nicobar Islands, some plantations have reached the yield level of 3 tonnes of oil per ha per year. As against the yield potential of 4.5-5.0 tonnes of oil per ha annually in the case of oil palm, the yield record of the best hybrid combinations in the coconut never exceeded 3 to 3.5 tonnes of oil per ha.
9. Coconut is more adaptive to adverse agro-climatic situations without much variations in productivity whereas oil palm is grown under strictly favourable conditions such as well drained deep sandy loam soils with not more than 0.5 per cent salt content. There has to be well distributed rainfall of about 2000-3000 mm per annum. The mean monthly minimum temperature should not be lower than 18°C, but it should be in the range of 29° - 30°C. The wind causes shredding of the palm leaflets and reduces photosynthesis. Oil palm is a strong light demander. Al-

though oil palm can be cultivated under less optimal conditions but it fails to express full yield potential. Coconut is now grown successfully, outside the traditional coastal belt in Bastar district of Madhya Pradesh and in North Bihar. The productivity of some coconut palms grown in districts of Sahrasa and Purnea in Bihar under sub-optimal conditions is comparable with high yielding palms grown in better locations.

10. Oil palm is generlly grown on plantation scale as it is essential to link the cultivation of oil palm with special processing facilities. The oil palm fruits are highly perishable in nature and have to be processed within 24 hours after harvest failing which the quality of oil extracted deteriorate owing to the development of free fatty acids (FFA) resulting in poor-quality oil and refining losses. In South East Asian countries like Malaysia and Indonesia, plantations are very large and the processing, therefore, is based on modern techniques to produce RBD palm oil and palmolein for export. Oil palm is not amenable to homestead plantings and plantings in villages in small units as in case of coconut. In the areas suitable for oil palm cultivation, the average size of holdings is so small that it does not afford viable units for oil palm cultivation. As such coconut which is small holders crop cannot be replaced by oil palm. On the other hand coconut is amenable to any cropping system from homestead units to commercial plantations, as a monocrop or as a component crop in the multicropping system. In all the important coconut growing States the interspace is profitably utilised for cultivation of crops including fodder. Such a farming system is not feasible in case of oil palm. In these circumstances, oil palm could be extended only in forest lands by felling the existing natural growth. This will go against the need and policy of conserving the diverse genetic resources and natural eco-system of our country. Further, oil palm has to be replanted after a period of 25-30 years whereas in the case of coconut the economic life of a palm is about 60 years. The holdings under coconut could also be safeguarded against soil degradation by resorting to appropriate cropping pattern in the interspaces to further increase income from a unit area.

11. The cultivators consider coconut both as a food crop and an oilseed crop. The value of coconut can be considerably increased by encouraging product diversification and by-product utilisation. It is amenable to low cost technology and multiple and mixed cropping designed to increase unit productivity of small and marginal farmers and thereby the income from a unit area. Such opportunities do not exist in oil palm holdings. The coir industry earns foreign exchange worth Rs.30 crores annually and provides employment to about half a million people.

Production of coconut oil

12. The domestic production of coconut oil increased from 1.76 lakh tonnes in 1980-81 to 3.36 lakh tonnes in 1989-90. Table 3 gives year-wise coconut oil production in India.

13. The stagnated production of coconut oil could be attributed to downward trend observed in the production and productivity of coconut in the major coconut growing State of Kerala which account for 59.2 per cent of area under coconut and 47.1 per cent of production in the country. Kerala supplies about 95 per cent of the milling copra. In Kerala, it is estimated that about 41 per cent of the total palms are affected by debilitating root wilt disease and the loss is about 968 million nuts per year. Besides, a sizeable palm population has reached a stage of senility. Uneconomic bearing, lack of irrigation facilities and inadequate management are other factors responsible for lower productivity. Also with the increase in population and improvement in purchasing power with the people, the

Table 3 : Estimated production of coconut oil in India

(lakh tonnes)

Year	Production
1980-81	1.76
1981-82	1.66
1982-83	1.88
1983-84	1.72
1984-85	2.05
1985-86	2.00
1986-87	1.88
1987-88	2.24
1988-89	3.14
1989-90	3.36

Source: Dept. of Civil Supplies.

demand for fresh nuts for culinary purpose and for the manufacture of edible copra has increased thus leaving reduced availability of coconuts for processing into copra.

Policy of the Government

14. In view of the importance of coconut both as food crop and oilseed crop, the Government of India established a separate Board in 1981 for integrated development of coconut industry in the country. Coconut Development Board has implemented a number of schemes such as area expansion, production and distribution of planting materials, setting up of Demonstration-cum-Seed Production Farms, planting of coconut on canal embankments in Orissa and Karnataka, plantation on Khas lands in Tripura, integrated farming in coconut small holdings in Kerala for productivity improvement, providing irrigation facilities in coconut gardens, integrated control of leaf-eating caterpillar, setting up of coconut technology development centre for improving post-harvest processing and marketing of coconut and production of propaganda material for popularising coconut cultivation with improved management practices. The financial outlays provided by the Government of India to the Board for implementing various programmes are given below:

(Outlay Rs.in lakhs)

I. Seventh Plan (1985-90) 753.00

1985-86	110.00
1986-87	95.00
1987-88	130.00
1988-89	218.00
1989-90	200.00

II Eighth Plan (1990-95)

1990-91	225.00
1991-92	514.00

15. As a result of sustained efforts of the Coconut Development Board there has been a marked improvement in the production and yield of coconut in the country since 1981-82. Country has exceeded the VII Plan target of 8000 million nuts by 1283 million nuts. The production of coconut was recorded as 9283.4 million nuts during 1989-90. The year-wise area, production and yield of coconut in India and Kerala are given in the Table 4.

16. The production of coconut has registered an average annual growth rate of 6.86 per cent during the VII Plan period. The average annual growth rate recorded in area under coconut is 5.51 per cent in the Plan period. The Working Group on Horticulture and Plantation Crops

Table 4
Area, production and yield of coconut in India and Kerala, 1970-71 & 1980-81 to 1989-90

Year	All India			Kerala		
	Area ('000ha)	Production (million nuts)	Yield (nuts/ha)	Area ('000 ha)	Production (million nuts)	Yield (nuts/ha)
1970-71	1045.5	6075.0	5811	719.1	3981.0	5536
1980-81	1083.3	5720.0	5280	666.2	3036.4	4558
1981-82	1090.8	5573.4	5190	666.6	3005.7	4509
1982-83	1149.2	6356.1	5531	674.4	3184.0	4721
1983-84	1165.6	5807.9	4983	682.3	2602.0	3814
1984-85	1183.3	6912.8	5842	687.5	3453.0	5023
1985-86	1225.6	6770.3	5524	704.7	3377.0	4792
1986-87	1231.2	6376.8	5179	706.1	3173.0	4494
1987-88	1346.0	7269.9	5401	775.4	3346.0	4315
1988-89	1425.5	8541.4	5993	816.9	4215.0	5160
1989-90	1509.5	9283.4	6148	875.9	4394.0	5016

Source: Directorate of Economics and Statistics, Ministry of Agriculture.

Table 5
Projected demand for coconut

Year	Nuts (million)	Year	Nuts (million)
1988-89	8329	1994-95	10227
1989-90	8611	1995-96	10585
1990-91	8912	1996-97	10955
1991-92	9224	1997-98	11338
1992-93	9547	1998-99	11737
1993-94	9881	1999-2000	12146

for the Eighth Five Year Plan has projected demand of 12,146 million coconuts in the country by the end of the century. The table below shows the year-wise projected demand for coconut.

17. Remunerative and stable price for any agricultural produce go a long way in increasing production of that commodity by the cultivators. Wide fluctuations in the price discourage farmers to take up cultivation of the commodity. The Government of India had been implementing a Centrally sponsored Market Intervention Scheme for copra in order to ensure remunerative prices to the coconut cultivators and to save them from distress sale in the event of falling prices. Since 1988-89, Government of India has brought copra under the support price scheme and started fixing minimum support price for copra. The minimum support price of FAQ copra fixed for 1988-89 season was Rs. 1500 per quintal. During 1990-91 season it was raised to Rs.1600 per quintal.

18. National Co-operatives Development Corporation under the Ministry of Agriculture is implementing an EEC assisted, Kerala Coconut Development Project. The Project envisages to restructure the coconut/copra marketing channel and ensure economic price to the coconut growers by providing integrated facilities for procurement, storage, processing of coconut/copra and marketing the end products. This would be owned and managed by growers. Besides, the project provides for strengthening production base of coconut in Kerala. The total project cost is Rs.93.41 crores for a period of 5 years. This project will go a long way to ensure remunerative prices to the growers and integrated development of coconut industry in Kerala wherein farmers would become participants to share the benefits of the industry.

19. In view of the importance of coconut both as a food crop and an oil seed, government has always given a special treatment to this crop, even though botanically speaking coconut is an oilseed. Although only about 38 to 40 per cent of coconut is utilised for manufacture of milling copra, the kernel to oil ratio of coconut is 62 per cent which is the highest among major oilseeds. The Government of India has, therefore, during 1990 declared coconut as an oil seed of tree origin. This declaration is intended to emphasise the importance of coconut as an oil seed for price support operations.

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