THE INCREASED USE OF SALB RESISTANT MATERIAL IN EASTERN RUBBER PLANTING

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From very early times plant diseases affecting food crops such as mildews and bunts of cereals have been mentioned as major disasters and scourges: in contrast, known epiphytotics affecting tree crops have been relatively recent, possibly owing to the relatively recent large scale cultivation of the forests and orchards. Effective chemical control and resistance breeding techniques have now been worked out to combat formerly disastrous plant diseases such as late blight of potato and rusts on wheat but certain eqiphytotics of perennials such as Dutch Elm disease in Europe, and coffee leaf rust in Brazil have resisted control. After 1950 a hundred thousand acres of highland rubber in Sri Lanka was replaced by Tea owing to the difficulty of controlling Oidium leaf disease. More recently blister blight of Tea caused by Exobasidium vexans coming into Sri Lanka from Assam had been successfully controlled using Copper dusts and an attack of the Cuminghi beetle an our Coconuts was controlled through co-ordinated inter-Institute and government activity. In the case of Microcyclus ulei (Dothidella ulei) which has severely limited the growth of rubber in Brazil we have the potentially most serious hazard to the natural rubber industry of the East. The important position that rubber occupies in the economy of many of our Eastern countries has been made more so with the recent oil crisis: Rao (1973) has mentioned that South American Leaf Blight would be even more destructive here than in the Americas owing to the extremely high susceptibility of the Oriental clones planted over larger areas; therefore, some action appears to be very necessary in order to protect our industry at this juncture.

THE DISEASE

Rands (1924), Langford (1945) and Holliday (1969, 1970) have made a study of Microcyclus ulei. Very briefly, the disease occurs as velvety greenish spots on leaves and also on green stems, petioles, inflorescences and fruits. Usually two celled, rarely one celled, conidia are produced abundantly on single conidiophores in the asexual stage. The viability of conidia lasts only for a few hours. On older lesions small black bodies projecting above the leaf surface constitute the ascocarps and release the more resistant sexually produced ascospores which represent the main danger of infection over long distances. Asexual pycnospores are

also produced in ostiolate pycnidia by the fungus. Rao (1973) has mentioned the recent introduction of a direct air link between Brazil and Liberia which has opened the rubber plantations of the latter country to the risk of SALB : from Liberia it could well spread to West Africa and would then be established in the Afro-Asian land mass having crossed the Atlantic which had earlier been a barrier to the transport of uredospores of Coffee rust into Brazil.

CONTROL OF SALB

Chemical

Some control has been reported from Brazil using sprays of the dithiocarbamates; but as the range of a spray is limited, this control has had to be limited to younger trees: restriction of imports, and uneven terrain, rule out this method of control in the East which also does not pay the high guaranteed price paid by Brazil for its rubber which is locally consumed.

Resistance

Walker (1959) has summarized the approach of disease resistance as a major means of disease control in which the development of resistant varieties must be looked upon as a continuing programme with continued integration in a broad programme of improvement of the crop concerned. Commencing in the 1940's the Ford and Goodyear comapnies, in co-operation with U. S. D. A., have initiated the collection of selections from Microcyclus infected stands in the Amazon valley and used Far Eastern collections for breeding purposes (Bangham, 1945). In a further combined programme with the South American Agricultural unit at Turrialba in Costa Rica the IAN series was later synthesized and tested for yields so that the difficult top working with resistant clones could be replaced with proved clonal buddings. This series comprising the IAN 45, 2000, and 6000 series were later tried out on a fairly large scale in South America. Some of these selections were imported into Sri Lanka (Baptiste, 1961) in exchange for RRIC clones and distributed early to Malaysia and later to India.

EASTERN GROWTH AND YIELDS OF SALB RESISTANT AND DERIVED CULTIVARS

The original SALB resistant selections such as Ford 351 and Ford 4542, and progeny such as FX 360, were found to be very low yielding. The IAN series developed later came up to earlier Eastern standards. In regard to IAN 873 of parentage PB 86 x FA 1717 the RRI of Malaya (1971) has reported yields

upto the level of RRIM 600 in the first three years of tapping. In this report RRIM 600 has also shown better yields than RRIM 605, 623 and 628. A quarter acre plot of this clone planted in 1960 in Sri Lanka has also shown very satisfactory yields and rate of girthing both before and after tapping (Table 1). Unfortunately the IAN 2000 series comprising the first backcross, and the IAN 6000 series comprising the second backcross to Eastern material, did not do so well as seen in small scale trials planted in our fields in 1961. In particular bark weakness, such as bursting and susceptibility to black stripe, was evident and vigour was not as evident as in the F 1. IAN 717, of parentage F 4542 x PB 86, showed satisfactory leaf and vigour but yields of a 150 tree plot were below the control PB 86 and susceptibility to wind damage by way of main branch breakage was evident. Therefore, for the present, we appear to be left with just one clone from earlier introductions for Eastern plantings.

However very recently it has been possible to test material synthesized in Sri Lanka in a screening unit operated by the RRI of Malaysia at Trinidad. Preliminary reports of clones sent in 1969 indicate that one such clone, 2473, of parentage RRIC 45 x IAN 873, has shown appreciable resistance. Yields from 5 tree plots replicated thrice are shown in Table 2. It is seen that this clone compares well with the most modern of our selections such as RRIC 102. Four more clones viz., 2418 (RRIC 45 x FX 4098), 2462 (RRIC 88 x FX 4098), 5329 (IAN 3434 x RRIC 52), and 6004 (RRIC 52 x IAN 2750), have also been reported as showing preliminary signs of resistance but information on yields is still too early for further planting; resistance to Oidium leaf disease has however been shown in these later four clones which are planted at Matale at an elevation above 1000 ft.

EXTENSION

In the process of International exchange and test it has been difficult to agree on favourable secondary characters or optimum yields until the passage of many years but in IAN 873 this accord appears to have been established between the RRISL and RRIM. Therefore there seems to be minimal risk and appreciable SALB insurance in introducing at least 5 acre plots to larger holdings or a tapping task to smaller holdings. The present premier position of natural rubber in the context of the oil crisis demands that some positive action should be initiated; because none of us can afford to let rubber go the way of coffee in Brazil or the Dutch Elm in Europe. Considering recent aspects of land reform in our countries, some mandate from the state may be necessary. Regarding later cultivars such as 2473, it has to be noted

that we are dealing with second generation progeny where certain unfavourable characters in the parents, such as brown bast, or wind damage susceptibility, can be scrutinized and suitable corrective recommendations, such as more dense plantings or altered tapping systems (as adopted for Glen 1) can be employed. A shift from sole quantitative genetics to additional major gene genetics as advocated by Knight (1962) and Watkins (1970) also permits a more positive evaluation of favourable characters in addition to negative aspects of unfavourable characters. It is seen from Table 2 that a number of clones are available with outstanding yields and SALB resistant parentage. These clones have already been screened as nursery seedlings for Colletotrichum (Gloeosporium) resistance. It would therefore appear to involve minimal risk if some of these clones are also released for approximately 1/10th of later replantings. It has to be pointed out that a decision taken today on such an issue will take at least three years to implement as the required budwood has to be multiplied. Anticipating a report of resistance from the RRIM unit at Trinidad we have also crossed 2473 to other selections with a different source of SALB resistance (Fernando, 1971). We have been rather successful as seen in Table 3 in proceeding from nursery selection to large scale trial and if the same success can be attained in our newer progeny it may be possible to further diversify the material on estates. In such clonal diversity we may also attain the over-all safety of a wider genetic basis. Now that we have readily transmissible vigour in some of our clones the possibility of early opening also increases the profitability of the newer clones to a level which decreases economic risk. It is usually difficult for national agricultural policy to be dependant on national institutes only and endorsement of action by an International body such as the I.R.R.D.B. would appear very necessary and urgent at this moment of crisis. The necessary bilateral co-operation has been achieved between us and Malaysia and support by International Board would be a very desirable corollary.

Acknoledgements

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TABLE 1

1960 S.W. CLONE TRIAL - PEENKANDE

TAPPED 2S/2, d/4, 100% : ( ) KG/HECT/312 TREES

CLONE	PARENTAGE	TREES TAPPED	MEAN GIRTH 1973 cm	MEAN YIELDS g/tree/tapping dry rubber 1967	1968	1969	1970	1971	1972	1973
IAN 873	PB 86 x F 1717	35	80.0	33.2 (1450)	38.5 (1681)	38.5 (1681)	33.4 (1458)	35.5 (1550)	29.8 (1301)	30.5 (1332)
PB 86	Primary	40	69.8	26.1 (1140)	28.3 (1236)	26.4 (1153)	29.8 (1301)	33.3 (1454)	24.0 (1048)	30.2 (1319)

TABLE 2

1965 Small Scale Clone Trial - Dartonfield

Tapped S/2, d/3, 67%

Clone	Parentage	Trees tapped	Mean Girth 1973 cm	Mean yields g/tree/tapping			
				1970	1971	1972	1973
2473	RRIC 45 x IAN 873	11	66.4	14.8	23.2	27.9	30.7
2417	RRIC 45 x FX 4098	5	63.8	21.7	31.0	50.1	39.7
6306	RRIC 36 x FX 516	7	64.3	23.9	34.9	32.0	34.5
5326	RRIC 51 x F 4542	11	64.1	16.2	20.5	18.5	26.8
5352	RRIC 52 x IAN 710	13	75.5	13.6	18.8	18.8	27.0
RRIC 102	RRIC 52 x RRIC 7	4	64.6	25.8	32.4	35.4	57.2
RRIC 45	RRIC 8 x Tjir 1	80	61.7	18.7	22.7	23.1	23.7

TABLE 3

Multilateral Exchange Clones

Increase of plot size

CLONE	YEAR OF SYNTHESIS	SMALL SCALE TRIAL	LARGE SCALE TRIAL	SMALL SCALE YIELDS	LARGE SCALE YIELDS
RRIC 101	1959	1961	1966	1966	1971
RRIC 102	1959	1962	1964	1967	1970
* RRIC 103	1957	-	1966	-	1971
RRIC 110	1962	1964	1969	1970	1975

* placed on large scale trial after early indices of yield and disease resistance.

NR prices at the primary producing centre of Kottayam came down by Rs 250 a quintal in July 1997 to Rs 3,750 a quintal. The fall is surprising as this is considered the lean tapping season.

Rubber prices stood at Rs 37 per kg for the RSS-4 variety, and at Rs 34 for the ungraded variety in mid-July 1997. Prices rose marginally to Rs 42 for RSS-4, and to Rs 37.50 for ungraded rubber as on July 28. As compared to this, prices stood at Rs 49 per kilo for RSS-4, and at Rs 45 per kilo for ungraded rubber during the same period in 1996.

The fall in prices is attributed to delay in the monsoons which helped the growers to tap extra rubber, the growers' desire to dispose of the stocks, and the payment problems experienced by the automotive tyre manufacturers (the largest consumers of rubber in India). Also, the government has decided to import 20,000 tonnes of natural rubber during 1997-98.

The fall in rubber prices has been arrested to some extent because of market intervention by the State Trading Corporation (STC). However, STC's operations may not be effective for two important reasons:

1. The peak production in August and September.

2. The difficulty in getting financial support from the government for procurement operations.

STC and the Rubber Marketing Federation have to work overtime to keep prices from falling further.

The Kerala assembly has asked the union government to procure at least 40,000 tonnes of NR, and fix a floor price of Rs 55 per kg which is 70 per cent higher than the current low price. The suggestion has been criticised because it will be difficult for user industries to absorb such high prices. Moreover, any long-term benefit would help to make rubber products competitive in the global market. This alone would ensure sustained demand for Indian NR.

The centre has decided to waive off the purchase tax in respect of the rubber produced by STC. Rubber merchants demand that tax concessions be extended to dealers in the private sector also, as 90 per cent of the rubber produced in Kerala is handled by this group.

About 50 per cent of rubber growers are producing rubber at below the average productivity levels. Efforts are being made to raise this level. The Rubber Research Institute of the Rubber Board is in the process of developing 15 new clones. These clones would have 20 per cent more yield than RR II 105, the best known variety now available.

The Rubber Board has projected an increase in productivity through its efforts, from the level of 1,320 kgs per hectare per year in the 1990s to a level of 1,800 kgs by the year 2010 AD. The board also has plans to increase the area being replanted every year.

The Rubber Board has chalked out long- and short-term strategies for enhancing production levels. The long-term programme consists of expansion to non-traditional areas, and replanting of existing uneconomic holdings. The short-term strategy is one of productivity enhancement in existing mature holdings.

Research is on for comparing tissue culture plants with traditional bud-grafted ones to assess the potentiality of the former. Recombinant DNA technology has also been started for synthesis of transgenic plants, utilising experimental genes. The new varieties have to overcome the tapping panel disease (TPD).

The World Bank assisted projects aimed at improving productivity in small holdings, covering 40,000 hectares. Of course, thousands of hectares of land can be brought under rubber cultivation, especially in north eastern states, Orissa, Andaman and Nicobar Islands, Andhra Pradesh, Karnataka and Maharashtra.

The fluctuations in rubber prices need to be kept under check. This is possible only when remunerative prices to growers, affordable prices to industry, and adequate supplies to consumers are assured.

At present, the consumption of SR is confined to a few spheres. This has to be widened so as to reduce pressure on NR. It would be better if NR and SR consumption ratios were brought to 70:30, and this has to be achieved in the next fifteen years. At the global level, the ratio in 1995 was 39:61, while for India it was 80:20.

Of course, the price difference between NR and SR needs to be narrowed down. Attractive planting incentives and remunerative prices are essential to intensify investments in rubber. Replanting of old and uneconomic holdings is necessary to improve productivity. ❑

—Dr I. Satya Sundaram

TABLE III
PRICE OF NATURAL RUBBER (RSS 4 GRADE)
(in Rs/quintal)

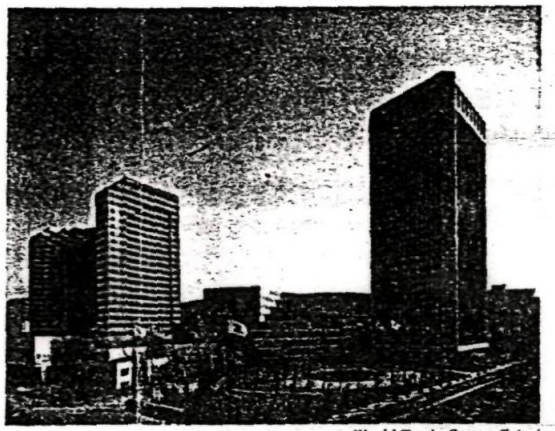
Year	Kottayam	Kuala Lumpur
1992	2,463	2,382
1993	2,546	2,437
1994	3,107	3,373
Oct. 1995	4,800	4,882
Oct. 1996	5,112	NA
Dec. 1996	4,600	NA

Capacity Addition During the Ninth Plan

The Working Group on Power constituted by the Planning Commission has recommended a capacity addition of 57,735 MW for the Ninth Five Year Plan. This comprises 17,411 MW from Hydro, 39,444 MW from Thermal (including gas, diesel, etc), and 880 MW from nuclear energy to meet the demand, as projected in the fifteenth Electric Power Survey report. The power targets for the Ninth Five Year Plan are yet to be finalised.

To meet the projected demand, the government has initiated various steps. These include addition of capacity, encouragement of private sector participation in power generation, better demand side management, energy conservation measures, renovation and modernisation of existing plants, reduction in transmission and distribution losses, and effective utilisation of generation capacity by transfer of power from surplus regions to those having deficits through inter-regional links.

INDIA AND TAIWAN: SCOPE FOR IMMENSE OPPORTUNITIES



World Trade Centre, Taipei

Recently Mr Nick Chang, managing director, Taipei World Trade Centre (New Delhi), made a presentation of the economic progress made by Taiwan in recent years. Also, he illustrated with the help of slides the various ways in which Indo-Taiwan economic cooperation could be intensified. The presentation was made at the PHD House; Mr Vineet Virmani, past-president PHD, presided over the function.

The per capita income of Taiwan was $196 in 1952. In the same year, India had a per capita income at one-fourth the level of Taiwan's per head income—$50, to be precise. Currently, India's per capita income at $350 million is a little more than two per cent of Taiwan's per head income at $14,317. Thus, between 1952 and 1997, India has marched ahead at a snail's pace while Taiwan has been galloping to new peaks year after year.

According to a background paper prepared by the International Affairs Division of the PHD Chamber of Commerce and Industry, this spec-

TABLE I

INDIA'S EXPORTS TO TAIWAN

(in rupees million)

Commodities	1995-96	1996-97
Cashew	59.5	102.6
Oil meals	233.9	531.0
Marine products	240.4	1,040.7
Cotton raw including waste	115.1	1,291.2
Iron ore	288.3	637.9
Processed minerals	85.0	172.9
Other ores and minerals	737.8	383.9
Drugs, pharmaceuticals & fine chemicals	275.8	609.5
Dyes/Intermediates & coal tar chemicals	687.0	1,030.4
Inorganic/Organic/Agro chemicals	1,057.4	1,134.0
Gems and jewellery	39.4	135.5
Plastic & linoleum products	342.8	290.4
Residual chemicals & allied products	285.0	333.4
Aluminium other than products	33.7	434.8
Manufactures of metals	229.3	271.8
Machinery and instruments	163.1	333.3
Iron & steel bar/rod, etc.	164.5	175.1
Primary & semi-finished iron & steel	939.3	919.5
Electronic goods	132.6	300.3
Cotton yarn, fabrics, made-ups, etc.	1,187.1	2,620.1
Others	1,317.4	1,257.6
Total	8,614.4	14,005.9

to touch around 30,000 tonnes by the year 2000 AD. and around 300,000 tonnes by 2010 AD. No doubt the supply position has improved in 1996-97, but the demand is growing faster. The shortage is placed at 31,000 tonnes. About 10 per cent of the rubber consumed is used in making products for export.

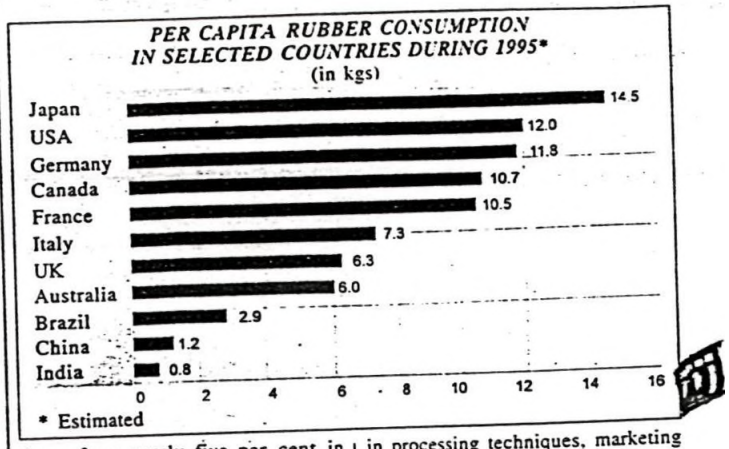
There are only three countries in the world that produce both natural and synthetic rubber, and consume the whole of it in the country itself. These are India, China and Brazil. Of course, Brazil exports synthetic rubber.

The total world production of natural rubber (NR) in 1994 was 5.7 million tonnes and that of synthetic rubber (SR) 8.8 million tonnes. The world consumption of NR in 1994 was 5.6 million tonnes and that of SR 8.8 million tonnes.

Thailand, Indonesia and Malaysia are the leading natural rubber-producing countries of the world. These three countries accounted for an estimated 73 per cent of the world natural rubber production in 1996 as against 74 per cent in 1995. In respect of SR, the US, Japan and the CIS produced a little more than 50 per cent of the world production during 1996 (51 per cent in 1995).

Total world production of NR for 1996 was placed at six million tonnes and that of SR at 9.5 million tonnes—a total of 15.5 million tonnes.

The growth rate in world SR production is estimated to have come down from nearly five per cent in 1995 to around three per cent in 1996, while that of NR remained steady at around 2.5 per cent. The rate of increase in the overall rubber output consequently fell to 2.9 per cent during 1996 as compared to 4.1 per cent in 1995.



According to the International Rubber Study Group (IRSG), the shortfall in world rubber supply is going to increase in the coming years.

The Association of Natural Rubber producing countries (ANRPC) was established in 1970. The ANRPC has been making attempts to evolve an objective perception regarding the magnitude of problems facing member countries. The stress, of course, is on technical cooperation for promotion of NR production, modernisation in processing techniques, marketing and value-addition.

There is what is called the International Natural Rubber Agreement (INRA). But the producing countries are apprehensive about the relative efficiency of INRA in absorbing steady increase in the cost of production, and stabilising prices at remunerative levels. However, the coming into force of the third International Rubber Agreement (IRA-3) has helped to induce some element of stability in the international rubber market.

The world rubber scenario appears to be favourable for the Indian rubber industry. In countries like the US, demand for automotive and tyre products is on the increase. China, the second largest consumer of rubber in the world, is experiencing shortage of rubber. In Malaysia there are labour problems.

Rubber cultivation has reached almost a saturation point in traditional areas like Kerala. Therefore, cultivation needs to be expanded to non-traditional areas like Tripura and Assam. The Rubber Board has set a target of bringing 215,000 hectares under new plantation by the year 2003 AD. Price incentives may also be helpful in bringing additional areas under rubber cultivation.

During the period 1950-51 to 1994-95, the area under rubber cultivation has grown at a satisfactory compound annual growth rate of 4.5 per cent, increasing from 75,000 hectares in 1950-51 to 530,000 hectares in 1994-95. The yield rose four-fold from 284 kgs per hectare to 1,265 kgs per hectare during this period.

India's rubber industry has made

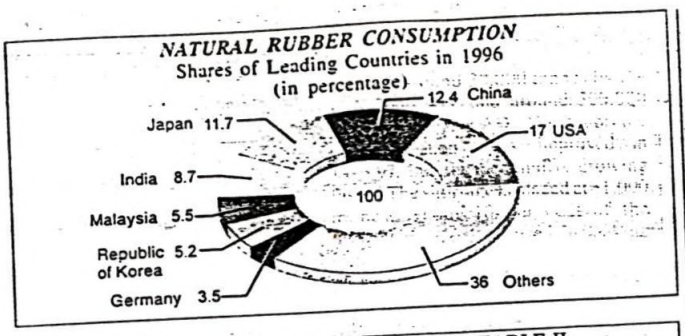
TABLE I

PRODUCTION AND CONSUMPTION OF NR AND SR IN INDIA

(in '000 tonnes)

Year	Natural Rubber		Synthetic Rubber	
	Production	Consumption	Production	Consumption
1984-85	186,000	218,000	37,000	65,000
1985-86	200,000	237,000	35,000	70,000
1986-87	220,000	257,000	38,000	72,000
1987-88	235,000	287,000	44,000	76,000
1988-89	259,000	314,000	53,000	84,000
1989-90	297,000	342,000	53,000	94,000
1990-91	330,000	364,000	57,000	105,000
1991-92	367,000	380,000	58,000	106,000
1992-93	393,000	414,000	58,000	107,000
1993-94	435,000	450,000	49,000	110,000
1994-95	472,000	486,000	61,000	123,000
1995-96	507,000	525,000	NA	NA
1996-97*	542,000	578,000	NA	NA

* Estimates
NA—Not Available



steady progress in terms of productivity. It has even overtaken Malaysia. The yield which was 1,130 kgs per hectare in 1991-92 increased to 1,422 kgs in 1995-96. It is placed at 1,422 kgs/hectare for the year 1996-97 as well. Credit for this should go to RR II 105. The potential of this variety is anything above 2,500 kgs per hectare.

However, at present imports have become inevitable mainly because of low productivity. On a conservative estimate, the present level of productivity is only about a third of the realisable potential. Under very favourable conditions, even small farmers are able to achieve a productivity level of 3,000 kgs per hectare.

Between 1984-85 and 1989-90, the compound annual rate of growth in NR output was 9.8 per cent, and in consumption that of 9.4 per cent. The corresponding figures for the period 1984-85 to 1994-95 were 9.8 and 8.4 per cent, respectively.

In respect of SR, the growth rates of production and consumption were 7.5 and 7.7 per cent, respectively during the period 1984-85 to 1994-95, and respective growth rates were 5.1 and 6.6 per cent.

The domestic output of SR is inadequate to bridge the gulf between demand and supply of rubber. This is because SR consumption is confined to certain fields only for climatic reasons. Also, the prices of SR are higher.

Total rubber (NR and SR) production in India is around 550,000 tonnes, of which NR amounts to nearly 500,000 tonnes. Nearly 50 per cent of the total rubber produced is consumed by the well organised auto tyre industry; about 25 per cent by nearly 150 medium units engaged in the production of items like hoses and tubes, and the balance by 500 small companies spread all over the country. The small units

TABLE II

IMPORT OF NR AND SR BY INDIA

(in metric tonnes)

Year	Imports	
	Natural Rubber	Synthetic Rubber
1980	1,000	6,206
1981	36,850	2,438
1982	45,725	21,438
1983	25,394	20,427
1984	38,014	16,242
1985	37,392	21,188
1986	60,071	29,539
1987	44,969	29,539
1988	58,445	25,379
1989	41,098	32,133
1990	60,030	37,553
1991	15,207	34,305
1992	17,402	34,898
1993	20,803	42,756
1994	7,962	60,087
1995	18,737	40,552

are hit hard whenever rubber price rise.

According to the Rubber Board's estimates, production would be around 542,000 tonnes in 1996-97 as compared to 507,000 tonnes in 1995-96.

The Rubber Board has been popularising rubber cultivation in the north-eastern states. Experts say that it is possible to produce rubber here at a very profitable level. The Konkan area as well as Orissa are also suitable for rubber cultivation, though the extreme weather conditions do constitute a problem. India's share in world production now stands at 8.5 per cent.

The shortage of NR in 1995-96 was around 19,000 tonnes as compared to 14,000 tonnes in the previous year. During 1996-97, consumption was placed at 578,000 tonnes leaving a shortfall of 36,000 tonnes. However, as 15,000 tonnes were additionally imported during the closing months of the previous year, the exact shortfall would be much lesser.

Rubber prices generally experience wide fluctuations. After touching an all time high of Rs 65.50 per kilogram in June 1995, rubber prices came down to a level of Rs 39.90 in September 1995. Domestic and international prices were more or less the same in 1992 and 1993. There is a tendency to hoard rubber in order to push up prices. To curb this tendency, the Rubber Board has been recommending liberal imports.

Export of Natural Rubber

During 1996-97, export of natural rubber registered an increase of 4 per cent over exports in 1995-96. During 1995-96, 1,130 tonnes natural rubber were exported.

For increasing production of natural rubber, a number of schemes including financial and technical assistance for planting of rubber, concessional supply of plantation inputs, free supply of technical knowhow and assistance for processing, etc. are being operated by the Rubber Board. According to the estimates of the Rubber Board, there is no exportable surplus of natural rubber in the country but there is no restriction on the exports. However, since prices in the domestic market are higher than those in the international market, large-scale export of natural rubber is not feasible.

The government has approved the proposal of the board to set up a Rubber Park at Irapuram in Ernakulam district of Kerala in association with the Kerala Industrial Infrastructure Development Corporation (KINFRA). The park aims at developing 100 acres of land providing infrastructural facilities such as electricity and water, centralised testing and quality certification of rubber products, common treatment and discharge of factory effluents, communication facilities, etc. 60 to 70 industrial units are likely to be established in the park. This was stated by Dr B.B. Ramaiah, minister of state for Commerce, in a written reply in the Lok Sabha on August 8,