

## ***53. Seed Multiplication for Coconut —Role of Private Sector***

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### **Introduction**

A country of the size of India with its varying micro- and macro-climatic regions requires intensified and diversified research efforts on any crop. Coconut is no exception to this. For a long time to come research at Government Research Institutes and Agricultural Universities will continue to be the dominant source of new varieties and technological advances. However, in view of the magnitude of our improved seed requirements, there is a need to supplement such research efforts by private organisations as well as even by individuals. There are a large number of agencies, Government as well as private, interested in seed development programmes. Industries based on agricultural raw materials have not bestowed enough attention on research in plant breeding and other aspects of crop improvement and development. The role played by the private agencies in developing plant protection materials including chemicals and machinery is quite significant. There is the view that crop research is a costly affair and the seed companies would not be in a position to take up research at present. Another view point is that there is already a shortage of trained scientists for various public sector research endeavours.

### **Production and productivity of coconut**

The coconut palm is one of the major sources of edible oil. Next only to oilpalm it yields more oil per unit area of land. India occupies only the third position in the world acreage and production, with 1.1 m ha in area, having annual production of 5,618 m nuts (Tables 1 and 2). Regarding the productivity of the coconuts per hectare India is in the second place among the major coconut growing countries of the world (Table 3). Among the various States in our country, Kerala has the major share in area as well as production (Table 4). A perusal of the data on the area under production and productivity of the crop reveals certain interesting features. There is a sharp fall in the productivity and continuous retardation in the growth over

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**Table 1: Area of coconut in the major countries of world in '000 ha**

Country	1979	1980	1981	1982
Indonesia	1,748	1,803	1,844	1,959
India	1,076	1,083	1,088	1,113
Malaysia	334	327	330	327
Philippines	2,995	3,126	3,162	3,160
Sri Lanka	452	454	451	451
World	8,013	8,212	8,386	8,473

**Table 2: Production of coconut in the major coconut growing countries of the world in '000 tonnes**

Country	1979	1980	1981	1982
Indonesia	10,700	10,900	10,800	11,700
India	4,181	4,250	4,175	4,209
Malaysia	1,237	1,219	1,207	1,196
Philippines	7,973	8,552	9,544	9,668
Sri Lanka	1,819	1,540	1,716	1,916
World	33,117	33,709	34,878	35,957

**Table 3: Productivity of coconut (nuts/ha) in major coconut growing countries**

Country	1978	1979	1980	1981	1982
Indonesia	6,284	6,121	6,045	5,702	6,153
India	4,035	4,041	3,913	3,913	3,913
Malaysia	3,577	3,703	3,727	3,657	3,657
Philippines	3,159	2,662	2,735	3,018	3,059
Sri Lanka	3,714	4,029	3,411	3,800	3,876

**Table 4: Area and production of coconut in the major coconut growing States in India**

State	Area in '000 ha 1981-82	Production in m nuts
Kerala	667.8	3,057.2
Karnataka	173.5	897.3
Tamil Nadu	116.2	1,019.2
Andhra Pradesh	43.2	178.8
Orissa	22.5	98.8
Others	65.2	376.9

the last ten years. In view of the economic importance of the coconut growing regions, with proper management conditions the crop ought to have displayed a positive growth of high order.

An important development in the years 1982-83 and 83-84 was that the coconut oil captured its unique position and became the premium priced oil. The price rose sharply from around Rs. 1,530/q in 1983 March onwards to Rs. 3,500/q by May-June, 1984. This is an all-time record in the history of coconut cultivation. The low production of nuts due to the unprecedented drought of 1983 inflicted devastating damages to the coconut crop by outrightly killing lakhs of bearing trees as well as causing considerable damages to the developing nuts. Hence there is an urgent need to increase the production of the crop so that a reasonably stable price could be maintained for the oil.

#### **Constraints in productivity increase in coconut**

One of the major constraints in increasing the production of the crop is the non-availability of high yielding cultivars and hybrids in large numbers for large-scale planting programme. The variety under large scale cultivation in our country is the Tall one. In the West Coast of India it is called the West Coast Tall and in the East Coast it is East Coast Tall. There is not much difference between these types except that the East Coast Tall nut is smaller in size. In addition to these two tall cultivars, there is the tall types of Goa called Benaullim, in Karnataka the Tiptur Tall and in Gujarat the Gujarat Zanzibar. Few dwarf types are also available in our country on a very limited scale. Dwarfs are generally grown as ornamental plants. The productivity of both the types is very much limited when compared with that of the hybrids between Dwarfs and Talls.

Superiority of the coconut hybrid has been proved all over the coconut growing countries of the world. The MAWA hybrid PB 121 released by IRHO, Ivory Coast, which is reported to produce about 6 tonnes of copra per hectare is a combination of Malayan Dwarf Yellow (female) and West African Tall (male). The Indian hybrid which is the combination of Chowghat Dwarf Orange (female) and West Coast Tall (male) is in no way inferior to any of the reported hybrids.

#### **Improved methods of seed production**

With the increasing awareness of the coconut farmer regarding the high yielding types, the demand for the hybrids is on the increase. The available methods were found to be inadequate for the large scale production of the hybrids since it involved handling of every female flowers individually for effecting pollination. The present method of pollination evolved at CPCRI, Kasaragod using the pollen applicator has made the hybridisation simple and effective (Pillai and Rao, 1984). The emasculation has also been made easy by clipping off the male flower bearing rachillae above the female flowers, using a secateur, and removing the remaining male flowers by

hand. By this method it has become possible to produce any number of hybrids with ease provided that the female parents are available. The major handicap in the large scale production of these hybrids which are high yielding is the non-availability of the parental line especially of the Dwarfs. Unless large areas are brought under the parental lines, mass production of hybrids may not become a reality. Private agencies can play a major role in this.

For years to come the efforts of the Government alone may not be enough to bridge the gap between the demand and supply of superior planting materials. In all the developed countries the role of the private sector in the agricultural field is well known. Without the support of these private organisations those countries would not have reached the high production levels. In the developing countries as well the approach should be the same and only then India can reach self-sufficiency with regards to these oilseed crops.

#### **Need for parental planting materials and role of private sector**

The requirements of the planting materials of coconut for the various States have been estimated on the assumption that every year 2.8 per cent of the existing area would require replanting with quality planting materials. The States where there are severe disease problems such as Kerala, estimates for replanting have been worked out on the basis of the number of disease palms which require replacement (Table 5). To establish seed

**Table 5: Estimated area for coconut seed gardens and the parents (area in ha)**

State	Area to be brought under		Parents proposed
	Dwarfs	Talls	
Kerala	2,000	500	CDO, MDY, Gangabondam, WCT, Laccadive Ordinary, Andaman Ordinary, Philippines Ordinary, Kappadam
Karnataka	200	175	CDO, MDY, Tiptur Tall, WCT.
Tamil Nadu	160	100	CDO, MDY, ECT, AO.
Andhra Pradesh	50	50	MDY, Gangabondam, ECT.
Orissa	240	240	CDO, MDY, ECT, AO.
West Bengal	140	100	MDY, Gangabondam, ECT, AO.
Goa	20	20	CDO, MDY, Benaullim, WCT.

farms for the production of the planting materials by the Government agencies alone will take time. It is a fact that in most of the Government Seed

Gardens the plant stand is far from satisfactory. This can be attributed to many factors. If the private agencies take up this work of establishing seed gardens in our country it will be a great help for the farmers and within a specified period the results can be achieved.

In view of the fact that success has been obtained at CPCRI in culturing leaf tissue to get clonal plants (Raju *et al.*, 1984) the production of high yielding hybrids and cultivars on a large scale can be thought of. Private sector can play a very dominant role in making available this achievement for the benefit of our farmers. The success met with in establishing clonal oilpalm gardens in Malaysia from tissue cultured hybrids can be taken as a forerunner in this regard. Until and unless enough seed gardens are established in our country, the demand for the quality seedlings cannot be adequately met. The major crop Research Institutes are likely to take up more fundamental work and the full exploitation of the available genetic material and scientific knowledge has to come from private agencies and voluntary individuals.

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