SUMMER IRRIGATION
of
COCONUTS ON THE WEST COAST

By
M. M. KRISHNA MARAR

A LARGE majority of the coconut plantations on the West Coast is being raised with the help of rains only. Irrigation is limited for the first two or three years after the transplantation of the seedlings in the field to promote satisfactory establishment and to give them a good start. Later on the young palms are left entirely to themselves to carry on with the moisture available in the soil from time to time. In regions where rainfall received is sufficient in quantity and well distributed the absence of irrigation facilities may not make any big difference. But when rainfall is low in quantity or ill-distributed, irrigation may make all the difference between success and failure.

On the West Coast which is the premier coconut region of India, the annual rainfall varies from 100 to 150 inches, it being more in the northern portion than in the south. The distribution of rainfall is however more satisfactory in the south than in the north; the rainless period extends to only for about 3 months in the south whereas in the north the duration of the rainless period is as long as 5 to 6 months in the year. The heavy rainfall confined to a small period is not proving as beneficial as would have been the case if it had been spread equally over all the months of the year.

The summer months on the West Coast characterised by absence of rains,

rising temperature and low relative humidity tend to accelerate the loss of soil moisture and create severe drought conditions. The desiccating effect is more in sandy soil where the moisture content at the peak of summer has been observed to go down to as low as 0.1 per cent in the surface layers. It is no wonder then that the palms under such conditions show signs of distress such as large scale shedding of buttons and immature nuts, breaking of petioles, drooping of leaves, foliar yellowing, etc. These conditions naturally affect the productivity of the palms. Amelioration of soil moisture deficit through irrigation is sure to bring about improvement in the condition of the palms.

The beneficial effects of summer irrigation on the coconut palms of the West Coast have amply been demonstrated from field experiments and from practical experience. Summer irrigation is being practised even now in some localities with considerable benefits. Small scale experiments in progress at the Central Coconut Research Station, Kasaragod have shown beyond any shadow of doubt that summer irrigation especially of palms growing in heavily drained soils of the West Coast helps in improving the yields substantially. Over the last four years the increased yields due to irrigation, as compared to unwatered trees amounted to 20 nuts per year in two separate experiments. There was no bad affect from using sea water for irrigation purposes in sandy soil. Spectacular effects of irrigation have also been reported from Agricultural Research Station, Nileshwar III. The yields of palms which had not shown any response to many cultural and fertilizer treatments jumped from a low yield of 5 nuts per tree to as high as 30 nuts within a period of three years, when the palms were begun to be irrigated.

The absence of adequate water resources is undoubtedly one of the reasons for irrigation not becoming popular with coconut growers. During summer it is usual for the ordinary sources of water supply such as wells, ponds, etc. to get dried up completely creating scarcity for water even for drinking purposes let alone for irrigation. Therefore the extension of the practice of summer irrigation of coconut palms on the West Coast is intimately bound up with the improvement and enlargement of irrigation facilities. Digging of open wells or installation of filter point tube wells if soil conditions permit, and providing them with pump sets which can be worked with oil engines or electric motors to lift water are the measures suggested to provide facilities for irrigation on a large scale. If the number of palms involved is small even ordinary methods of lifting and applying water would suffice. It is true that the measures suggested for large scale irrigation involve financial outlay on a scale beyond the reach of ordinary coconut growers, but now that the Kerala Government have come forward to extend financial assistance for this purpose, it should be possible for many growers to take advantage of the offer. The expanded irrigation facilities will enable them to grow successfully a number of other crops also, especially vegetables and thus add to their income.

Proper and economic use of irrigation water is very important. This embraces aspects such as methods of

applying water, frequency of application, quantity of water to be applied, method of leading water from source to the point of application etc. Not much of research work has been done on these in relation to coconut to enable definite recommendations to be made, but broad principles governing irrigation in general will be applicable to coconut also.

Among the methods of applying irrigation water, bed irrigation or basin irrigation may be adopted for the coconut palms depending upon circumstances. In the bed method the garden is laid out into rectangular beds to which water is led in turns through small irrigation channel until the soil is soaked to the degree desired. In the basin system, water is applied in basins 4 to 5 ft. in radius formed round the base of the palms. Where irrigation water is available in plenty and the soil is retentive, bed method is preferable and more effective. Frequency of irrigation will be influenced both by the intensity of drought conditions and the nature of the soil. The other conditions being the same, longer intervals are possible when the drought conditions are less severe or if the soil is retentive. Irrigation twice a week in sandy or loamy soils and once in a week or 10 days for retentive soils will normally be sufficient. The quantity of water to be applied per irrigation will have to be decided mainly in relation to the soil type. In loose soils application of large quantities of water at one time will increase loss of water by leaching beyond the range of the root system. Water sufficient to wet the root zone should alone be supplied. The method of leading water from the irrigation source to the point of application deserves careful consideration as considerable quantity of water is likely to be lost in transit particularly in loose soils. Channels constructed out of masonry and plastered with cement or galvanised iron pipes are eminently suitable for taking water without much loss. Clay-lined channels are the next best.

With the onset of summer conditions, it is time the coconut growers gave serious thought to this subject and mobilised all the resources they can to put through a practical programme of irrigation of their coconut gardens. The finding that in coastal sandy areas even sea water could be made use of for summer irrigation of coconut palms should make irrigation a practicable proposition with countless coconut growers having their gardens along the sea shore and experiencing difficulties in giving irrigation with fresh water. In this connection it is also well to remember that to get the maximum benefits out of irrigation, systematic manuring of the palms is very necessary.

In the context of the present emergency which demands supreme efforts from everybody, be he a jawan fighting on the front lines, a worker in a factory or an agriculturist, coconut growers have a special responsibility to see that the production is raised to the maximum extent possible within a short time utilising all the means of production. Let us hope that the coconut growers will rise to the occasion and do their bit to strengthen the resources of the country.