

ADDRESSES DELIVERED AT THE OPENING OF THE COCONUT RESEARCH INSTITUTE PARASITE BREEDING STATION AT BATTICALOA

I. Address by Senator THOMAS AMARASURIYA, O.B.E., Chairman, Coconut Research Board

The Batticaloa District consists of 18,647 acres under coconuts out of a total acreage of 1 million acres for the whole island. Although the area under coconuts is not so extensive compared to that of the Kurunegala, Puttalam and Chilaw Districts, systematic coconut cultivation by the early Colonists in Ceylon was first commenced in the Jaffna and Batticaloa Districts in 1841 before the extensive areas in the Western and North Western Provinces of Ceylon were subsequently opened.

Some of the older generations of Batticaloa residents would remember the European planters who owned these plantations and were actually resident on their estates. In fact the Parasite Breeding Station and the Nursery which has been established in this district is on a portion acquired from Mylambavelly Estate which belonged to Mrs. Doudney, whom most of you will recollect till recently resided on her own property and was loved and respected by the people of Batticaloa.

It has been the policy of the Coconut Research Board, to establish Sub-Stations in different Coconut growing districts to solve local problems. We have Demonstration Centres in Pallai in the Jaffna Peninsula, Alampil in the Mullativu District, Mundel in the Puttalam District and the one at Mylambavelly where so far we have been having a coconut nursery to meet the demand for seedlings in this district.

In fact in 1953 the Coconut Research Board and the Scientific Officers visited the Batticaloa District and went round the estates and discussed problems of the Coconut Industry peculiar to the soil and climatic conditions of this area. I also understand that on that occasion the planters of Batticaloa extended very generous hospitality to the members of the Board.

While I am aware of the very difficult problems involved in the rehabilitation of the coconut industry of the Eastern Province, the main problem that has been endemic for a very long time has been the control of the Coconut Caterpillar pest which had established itself during some decades. Unfortunately, owing to limited finances, in the original set up

of the Coconut Research Scheme (now Institute) there was no provision for an Entomologist or a Pathologist, and work in this connection was referred to the Department of Agriculture, at Peradeniya. At that time and until recently the control of this pest depended on the breeding and release of one parasite *Trichospilus pupivora* which was bred at Peradeniya by the Entomologist and released as and when requests were made.

In 1956 a Crop Protection Officer was recruited to the staff of the Coconut Research Institute and work in connection with the breeding and release of parasites for the control of Coconut Caterpillar pest was taken over by the Institute. An Insectary was established at Bandirippuwa, but as remote control of pests from such a distance involved considerable practical difficulties, the Coconut Research Board decided to establish a Parasite Breeding Station at Batticaloa for the mass breeding and release of parasites.

It was in this connection that we appealed to the Government of India to release Mr. Edwin Dharmaraju, a fully qualified Entomologist, who had very considerable experience in this work in Andhra-Pradesh in India, where the Caterpillar Pest has been a major problem. In November 1960 under Colombo Plan Aid, Mr. Dharmaraju's services were made available to us by the Government of India for a period of one year and in a few months we established a Parasite Breeding Station in a rented house in Batticaloa. As the work expanded it was realised that the services of Mr. Dharmaraju should be extended for a further period and the Government of India kindly agreed to release him for another year during which period our officers were trained by him in techniques of breeding of parasites.

The Coconut Research Board made a further appeal to keep his services for a further year, but the Government of India, as a special favour, agreed to permit him to stay for a period of 6 months which terminates in May this year.

Besides *Trichospilus* the parasites generally used to control the pest, we have been getting a number of other parasites from India, the multiplication of which have been successfully accomplished by Mr. Dharmaraju. This station which I am now opening today will remain a momento to Mr. Dharmaraju, who was responsible for the entire organisation of this work in the Eastern Province. Mr. Dharmaraju has also carried out a survey of the indigenous parasites of this country and has submitted an interesting scientific paper on the subject, which we expect to publish in due course.

I feel confident that the planters of this district will extend their utmost co-operation to the officers in the control and final eradication of

the Caterpillar pest, and that smallholders as well as estate owners will not hesitate to make the fullest use of the services which the C.R.I. is prepared to extend to the cultivators of this Province.

It is my duty on this occasion to thank the High Commissioner for India for the assistance he has given in obtaining an extension of the services of Mr. Dharmaraju and for the Government of India for releasing his services for a period of 2½ years.

I should also take this opportunity of thanking Dr. Rao, the Head of the Commonwealth Institute of Biological Control, Bangalore Station, for assistance in obtaining supplies of parasites from India.

I would also wish to thank Mrs. Dharmaraju who has been a tower of strength to her husband. I understand from the Director that in the paper that he has submitted for publication all the drawings of the various parasites have been made by Mrs. Dharmaraju.

II. Address by Mr. EDWIN DHARMARAJU, Colombo Plan Entomologist

Mr. Chairman, Members of the Coconut Research Board, Planters of Batticaloa District, Friends :—

I have been asked to say a few words about the Parasite Breeding Station to be shortly opened by the Chairman of the Coconut Research Board, Senator Thomas Amarasuriya.

Coconut Palms are subjected to damage by various insect pests. Among the most serious of the caterpillar pests, is the leaf-caterpillar also known as the Black-headed Caterpillar of coconut. In really bad attacks by the caterpillar, whole groves may be affected. Damaged fronds turn grey and dry up and the attacked areas present a burnt-up appearance which could be easily spotted even from a distance.

The Coconut Caterpillar is one of the most serious pests of coconut palms in India, Ceylon and Burma. It was first observed in Ceylon, in the Batticaloa District, by one Mr. Green in 1900. It was again reported in the same district during 1906. During 1907, the pest made its appearance in small areas in Colombo District. By 1919, the Coconut Caterpillar became a menace in the Batticaloa District and was declared a major pest under the Plant Pests and Diseases Ordinance by September 1921. Since then, the pest has spread rapidly to the other provinces and today the pest is found spread all over the Eastern Province and parts of Northern, Southern, Western, North Western and Central Provinces.

Besides Coconut (*Cocos nucifera*), the caterpillar also attacks the Palmyra (*Borassus flabelliformis*), the Talipot (*Corypha umbraculifera*), the Wild Date (*Phoenix sylvestris*), the Kitul Palm (*Caryota urens*), the Cabbage Palm (*Oreodoxa oleracea*), the Doum Palm (*Hyphaene thebaica*) and certain ornamental species of Palmaceae.

The caterpillars live gregariously under galleries of silk and excreta on the lower surface of coconut fronds. Under cover of the galleries, the caterpillars scrape the green parenchyma of the leaves, reducing them to a thin parchment-like epidermis. When dry, the damaged portion is seen as a grey patch on the upper surface of the frond. During heavy infestations by the caterpillar, the entire leaves turn grey and these from a distance appear as though they have been burnt. In the Eastern Province during heavy outbreaks of the pest, except for 3 or 4 upper leaves, the rest are found attacked. Usually the caterpillar attacks only the leaves of the palm, but in some rare instances, especially in coconut estates towards Akkaraipattu in Eastern Province, we have found even the nuts being attacked by the caterpillar.

Infestation in young palms causes stunting in growth and delay in flowering. In grown-up palms, heavy infestation by the pest results in their bearing capacity being lowered in addition to the reduction in size of the nut.

In nature, there are two sets of opposing tendencies, namely the 'Biotic Potential' and the 'Environmental Resistance'. While the Biotic Potential tends to increase insect population, the Environmental Resistance tends to reduce it. These two forces lead to the maintenance of a dynamic equilibrium called the 'Balance of Nature'. When this Balance of Nature is upset due to the activities of man or otherwise, then there is a marked fluctuation in the population of the insect pest. Destruction of the natural enemies, is one of the important factors contributing to the weakening of the Environmental Resistance.

Spraying or dusting a coconut palm is neither easy nor economical. The height of the palm and the way the caterpillar pest is well protected and concealed in the galleries, are practical difficulties in the proper effect of the sprayed insecticide. There is also much wastage in the spray fluid. Even with the utmost care in spraying, a few numbers of the pest are liable to escape death, and these are enough to start fresh infestation all over again. In addition, they multiply far more rapidly, because of the fact that the natural enemies already present in the field have been destroyed by spraying. Repeated sprayings will therefore be necessary, which makes the cost almost prohibitive. Hence under these conditions, the biological method of control wherein the natural enemies, namely its parasites and predators, are used appears more effective and comparatively cheaper for the control of the leaf-caterpillar.

Fortunately, there are various parasites and predators which attack and kill the different stages of this pest. The new building of the Parasite Breeding Station, to be opened by the Chairman of the Coconut Research Board, will undertake large scale breeding of the different parasites

found effective in control of the caterpillar pest. Three Officers of the Coconut Research Institute, of whom two are graduates, have been trained during the last two and a half years in the techniques of breeding the parasites, release of parasites in the field, evaluation of population counts etc. The Officers are now fully trained in the work and are in a position to do the work independently.

The Coconut Research Institute has also imported exotic parasites and these are under multiplication at both the Stations at Batticaloa and Lunuwila. A survey of the pest and its parasites in Ceylon has been undertaken and completed. Planters are earnestly requested to be in close contact with the Parasite Breeding Stations at Batticaloa and Lunuwila and avail of the free service rendered by these Stations. It is my earnest hope that in the years to come the Stations at Batticaloa and Lunuwila will, in addition to the biological control of the leaf-caterpillar, undertake the biological control of the other important pests of coconut like the Red Weevil (*Rhynchophorus ferrugineus* F.), the Black Beetle (*Oryctes* sp.) and the Coconut Scale (*Aspidiotus destructor* S.) so that hazards to human lives in the country due to insecticides, might be reduced to a minimum.

I will be failing in my duty if I do not mention the help, cooperation and encouragement that has been extended to me, most generously, by Dr. M.L.M. Salgado, Director, Coconut Research Institute of Ceylon, since the day I stepped into this beautiful country. If I have achieved any success in my work during my stay in this country, the credit is entirely due to Dr. Salgado, the CRI and the Coconut Research Board.

I would also like to take this opportunity to thank my colleagues Mr. J.K.F. Kirthisinghe, Mr. U. Ekanayake, Mr. S.M.P. Subasinghe, Mr. P.A.C.R. Perera and Mr. J.G. Pinto for the whole hearted cooperation given to me during the period I have been with the CRI.

I once again thank the Chairman, Members of the Coconut Research Board, Heads of Divisions of CRI, Planters of Batticaloa and friends for having honoured us by your presence. Thank you.