

# REASONS FOR DECLINE IN COCONUT YIELD

In Sri Lanka coconut extends to about 422,000 ha, the main districts under coconut being Colombo, Gampaha, Kurunegala and Puttalam. When grouped under land sizes the majority comprises small holdings.

During the last 30 years the coconut production varied considerably. The highest recorded during this period was in 1986 which amounted to 3039 million nuts, while in 1987 this declined to 1937 million.

The main factors that contributed to this fluctuation was the beneficial well distributed rainfall as against the adverse effects caused by the prolonged droughts.

Although changes in climatic and weather patterns could be the principal causal factors to variation in yield, yet certain other important factors too remain that merit careful consideration.

One important factor is that many coconut lands are not properly managed, and presently the management skills in most lands are poor. It is regrettable to note that some lands are left neglected. Such lands are easily prone to drought effects. In lands where the management is satisfactory, the damage effects are reduced.

Irregular fertilizer application is yet another cause for poor yields. Most large and small coconut lands owners fail to apply the recommended fertilizers regularly. Infact the fertilizers recommended for application each year, are at times delayed for over two to three years, and in some lands fertilizers are not applied at all. Most land owners harvest the available nuts and make no attempts to increase productivity with fertilizer application and other related management practices. Land owners generally attribute such lapses to current price increases, in necessary inputs such as chemical fertilizers, and the inadequate returns in compared to the cost of such inputs.

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But most coconut growers fail to realise that collecting the available nuts without making available to the palm its basic requirements, retards the palm further, and thereby making the rehabilitation of such plantations much more difficult.

The use of locally available organic manure such as cattle and goat dung, poultry droppings, compost and green manure is an alternative to high costing chemical fertilizers which could rectify the growers present problems. It is also required to apply a small dose of chemical fertilizer with the organic manure to supplement the palms nutritional requirements. This is a low costing process which will also improve the soils physical conditions thus enriching the soil.

Leaves and loppings from nitrogen fixing plants such as Gliricidia and Ipil Ipil which are available in plenty, could be effectively supplied to coconut palms as manure. Gliricidia has been found to be more beneficial, easy to propagate and well adapted to dry conditions. Addition of 30 kg of gliricidia loppings per palm/year yields the palms entire nitrogen requirements plus 20% of potash and phosphorus. Nitrogen fixing cover crops like Pueraria, Centrosema and Calopogonium also produce large amounts of green manure.

Animal husbandry especially poultry farming has now become a popular cottage industry in most of the coconut growing areas. This makes considerable quantities of poultry droppings available. Application of the recommended quantities of the organic manure, and plant loppings are cheap and beneficial and therefore coconut growers should adopt this practice without neglecting fertilizer application in their lands with complaints on high cost of chemical fertilizers. Regular application of organic and green manures improve the land and consequently the profits, above average.

As coconut stay rooted in the same soil for 60-70 years and is planted for effective growth and satisfactory performance the grower is advised to draw special attention to the type and the quality of coconut seedlings (some characters of a good seedling are, stout stem, dark green & well-spread leaves, large number of roots and short petiole etc.) selected for planting as it is not easy to replace them like in short term crops. Therefore the growers are advised to plant only healthy coconut seedlings selected from the improved planting material such as CRIC 60 (Tall x Tall) as recommended by the Coconut Research Institute and never to use seedlings found elsewhere on the land or seedlings from heap germinations, as the growth of these seedlings and finally their performance cannot be assured.

Another contributory factor for the decrease in yield, is the lack of after-care and maintenance of young plantations especially between planting and the initial bearing stages. Growers mostly purchase and plant coconut seedlings during rainy season and neglect the

after-care especially in relation to fertilizer application, soil moisture conservation and the supply of water during dry spells. Under such circumstances the seedlings get weakened and casualties increase. The delay in the proper nourishment in coconut during the early stages will be badly reflected in flowering and the bearing stages of the palm.

The extensive cattle and goat damage to coconut seedlings has been observed. To keep these stray animals away growers should repair and maintain the boundary fences properly and erect protective covers for individual seedlings using coconut fronds etc. Coconut seedlings damaged by cattle and goats fail grow and the performance is much delayed.

Coconut palm for its satisfactory growth and performance requires a continuous supply of water. The productivity of the palm is mainly dependent upon the well distributed rainfall of the year, and therefore, a clear combination exists between rainfall and yield.



*Application of organic manure*

Prolong droughts retard the growth especially of seedlings and young palms, and the moisture stress affects the proper functioning, nut setting and growth of the palm. This also causes drooping of the fronds resulting in immature nut fall. Therefore the importance of soil moisture conservation in coconut lands is stressed. The adoption of the CRI recommended methods of soil moisture conservation is very necessary for the soil to absorb and store the as much as rain water and prevent evaporation by protecting the soil from direct sunlight. A number of methods of soil moisture conservation has been identified by the CRI and recommended for adoption by growers.

The use of coconut husks/coir dust is such a practice. This could be done either by providing husk/coir dust pits for individual palms or in pits opened between palms. The husk/coir dust should always be laid in pits alternating with layers of soil, and also it is important to note that husks/coir dust should not be laid above the ground level. The top layer of husk/coir dust should be well mounded with soil. This practice enables the conservation of water and make this water available to the palm throughout the dry spells through penetrating roots. In addition use of husk/s coir dust in pits adds organic matter and nutrients to the soil.

Another method in soil moisture conservation is the propagation of cover crops such as Calapo, Centro and Puerto. Cover crops once established yield may benefits. They protect the soil from direct sunlight, add large amounts of dry matter, check weed growth and improve the soil by enhancing the soils microbial activity.

Provision of a mulch around the base of the palm covering the manure circle is also an ideal method in soil moisture conversation. Coconut fronds, straw or weed trash could be used as material for mulching. This also checks weed growth on the manure circle.

Grower may adopt any of the above mentioned beneficial methods of soil moisture conservation, depending upon his financial limitations.

Details of all the CRI recommended soil moisture conservation practices are described in the CRI advisory circulars.

In order to protect the coconut plantation, and to maintain the income levels continuously or to increase productivity the attention of the growers is drawn to control of pests and diseases of coconut. Pests such as Black beetle, the Red weevil and Termites cause much damage to young coconut palms including seedlings. At times the damage caused is fatal. Therefore the growers are advised to be vigilant, and maintain satisfactory sanitary conditions in lands as prevention is far more better than cure. Thus saves time and unnecessary expenditure on agrochemicals etc. and ensures a healthy plantation.

Damage to nuts by mammalian pests like bats,rats, porcupines also cause reduction in yield. Bats and rats eat through the tender nuts and consuming the kernel and the water which are both tasty and flavourish. In some lands the damage is significant by the fair number of fallen tender nuts consequent to their damage. This causes severe drop in yield. Growers are advised to adopt effective control methods such as trapping, fixing bands on the coconut trunk and baiting. Bats could be driven away from their roosting sites by lighting crackers and scaring them.

In serious consideration of the factors described above it is hoped that the coconut growers would adopt the measures as necessary which will help to increase the national coconut production, and also contribute towards increasing profits of the coconut grower.