

DECISION MAKING IN REPLANTING OF COCONUT

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Rejuvenation at the proper stage when a plantation attains senility, is a basic requirement of any plantation crop in order to maximise profit from a given land area. However, it is an exception in the coconut sector that growers are reluctant to uproot a palm even when it attains senility and becomes less productive. This is due to the fact that coconut has a long juvenile phase and therefore the benefit from coconut takes long time. However the knowledge of effective

way of carrying out the replacement of senile coconut plantation is very important to maximize profit and minimize problems related to replacement. Therefore, our aim here is to provide farmers with background information underlying in replacing a senile coconut plantation in order for them to take their own decisions in replacing an old coconut plantation.

It is established that re-planting i.e. complete removal of old coconut palms before new seedlings are planted, is agronomically superior method in replacing a senile coconut plantation. This results in early flowering, early bearing, and an uniform plantation compare to the under-planting system. In this system new seedlings are planted among the old-stand that is removed in stages over a period of 5-6 years. However,

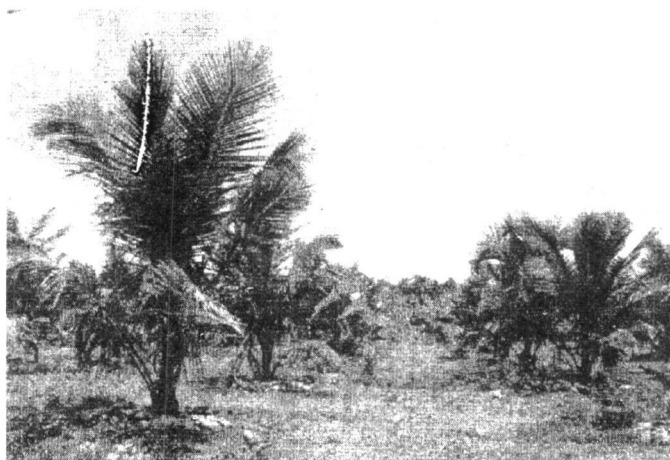


Fig 1. A replantation, where old palms are removed completely before planting seedlings

when economical factors are taken in to consideration, the continuous income from the old palms until the new palms bear, is an advantage in under-planting especially for the small holders. Therefore, even though most of the coconut growers are aware that re-planting is superior to under-planting with respect to the performance of the new plantation, the under-planting system is still the routine practice (Diagnostic survey of CRI, 1994). Therefore, growers who prefer under-planting should judiciously decide when to replace their palms. Most under-plantations become unsuccessful because they are carried out at the inappropriate stage. When a plantation is incorrectly taken for under-planting based on low productivity for example when what is actually necessary is rehabilitation, the old stand tends to show yield

improvement due to the care and maintenance given to the newly planted seedlings (i.e. application of organic and inorganic fertilizer, soil moisture conservation practices and irrigation etc.). This situation makes the grower reluctant to remove the old



Fig 2. An underplantation where seedlings are planted under the old stand

stand as per the recommendation. This is detrimental to the young underplanted seedlings due to the excessive shade from the old stand and too much of competition from the old stand for limited resources of soil moisture and nutrition resulting in an unproductive, weak and uneven underplantation. The occurrence of such plantations is very common and most often these under-plantations need complete replacement after several years. The diagnostic survey conducted by the Coconut Research Institute in 1994 revealed that 86.3% of the growers in the sample dropped out the coconut replanting subsidy scheme at the third installment stage due to their reluctance in removing the old stand.

If the correct stage of replacement of coconut plantation is identified, the problems related to under-planting can be minimized and also maximum return from old stand can be obtained. The economic life span of coconut is generally considered as 60 years and

therefore plantations, which have attained 60 years, can be considered for replacement. However, depending on the genetic potential of a particular coconut plantation, the soil type in which the palms are grown and level of management carried out in the past, the economic life span of coconut may vary from 60 years to 80 years or more. Therefore considering the age of palms alone in making decision in replacing a coconut plantation seems inappropriate.

The national average yield of coconut is 40/nuts/palm/year. Considering the cost and benefits of coconut planting, it is economically not viable to maintain a plantation if it fails to produce at least 2400 nuts/ha/year. However, decline in yield may be observed in plantations that are even below 60 years due to reasons such as long-term negligence and continuous exposure to adverse conditions (i.e. severe drought). If the yield decline is not due to senility, those palms are able to revive if improved management practices are followed. Therefore plantations of this nature should be carefully distinguished from old plantations and should be considered for rehabilitation. In case if under-planting were practiced in such lands, revival of the senile plantation would be obvious before long. Therefore considering yield alone is also not adequate in decision making for replacing senile plantation.

Consequently the two factors, the age and the yield both should be considered together in deciding when to replace an old stand. If the plantation is over 60 years and is producing less than 2400 nuts/ha/year, replanting could be under taken. If the plantation is senile, any management practices adopted to the young

plantation may not revive the old stand. The factors such as the height of the old palms that makes picking difficult, existing number of vacancies and severity of drought damage or damage due to long-term negligence can also be considered along with the age and yield in deciding when to replace old plantation effectively.

Planting should be carried out in a manageable area (i.e. 5-10 ha in a 50 ha estate) considering the resources available including the human resources and the infrastructure of the estate. If labour is not available for pest and disease inspections, weeding, mulching etc. and facilities are not available for irrigation during long drought, it is often better not to undertake re-planting or under-planting in large extents. Moreover, if a large area is already planted and is still in the seedling stage, it is worth concentrating on those plantations first until they are properly established before undertaking any more new planting. Planting in unmanageable areas often reports high casualty rates leading to replacement of seedlings over and over again. In the process of evaluating the staff of the estates, considerations should be given not only to the extent of planting but also to the rate of success of the planting programmes undertaken.

Filling of vacancies in coconut plantations may not be desirable after 5 years from establishment, as excessive shading from already planted seedlings tend to retard the growth of the newly planted seedlings. Vacancy filling should be done with the onset of monsoon in order to get maximum survival of seedlings. Within the first 5 years of establishment and in each monsoon, weak seedlings also should be identified and replaced with vigorous seedlings in order to obtain a uniform plantation.

In bare-root seedlings, roots are damaged when removed from the nursery and as a result, their water absorption ability is suspended temporarily. In contrast, there is minimum root damage when planting polybagged seedlings. Therefore polybagged seedlings establish well and grow vigorously in the field compared to bare-root seedlings and moreover, chances of survival of them in the field during rain free period are also comparatively high. Due to these facts, it is economical to adopt planting polybagged seedlings in replanting programmes despite of their relatively high cost.

Training for Coconut Growers

This is a rare opportunity for coconut growers to enhance their knowledge and skills on coconut cultivation and other practices. Seven one day training programmes are annually conducted on the following areas.

1. Planting of coconut.
2. Soil and moisture conservation.
3. Application of fertilizer.
4. Intercropping under coconut.
5. Pest and disease control.
6. Rehabilitation of low yielding palms.
7. Basics of coconut estate principles management and labour management.

Those who are interested in these training programmes may contact: Director, Coconut Research Institute, Lunuwila