THE MANURING OF UNDERPLANTED YOUNG PALMS *

By M. L. M. SALGADO,

Soil Chemist, Coconut Research Institute.

IN the rehabilitation of the coconut industry about which so much is being talked today replanting of senile plantations should be given priority.

The object of today's Field Day is to focus your attention on manurial problems of replanting and demonstrate the importance of systematic manuring of underplanted young palms.

PREPARING FERTILISER MIXTURES FOR EXPERIMENTS

When new plantations were opened up from virgin jungle you had a soil with reserves of fertility which the young palms could draw upon. Under such conditions, especially on deep alluvial soils, little manuring was required in the early stages to bring up young plantations to bearing in reasonable time.

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Where underplanting is done we are handicapped by a soil whose fertility has been tapped for perhaps 60 years or more, and it is futile to expect young plantations to flourish without systematic manuring. This is particularly true of neglected overgrazed plantations and eroded lands.

Seeing is believing and those of you who may have been sceptical about the necessity for manuring have seen the disappointing condition of the unmanured plots, sickly and yellowish, of poor girth and scanty crowns, with hardly any nuts although some of them have flowered. In contrast you have seen the palms systematically manured with a complete mixture—palms with well-formed crowns, healthy green foliage and heavily bearing bunches. You have seen Blocks No. 1 and 2 of the estate area producing crops of 3,000 nuts per acre per annum in the 13th year after planting.

PREPARING A MANURIAL RING

Systematic manuring of young palms should begin with the adequate manurial preparation of the planting hole. The planting hole should never be less than 3′×3′×3′—on hard lateritic and gravelly soils the extra money spent on a hole 4′×4′×4′ is a sound investment. Filling the planting hole with two layers of husks and *good top soil and ash* as described in our C.R.S. Leaflet No. 4 gives a good start to the seedling. On poor exhausted soils two basketfuls of well-rotted cattle manure or 10 lbs. of goat manure may be mixed with advantage.

On clay soils it is a good practice to mix the top soil with coarse river or sea sand to improve the texture of the planting hole. Water-logging of planting holes causes set back to the growth of seedlings.

With this treatment of seedling holes, further manuring is not regarded as necessary during the first year after transplanting. Moreover, during this period, the plant is supplied with reserve food materials stored in the seed-nuts from the husks, nitrogen and phosphoric acid stored in the kernel, besides which the oil of the kernel is converted into starch for the young plant before it commences to manufacture sufficient for itself. Although on newly cleared virgin jungle with reserves of plant food manuring may not be necessary in the second year, manuring of under-planted seedlings should definitely commence before the end of the second year.

In the case of young palms even more than for bearing palms, potash is of predominant importance. Nitrogen in excess in comparison with potash should be avoided as this makes the young palms susceptible to fungus pests such as *Pestalozzia palmarum* (Grey Blight) and *Helminthosporium incurvatum*, and allied leaf diseases. This was observed in our manurial experiment on young palms at Ratmalagara Estate this year.

Rates of Application.—The following basic mixture is suitable applied at increased rates with increasing age :—

Sulphate of ammonia or calcium cyanamide	2 parts
Saphos phosphate	2 „
Muriate of potash	3 „
	7 parts

2nd year	1½ lbs. per palm
3rd year	2 „ „
4th and 5th year	2½ „ „
6th and 7th year until flowering	3 „ „

On small-holdings and small estates where the use of artificial manures is not possible, the occasional use of kitchen ash combined with cattle or goat manure is to be strongly recommended. Half a kerosene tinful of ash increasing up to one tin after the fifth year, together with one basketful of well-rotted dung increasing up to four after the fifth year applied annually will be beneficial. Goat manure, if available, may be used instead of cattle manure, less being required, amounts of one-quarter of a basketful in the first year, to one basketful in the fifth year being satisfactory. Goat manure applied to growing palms should preferably be crushed if in the form of hard pellets. The ash should be well mixed up with the dung in order to prevent the breeding of coconut black beetle. Husk ash may be used instead of kitchen ash at the rate of 2 to 4 lbs. per palm.

If cattle or goat manure is not available, manuring with ash alone will be beneficial.

Method of Application.—In the early stages, until the stem is formed, manures should be applied close to the palm, up to a distance of 1 foot during the second year, and the soil turned with mamotties or mamotty forks. As the palms grow older the area round which manures are applied should be gradually extended.

After the stem is formed manures should be applied in a circular trench. To begin with the trench may be cut 2 feet wide at a distance of 2 feet from the palm. As the palm comes into bearing this may be extended to the usual manure circle 3 feet wide cut at a distance of 3 feet from the palm.

During the first 3 years the annual application may with advantage be divided into 2 doses applied once in six months.

Mulching.—Young palms are particularly susceptible to drought conditions and there is no better method of protecting young palms against drought than mulching with coconut husks round the palms up to a distance of 4 to 6 feet. A well-packed husk mulch effectively prevents weed growth round the palm. If coir dust is used for mulching seedlings, an area round the base up to six inches should be left unmulched. It has been noticed that when coir dust is in contact with the young leaf bases the latter tend to rot. Decaying leaf bases attract the Red Weevil in particular.

Removing the Old Stand.—As soon as the young palms flower the old stand of palms should be removed. However well manured the young palms may be they will remain unproductive if shaded by the old palms as light is essential for the synthesis of food in the leaves.

With today's prices there are many proprietors who hesitate to cut down old palms which carry even a few nuts. Enlightened planters should, however, take a long view and adopt a decisive policy of removing the old stand at least within three years from the time of flowering of the new plantation. Where the position of a seedling is in close proximity to an old palm it would be sound policy to remove the latter at the time of planting. Palms in active competition with the young palms should be given priority when removing the old stand.

Old palms with their more active root-systems rob the young palms of manure. In such cases the cutting of isolation trenches round the palms would be a good practice.