

USE OF CATTLE FOR ORGANIC MANURE



H. A. J. Gunathileka

Fertilizer is essential to increase coconut yields, and for this purpose, both organic and inorganic fertilizers are used. The latter is being used widely for purposes of convenience due to its availability, ease of application in small doses. However, the high cost of artificial fertilizer is the main problem. For example one single application of the recommended, 3kg of Q1 mixture annually costs as much as Rs. 8.31 for fertilizer alone, ex stores. This is without the transport charges. Therefore whenever possible attempts should also be made by growers to use organic manure, the commonest of which is cowdung.

Unlike other plantation crops, coconut plantations have space for cattle farming. Consequently 30% of our entire herd of cattle is concentrated within the coconut triangle. The benefits of cattle farming in coconut estates are, usage of available grass, as cattle feed, milk production, use of draught animals in estate transport, and availability of cattle manure.

It is a common practice in most of coconut estates to allow the cattle to graze by day and tether them in a shed by night, or else tether animals continuously on to some palms throughout the year. The cattle dung is collected into a pit and used as manure on coconut or any other crop. This method is not very satisfactory. Continuous tethering either on the same palm or palms tend to lower the coconut yields for the simple reason that the soil gets hardened and the roots get exposed. Also during rainy weather the cowdung is washed down and wasted.

Methods recommended

It has been the normal practice of the smallholder to cut a trench around the palm and tether cattle to manure palms. A manure basin is opened within six feet round the palm. Then two heads of cattle are tethered on to the palm continuously for 10 nights. Tethering is done in such a way so as to ensure that all droppings fall within the basin in the 6 ft. circle. This practice yields

about 70 kg of fresh cowdung over a 10 day period, which is equivalent to the urea content in the recommended dose of CU 1 mixture.

will be required only in small quantities, thereby reducing the cost to be spent on artificial fertilizer by 33%. According to the current ex stores prices, CU 1 application alone costs Rs. 8.31 per



Cattle Tethering in a coconut plantation.

However, cowdung will have to be supplemented with the required doses of Rock Phosphate and Muriate of Potash to give nutrients equivalent to CU 1 mixture. Accordingly 0.18 kg of Rock Phosphate and 0.75 kg of Muriate of Potash are mixed with cowdung and soil covered up. It is also very advisable to cover this manure circle with dried fronds or any dry other leaf matter. This method would be adequate once a year, and could be applied to the entire plantation throughout the year, except in the very dry months.

By this method a pair of cattle can supply manure for half an acre of coconut during a one year period. There are also coconut growers who do not own cattle, but use them on lease.

Benefits of this system

1. No urea will be necessary for manuring. Rock Phosphate and Muriate of Potash

palm. Cattle tethering will cost only Rs. 2.49 for supplementary fertilizer elements.

2. Cattle dung and urine will be fully utilized without any wastage.

3. Cattle dung improves the retention of soil moisture thus minimising drought effects.

4. Adverse effects arising from night tethering of cattle on the same palm, (such as hard pens, wastage of cattle dung, imbalanced distribution of plant nutrients) will be avoided.

5. This particularly beneficial for the small holder.

Problems and solutions

1. This method is not suitable for seedlings. This can be overcome by heaping

the cattle separately and applying individually in required doses. The doses vary with the age of the plants.

2. Hardening of the soil surface in clay and gravelly lands. In such lands cattle tethering can be practised once in 3-4 years.

3. Root exposure in sandy soils. This may be brought about by continuous tethering which might cause soil erosion. Soil left over after filling husk pits can be used to spread around such palms.

Comparative expenditure on manure applications.

| | | |
|-----|---|---------------------|
| (a) | Artificial fertilizer only (fork-in system). | |
| | CU 1-Cost of 3 kg ex stores | Rs. 8.31 |
| | Spreading and forking inside 6ft circle around the palm and setting | Rs. 2.00 |
| | Total | <u>10.31</u> |

| | | |
|-----|---|---------------------|
| (b) | Artificial fertilizer* only (trench system). | |
| | CU 1-Cost of 3 kg ex stores | Rs. 8.31 |
| | Opening manure trench in a 6ft circle around palm | Rs. 2.00 |
| | covering the trench | Rs. 1.25 |
| | Total | <u>11.56</u> |

| | | |
|-----|---|--------------------|
| (c) | Tethering of cattle for manure. | |
| | Opening of manure trench in a 6ft circle around palm. | Rs. 2.00 |
| | Cost of additional nutrients ex stores (0.18kg of Rock Phosphate and 0.75kg of Muriate of Potash) covering the trench | Rs. 2.49 |
| | | Rs. 1.50 |
| | Total | <u>5.99</u> |

(Cost of transport of manure has not been taken into account. Labour wages vary according to localities. The rates mentioned here were obtained from coconut growers in the Gampaha District).

It will be seen from the above figures that tethering of cattle on to coconut palms together with addition of supplementary nutrients, reduce the expenditure of manuring by 50% than in case of the two artificial fertilizer application practices explained. (However, bulkiness of cowdung will have to be considered).

*This method is recommended only for gravelly and slopy lands.