

# TEA RESEARCH INSTITUTE OF SRI LANKA

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## GUIDELINES FOR TEA AND COCONUT INTERCROPPING

*(This guideline replaces Guideline issued on 26<sup>th</sup> April, 2000)*

Intercropping of tea and coconut is considered feasible in the mid and low country, in the agro-ecological regions, WM1, WM2, WM3, WL1 and WL2, where conditions are conducive for the cultivation of both these crops.

The main objective is to enhance productivity of land.

### 1. Intercropping procedure

Coconut should be planted in an avenue system. The recommended spacing between avenues is 12 x 7.8 m (40 x 26 ft). According to this system of planting density of coconut is 102 palms per ha (42 palms per acre).

The tea should be intercropped in the avenues of coconut leaving at least 2.4 m (8 ft) for the manure circle of coconut. The spacing of tea can vary from 1.0 x 0.6 m (3.5 x 2 ft) to 1.2 x 0.6 m (4 x 2 ft) depending on the growth habits of tea cultivars.

The details of number of coconut palms and tea plants under different spatial arrangements are given in Table. 1. In order to avoid excessive shade on tea, it is suggested that wherever possible coconut be planted in the East-West direction. Fig. 1 illustrates the spatial arrangement of the tea and coconut intercropping.

Table 1. Plant density of tea and coconut under different spacing arrangements

Coconut		Tea		
Spacing	No. of Palms	Spacing	No. of rows within a coconut avenue	No. of Plants
12.0 x 7.8 m	102/ha	1.2 x 0.6 m	7	9,280/ha
		1.0 x 0.6 m	8	10,600/ha
40 x 26 ft	42/ac	4 x 2 ft	7	3,820/ac
		3.5 x 2 ft	8	4,370/ac



## 2.4 Planting holes

For loamy/clay loam soil

0.9 x 0.9 x 0.9 m (3 x 3 x 3 ft) (CRI Advisory Circular No. A 3)

For shallow and gravelly soil

1.2 x 1.2 x 1.2 m (4 x 4 x 4 ft)

## 2.5 Cover crops

Establish *Calopogonium mucunoides* (Calopogonium), *Pueraria phaseoloides* (Pueraria) or *Arachis pintoii* along the coconut avenues. Ensure that the cover crops are maintained within the coconut area (CRI Advisory Circular No. A 10) *i.e.* without spreading into tea area.

## 2.6 Fertilizer application

As per CRI recommendation, it is necessary to use an extra dose of dolomite or kieserite at the rate of 1 kg per palm (CRI Advisory Circular No. A 5).

## 2.7 After-care

As per CRI recommendations in Advisory Circular No. A 4.

## 3. Planting of Tea

### 3.1 Soil conservation and land preparation

As per recommended practices (Handbook on Tea and TRI Field Guidebook)

### 3.2 Soil rehabilitation

If the soil conditions are marginal (less than 90 cm soil depth, more than 20% gravel content and less than 2% soil organic carbon content) or if the soil is infested with nematodes, soil rehabilitation with Mana grass for a minimum period of 18 months is recommended. Alternatively, CO3 grass (Hybrid Napier) can be planted for a period of 12 months. When coconut and grass are planted simultaneously, it is recommended to cut a 1 x 1 ft (0.3 x 0.3 m) trench, 6 ft (1.8 m) away from the coconut tree and plant grass in between two trenches as shown in Fig. 2.

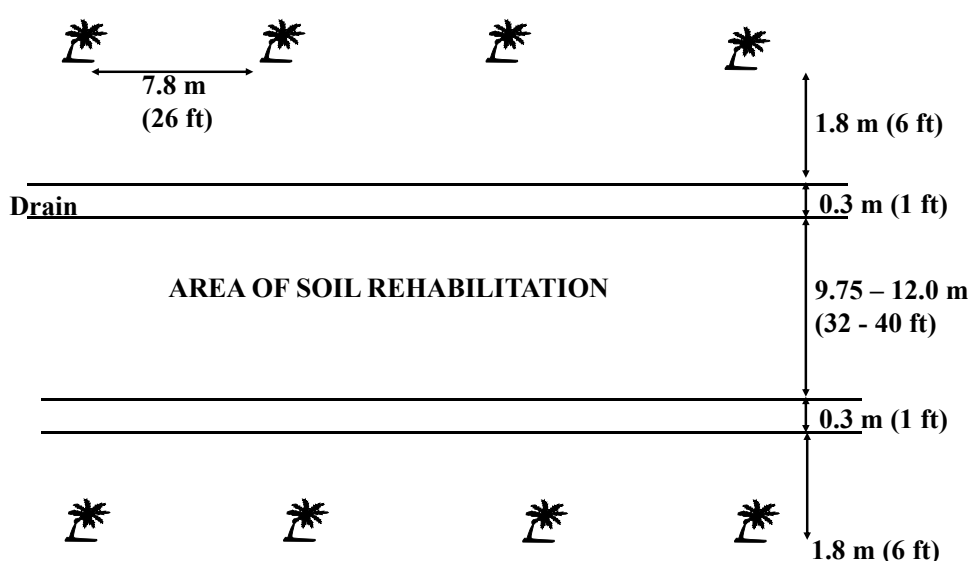


Figure 2. Area demarcated for soil rehabilitation in coconut avenue

### **3.3 Establishment of shade**

Establish one row of *Gliricidia* at the spacing of 3.6 m (12 ft) in the middle row of tea along the coconut avenue as shown in Fig. 1.

### **3.4 Cultivars**

Use recommended cultivars for the region, depending on the soil and climatic conditions (TRI Advisory Circular PN 1).

### **3.5 Spacing**

1.0 x 0.6 m (3.5 x 2.0 ft) - For cultivars with erect growth habit, eg. TRI 2043, TRI 4049, S 106, DG 7 and DG 39.

1.2 x 0.6 m (4.0 x 2.0 ft) - For other cultivars with spreading growth habit.

### **3.6 Planting holes/trenches**

Holes: 45 cm (18 inches) deep with a top diameter of 30 cm (12 inches) and bottom diameter of 22.5 cm (9 inches).

Trenches: 45 cm (18 inches) deep and 30 cm (12 inches) wide.

### **3.7 Time of planting, and Pest control**

Planting of tea should be done with the onset of South-West monsoon rains (May/June).

For nematode prone areas, a suitable nematicide may be applied as per the TRI Advisory Circulars No. PU 4 and PM 4.

For White Grub prone areas, preventive measures need to be taken as per recommendations in the TRI Advisory Circulars PU 4 and PM 7.

### **3.8 After-care**

#### **3.8.1 Thatching**

Thatching should be done soon after completion of planting tea and repeated before the tail end of the monsoon. Care should be taken to keep thatch material (Mana, Gautemala, CO3 grass) 15 cm (6 inches) away from the collar of the tea plant.

#### **3.8.2 Weed management**

Manual weeding is preferred.

#### **3.8.3 Fertilizer application**

Fertilizer applications should be done according to TRI recommendations (TRI Advisory Circular Nos. SP 2, SP 3, SP 6 and SP 10).

#### **3.8.4 Bringing into bearing**

As per recommended practices (TRI Advisory Circular No. PA 1).

## **4. Intercropping tea in existing Coconut lands**

Lands presently under coconut may be inter-cropped with tea, provided that the soil and weather conditions are conducive for tea. The coconut palms should be over 35 years to allow sufficient sunlight falling on tea. Soil rehabilitation is essential for marginal lands with

compacted soil. Furthermore, planting tea in trenches of 30 cm (1 ft) wide and 45 cm (1.5 ft) deep is preferable. A shallow trench of 30 x 30 cm deep (1 x 1 ft), 1.8 m (6 ft) away on either side of coconut rows should be cut to minimize any adverse effect of rehabilitation grass on growth of coconut.

#### **4.1 Planting arrangement**

To avoid competition, tea should be planted at least 2.4 m (8.0 ft) away from the coconut palm. Two systems of planting can be adopted for planting tea in existing coconut lands.

- a) Planting tea only in the avenues of coconut  
In this system, tea is established only in the inter-rows of coconut. The spacing can vary from 1.0 - 1.2 m (3.5 - 4.0 ft) between rows and 0.6 m (2.0 ft) within the row depending on growth habit of tea cultivars (*see* section 3.5 above).
- b) Planting tea in the entire space between coconut palms  
In this system, tea can be planted at a spacing of 1.0 x 0.6 m (3.5 x 2.0 ft) or 1.2 x 0.6 m (4.0 x 2.0 ft.) covering the entire space in the coconut square leaving a radius of 2.4 m (8.0 ft) from the coconut palm.

#### **Other considerations**

- 1) In order to allow movement of carts and tractors *etc.*, it is advisable to leave one coconut avenue for every 5 to 6 avenues without planting tea.
- 2) In coconut plantations with irregular spacing, it may not be possible to plant tea in a systematic manner. In such lands tea should be planted in the space available after leaving 2.4 m (8.0 ft) from the coconut palm.
- 3) All cultivation practices and after-care for both tea and coconut should be carried out according to TRI and CRI recommendations. It is advisable to consult relevant Advisory and Extension Officers for necessary assistance.

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