# USE OF HUSKS AND COIR DUST IN COCONUT LANDS

Traditionally, husks have been used in pits for moisture conservation. In well-managed highly productive estates, all available husks are generally buried in pits or in trenches in the proximity of the palms.

Husk burying is undoubtedly one of the most effective ways of conserving soil moisture, thereby alleviating drought effects. Recent experiments have shown that both husks and coir dust could be used in pits for moisture conservation. This circular gives details of the use of husks and coir dust in moisture conservation in coconut lands.

Properties of husks Husks have manurial and other properties. The main constituent of husk is potash. On an average, about 100,000 husks contain potash equivalent to 1 MT of muriate of potash. This potash is in a readily available form. However, soaking, retting or prolonged exposure to rain will remove a large part of this soluble potash source.

Husk acts like a sponge and can absorb and retain about six times their own weight of water, which will be conserved for dry periods.

Husks break down slowly. Thus its moisture conservation ability will be available for a period of about 3 to 4 years. As they decompose, husks improve the soil structure, adding organic matter to the soil and increasing water retention.

Burying of husks induced an increase in coconut yield in both sandy and gravelly soils but the benefits were more in sandy soils.

Properties of coir dust Coir dust has the ability to absorb and retain ten times its weight of water. Thus it can conserve more moisture than husks. Coir dust takes about 8 to 10 years to decompose, and would improve the soil physical conditions.

Although coir dust is relatively low in nutrients, its low cost compared to husk makes it an ideal material for burying.

Burying of coir dust increased the coconut yield in both sandy and gravelly soils, but the benefits were more in gravelly soils.

**Methods of husks/coir dust burial**

Traditionally, these materials have been buried in pits and trenches. Available experimental data and other observations indicate that husks and coir dust could be buried in several ways.

Ideally, material should be buried about 1 m deep so that the roots of the palm which are distributed in the first meter of the soil can take the full benefit of the moisture conserved in them. However, in hard soils such deep pits may cost more, and the grower should exercise his discretion on the depth of the pit.

The following systems may be used to bury husks and coir dust :

A. Pits

1. Pits Pits of the size 2.5 m long, 1.2 m wide and 0.6 m deep (8' X 4' X 2') can be established between two palms (Fig. 1 a).

2. Alternatively, pits could be provided for individual palms just outside the manure circle (about 2 m away from the bole). In such instances, the size of the pit can vary, but it is advisable to maintain a depth of about 0.6 m (2'). A convenient size is 1 m X 1 m (3' X 3') at the edge of the manure circle (Fig. 1 b).

3. Another method is to make a trench, 0.6 m (2') deep and 0.6 m - 1.0 m wide (2' - 3') in a quarter of the circle just outside the manure circle around the palm (Fig. 1 c).

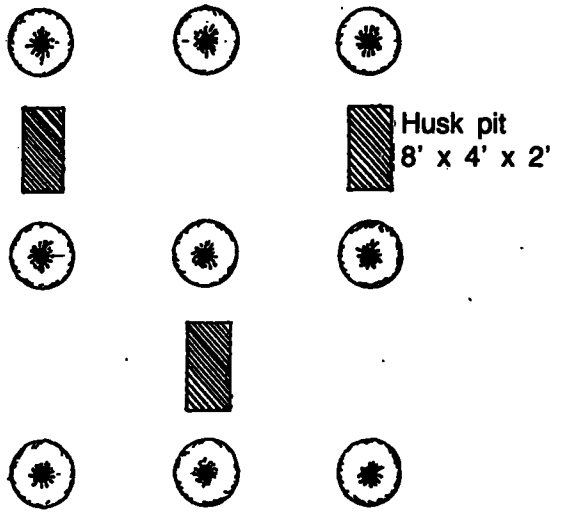


Fig. 1a

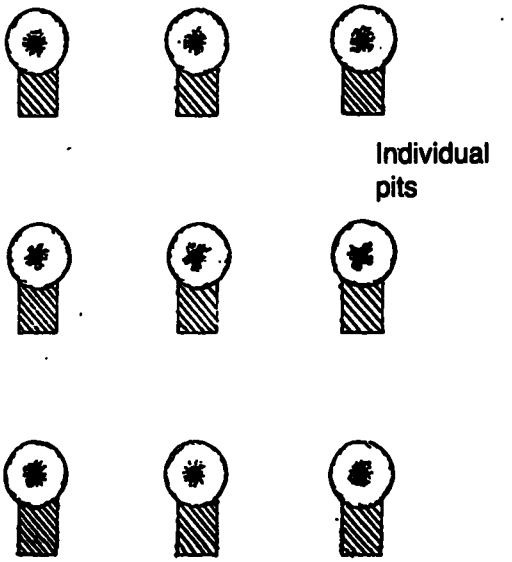


Fig. 1b

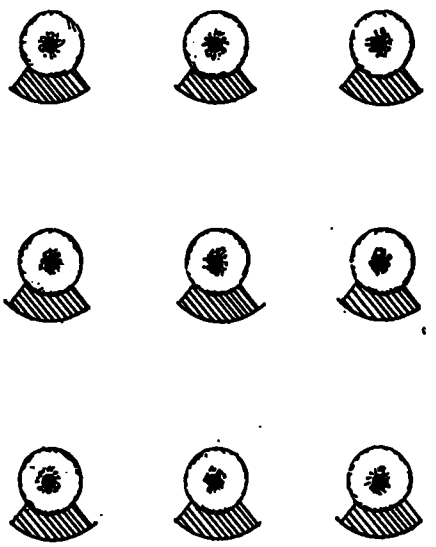

Fig. 1 c 1/4 circle husk trench

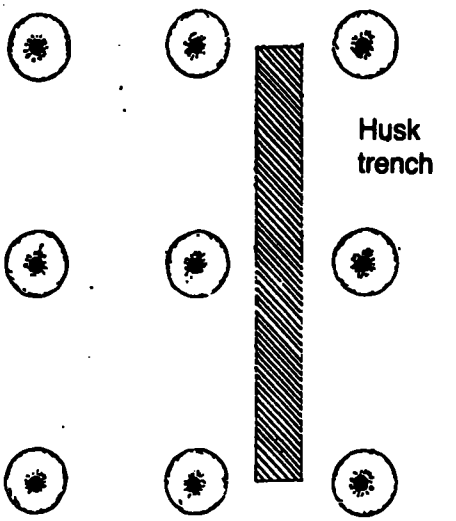


Fig. 2

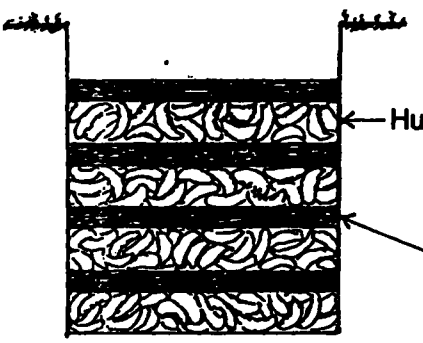


Fig. 3a Husk Pit

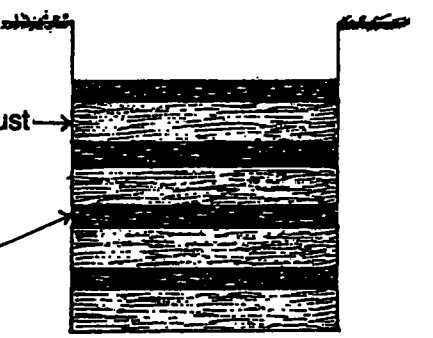


Fig. 3b Coir dust pit

## B. Trenches

Trenches take a large quantity of husks, and are ideal for highly productive estates with plenty of husks. Husk trenches may be dug along the centre of each alternate avenue, the adjacent avenue being left for the passage of carts etc. The trenches should be wide, about 1.5 m or more (5') and at least 0.6 m (2') deep (Fig. 2).

The requirement of husks for one cubic meter is 250 - 300 (about 7 to 8 husks for one cubic foot).

**Placement of husks/coir dust in the pits/trenches**

Husks Husks should be arranged in layers alternating with layers of soil, so that coconut roots grow into them and tap the moisture conserved therein.

Traditionally, each layer of husk is placed with the spongy concave side facing upwards. However, there is no particular advantage in systematically arranging husks in this manner so long as each layer is covered by earth. The pit / trench is filled so that the last layer of husks is flush with the ground level and the balance of earth is mounded on top. Husks should never be heaped above the level of the ground as they can be exposed subsequently, attracting black beetles to lay eggs in the decomposing husks.

A cross section of a husk pit / trench is given in Fig. 3 a.

Coir dust Coir dust should be buried in layers, each layer about 7 to 8 cm (3") thick alternating with 5 cm (2") thick layer of soil. The quantity of coir dust required to maintain this thickness of the layer varies with depth due to the weight of soil. For example, in a pit of 2.5 m X 1.2 m x 0.6 m (8' X 4' X 2'), the bottom-most layer needs about 12 baskets and the upper layers require about 8 baskets.

Coir dust should not be buried alone without alternating with soil layers.

A cross section of coir dust pit / trench is given in Fig. 3 b.

**General remarks**

1. Husks and coir dust should not be buried in areas subjected to water-logging.

2. Since the pits / trenches are a source of moisture, cover crops could be established on them easily. In fact, it is recommended that cover crops are grown on them to improve soil nitrogen levels.

3. In order to optimize labour use, pits/trenches could be dug during the inter-monsoonal period, as the labour is otherwise engaged during the two main rainy seasons. Avoid soil excavation in extreme dry weather.

4. Husk/coir dust burying should be a continuing programme in the estate. In the cycle of cultivation, trenches / pits can be established in alternate positions.

In instances where individual pits have been provided to the palm, the next pit could be opposite the previous one. Where quarter circle trenches have been provided around the manure circle of the palm, the entire circle can be completed in seven years.