Cocoa or *Theobroma cacao* can be grown either from seeds (seedling cocoa), cuttings (clonal cocoa) or from grafted/budded plants. Seedlings have a tap root system and are recommended for hillsides and in areas with very dry conditions. They may also be grown on flat areas. Clones however, have a fibrous root system and are therefore recommended for flat areas.

**RECOMMENDED HYBRIDS**

Use Trinidad Selected Hybrids (TSH) to produce a good cocoa crop. These are early bearing, high yielding, tolerant to the major diseases of cocoa, have a low pod index (more beans from less pods), large beans and possess Trinitario fine or flavour profile (figure 1).

**PLANTING**

Planting should be done at the beginning of the wet season. This would give the plants enough time to establish themselves before having to cope with the limited water supply during the following dry season.

Dig holes approximately 0.4 m x 0.4 m x 0.24 m (1½ ft. x 1½ ft. x 10 inches) deep. Mix the removed soil with well-rotted manure (2 parts soil: 1 part manure or 2 parts soil: 0.1 kg (¼ lb) 12:24:12 NPK fertilizer). Refill the hole with the mixture when planting.

When transplanting from bags, water the plants thoroughly before moving them into the field. Make sure that the soil around the plant roots is not shaken loose during the transplanting process. For seedling plants, the tap root should not be bent or twisted at the time of planting. If this is allowed to happen the mature plant would be physically weak.


**FERTILIZING**

Heavily shaded fields do not respond as well to fertilizer as fields with minimum shade. Fertilizer use is recommended for close spaced systems e.g., 1.8 m x 1.8 m (6 ft. x 6 ft.) using high yielding TSH varieties with minimum overhead shade.

Use fertilizers as recommended based on the results of a **soil test**. Use Nitrogen, Phosphorus and Potassium (NPK) fertilizers if the soil is lacking in these nutrients.

The amount and type of nutrients required vary with the age of the plant.

**GENERAL RECOMMENDATIONS**

a) **Newly Transplanted Cocoa:**
   Newly transplanted young cocoa plants require phosphorus for good root development. If the soil test shows that the soil does not have enough phosphorus, use a NPK fertilizer high in phosphorus, for example 12:24:12 at the rate of 0.1 kg (¼ lb) per plant.

b) **Young Trees (1-3 years):**
   If the soil is lacking in nitrogen, young trees should receive two applications of a fertilizer high in nitrogen for development of shoots. For example, apply 30:10:10 NPK fertilizer at the rate of 0.2 kg (½ lb) per tree, twice per year for the first three years.

c) **Actively Growing Trees (over 3 years):**
   If the soil is lacking in nitrogen, apply a fertilizer with a high percentage of nitrogen such as 30:10:10 NPK fertilizer at the rate of 0.2 kg (½ lb) to 0.4 kg (1 lb) per tree twice per year.

d) **Flowering and Fruiting Trees:**
   Flowering and fruiting trees have a high requirement for Nitrogen and Potassium. If these are lacking in the soil, a fertilizer such as 16:8:24 NPK is recommended at the rate of 0.4 kg to 1.2 kg (1-3 lb) twice per year.

**FERTILIZER PLACEMENT**

For young cocoa plants, fertilizers should be placed in circular bands around the trees, 5.1 cm - 10.2 cm (two to four inches) away from the plant.

As the plants mature, the fertilizer should be applied in circular bands located further away from the trunk at the drip circle (**figure 3**). In mature fields, it is best to broadcast fertilizer on the soil surface throughout the field.

**TIMING OF FERTILIZER APPLICATION**

Ideally, fertilizers should be applied to young cocoa plants in three to four applications per year. However, two well-timed applications will make the exercise less costly. One application can be made at the beginning of the rainy season and the other three to four months later.

**WEED CONTROL**

Young cocoa plants are extremely sensitive to competition from weeds (**figure 4**). Control weeds to reduce competition for nutrients and promote the growth of young cocoa plants. Weeds cause the greatest problems in the first three years after transplanting. During this time, remove weeds from around the young plants three to four times per year or as often as possible.
**Methods to Control Weeds:**

- Control weeds manually by brushcutting or by using herbicides.

- Non-selective herbicides can be used to control both grasses and broad leaf weeds. Avoid the herbicide drifting on to the cocoa plants.

- Selective herbicides could also be used to kill the grasses only. They would not harm the cocoa plants.

- In a well-established mature field under the close-spacing system, the carpet of fallen dead leaves and the shading of the ground by the cocoa trees control the growth of weeds.

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**PRUNING**

Pruning involves the removal of unwanted shoots and branches. This is necessary to allow easy movement through the field and to improve production. Keep the branches that contribute to the production of pods and prune the others.

**SHADE MANAGEMENT**

A 70% shade is best suited for the early growth and development of the young cocoa plant. This should be gradually reduced to twenty-five percent for trees over five to seven years old.

Two types of shade trees are used in cocoa:

- Temporary shade and,
- Permanent shade

**Temporary shade** can be provided by food crops such as bananas. Maintain temporary shade for a period of about one to three years.

**Permanent shade** forms a canopy over the mature cocoa plants. Immortelle, timber trees and fruit trees can be used. They should be planted at least one year before the young cocoa trees are planted.

**DISEASE CONTROL**

Two common diseases of cocoa are Black Pod and Witches’ Broom. These can be managed by using measures to reduce moisture in the field.

**HARVESTING, FERMENTATION AND DRYING**

The harvesting period is from November to April. Harvesting involves the removal of fully mature and ripe cocoa pods from the trees and should be done at least once per month. Extract the cocoa beans and allow them to sweat for 6-8 days. “Sun dry” the beans after fermentation.

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6. Witches’ Broom Disease of Cocoa - Coc/TT: Ag Ext 97: 06
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