FERTILIZATION

• A separate fertilization for the stands of coconut and the cacao crop is recommended

1. Using the combination of single fertilizers (ammonium sulfate plus common salt (for potassium rich soils) or postassium chloride (0-0-60) for soils deficient in K; and

2. Using ready-to-apply multinutrient fertilizers (14-5-20-0.02 (B)) now available like COCOGRO (ATLAS Brand) in 25kg capacity bags.

• These two fertilizer recommendations are compatible with the application of appropriate organic fertilizers (compost, coco peat, commercial organic fertilizer). Organic fertilizer should be applied about a month ahead of the application of the inorganic/mineral fertilizers.

• Organic fertilizers serve best as soil conditioners and fertilizer supplements to the coconut-cacao cropping system.

PESTS AND DISEASE MANAGEMENT

1. Plant recommended high yielding and pest resistant varieties
2. Early bagging of young fruits (battery-size)
3. Field sanitation and regular pruning done to clean the area and eliminate the dwelling place of the moth and other insects and diseases
4. Apply or spray with combination of insecticides & fungicides

OTHER CONTROL MEASURES

• Frequent harvesting of ripening pods and splitting as soon as the pods are harvested

• Shredding of pods husks – mechanically destroys kills off the pod borer larvae and grinded husks can be used as mulching and organic fertilizer

• Keeping of alternate host plants out of the farm – elimination of other plants that will serve as hiding and breeding places for pod borer

FERMENTATION AND DRYING

• Fermentation is done to produce beans of good quality, meaning, the color and aroma of the beans are improved.

• Beans are placed in wooden boxes or rattan baskets for 6 days. The desired temperature ranges from 100-120 °F (34-48 °C)

Sorting, Grading and Bagging

• Sorting and grading will enhance bean quality

• Foreign materials, clumped, infested and broken beans are removed

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• Small and partially fermented beans are set aside

• Classified beans are then bagged and weighed.

Reference: Department of Agriculture
Region XI
GMA – High Value Commercial Crops Program

CACAO PRODUCTION

Prepared by:

City Agriculturist Office
113 Pichon St, Davao City
Tel # 228-6582;228-6385; 228-6395

Farmers' Information and Technology Services (FITS)
Tel. No. 282 – 1943
E-Mail Add.: cityagriculturistoffice@ymail.com

INTRODUCTION

Cacao, (Theobroma cacao L.) is a tree crop which is highly suitable or compatible under different production systems (monocrop, intercropping and agro forestry).

It is grown mainly for its beans, processed into cacao powder, cake and cocoa butter. Largely used in the manufacture of chocolates, soups, cosmetics, shampoo and pharmaceutical products.

MAJOR VARIETIES OF CACAO

- Criollo – superior quality and relatively susceptible to pest and diseases
- Forastero - high yielding variety with round pod and thick-walled which turn yellow when ripe and has a flat, violet seeds, one group of forastero is Amenolado, which is more genetically uniform
- Trinitario - a hybrid between Criollo and Amenollado
- Brazilian Hybrids – include Upper Amazon x Amenolado and Upper Amazon x Trinitario
- Malaysian Hybrids

RECOMMENDED HYBRIDS

1. UF 18
2. BR 25
3. PBC 23 Malaysian Hybrid
4. F1 Hybrid

SOIL AND CLIMATIC REQUIREMENTS

Ideal pH is 6.5, but can tolerate to pH 5.5 to 8.0

- Type 4 Climate is ideal
  Grow in areas with temperatures ranging from 19°C (highlans to 32°C (coastal areas).

LAND PREPARATION

- Clear, underbrush and remove all stumps
- Plow and harrow thoroughly
- Coconut areas could be intercropped with cacao if coconut trees are already tall

ESTABLISHMENT OF ROAD AND DRAINAGE NETWORK

- In large farms, roads should be a major consideration and spaced 200 meters apart
- Drainage is important in farm as conveyance for excess water that could uproot cacao tree and wash away topsoil
- In sloping and hilly areas, drainage canals may not be necessary
- Spacing distance and dimension of canals and slope gradient depends on the topography of the area.

CLIMATIC NEEDS FOR GROWING CACAO UNDER COCONUT

Factor	Coconut	Cacao
Altitude (m above sea level)	Less than 600	Up to 800
Temperature (°C)	24 – 29	18 – 32
Light	>2000 sunshine hours/year	Shade-tolerant crop
Total annual rainfall (mm)	1500 – 2500 (well distributed)	1250-2800 (w/o any drought exceeding 3 months)

SOIL REQUIREMENTS FOR CACAO

UNDER COCONUT

- In a small farm or a plantation, different recommended high yielding varieties may be grown at the same period.

Soil Condition	Coconut	Cacao
Soil Depth	> 75	> 1500
Drainage	Moderate to well drained	Well-drained
Soil Acidity (pH)	5.5 – 7.5	5.5 – 7.5
Soil Texture	Sandy, loamy, clayey (with good structure)	Sandy, loamy, clayey (with good structure)
Organic matter content	Medium to High	Medium to High
Major Nutrient	N, K, Cl, S, P, Ca, Mg, B + trace elements	N, P, K, Ca, S + trace elements (Mo, Mn, B, Cu, Zn, Fe)

Under Monocropping System:

- A 3 m x 3 m triangular spacing (1,241 plants/ha) is desirable to be grown.

Planting System

- 1 ha. needs approx approx. 100-135 coconut + 600 cacao trees
- TRIANGULAR (HEXAGONAL) (2.75m x 2.38M) (1 ha. needs 1527 cacao + 1000 cassava hills)

PLANTING OF SHADE CROPS

In the initial years of Cacao establishment, shade crops ("nurse crops") like coconut, banana, fruit trees, cassava and other comparative crops is desirable; under coconut cacao monocropping system, shade trees are later pruned.

CACAO INTERCROPPING SYSTEM

1. Cacao + cassava + corn under coconut
2. Cacao + banana + fruit trees under coconut

PRUNING

Proper and timely pruning is required

1. To train, shape and achieve economical tree height; have adequate air circulation and sunlight penetration within the crop;
2. To minimize incidences of pest and diseases; and
3. To produce higher and quality yields