



## COFFEE PRODUCTION GUIDE

### INTRODUCTION

One of the highly traded commodity aside from oil is coffee. But only tropical countries like the Philippines can produce it, for coffee plants require good air circulation and moisture.

Major coffee producing areas in the Philippines are the Southern Mindanao, Northern Mindanao and Southern Tagalog.

### AGRONOMIC CHARACTERISTICS

Coffee trees require a rich, moist, loose, well drained soil, best composed of organic matter, decomposed mold, and disintegrated volcanic rock, a well-distributed rainfall of about 40 to 70 inches annually with peak wet season; high humidity; seven hours of sunshine daily; and plenty of mist and moderate winds.

Coffee trees vary greatly in sizes from dwarf trees to thick-trunk forest giants twenty feet or more in height.

Generally they are restricted to areas with a medium average annual temperature of 70°F, not lower than 55°F and much above 80°F.

### VARIETIES

Arabica, Robusta, Excelsa, Liberica

### SEED PROPAGATION

1. Coffee is grown from seeds.
2. Gather seeds from disease and pest-free, high yielding trees.
3. Grow coffee plants in the nursery to produce better seedlings. The nursery should be located in the plantation or nearby and accessible to water supply;
4. Three-fourth kg (i.e 750 gm) of quality seeds is enough to plant a hectare;
5. A 50% allowance of seeds must be considered for un-germinated seeds, poor seedlings and for replanting.

6. Select viable seeds, stir berries in a bucket of water and remove floaters. Those that sink are the good ones.
7. Remove pulp by hand or pulping machine, then soak the beans in water for 24 hours to hasten the removal of mucilage;
8. Wash beans and discard. Air-dry in well-ventilated room for at least 4 days.
9. Keep dried parchment in cool dry place or mix with charcoal to preserve its viability;
10. Germination bed must be 1 meter wide and of convenient length. To avoid flooding, raise bed 15 cm from ground level;
11. A 1 x 20 m plot can accommodate one ganta of seeds;
12. Sow seeds on shallow rows at  $\frac{3}{4}$  inch deep and cover with fine soil.
13. Water seedbed regularly but not too wet and partially shade plants from sunlight;
14. Thin out prick seedlings (transplant to another seedbed/plastic bags) or when 2-3 pairs of leaves have developed.

## VEGETABLE PROPAGATION

1. Coffee can also be propagated asexually;
2. Clone is used for coffee propagation. It is a part of plant that is made to reproduce an offspring which carries all the qualities of its parents.
3. Split lengthwise into two halves of a finger sized vertical shoot of about one foot long with 4-6 nodes to produce a clone. Partially cut leaves before splitting;
4. Set nodal cutting in germination box 1x2 inches apart and 1 inch deep, then place boxes in germination chamber. Nodal cuttings will produce roots and shoots within 45 days.
5. Prick seedlings into individual plastic bags with soil. Full grown seedling with 4-6 pairs of leaves could be attained within 6-8 months.
6. Coffee plants raised from nodal cutting bear fruits 18 months after transplanting, earlier than plants grown from seeds.

## ESTABLISHMENT OF PLANTATION

Intensive clearing is necessary for newly opened areas (forest area). Plow and harrow twice open filed to check weed growth. Mark places where holes are to be dug. Recommended spacing are as follows:

Variety	Distance in Meters	
	Single Row	Double Row
Arabica	3 x 1 to 3 x 2m	2 x 2 x 2 x 3m
Robusta	3 x 1.5 to 3 x 3m	2 x 2 x 2 x 4m
Liberica & Excelsa	4 x 5 x 5.5 m	

## TRANSPLANTING

Coffee seedlings are ready for transplanting when 6 pairs of leaves have been fully developed and with no lateral branches yet. Dig holes and transplant in the field at the start of the rainy season. This will give sufficient time for young plant to establish roots before dry season sets in. Dig hole wide and deep enough to accommodate ball of earth with roots intact. Return topsoil in the hole, then add tablespoons of phosphorus fertilizer and mix thoroughly.

## COST AND RETURN ANALYSIS PER HECTARE

Particulars/Activity	Y E A R							
	1	2	3	4	5	6	7	8
<b>A. Labor Cost</b>								
a. Cleaning @ P1000/ha	P1,000							
b. Staking 5MD	200							
c. Holing & Planting @ P1/tree	1,111							
d. Gen. cleaning, ring weeding Mulching	1,111							
@ 500/operation 3 times/year	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
e. Fertilization								
2 MD/operation @ 45/day	180	270	270	360	450	450	450	450
f. Spraying P45/day 4 MD	180	270	270	450	450	450	450	450
g. Replanting 700 hill @ P45/day 1 MD	45							
h. Trimming (temp. shade trees)			225					
i. Pruning/harvesting				360	450	450	450	450
j. Drying				240	240	280	280	400
k. Harvesting of berries @ P10/can				360	600	850	1,050	1,900
<b>SUB-TOTAL</b>	<b>P5,307</b>	<b>2,085</b>	<b>2,265</b>	<b>3,270</b>	<b>3,690</b>	<b>3,980</b>	<b>4,180</b>	<b>5,150</b>
<b>B. Purchase Materials</b>								
a. 1111 Coffee seedlings @ P5	P5,555							
b. 1111 temp. & permanent Shed trees @P1	1,111							
c. Fertilizers								
c.1 3 bags 46-0-0 @ P1,250/bag	3,750	3,750	3,750	5,000	5,000	5,000	5,000	5,000
(4 bags)								
c.2 3 bags 14-14-14 @ P1,520/bag	4,560	4,560	4,560	9,120	12,160	15,200	15,200	15,000
(6 bags) (8 bags) (10 bags)								
c.3 1 bags 16-20-0 @ P1,560/bag	1,560							
c.4 1 liter Pesticide @ PP335/liter 335	335	335	335	670	670	670	670	670
(2 liters)								
d. Coffee seedling for replanting		500						
<b>SUB-TOTAL</b>	<b>16,871</b>	<b>9,145</b>	<b>8,645</b>	<b>14,790</b>	<b>17,830</b>	<b>20,870</b>	<b>20,870</b>	<b>20,870</b>
<b>GRAND TOTAL</b>	<b>22,178</b>	<b>11,230</b>	<b>10,910</b>	<b>18,060</b>	<b>21,520</b>	<b>24,850</b>	<b>25,050</b>	<b>26,060</b>

### PRODUCTION SCHEDULE

YEAR	COST	PRODUCTION		PRICE/KGS.	VALUE	NET INCOME	RETURN ON INVESTMENT
		DRIED BEANS/BERRIES	GREEN BEANS				
1	22,178						
2	11,230						
3	10,910						
4	18,060	750	300	30	9,000	1,630	9%
5	21,520	1,250	500	30	15,000	7,080	32%
6	24,850	1,750	700	30	21,000	11,469	53%
7	25,050	2,250	900	30	27,000	17,260	68%
8	26,060	4,000	1,600	30	48,000	37,290	143%
<b>TOTAL</b>	<b>159,818</b>	<b>10,000</b>	<b>4,000</b>	<b>150</b>	<b>120,000</b>	<b>74,720</b>	<b>46%</b>