

The coconut palm is known as the ‘tree of life’ because of its diversified products and by-products that support human life. Aside from the main product, i.e. copra/oil which supports 1/3 of the country’s population, the coconut tree provides many other useful food and non-food by-products. One new food item is the edible coconut vegetative pith or ‘ubod’. This food item commands a considerable price in the market today because of its many uses in the preparation of food.

With the need for R & D on sustainable coconut farming, a system or strategy of underplanting young coconuts on adult stand of palms was developed to provide an alternative source of coconut pith or ‘ubod’ thus, preventing the indiscriminate cutting of existing productive coconut palms for such food purpose.

### MATERIALS

- a) Tall or dwarf coconut seednuts
- b) Tall bearing coco trees (at least 20 yrs old)
- c) Inorganic fertilizers (Ammosul, NaCl)
- d) Weeding scythe
- e) Bolo, shovel, grub hoe
- f) Harvesting pole
- g) Weighing scale

### PROCEDURE

- 1) Set coconut seednuts in raised bed (15-20 cm above ground level) to prevent them from being washed away during heavy rains.
- 2) Set seednuts in horizontal position and cover 2/3 of the seednuts with soil.
- 3) Water seednuts 2-3 times each week especially during dry season.
- 4) After 2-3 months from germination, set germinated seednuts in ordinary nursery by arranging them preferably in a triangular pattern measuring 60cm x 60 cm. Lay-out the rows of seednuts in N-S orientation.
- 5) Prepare holes in the interspaces of full bearing coconut in a 3m x 3m triangular pattern in two

rows for planting of young coconuts about two meters away from the row of coconut bearing palms.

- 6) From the ordinary seedling nursery, plant young coconut in prepared holes in either two ways:
  - \* One palm per hill (742 plants/ha)
  - \* Two palms/hill at 2 ft apart (1,484 palms/ha)
- 7) Apply proper cultural management to both young and old palms (ring weeding, fertilization, etc.)
- 8) Harvest nut produced from bearing palms every 45 days.
- 9) Harvest ‘ubod;’ at three years from field planting using the following steps:
  - a) Trim & cut with bolo few older leaves of young coconuts
  - b) Cut bole of harvestable palms at 6-10 inches below ‘ubod’ base and about 10-18 inches above ‘ubod’ end. Longer cut beyond the ‘ubod’ end ensures protection from early spoilage after harvest.
  - c) Remove outer covering of ‘ubod’ by striping the base of petiole until ‘ubod’ (soft portion) is extracted.
  - d) Determine weight of ‘ubod’ using a weighing scale.
- 10) Dispose properly the farm waste left after extracting the “ubod”; leaves be allowed to dry and mulch.
- 11) For coconut stem left, cover with soil plus sand as applicable; in 2-3 months it is likely decomposed and mixed with the soil.



### RESULTS

Table 1. Ave. fresh weight, girth & length of ubod per palm at 3 years old.

Classification	Weight (kg)	Girth (cm)	Length (cm)
Large	9.9	96.0	28.1
Medium	5.7	88.5	25.1
Small	2.1	84.4	22.3



### ADVANTAGES OF THE TECHNOLOGY

Planting of young coconuts ( 1 or 2 plants/hill) in a 3 x 3 triangular planting distance is:

- 1) a feasible & profitable production technology that could increase coconut farm productivity;
- 2) offers an alternative source of coconut pith or ‘ubod’ for food purpose without cutting indiscriminately our existing productive palms;
- 3) contributes to the conservation of natural resources such as coconut tree, thereby maintaining the natural balance of our ecosystem; and
- 4) can be used in replanting old existing palms with some remaining young palms arranged in a 9 x 9 m triangular planting distance.

### LIMITATIONS:

- 1) This technology cannot be applied to full bearing palms with close planting distance (<8 m triangular or square).
- 2) It is limited only under tall bearing palms and not preferably on dwarf varieties with close planting distance.
- 3) This technology is not recommended in typhoon belt areas as fallen trees due to typhoon may damage young underplants.
- 4) It can pose a problem on rhino beetle infestation if waste materials from 'ubod' harvesting are not properly disposed.

Ave.	93,840	21,443	72,397
		ROI* .....	338%

\* Return on investment based on average values

*Basic Assumptions on economic analysis:*

- a) Copra price/kg P8.00 – 1<sup>st</sup> year  
P10.00 – 2<sup>nd</sup> year  
P11.00 – 3<sup>rd</sup> year
- b) Ubod price/kg - P20.00
- b) Labor (ringweeding, fertilization) – P90/day
- c) Prices of fertilizers – P3.90/kg Ammosul;  
P3.75/kg NaCl

# "UBOD"

**ECONOMIC ANALYSIS:**

Year	Yield/ha/yr (kg)		Gross Income (PhP)	
	Ubod	Copra	Ubod	Copra
<b>A. Single planting</b>				
1	-	3,775.2	-	30,202
2	-	3,231.8	-	32,318
3	5,045.6	3,939.5	100,912	43,253
Tot.	5,045.6	10,939.5	100,912	105,773
Ave.	1,681.9	3,646.5	33,637	35,258
<b>B. Double planting</b>				
1	-	3,775.2	-	30,202
2	-	3,231.8	-	32,318
3	8,755.6	3,989.7	175,112	43,887
Tot.	8,755.6	3,989.7	175,112	106,407
Ave	2,918.5	3,665.6	58,371	35,469

Year	Total Income (PhP)	Tot. Cost (PhP)	Net Income (PhP)
<b>A. Single planting</b>			
1	30,202	17,455	12,747
2	32,318	7,394	24,924
3	144,165	12,515	131,650
Tot.	206,685	37,364	169,321
Ave.	68,895	12,455	56,440
		ROI* .....	453%
<b>B. Double planting</b>			
1	30,202	29,550	652
2	32,318	12,628	19,690
3	218,999	22,151	196,848
Tot.	281,519	64,329	217,190

**FOR ADDITIONAL INFORMATION:**

**REFER TO:**

- Padrones, G.D., M.I. Secretaria and S.S. Magat. 1999. Underplanting of young coconuts under adult stands of coconut palms for production of edible vegetative pith or 'ubod'. Coconut Research and Development. Journal. XV(2):31-45. Publication of Asian & Pacific Coconut Community (APCC). Also in Proceedings of the 12<sup>th</sup> Regional Symposium on R & D Highlights 9p. August 4, 1999. Royal Mandaya Hotel, Davao City. Sponsored by the SMARRDEC.
- Padrones, G.D., M.I. Secretaria and S.S. Magat. 1998. A Feasibility study on coconut pith 'ubod' production under bearing palms. Occasional S & T Paper Series No. 2. 19p. Agricultural Research and Development Branch, Philippine Coconut Authority, Diliman, Quezon City.

**CALL, WRITE OR VISIT:**

- 1) **Agronomy & Soils Division**  
Davao Research Center  
Philippine Coconut Authority  
Bago Oshiro, Davao City  
Tel. No. (082) 293-0161  
E-mail: [pca-drc@interasia.com.ph](mailto:pca-drc@interasia.com.ph)
- 2) **Agricultural Research Mgt. Dept.**  
Philippine Coconut Authority  
Diliman, Quezon City  
Tel. No. (02) 426-1398  
E-mail: [sevmagat@mozcom.com](mailto:sevmagat@mozcom.com)



## Underplanting of Young Coconuts on Bearing Palms for the Production of Edible Vegetative Pith or "Ubod"

Department of Agriculture  
Philippine Coconut Authority

Research, Development & Extension Branch

Davao Research Center