HARVESTING COCONUTS AT MONTHLY INTERVALS WILL PROVIDE LARGE SCALE BENEFITS

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The Benefits in Summary :

1. Biological benefits
   * increse in number of nuts, bunches, weight per nut & copra weight per hectare
2. Financial benefits
   * increased financial benefits
3. Benefits due to savings on mature nut fall
   * increased financial benefits
4. Socio - economic Benefits
   * provides a steady monthly income to pickers, thereby reducing the risk of extinction of skilled pickers and also getting more people interested in the job
   * provides a steady monthly income to people engaged in coconut industry
   * Regular participation of the land owners in the affairs of the land, thereby invariably developing the land

The coconut palm being a perennial, is a life long crop. From the time of planting a seedling, it achieves its full bearing status between 10 to 15 years under average management conditions. A bunch goes through a development circle both non - visual and visual of 44 months before being harvested as a mature bunch.

After about 12 months of opening, a bunch is ripe and could be harvested. The nuts harvested also vary in kernel weight depending on how effective the supply of nutrients and moisture to the bunch had been. The magnitude of a particular crop harvested depends on;

1. the number of bunches produced
2. the number of female flowers per bunch
3. percentage setting
4. immature nut fall and
5. husked nut weight.

The coconut palm delivers one mature bunch more or less regularly each month. The planters however are used to harvest the mature nuts at two monthly (60 day) intervals. This is the tradition practised from the time immemorial for convenience and with the objective of saving on costs. In this process some of the mature bunches are kept on the tree (a month longer), which the palm consider as unwanted. The palm however has to maintain such bunches as well until these are harvested.

Considering that the average 12 mature bunches being harvested during a given year, six of these bunches remain one month longer than required. However if the mature bunches are harvested at 30 day intervals, the energy savings could be transferred to other crop components, thereby improving their status for an improved crop.

With these objectives an experiment was initiated in wet zone of Sri Lanka, to study the impact of harvesting mature bunches at 30 day intervals as against the 60 day conventional system. The number of bunches, nuts per bunch and weight of husked nuts were recorded since 1989. The information collected over a 5 year period shows great promise for the adoption of harvesting at 30 day intervals as against 60 days.

1. Biological Benefits:

1. 1 Number of Nuts per hectare

Number of nuts harvested per hectare is as shwon in Table 1. The years 1989 to 1992 were in general good crop years. Excluding the year 1989, the three years (1990, 1991 & 1992) had provided higher yields for harvesting at 30 day intervals as compared to harvesting at 60 day intervals.

Table 1 Average number of nuts per hectare

Harvest Interval	Year				
	1989	1990	1991	1992	1993
30 day	17235	14928	16062	15069	7497
60 day	16851	13044	14730	13962	5841
Absolute increase	384	1884	1332	1107	1656
% increase	2.3	14.4	9.0	7.9	28.4

01 hectare = 150 palms

1993 was a very poor crop year, due to unfavourable weather conditions that prevailed during 1992. This is reflected from the considerable reduction in yield observed for 1993 for the two systems of harvesting. The yield obtained for harvesting at 60 day intervals shows the real decline which is a reflection of the overall impact of the poor environmental conditions. However harvesting at 30 day intervals has arrested the decline due to unfavourable weather conditions and has kept yields considerably at higher levels as compared to 60 day harvesting, which amounts to 28.4% Table (1). Judging by the absolute increase in yield the year 1990 shows an increase of 1884 nuts / ha as compared to the year 1993.

1. 2 Weight of Husked Nuts

The weight of nuts obtained for the year 1991 to 1993 are shown in Table (2). The average weight of a nut shows improvement for harvesting at 30 day intervals as against harvesting at 60 day intervals. This suggests the improvement of the size of nut, which leads to higher copra weight per tree.

1. 3 Copra yield per hectare

Table (3) shows the average copra weight per hectare for the years 1991 to 1993. Increase in the weight per nut has reflected in the increase of copra yield per hectare for harvesting at 30 day intervals as against harvesting at 60 day intervals. During the two good crop years, 1991 and 1992 the increase shown as 11.8 and 15.9% and during the poor crop year 1992 the increase in copra yield was 36.5% higher for 30 day harvesting compared to 60 day harvesting.

Another feature worth mentioning is that for harvesting at 30 day intervals the drop in copra yield for 1991 to 1992 was 6.5% as against 9.8% for harvesting at 60 day intervals. The drop for 1992 to 1993 for 30 day harvesting was 38.5% while the comparative drop for 60 day harvesting was 47.8%. These results suggest that in the event of a drop in yield due to conditions conducive for maintaining high yields, harvesting at 30 day intervals has helped to arrest the degree of decline, otherwise observed for harvesting at 60 day intervals.

Table 2 The average weight per husked nut (gm)

Harvest Interval	Year		
	1991	1992	1993
30 day	612	610	754
60 day	597	568	709
Absolute increase	15	42	45
% increase	2.5	7.4	6.3

Table 3 The average copra weight per hectare (kg)

Harvest Interval	Year		
	1991	1992	1993
30 day	3146	2941	1809
60 day	2814	2537	1325
Absolute increase	332	404	484
% increase	11.8	15.9	36.5

Copra weight = 0.32 x husked nut weight

The results presented, clearly indicate that harvesting at 30 day intervals increased the over all nut yield per ha. and further has increased the weight of nuts. A notable and an important observation made during a yield decline due to unfavorable weather conditions, was harvesting at 30 day intervals arrested the decline, as otherwise observed in normal harvesting at 60 day intervals. Harvesting at 30 day intervals does not involve imposition of any external stimulant or stimulants. Hence it could be reasonably stated that the additional energy utilized by the palm for maintaining an unwanted bunch longer than it is necessary, has been utilized in the improvement of nut production and the weight, when harvesting at 30 day intervals as practised.

2. Financial Benefits:

The acceptance of harvesting at 30 day intervals would largely depend on the additional income derived by the farmer. This income will largely depend on the farmgate price of coconuts and the additional expenditure that has to be incurred due to increased frequency of harvesting.

The income that could be derived considering a marginal 10% increase in yield at three production levels is presented below. In this respect, it is needed to be mentioned that, due to the increase in nut weight an increase in price of a nut could be expected. For the purpose of evaluating the income and expenditure, the price of a nut is considered as Rs. 3/ - for nuts harvested at 60 day intervals. Two price levels on 3.50 to 4.00 are considered for nuts harvested at 30 day intervals.

2.1. Production levels;

The production levels considered for harvesting at 60 day intervals are;

(a) 6250 nuts per ha. per year
(b) 8750 nuts per ha. per year
(c) 11250 nuts per ha. per year

Thus the Production levels (considering a marginal 10% increase in nuts) for harvesting at 30 day intervals are;

(a) 6875 nuts per ha. per year
(b) 9625 nuts per ha. per year
(c) 12375 nuts per ha. per year

2. 2. Income and expenditure for harvesting at 60 day intervals;

2. 2.1. Income :

The income derived at the three production levels is as follows,

	Production level (nuts/ ha./ yr.)	Income at 3/= / nut
(a)	6250	18750.00
(b)	8750	26250.00
(c)	11250	33750.00

2. 2. 2. Expenditure:

The expenditure incurred at the three production levels is as follows,

Picking charges (@ 0.75/- per palm) per ha. yr. = 675.00

Cart hire (@ 75/- per 1000 nuts)

(a) at 6250 nuts/ ha = 468.00
(b) at 8750 nuts/ ha = 655.00
(c) at 11250 nuts/ ha = 843.00

Labour (@ 75/- per day per 450 nuts)

(a) at 6250 nuts/ ha = 1042.00
(b) at 8750 nuts/ ha = 1455.00
(c) at 11250 nuts/ ha = 1875.00

Total cost

(a) at 6250 nuts/ ha = 2185.00
(b) at 8750 nuts/ ha = 2785.00
(c) at 11250 nuts/ ha = 3393.00

2. 2. 3. Income after allowing picking charges;

The income after allowing the picking charges at the three production levels is as follows,

(a) at 6250 nuts/ ha/ yr. = 16565.00
(b) at 8750 nuts/ ha/ yr. = 23465.00
(c) at 11250 nuts/ ha/ yr. = 30357.00

2.3. Income and expenditure for harvesting at 30 day intervals;

2. 3. 1. Income:

The income derived at the three production levels is as follows,

	Production level (nuts/ ha./ yr.)	Income at 4/ = / nut (Rs.)	Income at 3.50/ nut (Rs.)
(a)	6875	27500.00	24062.00
(b)	9625	38500.00	33687.00
(c)	12375	49500.00	43312.00

2. 3. 2. Expenditure:

The expenditure incurred at the three production levels is as follows,

Picking charges (@ 0.75/ - / palm) / ha. yr. = 1350.00

Chart hire (@ 75/- per 1000 nuts)

(a) at 6250 nuts/ ha = 516.00
(b) at 8750 nuts/ ha = 721.00
(c) at 11250 nuts/ ha = 928.00

Labour (@ 75/- / day/ 450 nuts)

(a) at 6250 nuts/ ha = 1147.00
(b) at 8750 nuts/ ha = 1605.00
(c) at 11250 nuts/ ha = 2062.00

Total cost

(a) at 6250 nuts/ ha = 3013.00
(b) at 8750 nuts/ ha = 3676.00
(c) at 11250 nuts/ ha = 4340.00

2. 3. 3. Income after allowing picking charges;

The income derived after allowing picking charges at the three production levels is as follows,

	@ 4/ - per nut	@ 3.50/ - per nut
(a) at 6250 nuts/ ha/ yr.	= 24487.00	21049.00
(b) at 8750 nuts/ ha/ yr.	= 34824.00	30011.00
(c) at 11250 nuts/ ha/ yr.	= 45160.00	38969.00

2. 4 Additional income for harvesting at 30 day intervals:

The additional income derived for harvesting at 30 day intervals compared to harvesting at 60 day intervels for the three production levels is as follows,

	@ 4/ - per nut	% Increase	@ 3/50 per nut	% Increase
(a) at 6250 nuts/ ha/ yr.	= 7922	47.8	4484	27.1
(b) at 8750 nuts/ ha/ yr.	= 11359	48.4	6546	27.9
(c) at 11250nuts/ ha/ yr.	= 14803	48.8	8612	28.4

There is substantial increase in income for harvesting at 30 day intervals. Considering a marginal 10% increase in yield for harvesting at 30 day intervals, as against harvesting at 60 day intervals, the profit margin is in the range 48%. If one considers price of a nut as, Rs. 3.50 for nuts harvested at 30 day intervals, the profit margin expected is in the range 30%

3. Benefits due to savings on mature nut fall

Nuts fallen on maturity are usable nuts. In large estates loss of fallen nuts is a common problem. Very often the owner is unaware of this loss, gets discoura ged for not seeing a considerable improvement in his land even with good managment. One major cause is the loss of nuts due to thieving, where the owner is deprived of his direct benefits. The nut fall could be as high as 40% of a particular crop. Hence he has to make

Table 4 Average Mature Nut Fall (%)

Harvest Interval	Year		
	1991	1992	1993
30 day	3.0	14.8	11.3
60 day	21.8	35.9	20.5

a considerable effort to save the fallen nuts in order to see the real benefits and to maximize his income. Perhaps extra labour has to be utilized to collect fallen nuts during the 2nd month period after a particular harvest, in the system of harvesting at two monthly intervals.

However by adopting harvesting at 30 day intervals, the owner could benefit considerably by saving the nuts which would otherwise have been lost. He could also save the additional expenditure he has to spent on additional labour to collect fallen nuts. Table (4) shows the extent of mature nut fall observed for harvesting at 30 and 60 day intervals during the periods, 1991 to 1993.

The overall mature nut fall for the year 1991 to 1993 ranged from 3.0 to 11.3% for harvesting at 30 day intervals. The comparative range for harvesting at 60 day intervals was 20.5 to 35.9% respectively. These figures suggest the extent to which an owner could save by adopting harvesting at 30 day intervals.

4. Socio - economic benefits

The common method of picking nuts in estates is with the use of a "Long Pole". In the olden days the people who were engaged in this profession made a living by picking nuts in estates. With time they used to pass the skill to their kith and kin. However a fear is now expressed, on the reduction of number of pickers engaged in this job. This could largely be due to availability of other avenues which provide a steady monthly income for their living.

However in adopting harvesting at 30 day intervals pickers engaged in this profession could be benefitted by having a steady monthly income. This could help to reduce or eliminate the feared extinction of skilled pickers from the scene. Further it could be an encouragement for more people to accept this job. Hence it is timely to take a concise note of this fact and adopt harvesting at 30 day intervals. If no action is taken at this juncture to help the pickers by providing a steady monthly income for their living the Industry will be at a stake. Time will come that people will have to wait for the nuts to fall and to collect the same. The remedy will, then be very expensive or perhaps not forthcoming.

Harvesting at 30 day intervals would further provide additional jobs to people engaged in the coconut industry. It will also provide a steady monthly income for this group of skilled people.