

## Is there a real shortage of coconut seedlings?



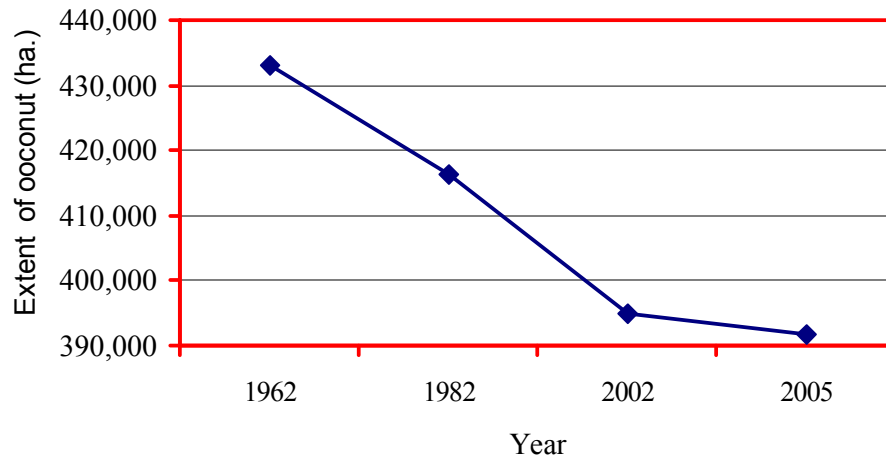
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The demand for coconut seedlings of Sri Lanka should be determined by the land extent under coconut, rate of seedling mortality, rate of under planting, rate of new planting and number of palms per hectare. Therefore, one should have an understanding about these five indicators before deciding the national coconut seedlings requirement.

### **Extent under coconut**

According to the agricultural census carried out by the Department of Census and Statistics (DCS) in Sri Lanka, the extent under coconut in 2002 was 394,836 ha. as against 416253 ha. in 1982. In this survey the number of coconut palms in home gardens also taken into consideration and total number of scattered palms were converted to extent based on 158 palms per hectare. Based on the rate of decline of coconut lands during 1982-2002 the extent in 2005 was estimated by the author (Figure 1). Thus, for calculating the national seedling requirement, the coconut extent in 2002 and 1982 was used (Table 1).



**Figure 1.** Progress of land extent under coconut from 1962 to 2005

### **Seedling mortality**

The rate of seedling mortality was generally estimated through field surveys. Based on past surveys carried out by the CRI and CCB it varied from 5% to 20%. However, in the calculation of national coconut seedling requirement mortality rate was considered as 20% and 25% where 25% could be considered as an upper bound. In fact according to recent diagnostic survey conducted by the CRI the mean percentage of seedling mortality was 14%. If a person maintains a mortality rate above 25%, he/she should stop planting coconut.

### **Rate of under planting**

The rate of under planting is decided by the age of palm and yield of the palm. CRI recommends to do under planting when the age of palms is over 60 or when palms are senile (<30 nuts/year/palm). However, for the calculation of national coconut seedling requirement upper and lower limit for under planting age was taken as 50 year and 45 year respectively, irrespective of the productivity.

### **Rate of new planting**

The rate of new planting is not known. But based on extent under coconut it is obvious that the rate of fragmentation of coconut lands is much faster than the rate of emerging new coconut lands (if the rate of new planting was higher then the national extent under coconut should be increased). Thus, it is assumed that rate of new planting is almost same as rate of under planting. In other words rate of land fragment of coconut = rate of developing new

coconut lands. This conservative assumption fulfils the requirement for infilling nature of coconut palms too.

### **Planting density**

It has been found from various surveys conducted by CRI and CCB that density of coconut lands was below the recommended level of 158 palms per hectare. However, in this calculation it was assumed that 158 palms per hectare has been marinating in the entire coconut extent in Sri Lanka which will also be an upper bound.

### **Own seedlings**

Seedlings are generally issued by the Coconut Cultivation Board (CCB). In addition, private owners and CRI also supply seedlings. Based on the past surveys it had been revealed that (20-30)% of the growers used either their own seedling or seedling purchased from private owners. However, the exact numbers are not aware. Therefore, in this analysis comparison will be made between the seedling requirements and seedlings issued by the CCB alone

### **Seedling requirement**

Based on the above assumptions national requirement of coconut seedling can easily be computed and it was calculated under eight scenarios as shown in Table 1 (2 values of coconut extent x 2 values of under planting age x 2 values of mortality). Thus the maximum number of seedling requirement per year was 1827000 and the minimum was 1497000.

Table 1. Computation of seedling requirement

Extent (ha)	Life time (yrs)	Mortality rate	Seedling requirements (‘000)
416253	50	25%	1644
416253	50	20%	1578
416253	45	25%	1827
416253	45	20%	1754
394836	50	25%	1560
394836	50	20%	1497

394836	45	25%	1733
394836	45	20%	1664

### Seedling Issues

The number of seedlings issues by the CCB alone during 1995 to 2004 varied from 1841000 to 2700000 (Figure 2). Two horizontal lines in Figure 2 indicate the maximum and minimum requirement of seedling for the country. The percentage excess of seedling compared with the maximum requirement varied from 0.8% in 1999 to 47.8% in 1995. The percentage excess of seedling compared with the minimum requirement varied from 15.2% to 80.4%.

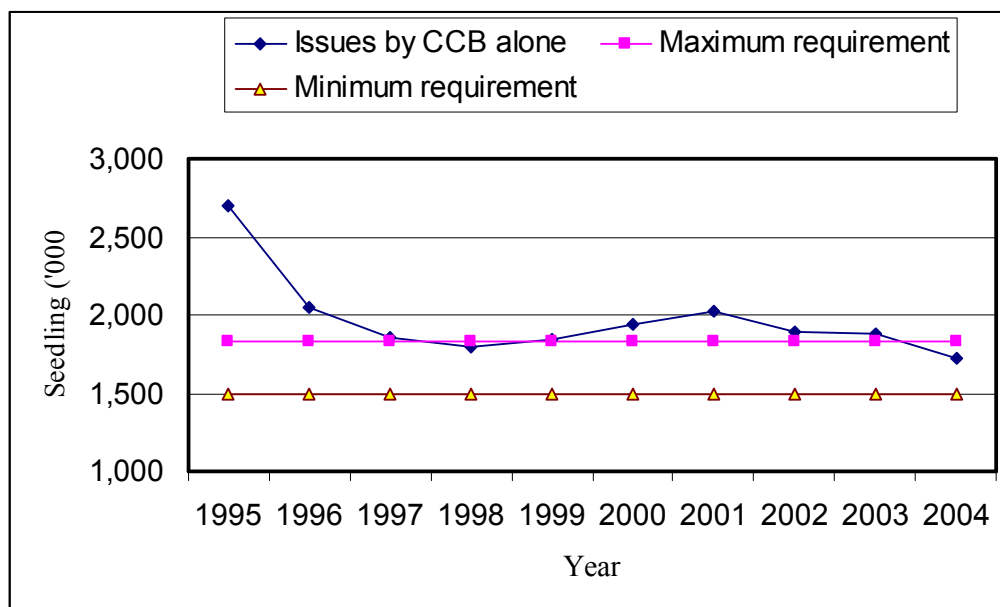


Figure 2 Number of coconut seedlings issues by the CCB alone during 1995 to 2004.

### Conclusion

The analysis showed that coconut seedling issued by the CCB alone during 1995 to 2004 was higher than the maximum value of expected total requirement during the same period. On top of that, some growers use their own seedlings or seedling purchased from CRI or private nurseries. Thus, the percentage of additional seedling would be higher than what is shown in Figure 2. However, in reality there had been a shortage of coconut seedlings every year, particularly during October/November. Only reason one can thought is that mortality rate is

higher than 25% which is very high or under planting at pre-mature age (below 45 years) which also too early. Thus, the question would arise whether to increase the number seedlings or to educate the growers to manage their seedlings properly. It would be a national disaster if seedlings are issued more than requirement. Thus planning and issuing coconut seedlings should be carried out more efficient way.