

## PERFORMANCE OF CITRUS SPECIES UNDER PARTIAL SHADE IN COCONUT GARDEN

In *Citrus*, selection of varieties with adaptability to the locality is of prime importance. Limes and lemons are reported to be suitable for the plains (Rajput and Sriharibabu, 1985). An observational trial was conducted to assess the suitability of acid lime (*Citrus aurantifolia*), 'Vadalapudi' (*Citrus madraspatana*) and Malta lemon (*Citrus limon*) under partial shade in coconut gardens in the Department of Pomology and Floriculture, College of Horticulture, Vellanikkara, Trichur, Kerala. Both cross protected and unprotected acid lime seedlings were planted under partial shade in the interspaces of coconuts in 1979. Observations on the survival of seedlings during the period 1979-1984 are given in Table 1. In 1984, after six years of planting the seedlings, the percentage survival in the cross protected acid lime seedlings was 12.38 and in the unprotected seedlings, 12.5. The heavy mortality was due to the incidence of bacterial canker and die back. Observations on the biometrical characters of the seedlings are presented in Table 2. It is quite evident that the vegetative growth was not satisfactory under partially shaded conditions. In fact, the growth declined and the plants never produced flowers or fruits.

The vegetative characters of the Vadalapudi and Malta lemon seedlings planted in 1980 are given in Table 2. There was no mortality (Table 1) and the plants exhibited a steady growth, as evident from the data presented in Table 2. Fifty per cent of the plants flowered in the third year.

Table 1  
Survival of acid lime, Vadalapudi and Malta lemon seedlings

Year of obser- vation	Acid lime				Vadalapudi		Malta lemon	
	Cross protected		Unprotected		Number survived	Per cent survival <sup>3</sup>	Number survived	Per cent survi- val <sup>4</sup>
	Number survived	Per cent survival <sup>1</sup>	Number survived	Per cent survival <sup>2</sup>				
1979	25	22.12	13	40.63	—	—	—	—
1980	23	20.35	12	37.50	—	—	—	—
1981	20	17.70	12	37.00	36	100	28	100
1982	17	15.04	10	31.25	36	100	28	100
1983	15	13.27	8	25.00	36	100	28	100
1984	14	12.38	4	12.50	36	100	28	100

1 Out of the total 113 planted in 1978

2 Out of the total 32 planted in 1978

3 Out of the total 36 planted in 1980

4 Out of the total 28 planted in 1980

Table 2  
Performance of Acid lime, Vadalapudi and Malta lemon seedlings

Year of observation	Acid lime					
	Cross protected			Unprotected		
	Height cm	Girth cm	Spread NS x EW cm	Height cm	Girth cm	Spread NS x EW cm
1979	31.6	—	—	55.8	—	—
1980	113.4	10.3	88.6 x 92.3	101.4	8.4	74.8 x 70.8
1981	123.6	14.6	98.7 x 102.5	17.4	12.8	86.3 x 80.8
1982	108.3	14.9	93.0 x 98.1	107.2	13.0	91.0 x 85.0
1983	93.3	15.2	90.1 x 95.1	93.7	13.4	94.6 x 94.5
1984	90.4	15.3	87.4 x 91.6	92.7	13.6	88.9 x 90.1

  

Year of observation	Vadalapudi			Malta Lemon		
	Height cm	Girth cm	Spread NS x EW cm	Height cm	Girth cm	Spread NS x EW cm
1979	—	—	—	—	—	—
1980	—	—	—	—	—	—
1981	48.3	5.2	40.5 x 38.3	49.7	6.5	98.5 x 102.5
1982	101.8	8.7	79.4 x 62.3	148.3	9.4	146.5 x 150.0
1983	121.7	10.1	92.7 x 79.9	162.2	11.7	162.4 x 169.2
1984	149.3	14.0	128.9 x 114.8	179.1	17.0	234.9 x 233.3

NS = North South  
EW = East West

The observational trial, thus, indicated that acid limes may not be suitable as intercrop in coconut gardens, while Vadalapudi and Malta lemon will be promising.

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#### Reference

Rajput, C. B. S., and Shriharibabu, R. 1985. *Citriculture*. Kalyani Publishers, New Delhi, pp. 79