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Short Communication

EXPLOITATION OF CITRUS GERMPLASM

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The citrus industry continues to be based upon naturally occuring well established cultivars. It has been possible because of sudden change in heritable characters, which occur frequently in citrus. The different species of citrus and related genera also cross freely in nature and tremendous scope exists in its utilization with regard to identification of superior scion/cultivar for direct cultivation and their use as rootstock. Under north Indian conditions, the cultivation of kagzi lime (*C. aurantifolia*) poses several limitations like sparse and erratic fruiting, poor growth, susceptibility to canker and high incidence of dried twigs. Lemons may be tried under such conditions as suggested by Singh (1977). Screening of number of lime (*C. aurantifolia*) and lemon (*C. limon*) selections for a number of years revealed superiority of a lemon (suspected to be a hybrid of lime and citrus/lemon) which has typical character in growth and bearing habit. Fully developed fruits observed in the last week of April are seedless with attractive colour, smooth skin, juicy and acidity 5.5 per cent thus ideally utilized during peak summers.

Rootstock to control tree size and time of fruit maturity

Indigenous as well as exotic citrus types, related genera (*p. trifoliata*) and its hybrid (Citranges and Citrumelo) as reported by Swingle and Reece (1967) were utilized as rootstock for kinnow mandarin. Screening of seventeen rootstocks for kinnow mandarin with regard to growth, fruit yield and quality for a number of years revealed the superiority of three rootstocks viz., Troyer Citrange (Washington Naval orange x trifoliate orange), **Karna Khatta** (*C. karna*) and **Sohsarkar** (*C. karna* of Assam). Troyer citrange induced precocity and controlled tree size, thus ideally suited for close planting. A correlation in fruit yield and tree size was also observed. Besides controlling the plant vigour, time of fruit maturity was also found to be influenced by the rootstock.

It would be evident from Table 1 that fruits of kinnow mandarin on Troyer Citrange developed bright deep orange colour at the earliest and hastened the fruit maturity to a great extent (Fig. 1). Fruits obtained from this rootstock showed high T.S.S. and acidity. However, the fruits of kinnow on **Karna Khatta** and Sohsarkar delayed maturity by reducing the acidity appreciably. Thus fruit maturity of kinnow mandarin was extended from the end of November to mid of January by using Troyer Citrange, **Karna Khatta** and **Sohsarkar** as a rootstock.

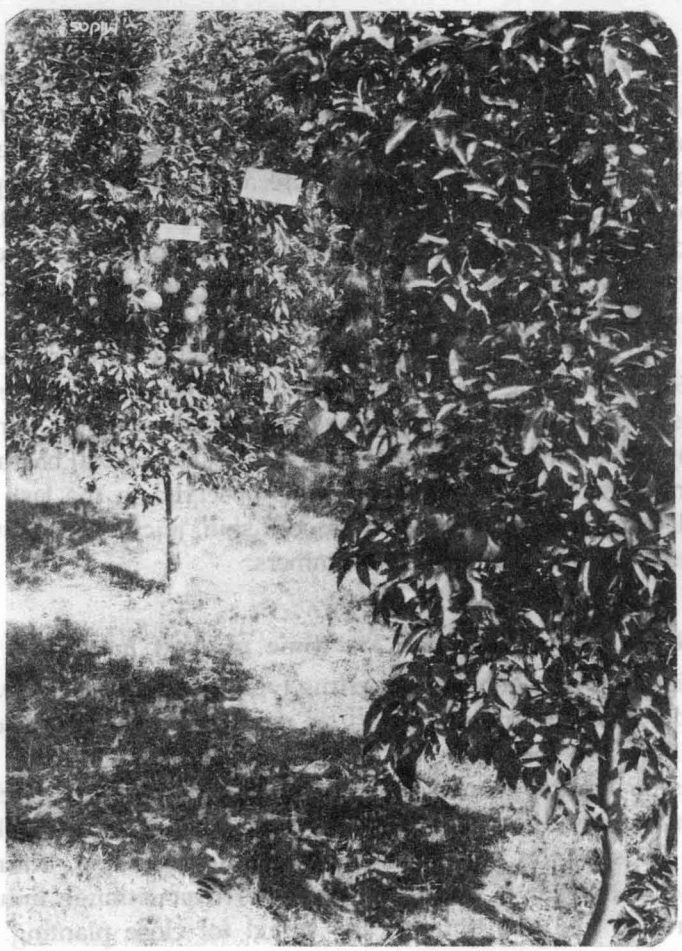

Fig. 1. Influence of rootstock on time of fruit maturity in kinnow mandarin

Table 1. Chief characteristics of kinnow mandarin on three rootstocks

	Characters	Rootstock		
		Troyer Citrange	Karna Khatta	Sohsarkar
1.	Plant vigour	Standard vigour	Semi-vigorous	Vigorous
2.	Tree volume (m^3)	2.80	3.50	4.0
3.	Stionic compatibility	Overgrowth of rootstock	Smooth union	Smooth union
4.	Precocity/fruit bearing (year after planting)	3	4	4
5.	Fruit yield/plant	60 to 80	80 to 100	100 to 120
6.	Fruit weight	160 g	185g	200g
7.	Fruit size (cm^2)	37.3	41.5	42.6
8.	Time of fruit maturity and quality	End of November to mid of December	Mid of December to end of December	End of December to mid of January
I.	**End of November**			
	Colour of fruit	Orange	Yellow	Green
	T.S.S.	11.5	9.8	9.5
	Acidity	1.5	1.2	0.85
II.	**Mid of December**			
	Colour of fruit	Bright deep orange	Orange	Yellow
	T.S.S.	11.0	10.0	9.8
	Acidity	1.2	0.98	0.82
III.	**End of December**			
	Colour of fruit	Deep orange	Orange	Orange
	T.S.S.	10.8	10.5	10.2
	Acidity	1.02	0.89	0.78

Tolerance to excessive heat/stress condition

Selection of kagzi kalan lemon showed tolerance to excessive heat and stress conditions during peak summer months (Fig. 2).

Fig. 2. Tolerance to excessive heat and stress condition in lemon

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