PROSPECTS OF CITRUS FRUITS IN POTHOWHAR REGION

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Abstract

Seven mandarin, six sweet orange, one sweet lime and five grapefruit varieties, grafted on rough lemon rootstock were compared in sandy loam soils under rain fed conditions at Chakwal during the years 1987-2002. Supplemental irrigations were given during May-June and October-November to save the plants from severe water stress. Results showed that Kinnow produced maximum fruit yield followed by Wilking, Feutrell's early, Fremont and Fairchild. The fruit of Fairchild and Wilking was larger and heavier while that of Feutrell's early and Fremont was smaller and lighter whereas Kinnow did not attain the proper size and weight. Fremont was outstanding in juice contents followed by Fairchild and Wilking. Acidity was highest in Kinnow and Clementine. The low acidity in Feutrell's early and highest T.S.S. in Fremont resulted in high T.S.S/acid ratio. Among sweet oranges, Salustiana produced the highest fruit yield followed by Musambi and Blood-red, with highest fruit circumference, weight and juice contents followed by Blood-red in juice contents with medium size and weight. Salustiana and Valencia late had higher T.S.S. Valencia late possessed more acidity followed by Jaffa and Blood-red. Musambi had lower acidity which resulted in higher T.S.S./acid ratio. Out of five grapefruit varieties, Shamber gave excellent results. The fruit was very good quality with 53% juice contents. The fruit was seedless with pinkish color. Palestine sweet lime seems to be prolific bearer with better fruit quality.

INTRODUCTION

Citrus is a very prominent fruit of Pakistan and holds number one position among all fruits both in area and production. Citrus is grown throughout the world in tropical and sub-tropical areas where suitable soil and climatic conditions are found. Citrus fruits include mandarin, sweet, oranges, grapefruit, sweet lime, acid lime and lemon etc.

Citrus fruits have special importance due to their distinct flavors and therapeutic values. These are rich in vitamin C with fair amounts of vitamins A & B. Besides this, they are rich source of minerals (calcium, phosphorus and iron). The juice is very refreshing, delicious and soothing. Besides their consumption as fresh fruit, a large number of products and byproducts are made. Citrus fruits also enjoy an important position in the economy of the country due to lucrative returns and positive impact on the environments. The Punjab shares about 95% of total citrus area and production of Pakistan. Presently Punjab produces 1859.2 thousand tones citrus fruit from 186.8 thousand hectares. The main citrus growing areas are Sargodha, Faisalabad, Multan and Bahawalpur Divisions. Pothwar tract shares less than 0.2% to citrus production of the province. Whereas this tract has congenial climatic

conditions and thus has a great potential for the successful cultivation of citrus in the areas where supplement irrigation is available.

In order to uplift citrus cultivation in Pothohar tract, research and development activities were initiated at Chakwal in 1987. A brief review of research and developmental work carried out and achievements made so far in citrus cultivation are given below:

Promising Varieties of Citrus

Introduction of high yielding varieties is primary step to enhance the production of crop. Selection of variety in a particular agro-climate plays a vital role in successful and profitable gardening because a variety behaves differently in different environments. Following citrus varieties were evaluated after planting in experimental orchard at Barani Agricultural Research Institute, Chakwal.

Fruits Varities

1. Mandarin

Feutrell's early, Fremont, Fairchild, Honey, Wilking, Kinnow and Clementine

2. Sweet Orange

Succari, Musambi, Salustiana, Blood red, Navelina, Valencia late, Navelate, New Hall, Hamlin, Pineapple, Taracco, Moro, Jaffa, Washigton navel, Sanguinello.

3. Grapefruit

Marsh seedless, Red blush, Shamber, Duncan. Ruby.

4. Sweet lime

Palestine

5. Acid lime

Kaghzi, Euistis

6. Tangelo

Orlando, pearl

MANDARIN

Seven out of eight varieties were observed to be regular bearer and their performance is being given in the table below:

Data indicated that kinnow produced maximum fruit yield followed by Wilking, eutrell's early, Fremont and Farichild. The fruit of Fairchild, Wilking and Kinnow were larger and heavier while Feutrell's early and Fremont were smaller and lighter. Kinnow did not attain the proper size and weight. Fremont was outstanding in Juice contents followed by Fairchild and Wilking. Acidity was highest in Kinnow and Clementine. The low acidity in

Yield and characteristics of mandarin varieties

Varieties	Fruits/ plant'	Fruit Wt(g)	Juice %	TSS%	Acidity %	TSS/ acid ratio
Wilking	525	149.60	51.45	11.25	0.98	11.49
Fremont	500	120.27	54.78	12.90	1.02	12.65
Fairchild	495	150.67	51.78	12.07	1.03	11.73
Honey	400	121.40	48.13	10.13	0.94	10.78
Clementine	400	132.40	49.67	11. 50	1.13	10.19
Kinnow	545	147.92	50.25	12.00	1.15	10.44
Feutrell's early	510	11 7.77	'47.30	9.03	0.69	13.09

Feutrell's early and higher TS.S in Fremont resulted in higher TS.S./acid ratio.

SWEET ORANGE

Six out of sixteen varieties were observed giving promising performance which is reviewed as under:

Data showed that Salustiana produced the highest fruit yield followed by Musambi and Blood Red. Salustiana fruit was outstanding in circumference, weight and juice contents. Blood red attained second position in the juice contents with medium size and weight. Salustiana and Valencia late had higher T.S.S. Valencia late possessed more acidity followed by Jaffa and Blood-red. Musambi had lower acidity and resulted in higher T.S.S/acid ratio.

GRAPEFRUIT AND SWEET LIME

Out of 5 varieties, shamber gave excellent results. The fruit had very good quality with 53% juice contents. The fruit was seedless with pinkish color. Palestine sweet lime seems to be a prolific bearer with better fruit quality.

NECESSARY PRACTICES QF ORCHARD PLANTATION FOR POTHOHAR REGION

Yield and characteristics of Sweet Orange varieties

Varieties	Fruits/ plant	Fruit Wt(g)	Juice %	TSS%	Acidity %	TSS/ acid ratio
Musambi	350	174.18	45.85	9.25	0.45	20.55
Blood Red	325	181.92	51.72	9.00	0.90	10.00
Jaffa	310	184.02	47.82	9.12	0.92	11.12
Pineapple	330	. 177.60	47.05	8.87	0.79	11.23
Salustiana	500	218.15	54.10	10.25	0.84	12.20
Valencia late	300	175.25	46.25	10.12	1.07	9.46

Terracing and Removal of Hardpan

Pothohar is generally sloppy area where heavy rainfalls cause soil erosion. So the proposed sites for fruit plantations need to be developed into terraces and each terrace be leveled in light slanting to ensure drainage without affecting plants.

Yield and characteristics of Grapefruit and Sweet lime varieties

Varieties	Fruits/ plant	Fruit Wt(g)	Juice %	TSS%	Acidity %	TSS/ acid ratio
A- Grapefruit						
Marsh seedless	225	550	44.5	7.5	1.5	5.00
Shamber	230	525	53.1	7.1	1.5	4.73
Red Blush	215	550	52.3	8.5	1.5	5.67
B- Sweet lime						
Palestine	500	150	50.13	7.5	0.95	6.55

It has also been observed that in most of the cases hardpan is present below the soil surface that discourages root growth and also creates drainage problem. It is recommended that hardpan must be broken minimum upto the depth of 1. 5m.

Water Requirements

Plants need moisture for healthy growth and better fruit production. In severe drought areas, lack of irrigation facilities results in poor growth and fruit yields. Supplemental irrigation is required during water stress periods i.e. May - June and October November. Generally, citrus plants fulfill most *of* their moisture requirements from natural precipitation.

Winter Injury

Citrus face the problem *of* cold/frost injury when there is no rainfall during the winter. The problem can be overcome by adopting following practices:

1. Plantation in safe pockets.
2. Plantation *of* early and midseason maturing varieties.
3. Maintaining a dense canopy.
4. Plantation *of* windbreak.
5. Additional irrigation during frosty nights.
6. Application *of* Bordeaux paste on plant stems.
7. Smoking.
8. Covering *of* young plants with "Sarkanda" or plastic sheet prior to onset *of w*inter.

For further Reference

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