CITRUS ORCHARD MANAGEMENT PROBLEMS AND PRACTICES

Ata-ur-Rahman Aslam and Hameed Ullah***
* *Citrus Expert, Sahiwal*
** Citrus Research Station Sahiwal

Citrus fruits constitute to be an important component of fruit industry due to their better returns as compared to other farm crops. They are also a rich source of vitamins and minerals. They are not only consumed as fresh fruits but also used in processed forms like squashes concentrates and marmalades etc. The periodical development of these fruits is as under:

Table Periodical Development* in *Area and Production* of *Citrus Fruits

Year	Area (000) Hectares	Production (000) tones	Percentage increase	
			Area	Production
1971-72	37.65	390.00		
1975 - 76	58.40	625.70	155.11	160.43
1980 - 81	87.70	854.30	232.93	219.05
1985 - 86	141.90	1368.80	376.90	350.97
1990 - 91	164.80	1538.50	437.71	394.48
1995 - 96	183.30	1872.30	486.65	480.00
1999 - 02	187.66	1752.40	498.43	449.33

A simple perusal of above table shows that an increase in area from 1971-72 to 1999-02 is about 500% while the production increase during the same period is about 480%. Apparently this increase seems to be significant and encouraging but actually this increase corresponds to the increase in area. Hence the production per unit is almost static. We can increase this production manifold with the adoption of better production technology available within the country. We have to search out the causes and reasons of the gap between actual and potentially achievable yields of citrus orchards. These can be underlined as following:

1. Inadequate returns to citrus growers.
2. Unregulated nursery business.
3. Use of improper rootstock
4. Detrimental crop culture.
5. Haphazard irrigation.
6. Imbalanced/inadequate nutrition.
7. Unsatisfactory pest management.
8. Education and awareness.

1. Inadequate returns to citrus growers.

We can always find a big gap in the prices paid by the consumers which is always much higher than the prices received by the producers which is on the lower side and this makes the citrus grower disinterested to adopt the modern production technology. To improve the situation it is therefore, necessary to streamline the present marketing system to alleviate over growers from depression. Export possibilities of fresh

citrus fruits and products may be explored. The Government should take the following steps:

i) Announce the schedule of fruit export well ahead of time as is being done in case of Cotton and Rice.

ii) Provide proper refrigerated transport vessels to ensure healthy arrival of commodity to the destined market.

iii) Fruits being perishable commodity a separate cell needs to be established for the export of fruit and vegetables and some experts may be appointed in the concerned Ministry to watch the in time and prompt deliveries of consignments. This will encourage the citrus growers to adopt the recommended production technology conducive in improving the qualitative production of citrus fruits.

2. Unregulated nursery business

Unregulated and unsupervised nursery business is one of the major impediments for healthy flourishing of citrus groves. On account of stringent financial and manpower facilities nursery plants produced by the public sector can only meet a fraction of the total demand which has gone ever escalated. Resultantly growers have no option but to purchase the plants from private nurseries. Such plants are defective in all respects as they are prepared in utter disregard to the principles / practices of plant propagation. Private nurserymen use defective bud wood collected from diseased trees of unknown pedigree. Hence the defects present in such inferior nursery plants continue to creep and result to malign the citrus sector rather than its healthy expansion. To overcome this problem following measure should be adopted:

1. Public sector should be provided with enough funds and technical labor to meet the ever escalating demand of nursery plants.
2. All the nursery business must be brought under proper regulation and legislation. Only those nurseries should be registered who come up to the code of conduct of conditions
3. Continuous training programs should be initiated to equip the nurserymen with the necessary techniques of nursery plant propagation.
4. Research on rootstock may be strengthened in view of the fact that Rough lemon under changing agro-climatology is no more invincible particularly to cope with the soil born disease and high level of salinity.

3. Detrimental crop culture

It has been observed that plants behave much better if no crop is grown in the orchard but it seems obligatory to grow some crop, keeping in view economic thresh hold and small holdings, to provide economic shelter to the growers. It has been seen that the growers presently are growing cotton wheat and paddy in citrus orchards which are badly affecting the plant health and ultimately reduces their productive life. The growers are thus required to be educated for the careful selection of proper crops like Gram, Lentil Mung and other beans etc. High delta crops like that of Barseem, Rice, and sugarcane must be avoided. Cotton is not tolerable in citrus groves as being host of about 15 dangerous pests including sucking one which badly damage the fruit trees. Summer fodders should be abandoned. At present most of the crops grown in citrus orchards are

highly detrimental due to the ill coincidence of cultural practices and irrigation requirements with fruit trees.

4. Haphazard irrigation

Irrigation of Citrus plants is a very sensitive issue. Neither over irrigation nor under irrigation or drought is advisable. It has been seen that when you dig a hole after a month of irrigation you will find the feeding roots in wet conditions which damage the roots through "Phytopthora".

It is thus necessary to divert the system of irrigation from the number of days to the use of "Tensiometer" in which the irrigation needs are found in accordance to the rate of evapo-transpiration and actual needs of the plants.

5. Imbalanced/inadequate nutrition

It is a common observation that citrus growers do not pay much importance to the use of balanced fertilizers at the appropriate time. It has been concluded from a research trial that the application of NPK @ 2 - 1 - 1 produces better results.

Fertilizer Trial on Kinnow (In Full Bearing Age) at Farmers Field

T_1: Control
T_2: N 900gm + P 450gm + K 225gm
T_3: N 900gm + P 450gm + K 450gm
T_4: N 900gm + P 900gm + K 450gm
T_5: N 900gm+ P 900gm+K 900gm
T_6: N 1350gm + P 900gm + K 900gm

The studies reveal that the application of NPK at the rate of 2-1-1 (T -3) is the best doze when applied before fifteen days of flowering.

For the improvement of present conditions we have to apply the fertilizers in the proper dozes and at the appropriate time. Since the soil fertility varies from field to field hence it is necessary that we must base our future fertilizer program on soil and leaf analysis such facilities are now available at every district head quarter.

6. Unsatisfactory pest management

Pest management of citrus orchards is a sensitive issue and responsible for the present situation of citrus orchards. Various pests and diseases responsible for the situation are Leaf miner, Citrus Psylla, Black fly, Citrus mites, Aphids and scales while the most common diseases are Citrus Canker and Phytophthora Foot Rot, Gummosis, Stem end rot and newly emerging disease of Citrus Greening. It has been observed that 90% of the citrus growers do not give much importance to this important issue; moreover, they do not have the proper spray equipments. It becomes therefore, necessary that the

(Average 1979 - 81)

Characters	**Treatments**					
	T_1	**T_2**	**T_3**	**T_4**	**T_5**	**T_6**
Yield in numbers	249	903	1288	614	520	1106
Weight of fruit (gm)	194.9	184.1	179.1	187.9	194.5	188.0
Juice percentage	43.6	43.7	49.3	42.9	43.9	41.6
TSS	11.4	11.6	12.5	11.6	12.1	11.9
Acidity	0.86	0.78	0.67	0.71	0.69	0.78
TSS / Acid Ratio	13.25	14.87	18.65	16.34	17.54	15.25

Government / ZTBL made the proper spray equipment available at Union Council level to provide the citrus growers on hire basis.

Two to three timely sprays of D.C.TRON PLUS or Bifenthrin or Confidor SL plus any suitable fungicide like Metalyxal M.Z., Copper Oxychloride, Topsin M or Aliette etc can improve the situation Moreover reliance on chemical control should be minimized and "IPM" (integrated pest management) program should be adopted which should include.

I. Proper tree spacing
II. Avoidance from mechanical injury
III. Sterilization of equipments involved in budding/grafting and pruning operation
IV. Regular pruning practices
V. Destruction of eggs
VI. Use of mineral oils for spray purpose.
VII. Use of sex pheromone traps.
VIII. Destruction of host plants.

7. Education and Awareness

i) Extension Services

Agricultural Extension Services in the field of Horticulture are inadequate. The situation thus demands that a separate cell with specialized Agricultural workers may be created in the Extension Wing having proper training in fruit culture.

ii) Research Workers

The Research workers presently engaged in Horticulture Research may be equipped with advanced knowledge and techniques through adequate training facilities.

iii) Citrus Growers

It has been observed that 90% citrus growers are unaware of the citrus orchard management practices. Their education may be arranged through specialized extension workers, refresher courses and demonstration blocks to improve the situation.