

KEY NOTE

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Pakistan is presently producing over 6 million tonnes of fruit annually. Citrus fruit hold first position in production and have a share of about 34% in the total fruit production of the country. Citrus fruits are edible member of genus citrus of plant kingdom.

Genus citrus has a total of 16 species of which only 6 produce edible fruits. These are mandarins, sweet oranges, grapefruits, pommelos, limes and lemons. These all are produced in Pakistan with maximum acreage under mandarins i.e. Kinnow and Feutrell's early. Kinnow is a hybrid of two mandarin varieties i.e. King and Willow leaf and was introduced from USA during early forties. It was tested in the experimental orchard of this university and was released to grower during early fifties. It became popular soon both among growers for high production and consumers because of good quality. This is how the areas under citrus fruits increased and attained a boost in country's production as happened else where in the world during the period.

Citrus fruits excelled all other tree fruits during the previous century. In the beginning of 20th century production of citrus fruits was merely one million tonnes while in the beginning of 21st century production it is touching to 98 millions tonnes. This huge increase in production is no where noted in other fruits during this time. The increase in production took place after it happened to explore the importance of this fruit in juice making and processing to other industrial products. Single strength juice and concentrate which was prepared soon after world war second particularly gave a tremendous boost to citrus production.

Simultaneously there took place a hectic work on breeding of new varieties for higher production and of better quality at University of California, Riverside. Dr. H.B. Frost the most criticized man during his life time gave an understanding about citrus genetics and gave several well known varieties which were introduced by two generations of his students after him. Kinnow is one of them. In fact development of a good variety of citrus or other tree fruits is an age old process. Frost being very hard working serious and unsocial earned only a name eccentric wolf during his life time. However, his work was recognized and appreciated after his demise.

In Pakistan, citrus production at independence was only 16.5 thousand tonnes and was considered as insufficient for a population of 30 millions. The citrus fruits were imported from India until 1965. The efforts, however, started efforts before independence to introduce citrus production in this part of the sub-continent. Several dozens of varieties of all citrus species were imported from several countries including, USA, Australia, South Africa, Brazil, Spain, Italy, Turkey, Portugal and Morocco which continued from 1930-1941. The results started appearing from 1940 and continued addition of varieties until 1950, when kinnow and Feutrel's early were recommended for growers to raise in their orchards. Varieties of other citrus species recommend during that duration were; Mosambi, Pineapple, Valencia late of sweet oranges, Duncan, Foster and Marsh seedless

of grapefruit; Eureka, European and Villfrance lemon of lemons, Palestine sweet lime and kaghzi limes of limes.

Similarly another spell of introduction started during 1971 and continued until 1994 when Italian Fruit and Vegetable Project concluded. During this era too most of the varieties were imported from USA, Spain and Italy. These were planted in citrus germplasm bank of Sahiwal and some at Barani Agri. Research Station, Chakwal.

The recommendations started appearing by mid seventies and Shamber cv. of grapefruit was recommended for farmers' production. It is a seedless and pink flesh cv. of excellent quality. It in fact gave a boost to grapefruit cultivation in the country. Then some orange cultivars like Salustiana, and Moro Blood were recommended.

Similarly some new tangerine varieties like Fair Child and Fremont and tangelo like Orlando were also recommended but could not gain popularity. In fact among the new recommended varieties there is no one to compete kinnow in production and quality. Kinnow is no doubt a prolific Cv. but depending upon only one cultivar for fresh fruit, processing and export is not reliable for the country. Moreover, problem of seediness, alternate bearing and difficult to handle for export still prevail and hamper the commensurate return. We, therefore, need to introduce improved orange cultivation and educate the growers to grow varieties of sweet orange if to compete in export market and to go for processing.

Emphasis in Pakistan remained only on introduction and only a negligible work of citrus hybridization was carried out. However, some work carried out at University of Agriculture Faisalabad. The work has resulted out two good varieties of practical significance, one of them being seedless as well.

Presently Pakistan is producing about two million tons against 16500 tons in 1948. This increase has been achieved due to introduction of new varieties particularly kinnow and increasing the acreage. There is no appreciable change in yield per acre. This indicates that there is a little implementation of the recommended practices. The average yield is static at 10 tons per hectare since quite a long time although there are some excellent orchards producing over 60 tons per hectare a comparable high yield of any good country. This indicates that the environments and climate is friendly for citrus fruits but to ensure is the scientific approach. Sooner is the better to complete the rest of the citrus growing countries of the world.

Comparing area and production with several other countries the average production of Pakistan is quite low. Brazil's average is double, USA's four times, Spain's more than 3 times, Egypt more than double as compared to Pakistan.

An important feature of our citrus plantation is the short life span of trees which seldom exceed 25 years. In over 40 percent cases the decline of trees starts at the age of 10 years the prime age of production whereas it is not uncommon for citrus orchards to remain in production for over 50 years in many countries. This gloomy situation can be easily averted by improving nursery practices and orchard management which are indeed needed to promote citriculture profitably. The production may also be enhanced by customizing more number of trees per acre and by minimizing losses after harvest which are 25% and needs to be reduced as in many other countries to 5%.

Pakistan by virtue of its production is the 11th largest citrus growing country in the world after Brazil (18.4 MT), USA (12.3 MT), China (10.2 MT), Spain (6.1 MT),

Mexico (5.5 MT), India (3.9 MT), Italy (3.1 MT), Iran (3.0 MT), Argentina (2.4 MT), Egypt (2.3 MT) and Pakistan (2.0 MT).

As already mentioned there are five edible species of citrus which are known as citrus fruits and are produced in variable acreage in various countries of the world. The major share in the world production of all the above mentioned countries sweet oranges which are over 70% of the total followed by mandarin 18-20 percent.

As regards, export of citrus fruits, it has the largest share in the international trade among fruit. Total export is estimated equal to 9.0 million tonnes of fresh fruit worth over \$ 4 billion and over 1 million tonnes of concentrate (FCOJ) worth more than \$ 3 billion other processed products of \$ 1 billion. In this trade of over 8 billion, our share is of 0.1 million tonnes worth \$ 20 million and thus Pakistan stands at 18th position in world rating.

Some important factors causing our less export other than infra structure etc is non availability of suitable cv. Kinnow is soft citrus which is difficult to handle and being seedy brings less price. Sweet oranges contribute over 60 percent in fresh fruit export and 90 percent as processed but it is no more popular in this country. It is hence needed to develop citrus industry as broad based instead of relying on only one variety. Moreover for understanding handling of fruit, the knowledge and technology of post harvest is essential but at present, there is shortage of trained personnel and of laboratory facilities in the field of post harvest which are needed to develop to tackle the problem scientifically. For the relief of the growers and for earning more foreign exchange manufacture of the various products like concentrate and juices is required enhanced.