

URBAN HORTICULTURE

(Growing fruits, vegetables, herbs and flowers in Bungalows for Sindh Karachi)

**By
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Horticulture is not floriculture alone as is mostly practiced in households of Pakistan. It is also fruit culture, olericulture (vegetable cultivation), herbiculture (plants having non-woody stems used in medicines and spices), including their post-harvest treatments and processing for value added marketing. As a science it emphasizes on management of climate, soil, fertilizing, disease control, trained labor, maximum yields of high quality crops as compared to field crops.

In the Europe and USA governments encouraged planting of horticultural crops as kitchen garden in residences in the nineteenth and twentieth centuries and in USA more than 10 billion dollar worth vegetables and fruits are raised on an average of 80 square yards (720 square feet) or a strip of about 20x36, or 30x24 feet per household. In Karachi at least three crops of many different types' vegetables can be raised on this small strip during a year and there would be enough vegetables to feed two houses to the left and to the right of your house during the twelve months of the year. This would amount to a revolution in urban agriculture, if properly executed.

Situation in Pakistan is totally different. The concept of horticulture is a big lawn surrounded by flower beds, flower pots, occasional landscape trees and may be some flower beds at corners and some time in the centre maintained by roving malis or gardeners who in general are half literature and half illiterates and ignorant but with experience and guidance of old malis become crafty to make a show off as experts and house owner not familiar with trade are compelled to accept their word and advice.

No doubt flowers look beautiful and pleasing to eye, but it is not realized that vegetables and herbs could be equally appealing and some fruits and their flowers are extremely beautiful as they pass through various colorful stages from flowers to fruit (lets) which developed into fruits of many different colors and sizes over many months and some times emit fragrances. Most of fruit flowers attract honey bees, which are harmless and become additional attraction to watch them crawl from flower to flower.

The present author specializes in fruit culture and has 103 acre fruits farm at Khesano near Sindh Agriculture University Tando Jam and 14 miles form Hyderabad. Climate at that places some what is different from that of Karachi, not in terms of total annual heat and chill but also in terms humidity. Karachi has 3,862 heat units against 4,373 of Hyderabad and 100 chill hours (hours having temperatures below 7.2°C or 45°F) against

200 of Hyderabad and therefore not all fruits which grow in surroundings of Hyderabad can grow in Karachi, but quite a few varieties or cultivars of them can grow, flower and fruit. These cultivars/varieties need to be identified. In the past 20 years, we have introduced developed and selected many different cultivars of 25 fruit trees and those which can be grown in Karachi bungalows and are discussed below:

- 1) **Peaches and Nectarines.** Natural area for raising peaches in Swat, other hilly areas of NWFP and Baluchistan having height of 4000 feet above mean sea level, but breeding scientists in the past 25 years have evolved 12 new low chill varieties of peaches and nectarines, which can grow around Hyderabad and in the northern and central Sindh and only two of them can flower and fruit in Karachi. They flower in January after their leaves are removed manually or chemically at end December and then flowers appear on all branches, twigs and stems in mid January. In February beautiful fruit-lets numbering in many thousands are produced from second year onwards, but most of these are manually removed to leave one fruit-let at every 6 inches (15 cm) so that each fruit at harvest weighs 100 grams or more and diameter is more than 7 cm or about 3 inches. Without this type of pruning fruits will be small containing only seed and skin and no pulp. The fruit color is pink red as shown in picture. One caution is; “NWFP and Quetta varieties grow only in 600-2000 chill hours area and won’t flower in Sindh and risk should not be taken with money and costly space as per advice of malis.”
- 2) **Fig.** There are two varieties of low chill figs which can grow in Sindh and Karachi too. They are green with dark brown blush on the skin, white or pink flesh and sweet for use as dessert or salad. They can be maintained as a shrub by pruning. Flowering comes in March and harvest is May to October. As it is prolific bush, one can pick a few fruits each day for five months and as bush has a few leaves, they give beautiful look. Again caution is; “NWFP varieties will not fruit or flower in Karachi.”
- 3) **Grapes.** Grapevines both for wine and dessert were grown in Sindh before independence. One variety grown in Burnes Garden and Zoological garden (Victoria/Gandhi garden) had pink colored and is now being grown as a popular variety in Andhra Pradesh and Tamil Nadu (India) under the name “Karachi Gulabi”. There are at least 6 good varieties of low chill grapes which can be grown in whole Sindh including Karachi. They have golden, pink, blue and black colors and all bunches look highly attractive and decorative with shining waxy surface. One variety can be processed into Kishmish as well as wine. Necessary caution is: “Do not try to convert it in to wine. It is illegal”.
- 4) **Lychee.** It cannot grow in Karachi as it has high chill requirement but out of 2000 trees planted by us, we have identified one low chill variety which flowers and fruits even when winter is comparatively warm. It suits Karachi climate, has beautiful big bunches and large berries. Even the whole process of flowering to fruit harvest gives beautiful look including pollination by honey bees. Flowers come in February and harvest takes place at end of May. It is also beautiful

landscape tree with dark green shiny leaves and flowers which turn light golden and fruit has beautiful dark pink color. The caution is; “not every variety of lychee can fruit in Karachi”.

- 5) **Longon.** It is called little brother of lychee, with light brown skin but very sweet white shining pulp and dark brown lychee like seed. It flowers at end of February and is harvested from 15th July to 15th August. The caution is; “do not grow from seed as tree will be too big and may not fruit in 8-10 years. Fruit from seedlings is of small size, less pulp and low yield.”
- 6) **Papaya.** Pakistan does not have good varieties of papaya and local varieties have only 6-7% sugar but a variety imported from abroad having size of only 500 grams, has 14% sugar content and red color pulp. It is popular exportable variety. Tree is very attractive and it flowers and fruits within six months after planting. It is dioecious and male and female flowers occur on separate trees. It is safe to plant three or four seedlings to give at least one female. It occupies very small space of six feet diameter and needs to be replaced every third year and as it become taller, fruit size becomes smaller and harvest at height becomes difficult. The caution is; “seed is to be imported.”
- 7) **Pomegranate.** It is temperate zone crop, growing in Central Asia Kabul, Kandahar (Afghanistan) and Duki-Barkan area of Baluchistan. Breeders have developed varieties suiting Hyderabad (Sindh) and these be tried in Karachi. They produce extremely showy red color flowers, red skinned fruits and dark red colored grains. While local and Kabul and Kandahar varieties have large tough and hard seed, these varieties have very soft seed, fragrance and flavor lacking in presently imported varieties. The caution is; “only low chill varieties are suitable for Karachi.”
- 8) **Citrus.** A few citrus varieties namely; grape fruits, Tahiti lime, lemons and some mandarins can be grown in Sindh as they require low chill. These have been tried by us and suggest that following varieties could easily be raised in Karachi:
 - a) **Grape fruit.** Seedless, pink juice, pink skin grape fruits of which four varieties can be grown in whole Sindh. They have non acidic juice, the content of which rises to 65-70%. Grape fruits do not produce fruit true to mother from seed. They fruit from August to October. Their flowers are white and also can produce fruit in clusters usually of 5 fruits. Clusters are beautiful to look at, from fruit-lets to ripe pink fruit. The caution is; “do not use seedlings.”
 - b) **Limes.** There are seedless and seedy varieties of which Bearass is most popular in USA and has good fragrance. They fruit year around. Plants have to be imported.

- c) **Lemons.** They are different from limes and are very common in Pakistan but some varieties have large size and more juice content. Their season is July to February.
- d) **Mandarins.** Some varieties of mandarins can also be raised in Karachi home gardens.

The caution on citrus is; “they need insecticide sprays every month.”

- 9) **Guava.** Pakistan’s guavas while green on trees turn golden yellow soon after harvest, but there are also pink skin and pink flesh varieties originating from South Africa, Brazil, Hawaii, Florida and now introduced by us. Some selections have large size varying between 250-350 grams, high pulp to seed ratio and mostly used for juice. While on the tree, they can be mistaken for pomegranates.
- 9) **Mango.** We are familiar with green and golden skinned mangoes. The most popular of the latter varieties are Sindhri and Chausa, but both are not getting adequate prices in European market. Mango originated in Myanmar – Assam (India) border and all varieties of the western hemisphere are their descendents. Florida developed more than 100 varieties in the first half of twentieth century from a South Indian variety. Some of Floridian selections resist fungal diseases and fruit fly attacks. Even insect attack on them is less. At present these are exported from Haiti, Brazil, Columbia, Venezuela, South Africa etc., to Europe and from Australia to Japan. Now red skin mangoes are preferred in Europe and Japan may do the same. We will have to switch to red skin varieties. Of 17 varieties developed and released by us up to August 2002, there are many red skinned ones, which can be harvested on April 15, May 1 and 10, July 15, August 1 and 15, September 1 and 15 and 30. The red blush on the fruit gives it beautiful look against green back ground of the leaves and this makes them as beautiful landscape fruit. Their size is 350 grams and more. Some varieties weigh 1 ½ to 2 kgs. Trees are dwarf and will occupy space of 10-12 feet diameter when mature and will attain height of 10 to 15 feet in 10 years. Regular pruning will increase yield and keep tree dwarf. Some of them can be stored on the tree for a month after maturity. Their taste and sugar content matches our good varieties and have shelf life of 15-20 days against 7 days of ours. These are mangoes of 21st century and will spread like wild fire in a few years. We expect that with enforcement WTO treaty, red skin mangoes will be imported before 20th May and after 20th July from 2005 onwards. We can recapture our market by introducing them. There are doubts expressed whether mango can grow in Karachi. There is no doubt about it but do not introduce seedlings as they will have inferior fruit and may not flower for 10 years.