CHAPTER VI

SUMMARY

The present investigations were conducted at the Govt. Horticultural Research Institute, Saharanpur during the year 1961-63 on the causes and control of fruit cracking in lime variety Kagzi Kalan and pomegranate variety Desi. The results achieved are summarized below:

Extent of fruit cracking in different varieties of lime and pomegranate was 52.66 (Kagzi) and 39.66 per cent (Desi), respectively in 1961 and 49.09 and 38.11 per cent in the two varieties during 1962. However, variety Sweet lime in citrus and Sour in pomegranate did not crack at all. Seedless lemon and pomegranate var. Red fleshed recorded the least cracking of 2.63 to 4.20 and 2.10 to 2.15 per cent, respectively.

Cracking was the highest in exposed fruits located on top branches and among the affected fruits, radial type of fruit cracking was most common.

Fruit cracking was found to be influenced by the time of fruit-setting. Fruits set early in the season were most susceptible to cracking.
There were pronounced differences in the physico-chemical properties of different parts of the fruits. Among the stem and stylar ends, the former had thick firm peel with high pectin and protopectin contents, while the latter excelled in total soluble solids, sugars and osmotic pressure (in fruit juice). Cracked fruits were marked with less firm peel, low pectin and protopectin contents, high total soluble solids sugars and osmotic pressure.

Stylar half of the fruit was more permeable to water. Fruits when immersed in water showed 60 per cent cracking in lime, whereas no cracking was recorded in pomegranate. Hot air treatment of fruits (40° C) before immersion in water resulted in even higher cracking indices (66.66%).

Histological studies of fruit peels in different varieties of lime and pomegranate revealed that in susceptible varieties cells of epidermal and hypodermal layer were more elongated with thick deposition of cutin on the cell walls and the growth was restricted.

In irrigation and chemical spray experiment conducted for checking fruit cracking, it was found that the irrigation treatments I₁ in lime and I₂ in pomegranate together with sprays of
copper sulphate (Conc. 0.01 & 0.05 per cent) and borax (0.25 & 0.50 per cent) reduced fruit cracking considerably in both the fruits (ranging from 0.00 to 1.70% in lime & 0.00 to 0.72% in pomegranate).

Fruits sprayed with borax and copper sulphate had thick firm peel, high in pectin and protopectin, medium to low total soluble solids, sugars and osmotic pressure in juice.

Covering of fruits under muslin bagging also reduced fruit cracking upto 11.06 to 19.97 per cent in lime and 8.3 to 11.6 per cent in pomegranate. However, in lime, fruit cracking in gunny bags was least and ranged from 4.43 to 6.63 per cent but the fruits were damaged due to desiccation.