



Fruit Cracking in Pomegranate: Causes and Remedies

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Pomegranate is grown extensively in arid and semi arid regions worldwide. The ripe fruit is rich source of sugar and acid, and has some medicinal value. Area under pomegranate cultivation in country is day by day increasing due to its versatile adaptability, hardy nature, low management cost, high yield, better keeping quality, therapeutic values and possibilities to grow the plant in rainfed areas. In pomegranate about 20-40% yield losses due to fruit cracking and cracking of fruits lose their keeping quality, fruit weight, juice content and transportability to distant markets. It is essential to understand causes of fruit cracking and their remedial measure to ensure good quality of fruits. Fruit cracking can be avoided by cultivation of resistant varieties of pomegranate and scientific management of orchard.

Introduction

Pomegranate (*Punica granatum* L.) is the fruit of a large deciduous shrub of Mediterranean origin and grown extensively in arid and semi arid regions worldwide. The characteristic ability of the fruit to withstand harsh climatic condition makes it able to grow in arid and semi arid region of the country due to hardy nature, low maintenance cost and high yield. It cans tolerant salinity and saline irrigation water so it has great future prospect of increase in area along coastal belts where soils are becoming saline nature. It is grown for its cool and refreshing juice enrich in medicinal properties with sweet acidic taste. The ripe fruit of pomegranate contain 12-16 per cent sugar and 1.5-2.5 per cent acid. Infect, it contains more sugar than apricots, plums, peaches and oranges. Besides being commercially important it has some medicinal value and is considered beneficial for the patients of leprosy, dysentery and diarrhea. The rind of the fruit contains about 30 per cent tannin which can be used for tanning leather. In recent years area under pomegranate cultivation in country is day by day increasing due to its versatile adaptability, hardy nature, low management cost steady, high yield, better keeping quality, therapeutic values and possibilities to grow the plant in rainfed areas. In Rajasthan pomegranate is grown in Jodhpur, Jalore, Ajmer, Udaipur, Chittorgarh and Jaipur. However, the farmers of region facing the problem of fruit cracking due to unscientific cultivation and management of pomegranate orchard. Fruit cracking is an important physiological disorder in pomegranate, which, causing about 20-40 % yield losses due to deterioration of looking appearance and quality of fruit. Now day's consumers prefer good quality fruits with good appearance, while cracked fruits do not fetch good price in

market. Besides these cracking of fruits lose their keeping quality, fruit weight, juice content even some time not fit for human consumption due to infection of fungi and bacteria through cracked portion of the fruit. The cracked fruit also loose there transportability of distant markets. However, pomegranate mostly grown on degraded and waste land without adoption of appropriate management practice. Therefore, it is essential to growers to understand causes of fruit cracking and their remedial measure to ensure good quality of fruits from pomegranate orchard.

Causes of Fruit Cracking in Pomegranate

Fruit cracking in pomegranate is serious problem, which deteriorate quality of fruits. By understanding cause of cracking and scientific management of orchard at right time can help to reduce the occurrence of fruit cracking. There are several reasons for fruit cracking in pomegranates which includes:

- Lack of appropriate orchard management.
- Excessive irrigation during the ripening period is likely to cause the fruit to crack.
- Mrigbahar fruits of pomegranate is more prone to cracking due to occurring of fruit maturity during juncture of summer and rainy season (June- July), where high temperature and high humidity present in the atmosphere, which is responsible for fruit cracking.
- The soil type and soil moisture condition of the orchard.
- Fluctuation of soil moisture, day night temperature and humidity.
- Pomegranate fruit is sensitive to water deficit during the end of fruit growth and ripening. Prolong dry period causes hardening of rind, if dryness is followed by rains or irrigations the pulp expands then ultimately peel cracks.
- Rind flexibility of fruits, if rind is thin then higher cracking.
- Imbalanced fertilisation and nutrient deficiencies, especially Boron, calcium and potassium element during fruit development to maturity.
- Genetic characteristics of cultivars; some varieties are more sensitive to cracking.
- The frequency and distribution of rainfall during the mature and ripening stage.



(A) Fresh fruit of pomegranate



(B) Cracked fruit of pomegranate

Prevention of Pomegranate Fruit Cracking

The following remedial measures can be helpful in minimizing the incidence of fruit cracking in pomegranate to get more economic yield with quality fruits.

- Avoid Mrig bahar crop and should be take Ambe bahar crop.
- Growing of tolerant or resistant varieties like Bedana, Bosc, Appuli, Khog, Gul-e-shah etc.
- Follow recommended fertilizer schedule.
- Maintenance of adequate soil moisture throughout the period of fruit development to maturity
- Conserve soil moisture through mulching, straw, black polythene sheet etc.
- In hot and dry area should be use drip irrigation and fertigation.
- Spraying of calcium hydroxide (0.1%), borax (0.1%) at 15 days interval after fruit set to maturity.
- Spraying of antitranspirant like phenol (5%), liquid paraffin (1%) four to five weeks before harvesting.
- Spray of GA₃ (120 ppm) during maturity.
- Growing of wind breaks of around the orchard to check hot winds.
- Relative early harvesting of fruits which does not allow fruits to split or cracks

Conclusion

It is concluded that appropriate management of pomegranate orchard at right time and pre-harvest application of growth regulators (GA₃), mineral nutrients (Borax, CaOH and ZnSO₄) and antitranspirant (phenol and liquid paraffin) at regular interval at the early stages of fruit growth help in reduction of fruit cracking.