

Managing physiological disorders in arid fruits

Physiological disorders are mainly caused by changing environmental conditions such as temperature, moisture, unbalanced soil nutrients, inadequate or excess of certain soil minerals, extremes of soil pH and poor drainage. At present, the climatic scenario of arid region is also changing and the problems like frost, temperature and moisture fluctuation, high evaporation and low precipitation as well as nutrient imbalances are becoming a challenge for cultivation of many arid fruit crops. In this article we have discussed the problems associated with ber, pomegranate, aonla, date palm and bael especially physiological disorders which will certainly help the farmers in timely overcoming these maladies for getting satisfactory remunerative prices from arid fruit crops under hot ecosystem of western Rajasthan.

Physiological disorder of fruit crops mainly occurs in western Rajasthan condition due to unfavourable environmental conditions as well as improper cultural practices, which affect the plant growth and development; this mechanism is called physiological disorders. The physiological disorders are most important non-pathological problems faced by present day fruit growers which are the results of dysfunction or malfunction of the physiological processes of the fruit tissues due to abiotic stresses like temperature, relative humidity, moisture/water stress, chemicals, nutrient excesses and deficiencies. The productivity as well as the quality of fruits is affected to a greater extent due to the physiological and nutritional disorders.

BER

Stylar-end Browning

It was identified in ber (*Ziziphus mauritiana* Lamk.) cv. Chhuhara, wherein tip (stylar end) of the ber fruits turned brown. It was found to aggravate with the progress in maturity. The affected fruits contain less soluble solids, reducing, total sugars

and ascorbic acid; besides higher content of secondary metabolites and enzymes responsible for oxidative browning. This disorder was found to occur under high boron accumulation conditions, which was triggered by high temperature, coupled with high illumination and evapo-transpiration.

Fruit Cracking

The causes of fruit cracking in arid condition may be due to soil moisture imbalance, low relative humidity and fluctuation in day and night temperature as well as nutrient deficiency at the time of fruit development and ripening stage. This disorder is characterized by cracks developed after a rain on the skin of the fruits, sometimes deep into the flesh, affecting the stem end area, the calyx end and the cheeks of the fruit (side cracks). Cracking in ber can be minimized by spray of Gibberellins @ 20 ppm, 2, 4-D, NAA at concentrations 20 ppm or 20 mg per litre and Boric acid @ 2g/l at the initial stage of flesh development reduces the activity of cellulose and reduced cracking. Use of organic manures and irrigated regularly during the entire fruit development stage by conserving soil moisture through mulching, straw, black polythene sheet etc.



Physiological disorders of ber