



Flower Regulation in Guava and Pomegranate

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To obtain higher fruit yield during a particular period, the pomegranate and guava plants are given a resting period by which the natural tendency of the tree is altered with artificial means. It is done by withholding of water for about 60 days in advance of the normal flowering, root exposure and also use of chemicals is known as *bahar* treatment.

Introduction

The pomegranate plants flower and provide fruits throughout the year in central and southern India. However, it needs to be thrown into rest period so as to enable prolific harvest at a given time. Looking at patterns of precipitation in India, flowering can be induced during June-July (*mrig bahar*), September–October (*hasta bahar*) and January–February (*ambe bahar*) in areas having assured rainfall where precipitation is normally received in June and continues up to September, flowering in June is advantageous, where monsoon normally starts in August with erratic pattern, flowering during August is beneficial, the areas having assured irrigation potential during April-May, flowering during January can be taken and where monsoon starts early and withdraws by September, induction of flowering in October is possible.

Guava tree flowers throughout the year, but the peak flowering is observed in 2 seasons, rainy crop (April-May) and winter crop (Aug- Sept). Flowers are produced in leaf axils or in cyme. The period of flowering varies from 25-45 days. Honey bees are the pollinators.

Ambe Bahar: This is taken in the areas where, enough water is available during hot weather. In this bahar, flowering can be induced in February-March.

Mrig Bahar: In this bahar, flowering can be induced in June-July, coinciding with the outbreak of monsoon; this treatment is taken in the areas where, water is scarce during the hot weather. This bahar is generally followed in guava.

Hastha Bahar: In this bahar, flowering can be induced in September – October, where the trees have to be made dormant during August–September. This is rather uncertain because of the rain that occurs during this period. Due to this reason *hasta bahar* is very difficult. This bahar is generally followed in pomegranate.

Bahar	Flowering Time	Fruiting Time	Quality
Ambe bahar	February-March	July-September	Poor
Mrig bahar	June-July	November-January	Excellent
Hasth bahar	October	Feb-April	Good (low yield)

To obtain higher fruit yield during a particular period, the pomegranate and guava plants are given a resting period by which the natural tendency of the tree is altered with artificial means. It is done by withholding of water for about 60 days in advance of the normal flowering, root exposure and also use of chemicals is known as *bahar* treatment or flower regulation.

Flower Regulation

Bahar treatment is done by root exposure, with holding water and deblossoming the rainy season crop which are generally having fruits of insipid taste and inferior quality.

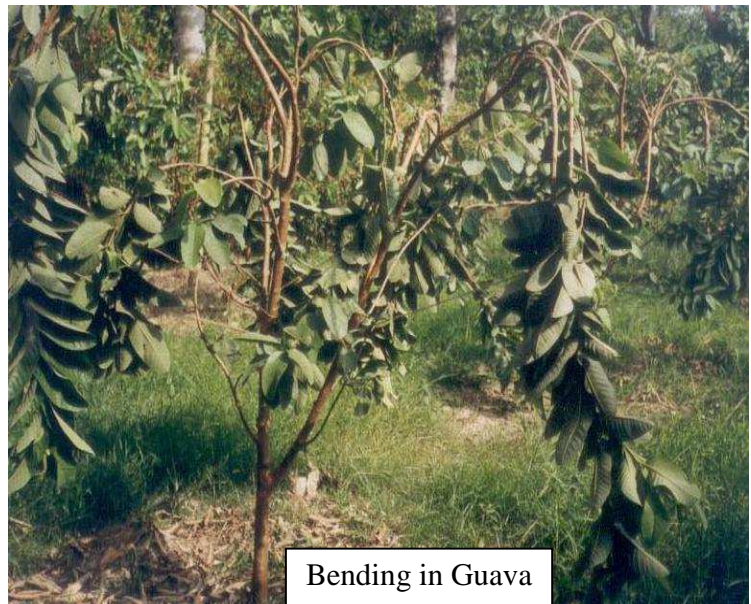
In Guava, only 35-50% fruits are carried to maturity though initially 80-86% fruit sets. In seedless variety, it is as low as 6 per cent. To improve fruit set, spray of 200 ppm GA3 can be done. Fruits take 105-140 days to mature from fruit set.

Since *mirg bahar* or winter crop yields fruits superior quality, so winter crop is generally desirable and preferred over rainy season crop. To obtain heavy flowering and fruiting for winter crop certain crop regulation methods can be adopted, the practice being called as *bahar* treatment. A general practice is to restrict watering of trees from February to May. This leads trees to a rest period during which accumulation of food materials takes place in branches. During June, trees are manured followed by irrigation. The trees thus treated produce profuse shoot growth followed by heavy flowering leading to enhanced yield in winter season. In addition to withstanding of irrigation, exposing of feeding roots and pruning of fibrous ones to regulate coppicing is employed on certain areas. Upper soil surrounding trunk, and about 90-120 cm diameter is removed to expose roots. After then about 3-4 weeks, the exposed roots are covered with soil, followed by manuring and irrigation.

Deblossoming to check rainy season crop and to promote winter crop is beneficial in guava. Manual deblossoming can be done in small scale, but on a commercial scale chemical flower thinning is followed. To reduce the rainy season crop and increase the winter season crop two sprays with urea (15%) in April-May at 15 days interval has been reported to be quite effective. Among growth regulators NAA 50 ppm and NAA 100 ppm have also been reported to regulate flowering in guava. Sprays with 10% urea in Allahabad Safed and 0.05% potassium iodide in Sardar guava have been reported for inducing heavy winter crop.

Sometimes guava trees grow erect with upright branches and yield very poorly. There is a practice of bending such erect shoots and tying them on pegs fixed in the ground, which activates dormant buds leading to flowering and fruiting.

Crop regulation treatments in Guava *viz.* one leaf pair pruning, two leaf pair pruning, three leaf pair pruning, GA3 sprays (100, 150 and 200 ppm) at flower bud differentiation stage and NAA (600 ppm) at flowering have been used to regulate rainy season crop in guava. Leaf pair pruning at different levels proved to be the most effective in avoiding rainy season crop whereas GA3 at different concentrations seem to be ineffective as compared to NAA (600 ppm). One leaf pair pruning by withholding rainy season crop have been found the most beneficial one.



Bending in Guava