



AGRI MAGAZINE

(International E-Magazine for Agricultural Articles)

Volume: 03, Issue: 07 (July, 2026)

Available online at <http://www.agrimagazine.in>

© Agri Magazine, ISSN: 3048-8656

Importance of Irrigation in Robusta Coffee with Special Reference to Blossom & Backing Shower

*Arkendu Ghosh¹, Koyel Dey², Arjun Kumar³, Jude Deepak Soren³, Shrestha Priya³, Chandni Kumari³, Baigni Lal³ and Vaishnavi Singh³

¹Assistant Professor cum Junior Scientist, Department of Fruit Science,

²Assistant Professor cum Junior Scientist, Department of Post Harvest Technology,

³UG Student, Horticulture College, Birsa Agricultural University,

West Singhbhum, Jharkhand, India

*Corresponding Author's email: arkofruits@gmail.com

Arabica is given more value than Robusta coffee in terms of quality. However, Robusta is cheaper, harsher, or inferior, but it occupies a massive portion of the global coffee industry. In the world, it is the second most widely produced coffee species. Roughly, it accounts for 35-40% of global coffee production. It originated from Congo (Zaire). It grows straight and up to 3 m in height. The branches can touch the ground because of their umbrella shape. Its leaves are broad, crinkled, and thinner than Liberica. During ripening, the beans become thick red. The bean ratio is 3:5:1. Its primary root is shorter than Liberica. Robusta coffee leaves are pale green. Robusta has more water shoots than other varieties. It has 3-4 bunches in every bud and 2-4 flowers in every bunch. It requires 2000-3000 mm rainfall and a temperature of 18-28°C.

Why Irrigation Matters in Robusta

In India, coffee is grown mostly in agro-forests and depends on rainfall. Robusta coffee is more sensitive to drought and gives higher yield when irrigated. When Robusta faces water stress, problems such as dieback, poor flowering, low fruit set, and inferior bean quality occur. It has become essential to provide irrigation in Robusta because of climate change and changing rainfall patterns. There is a huge loss if blossom rains are delayed beyond March. For proper flowering (blossom) and fruit set (backing), irrigation acts as insurance in coffee during drought.

Significance of Water Stress and Dormancy in Coffee

Flower bud initiation in coffee starts from September in South India. The buds become dormant after growing 7-8 mm. They remain dormant until they receive rain. The factors which influence flowering are shorter day length, suitable temperature, carbon-nitrogen balance, and plant hormones. If timely irrigation is given during water stress, then there is uniform flowering. Research shows that there is normal flowering when plants experience water stress and then irrigation is given. After the break of dormancy, buds develop into full bloom within 8-12 days. If irrigation is given before the buds are fully mature, it causes uneven flowering. Therefore, the timing of irrigation is important in coffee.

Blossom and Backing - The Most Critical Stage

In Robusta coffee, flowering occurs during February and March in summer. This stage is called blossom. After blossom, within 15-20 days, backing showers are needed for successful fruit set. Failure of rain or irrigation can result in poor fruit set and berry drop. Blossom and backing showers can increase yield by 25-60% in Robusta.



Fig.1 Flowering in Robusta Coffee



Fig. 2 Fruiting in Robusta Coffee

Quantum of Irrigation and Water Requirement

Water deficit leads to low coffee production and productivity. To increase the productivity of Robusta coffee, blossom and backing irrigation are important with the right quantity of water and at the right time.

Methods Adopted for Blossom & Backing Irrigation in Robusta Coffee

Sprinkler Irrigation

Sprinkler irrigation involves spraying water uniformly over the field. This irrigation system ensures efficient water use and uniform soil moisture. Studies have shown that irrigation with sprinklers for blossom and backing can increase yields by 75-110%. Sprinkler irrigation is the most widely adopted method in India.



Fig. 3 Watering technique for coffee

Micro-Sprinklers

Micro-sprinklers cover a smaller area at a lower rate. They use 40-50% less water than overhead sprinklers and provide good blossom irrigation. Their use is limited to small areas.

Drip Irrigation

Drip irrigation supplies water directly to the root zone. It is useful in water-scarce areas. One advantage is that fertilizers can be applied directly through the drip irrigation system (fertigation).

Conclusion

Blossom and Backing Irrigation is the backbone of Robusta Production in India. That is why it is very important to give irrigation in right time. For uniform flowering blossoming shower plays an essential role by maintaining moisture needed to break flower bud dormancy. Therefore, proper scheduling of blossom and backing showers is critical for achieving consistent, high quality, and sustainable Robusta coffee production under changing climatic conditions.