



# इंडियन कॉफ़ी IndianCoffee

The Coffee Magazine

Vol. 84 No. 7 July 2020



## Pre-mature Fruit Drop in Coffee - Interventions for Minimizing the Crop Losses



P - 4

Evaluation of a New Method for Treating Coffee Effluent



स्वच्छ भारत अभियान



सुरक्षित आवास, शुद्ध वातावरण  
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हम "स्वच्छ भारत" को  
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काँफ़ी बोर्ड



वाणिज्य एवं उद्योग मंत्रालय  
भारत सरकार



# इंडियन कॉफी IndianCoffee

कॉफी पत्रिका

The Coffee Magazine

खंड: 84 सं. 7

Vol. 84 No. 7

जुलाई - 2020, July - 2020

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The views expressed in this journal are purely those of the authors and not necessarily of the Coffee Board.

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Designed &amp; Printed by :

Sharadh Enterprises, Bengaluru

E-mail : sharadhenterprises@gmail.com

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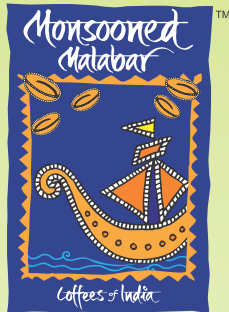
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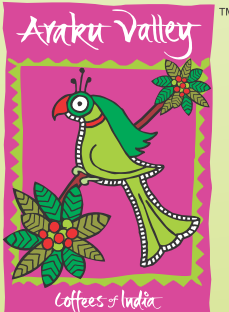
संपादक के **Letters to**  
नाम पर पत्र **the Editor**

Your views, opinions & observations are welcome as long as it is in the spirit of the magazine's principles and values, and may be sent to: editor.indiancoffee1@gmail.com  
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## Coffee Board Regional Logos





From the  
Secretary's desk



Coffee Times

The traditional coffee growing areas have witnessed erratic rainfall distribution patterns during the S-W monsoon season for the past consecutive years with unusually heavy rains during first fortnight of August. The incessant rainfall caused erosion of top soil, landslides, flooding and water logging in the root zone causing wet feet condition. Soil saturation coupled with cool ambient temperature and high relative humidity provide ideal conditions for flare up of rot diseases such as stalk rot, black rot and leaf spot diseases causing defoliation and premature fruit drop, affecting crop production to a great extent. In the back drop of the deviations in weather parameters as a consequence of climate change, it becomes imperative for coffee growers to be aware of the pre-disposing factors for development of these diseases to take up pre-emptive remedial measures and identification of symptoms in the initial stage itself to control the flare ups of fungal diseases, so that the crop losses could be minimized. Our scientists at Central Coffee Research Institute have contributed an article on premature fruit drop in coffee, its causes and remedial measures for the benefit of coffee growers.

At the estate level, coffee is processed by two methods viz., wet method and dry method of processing. The wet processing system uses large volume of water and therefore generates high volume of polluted effluent containing high Biological Oxygen Demand (BOD) level. The effluent is required to be treated to meet the pollution control norms. However, the existing methods of treatment are cost prohibitive and hence there is a need to examine how best the effluent is recycled and used in coffee plantation takes into consideration all parameters of concern i.e. its effectiveness, availability, affordability and environmental friendliness. Recently, the Central Coffee Research Institute has evaluated a new treatment method namely ANSF (Acidification-Neutralization-Sedimentation-cum-Filtration) for treating the coffee effluent resulting from wet processing of coffee. A report on the trials conducted on the effectiveness of a new treatment method for treating the coffee effluent is presented in this issue for the benefit of planters.

This issue also contains regular features viz., Coffee Market Reports, Coffee & Health, Calendar of Coffee Estate Operations etc.

Hope! The readers will enjoy the reading of magazine over a cup of coffee.

N.N. Narendra  
Secretary

## Evaluation of a New Method for Treating Coffee Effluent (Acidification-Neutralization-Sedimentation-cum-Filtration-ANSF method)

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The Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi has recently issued a Gazette Notification prescribing standards/limits for pH and Biological Oxygen Demand (BOD) levels for the disposal of effluent resulting from wet/parchment processing (Gazette Notification No. 45 dated 24<sup>th</sup> January 2020). This Gazette Notification contains standards/limits for storing the effluent in the specified lined lagoons (for solar evaporation) and also standards/limits for discharging the treated effluent on land (for irrigation). As per this Notification, the pH of the treated effluent should be between 6.5 and 8.5. The BOD level should be 1,000 mg/L (1,000 ppm) for storing in the specified lined lagoons (for solar evaporation) and 100 mg/L (100 ppm) for discharge on land for irrigation purpose (Table 1).

Coffee processing refers to the transformation of fresh coffee cherries (fruits) into raw coffee bean (which is the major export form of coffee from the producing countries). Coffee is processed by two methods (wet and dry) in order to obtain the raw coffee bean from the fresh coffee cherries. Of these two processing methods, wet processing consumes water at different stages of processing and thus generates effluent containing high BOD level. The quantity of the effluent generation during wet processing depends on the processing methods employed. The traditional fully-washed wet method generates 40,000 – 70,000 liter of effluent per tonne of fresh cherry. While, the modern mechanical mucilage removal machines

(like ecopulper) generates 1,500 to 2,000 liter of effluent per tonne of fresh cherry.

The fresh coffee effluent is acidic in nature with the pH level ranging from 4 to 5. The BOD level in the fresh effluent ranges from 4,000 to 13,000 mg/L (4,000 to 13,000 ppm) depending the processing methods employed.

Since 1978, the Central Coffee Research Institute (CCRI) has been carrying out various research programmes independently and also carried out in collaboration with the reputed national institutes like National Environmental Engineering Research Institute (NEERI, Nagpur), University of Agricultural Sciences (UAS, Bangalore), Tamil Nadu Agricultural Sciences (TNAU, Coimbatore), Application of Science & Technology for Rural Development (ASTRA – An unit of Indian Institute of Science, Bangalore) as well as private laboratory (M/s. Bass Pollution Control Systems Limited, Bangalore) with the primary objective of evolving treatment methods/techniques to bring down the pollution load to the levels/limits prescribed by the Ministry of Environment, Forest and Climate Change for the disposal of coffee effluent. These research programmes attempted various lab-scale methods/techniques (physical/chemical/biological) as well as field level trials and also conducted field trials to test the usefulness of the treated coffee effluent on various annual crops as well as coffee, for irrigation purpose. The outcome of these research programmes indicated that multi-stage treatment system is essential for

treating the coffee effluent (anaerobic digestion followed by aerobic digestion and plant-based/reed-bed treatment system). The various multi-stage treatment systems evaluated under the different research programmes till date could bring down the BOD level only to the extent of 767mg/L (767 ppm).

It is pertinent to mention at this juncture that the CCRI had conducted field trials on the conjunctive use of treated coffee effluent and pond water on the performance established Robusta plants at CCRI farm during 2008 to 2010. The Robusta plants were irrigated with the diluted treated effluent having an approximate BOD level 500 mg/L (500 ppm). The data indicated that the established Robusta plot irrigated with the diluted treated effluent did not affect the yield level (1,309 kg clean coffee per ha) and it was on par with the yield level recorded in the Robusta plot irrigated with the pond water (1,310 kg clean coffee per ha). These results indicated that the treated coffee effluent with a BOD level of 500 mg/litre can very well be used for irrigating the established coffee plants (Shiva Prasad et. al. 2010).

### **Sand-bed filtration method:**

Laboratory trials conducted during 2016-17 harvest season for the treatment of coffee effluent using sand-bed filtration method indicated that the simple sand-bed filtration method able to reduce the pollution load to a greater extent by removing the suspended and dissolved solids in the effluent. Subsequently, during 2017-18 harvest season, field trials were taken up to treat the coffee effluent following sand-bed filtration method at CCRI farm. A medium-size lagoon measuring a dimension of 5.5 x 3.8 x 3.1 feet (holds 1,800 litre of effluent) was used for the sand-bed filtration method. The bottom of the lagoon was filled with big gravel stones to half-foot height and it was topped with M-sand to two-feet height. The fresh effluent resulting from wet processing of Arabica coffee was passed into

the sand-bed lagoon (approximately 1,000 litre of fresh effluent). The discharge from the sand-bed filtration was clear. However, the sand-bed filtration method could work only for two days due to choking of the sand-bed filter with the suspended solids particularly mucilage (mostly pectin substances present in the fresh effluent). The sand-bed filtration method demanded periodical removal of all the solids lodged over the sand-bed layer and thus making it more labor-intensive and also impractical for treating the coffee effluent (Fig 1 & 2).



*Fig 1. Removal of mucilage lodged on top of the sand-bed filtration pond*



*Fig 2. SBF- Filtrate from sand-bed filtration; Control- Fresh effluent*

Recently, the Post-Harvest Technology division of CCRI located in Chikkamagaluru district of Karnataka state has evaluated a new treatment method (Acidification-Neutralization-Sedimentation-cum-Filtration-ANSF) for treating the coffee effluent resulting from wet processing of coffee. This article presents the results of the field trials conducted on the effectiveness of a new treatment method for treating the coffee effluent during the last three harvest seasons at CCRI farm (2017-18 to 2019-2020) for the benefit of planters.

**Acidification of effluent:**

A review of published literature on treatment of coffee effluent indicated that acidification of fresh effluent is pre-requisite for the treatment of coffee effluent. The processed water (i.e. effluent) from the mechanical mucilage remover contains some amount of sugars. When the sugar is fermented, it is converted into ethanol and carbon-di-oxide. Subsequently, the ethanol is converted into acetic acid, which makes the effluent more acidic. Under acidic condition, the pectic substances present in the effluent comes out of the effluent (due to precipitation) and floats on the surface of the effluent. These pectic substances reacts with the calcium (or other multivalent ions) present in the effluent and forms into a non-soluble gel of calcium pectate. Therefore, when the fresh effluent is allowed to rest in a tank/lagoon for about 8 to 10 hours, all the mucilage (mostly pectin) comes out of the effluent and floats on top, which can be removed off. Removal of pectic substances from the effluent reduces the pollution load and also makes further treatment easier.

**New treatment method (Acidification-Neutralization-Sedimentation-cum-Filtration):**

The new treatment unit viz., Acidification-Neutralization-Sedimentation-cum-Filtration (ANSF) established at CCRI farm is shown in

Fig 3 A-C. The new treatment method consist of two units of acidification tank (A1 & A2 each having a dimension of 8.8 x 3 x 4.8 LBW and holds 3,500 litre effluent) followed by a neutralization tank (9.6 x 3 x 8.8 feet LBW and holds 7,000 litre effluent) and four sedimentation tanks (S1, S2, S3 & S4 having a dimension of 6.2 x 4.9 x 4.75 feet LBW and holds 4,000 litre effluent). A perforated screen (56 x 75 inches with round holes of 8 mm diameter) was seated half foot above the floor level in the S-2 and S-3 tanks. Filter materials (gravel stones topped with M-sand) was loaded over the perforated screen to 2 feet height to filter the suspended solids (if any) and dissolved solids in the effluent. In S-1, S-2, S-3 and S-4 tanks, drains (outlet) are provided at the bottom of the sedimentation tanks to remove the sludge at periodical intervals.



Fig 3 A. New treatment method - Acidification-Neutralization-Sedimentation-cum-Filtration (A1 & A2- Acidification tanks; N-Neutralization tank; S1 to S4 -Sedimentation tanks; S5- Storage tank)



Fig 3 B. A view of new treatment method - Acidification-Neutralization-Sedimentation-cum-Filtration

The effluent from the washer unit (daily discharge) and recycle tank (once in three days)

was fed at the bottom of A-1 tank and stored for overnight (10-12 hours).



Fig 3 C. A view of new treatment method - Acidification-Neutralization-Sedimentation-cum-Filtration

The thick scum (pectin) formed on the top of A-1 tank was gently raked-off using a plastic bucket and mixed with the coffee pulp. When the effluent resulted from 2<sup>nd</sup> day of pulping fed into A-1 tank, the previous day effluent from A-1 tank flew to the A-2 tank through the PVC pipe (3 inch diameter) fixed at the top of A-1 tank by simple displacement technique. Scum formation was also observed in A-2 tank and it was removed and mixed with the coffee pulp. From 3<sup>rd</sup> day of pulping onwards, the effluent from A-2 tank flew to the neutralization tank through the PVC pipe (3 inch diameter) fixed at the top of A-2 tank. In the neutralization tank, agricultural lime at the rate of 5 gram/L effluent was added. The agricultural lime was dissolved in adequate amount of water and the lime solution was added to the effluent. The neutralized effluent from the neutralization tank was top fed to the S-1 tank. The effluent from S-1 tank was bottom-fed to S-2, S-3 and S-4 tanks in series through the PVC pipe (3 inch diameter). The neutralized effluent passed through the filtering materials placed in S-2 & S-3 tanks. The treated effluent from S-4 tank passed to the settling tank (S-5) through the PVC pipe (3 inch diameter) fixed on the top of the S-4 tank.

### Analysis of effluent for pollution parameters:

The fresh effluent and also the treated effluent from all tanks (A-1, A-2, N, S-1, S-2, S-3, S-4 & S-5)

were sampled at regular interval and analysed for pH, BOD level & total suspended solids (TSS) content following standard analytical technique. The analytical data are presented in Table 2. The data indicated that the average pH of the fresh effluent was 4.78 and it decreased to 4 to 4.1 upon acidification (A-1 & A-2 tanks). The average pH of the treated effluent was 6.5 (S-5 tank) and increase in pH level was due to proper neutralization of effluent with the agricultural lime.

Regarding the BOD level, the average BOD level of the fresh effluent was 8,338 mg/L (8,338 ppm) and it was reduced to 1,544 mg/L (S-5 tank) upon treatment (the percent BOD reduction was 81.5%). The average total suspended solids content in the fresh effluent was 4.65 g/L and upon treatment, it was reduced to 2.5 g/L (the percent TSS reduction was 46%). The data on total suspended solids content indicated that the TSS content was very low in effluent samples from A-1, A-2 and neutralization tank (0.74, 0.72 & 0.84 g/L, respectively) and then increased to 2.5 g/L (S-5). This may be due to addition of natural elements/minerals present in the filtering materials (gravel & sand) when the effluent pass through these filtering materials.

These data indicated that the new method viz., Acidification-Neutralization-Sedimentation-cum-Filtration (ANSF) reduced the BOD level only to the extent of 81.5% (initial BOD- 8,338 mg/L; final BOD - 1,544 mg/L). Further, it was observed that the effluent in the sedimentation tanks was found to be dark in colour. This is due to the fact that when the pH of the effluent increases from acidic to neutral range, the flavonoids (pigment) present in the effluent turns into blackish green. The treated effluent from S-5 tanks was lifted to the recycling tank for use in the pulping of fresh cherries.

In order to reduce the pollution load in the coffee effluent effectively, it is necessary to remove the pectin substances in the fresh effluent through acidification followed by proper neutralization

by adding agricultural lime (in solution form) at the recommended quantity (5 g/L of effluent).

In conclusion, though the new method viz., Acidification-Neutralization-Sedimentation-cum-Filtration (ANSF) did not reduce the

pollution load to the limits prescribed by Central Pollution Control Board (CPCB), this new method seems to be relatively simple as it does not require any chemical (or) biological inputs (excepting agricultural lime) for treating the coffee effluent.

**Table 1. Standards prescribed for effluent resulting from wet/parchment coffee processing (as per the Gazette Notification No. 45 dated 24<sup>th</sup> January 2020 issued by the Ministry of Environment, Forest and Climate Change, New Delhi)**

Sl. No.	Parameters	Standards
1.	pH	6.5 – 8.5
2.	BOD (3 days at 27°C)	Storage in lined lagoon: 1,000 mg/L (1,000 ppm) Discharge on land for irrigation: 100 mg/L (100 ppm)
3.	Liner specifications	The non-permeable lining system shall be constructed by using well graded highly impervious clay or geo-synthetic liners such as geo-synthetic clay liners (GCL), high density polyethylene (HDPE) or a combination of both and shall achieve an <i>in-situ</i> co-efficient of permeability of less than $1 \times 10^{-7}$ cm/sec. The compacted clay liner must have a minimum thickness of 300 mm (or two compacted layers of 150 mm minimum thickness each). The finished lining must be tested to ensure that it meets the permeability criteria. The liner system specification and lagoon specification to be achieved in one year
4.	Lagoon specifications	The effluent storage facilities/lagoons/solar evaporation ponds shall be located above high flood level mark of the nearby stream, rivulet, etc., with below mentioned free board and away from any water body/stream at a distance. Free Board - 60cm; Distance - 100 metre.
5.	Effluent disposal criteria	Raw or treated and/or diluted effluent shall not be discharged into surface water body or used for recharging ground water and any circumstances what-so-ever.

**Table 2. Data on pollution parameters in effluent sample subjected to new treatment method (Acidification-Neutralization-Sedimentation-cum-Filtration -ANSF)**

Sl. No.	Sample Details	pH	BOD (mg/L)	TSS (g/L)
1.	Fresh effluent	4.78	8,338	4.65
2.	Acidification tank (A1)	4.03	2,271	0.74
3.	Acidification tank (A2)	4.10	1,708	0.72
4.	Neutralization tank (N)	5.27	1,461	0.84
5.	Settling tank (S1)	5.35	2,417	1.37
6.	Settling-cum-filtration tank (S2)	5.40	2,208	1.24
7.	Settling-cum-filtration tank (S3)	7.15	1,733	1.18
8.	Settling tank (S4)	5.98	1,835	2.00
9.	Storage tank (S5)	6.50	1,544	2.50

Values are average of 61 samplings analysed during the last three harvest seasons (2017-18, 2018-2019 and 2019-2020).

**Reference:**

1. P. Shivaprasad et al (2010). Conjunctive use of coffee effluent and pond water on the performance of Robusta coffee and soil properties. International Journal of Environmental Engineering. Vol. 2 (No.4) pp. 335- 345.

## Pre-mature Fruit Drop in Coffee Interventions for Minimizing the Crop Losses

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The impact of climate change especially the variations in rain fall pattern both in terms of quantum and distribution is commonly experienced in all coffee growing areas. For the last three years, the coffee growing regions of Karnataka, Kerala and part of Tamil Nadu received unusual rains during monsoon season with erratic distribution patterns. This high quantum of rainfall in short periods leads to flooding of plantations, soil erosion and water logging in root zone causing wet feet condition. Thus, the soil saturation coupled with cool ambient temperature and high relative humidity provide ideal conditions for flare up of rot diseases such as stalk rot, black rot and leaf spot diseases causing defoliation and also the pre-mature fruit drop, affecting crop production to a great extent.

In general, the pre-mature fruit drop to an extent of 5 to 8% in arabica and about 10% in robusta, is commonly observed during monsoon season i.e. June–July months, which also coincides with berry development stage (90 to 120 days after flowering) due to soil saturation causing hormonal imbalance {reduction in cytokinins with high content of Abscissic acid (ABA)}. In addition, certain other factors such as reduction in carbohydrate content, nutrient deficiency, multiple blossoms (running blossom) resulting in formation of different sized berries and over bearing causing competition for carbohydrate reserves etc. also contribute for pre mature fruit drop. In addition to the usual extent of pre mature fruit drop, the flare ups of rot diseases and physiological disturbances due to unfavourable climatic conditions further

increase the pre-mature drop in coffee. In the back drop of the deviations in weather parameters as a consequence of climate change, it becomes imperative for coffee growers to take up pre-emptive remedial measures and also to control the flare ups of fungal diseases, so that the crop losses could be minimized.



Fig. A. Formation of different size berries due to multiple blossom.



Fig. B. Pre-mature fruit drop due to wet feet condition



Fig. C. Improper berry development and dropping smaller berries

## Remedial measures:

Systematic studies have revealed that physiological interventions by use of plant growth regulators, coupled with adoption of good agronomic practices and disease management reduces pre-mature fruit drop and defoliation and enhances cropping wood for subsequent year, resulting in increase in crop yield by 12–20%. The plant growth regulator such as Naphthalene acetic acid ( $\alpha$ -NAA) a derivative of auxins found to reduce pre-mature berry drop in coffee besides increasing vegetative growth of the plants. Pre-monsoon foliar application of  $\alpha$ -NAA found to improve the out turn ratio marginally in arabica coffee. Highly significant increase in dry matter accumulation, bean dry matter content was also observed due to application of  $\alpha$ -NAA. Hence,  $\alpha$ -NAA is recommended to control premature fruit drop @ 50 ml/barrel in both arabica and robusta coffee.  $\alpha$ -NAA is compatible with prophylactic fungicides like Bordeaux mixture and systemic fungicides like Carbendazim.

## Fungal diseases that contribute for pre-mature fruit drop

Apart from the physiological factors, the following three important diseases caused by fungal pathogens are associated with pre-mature fruit drop in both arabica and robusta. Hence, it is important for the planters to be aware of the pre-disposing factors for development of these diseases, symptoms for precise identification in initial stage itself and damage caused by these diseases. This knowledge would enable the planters to take up appropriate control measures on time and to minimize the crop losses.

### 1. Black rot disease

Black rot disease in coffee is caused by the fungus *Koleroga noxia* Donk. and is considered to be the second important disease of coffee next to leaf rust. The pathogen attacks both Arabica

and Robusta, the commercially cultivated types of coffee. It is an endemic disease, mostly found in those areas which come under the influence of South-West monsoon which receives annual rainfall above 80 inches. This disease is generally noticed in the valley areas of the plantations where hanging mist prevails and reported from almost all coffee growing regions of Karnataka, Kerala and Tamil Nadu that comes under the influence of South-West monsoon.

The *Koleroga* fungus infects leaves, developing berries and tender shoots. The most striking symptom is the blackening and rotting of the infected leaves, developing berries and young twigs. That's why it is popularly known as Black rot. On advanced stage of infection, the affected leaves get detached from branches and hang down by means of slimy fungal strands (Fig.1). On green berries the characteristic blackening starts from one side and spreads gradually in a narrow band (Fig.2). Close examination reveals the presence of characteristic white mycelial strands running along the twig, petioles and spreading mostly on the lower surface of the leaves (Fig.3). Affected leaves and berries show a white web consisting of closely interwoven mycelia when surface moisture is drained. Defoliation and berry drop from the infected branches occur in advanced stage of disease development.



Fig. 1. Severely infected leaves hanging on branches by means of slimy mycelial strands



Fig. 2 . Rotting of infected green berries



Fig. 3. White mycelial strands on the twig and spreading on lower surface of the leaves

### Control measures

- As the disease incidence is noticed during rainy season, spray systemic fungicide carbendazim 50 WP @ 200 g in 200 litres of water along with any one of the wetting agent, during the clear break in monsoon.
- Recent field trials indicated that the systemic fungicides, tebuconazole 25.9 EC @ 200 ml and propiconazole 25 EC @ 200 ml in 200 litres of water are also effective in control of the black rot disease.
- Before taking up the spray, remove the infected branches and leaves and dispose it off in order to prevent further spread of inoculum

## 2. Stalk rot of berries and leaves

Stalk rot is another important disease observed during monsoon both on arabica and robusta coffee. The disease is caused by the fungus *Colletotrichum gloeosporioides*. The fungus develops as a white cottony mass at the stalk region causing disintegration of tissues leading to pre-mature drop of developing berries.



Fig. 4. Stalk rot infected berries



Fig. 5. Rotting stalk remains on the branch

The fungus develops at the stalk region of developing berries and leaves causing drop of infected leaves as well as berries due to necrosis and decay of the stalk portion (Fig. 4). Generally, the rotting stalk remains at the nodes of the infected branch while berries drop down (Fig. 5). Infected tender twigs die from the site



of infection. Low temperature, high relative humidity, surface wetness of plants, excess soil moisture favours the disease development.

### Control Measures

- Provide good drainage system and clean the cradle pits before monsoon to remove stagnation of water around root zone.
- The mulch below the canopy should be removed and heaped in centre of four plants to provide better aeration.
- Apply balanced nutrients (NPK) to the plants especially the plants that yielded high crop in the previous year.
- Spray carbendazim 50 WP @ 200 g with Planofix @ 50 ml/ in 200 litres of water along with the wetting agent during clear break of monsoon in endemic areas
- Recent field trials indicated that the systemic fungicides, tebuconazole 25.9 EC @ 200 ml and propiconazole 25 EC @ 200 ml in 200 litres of water are also effective in control of the stalk rot disease.

### 3. Stem necrosis, leaf spot and berry rot disease

The fungus *Myrothecium roridum* infects the seedlings both in nursery and field conditions. In the nursery, the pathogen infects both stem and leaves of coffee seedlings. The infected seedling shows constriction of stem that occurs at any place above the soil. Sometimes 2-3 such lesions are noticed on the same stem. Infected region at later stage show cushion shaped black fruiting bodies surrounded by white mycelia of the pathogen. Affected seedlings gradually start wilting and die.

In the nursery and field, the infected leaves initially show water-soaked circular necrotic spots, later spreads gradually to more areas and changes to alternate whitish brown and black colour concentric rings. Black fruiting bodies

are noticed on both lower and upper surface of the affected leaf all along the concentric rings of the spot (Fig.6). Occasionally the centre of the lesion breaks irregularly.

In the field, on the developing berries, initially small, circular, slightly sunken, black coloured, necrotic lesions appear near the stalk portion of the berries. As the infection progresses the necrotic lesion expand further and spreads towards the distal end of the berries and finally cover the entire berries. At later stage, black coloured fruiting bodies will be observed on the lesion (Fig.7).



Fig.6. Necrotic spots with concentric rings on infected leaf



Fig.7. Berry rot with fruiting bodies of *Myrothecium roridum*

### Control measures

- Remove and destroy the affected coffee seedlings from the germination beds and in the poly bags at regular intervals to prevent spread of the disease.

- Some of the weed plants growing in and around the coffee plantations are known to harbour the pathogen and gradually infect coffee plants. In the plantations where brush cutters are used for weed management during monsoon season, the disease spreads to coffee through weed splashes.
  - For control of the disease, spray of propiconazole 25 EC @ 0.8 ml/litre of water and mancozeb 75% WP @ 2g/litre of water alternatively once in 20 days from May to September covering both the upper and lower surface of leaves and infected berries.
1. Complete the handling, centering and desuckering of coffee bushes before the onset of monsoon, that provide aeration and facilitate light penetration.
  2. In Black Rot prone endemic areas of Arabica and Robusta, spray 1% Bordeaux mixture along with Planofix @ 50ml /200 lit water to take care of fungal disease and to prevent pre-mature fruit drop.
  3. Take up the lopping of temporary shade tree (Dadap) branches.
  4. Clean the drainage channels and cradle pits to drain out excess water.
  5. Heap the mulch/ leaf litter to the centre of four plants.

Thus, the pre-mature fruit drop during monsoon period is generally considered as a Physio-Pathological complex as a consequence of wet feet/soil saturation coupled with fungal attacks. Hence, planters are advised to adopt the following pre-emptive measures during pre-monsoon itself which help in minimizing the disease flare ups even in the adverse climatic conditions and unusual rainfall occurs during monsoon.

In general, by adoption of the above pre-emptive measures during pre-monsoon season, especially in the endemic areas where rot diseases occur recurrently every year, the pre-mature fruit drop due to physiological and pathological issues could be minimized.



IC / 06/2016

### Rotary Dryer

Can be used for both Cherry and Parchment Coffee.  
Capacity Range: 1,000 ltrs. to 16,000 ltrs., per batch.  
Heat source can be Wood or Diesel.  
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## Some coffee for the hair, please

(Rinsing with a cold brew may actually work wonders for your hair)

Source : The Indian Express, New Delhi



*The caffeine in coffee improves the texture of the hair.*

Is there anything that coffee cannot do? Coffee seems to be everyone's go-to beverage on a cold wintry morning, or a dull summer day, when they are looking to get that kick first thing in the morning. Now, coffee has also come to be celebrated as a great tool for hair care. It is said that coffee makes the hair healthy, and if you are not too averse to the idea of pouring a mugful (of cold brew, of course) over your hair, then this article is for you.

### How beneficial is coffee?

While there isn't a lot of research available to explain it, the ones that are, suggest that the caffeine in coffee improves the texture of the hair. It restores hair growth that affects both men and women nowadays, notwithstanding age. A study conducted in 2007 found that caffeine helped with longer, wider hair roots in men. In women, it led to growth-promoting effects in the follicles. Known to be a stimulant, caffeine also helps with the blood circulation, resulting in faster hair growth with stronger and thicker texture.

Coffee contains flavonoids that are antioxidants. They remove the dullness and promote hair regeneration. As such, a coffee rinse will prove beneficial for people who are looking to get rid of dry, dull and brittle hair.

Additionally, coffee will also come handy if you are looking to hide the greys and get a darker hair colour. It is believed that stronger the coffee, the better is the result.

### Preparing the coffee rinse

You need cold brewed coffee depending upon the length of your hair. Pour it into a spray bottle. Next, wash and condition your hair and then apply the brewed coffee on the wet strands. Also massage it into your scalp. Leave for 20 minutes, then rinse with cold or lukewarm water.

### Precautions

Wait for the brew to cool down before using it.



*Coffee can also help hide the greys. In fact, stronger the coffee, better the result. (Source: Getty/Thinkstock)*

## Here's how coffee is good for digestion, other digestive disorders

Source : Hindustan Times, New Delhi



**A** new report reviews the latest research into coffee's effect on digestion, and indicates a potential protective effect against gallstones and gallstone disease, and pancreatitis.



*Here's how coffee is good for digestion, other digestive disorders. (Unsplash)*

A cup of coffee is an amazing beverage and a great companion but it also serves various other purposes including several health benefits. Coffee isn't just a drink. It's a blend of science, an art, a culture and passion for many coffee lovers. Once considered a drink only for society's elite, coffee today is a favourite for many. The best thing about the brewed beverage is that there is no one way of preparing it. It can be hot, cold, viscous, sloppy, bitter, sweet (read; Dalgona coffee, the lockdown drink), it can be prepared suited to the tastebuds of the one drinking it.

Speaking of health benefits, coffee is known to be helpful in reducing risk of Type-II diabetes, cardiovascular disease and also Parkinson's disease according to some studies.

A new report reviews the latest research into coffee's effect on digestion, and indicates a potential protective effect against gallstones and gallstone disease, and pancreatitis. The report also highlights other beneficial effects that

coffee consumption may have on the process of digestion, including supporting gut microflora and promoting gut motility.

The report from the Institute for Scientific Information on Coffee (ISIC), is entitled 'Coffee and its effect on digestion.'

The report was authored by Professor Carlo La Vecchia, at the Department of Clinical Sciences and Community Health, University of Milan, Italy, who commented: "The effect of coffee on digestion is an evolving area of research. Data indicates benefits against common digestive complaints such as constipation, as well as a potential reduction in the risk of more serious conditions like chronic liver diseases, from non-alcoholic fatty liver disease (NAFLD), gallstones and related pancreatitis".

Gallstone disease is a common digestive disorder, caused by the accumulation of gallstones in the gallbladder or bile duct, which affects approximately 10-15% of the adult population. While the mechanism by which coffee may protect against gallstone disease is not yet known, it has been observed that the risk for the condition declines with increasing daily consumption of coffee. Caffeine is thought to play a role in these associations, as the same effect is not observed with decaffeinated coffee.

A common question among consumers and focus area for research is whether coffee is associated with heartburn or gastro-oesophageal reflux disease (GORD). Heartburn is a mild form of acid reflux that can affect most people on occasion, while GORD is a chronic and severe acid reflux condition that affects up to one in five adults, and is characterised by frequent heartburn, regurgitation of food or liquid, and difficulty in

swallowing. While a small number of studies have suggested an association between coffee drinking and GORD, the majority of studies reviewed suggest that coffee is not a major trigger of these conditions.

The report also reviewed a growing area of health and nutrition research, namely: the effect of coffee on the gut microflora (microorganism populations). Recent studies suggest that populations of the beneficial gut bacteria *Bifidobacterium* spp., increase after drinking coffee. It is thought that the dietary fibre and polyphenols found in coffee, support the healthy growth of microflora populations.

Additional research findings highlighted in the report include:

- \* Coffee can stimulate gut motility.
- \* Coffee consumption is thought to stimulate digestion by encouraging the release of gastric acid, bile and pancreatic secretions.

Coffee is already one of the most widely researched components of the diet, and its effect on digestion remains a growing area of research. While this report highlights a number of the more interesting findings that have emerged in recent years, it also provides insight into areas where further research would be beneficial, to better understand the mechanisms behind some of the beneficial effects observed.

## **COFFEE FILTERS FOR SALE**

**Coffee Board has designed superior quality 304 food grade stainless steel Coffee filters. These filters are available for sale in 2 Cups & 4 Cups capacity at India Coffee Depot outlets of Coffee Board.**



### **Available at:**

**India Coffee Depot, Coffee Board,  
No.1, Dr. B.R. Ambedkar Veedhi, Bengaluru - 560 001.**

### **Selling price:**

**2 Cups capacity: Rs. 900    4 Cups capacity: Rs. 1000**

## India on its way to being the next 'big thing' in specialty Coffee World: Sherri Johns

Source : The Indian Express, New Delhi



"I believe South India was always known for its coffee. In that sense, coffee isn't new to India. But the rise of the cafe-culture made coffee trendy and exciting."



All coffee does not taste the same and that high-quality coffee is neither instant nor contains chicory", says Sherri Johns. (Photo: PR handout; designed by Gargi Singh)

Sherri Johns isn't sure if coffee found her or vice-versa, but she fell in love with the beverage many moons ago and the affair has only grown stronger over the years. Ask her the hallmark of a good coffee and the head judge and mentor, Araku Coffee, a luxury coffee brand, immediately remarks, "One that tastes as good as it smells; is neither instant nor contains chicory". In an email interaction with indianexpress.com, the coffee specialist talks about India's coffee culture, flavoured coffee concoctions and her most memorable cup.

### Excerpts:

**How and when did your love affair with coffee begin?**

As a child, my mom brewed fresh percolator coffee for every meal. I loved the smell of freshly brewed coffee and that's where it all began. When I started university in San Francisco and

lived on my own, I would frequent the Italian cafes in North Beach to enjoy a cappuccino. I brewed coffee for friends in French presses, landed a job as a barista (before the term "barista" was popular) and truly "fell in love". Without hesitation, I am not sure if I found coffee or coffee found me but it has been a love affair ever since.

**India is usually identified as a *chai* drinking country, but this is being slowly taken over by coffee as the choice of beverage in some urban centres. What, according to you, may have brought about this shift?**

I believe South India was always known for its coffee. In that sense, coffee isn't new to India. But the rise of the cafe-culture made coffee trendy and exciting. India has a fast-growing middle class which has more leisure time and more disposable income and the fact that in India it is now possible to grow amazing coffee is a bonus! Local cafes are a place to be and be seen. Good quality coffee is now being appreciated by those with a discerning palate.

**There are various coffee shops / outlets mushrooming in the country. Do you think they do justice to the brew?**

If they are serving high-quality coffee and consistent service to match, there is a place for all. Customers will find their favourites. It all



"Coffee drinkers in markets across the world continue to become more sophisticated with time as new developments fuel the coffee world too."

comes down to what you offer. At our upcoming experiential cafe in Bangalore, we are trying to create a coffee experience that's unparalleled and champions coffee.

**How would you describe India's coffee culture?**

It's an exciting time for coffee in India. It's growing and lively. It's an incredible opportunity for a country which has the potential to grow amazing coffee. This is a reason to celebrate with a sense of national pride. At the Gems of Araku competition this year, our coffee was rated as high as 95/100 by a credible international jury and some judges even went on to compare it with coffee from Panama. It was incredible to witness how India is on its way to being the next "big thing" in the specialty coffee world.

**What is the hallmark of a good cup of coffee?**

Short answer: One which tastes as good as it smells, does not need cream or sugar to mask coffee's natural sweetness and has a lingering pleasant taste. NOT instant and NOT with chicory.

Longer answer: Freshly roasted (not over-roasted to mask coffee's natural flavour nuances), freshly ground just before brewing, brewed with a good ratio of filtered clear water to coffee (1:15), served in preheated cups and shared with friends.

**There are a lot of coffee varieties available in the market — ranging from pumpkin latte, unicorn latte to turmeric latte. What is your take on these innovations?**

Frappuccino started it all by marketing to early teens and growing a generation of young coffee drinkers who enjoyed mildly sweet flavoured coffee concoctions. I'm not complaining, the teens grow up to drink cappuccinos perhaps. Or if their penchant is a unicorn latte, well, let them enjoy it brewed with a high-quality coffee at least. Black coffee is not for everyone. This key here is coffee quality.

**What is your secret mantra to brewing the perfect cup of coffee?**

Each day for me begins with a cup of coffee. I like to keep things simple, just fresh roasted coffee which I grind just before brewing. I use fresh filtered water, heat it at 195 F and follow simple steps for brewing. Some days I use a french press, on others, a pour-over Chemex. Brewing and enjoying delicious coffee is not difficult, it is almost therapeutic.

**Coffee has undergone a lot of makeovers over the years — perhaps to suit the evolving taste buds. What is your take on the same as a coffee expert?**

People like to talk about waves, while I like to call them advancements in coffee. Coffee drinkers in markets across the world continue to become more sophisticated with time as new developments fuel the coffee world too. It is a journey of discovery. New trends like Turmeric Latte may hit the market and be the "new thing" for a while, but on the farm level, quality and processing is leading the change.

**Where have you had the best coffee so far and what according to you makes it the best on your list?**

Let's rephrase it to a most "memorable cup". In my 40+ professional years in coffee, I have enjoyed a few. Of late, I will say Araku's Micro Climate, freshly brewed in a french press shared with friends on an outdoor deck.

**If there is one misconception or one thing you would like to tell Indians about coffee, what would that be?**

That all coffee does not taste the same and that high-quality coffee is neither instant nor contains chicory. India has amazing food with complexity and multiple dimensions. Indian coffee has that as well. Try it at cafes which have professionally trained baristas, and those that do not over roast coffee. Enjoy the journey of discovering coffee like never before.

## Starbucks to Let You Drive Through with Your Favourite Brew

Source: The Economics Times, Mumbai



*Starbucks will open its first drive-through outlet in Punjab's Zirakpur*

**N**ew Delhi: Eight years after entering India, Starbucks Coffee Co. is rolling out its first drive-through outlet in India on Friday (10.07.2020).

As part of its post-Covid-19 strategy, the Tata Starbucks joint venture plans to open about a dozen drive-through outlets in India in a year, according to two people familiar with the company's plans.

"As we ride out of this crisis on our way back to normality, the value of social distancing and hygiene are going to see an increasing importance in our lives," said Navin Gurnaney CEO of Tata Starbucks, a 50:50 JV between the Tata Group and the US beverage giant. "The new store fits perfectly with our norms of social distancing and encourages people to engage with the Starbucks brand in a safe way"

As consumers stay away from eating out amid fears of spiralling corona virus cases in India,

quick-service-restaurants such as McDonald's, KFC and Burger King are ramping up and scouting for drive-through locations in the country, Industry officials said.

India currently has only about 100 drive-through points, even decades after the fast-food concept took root in the country. Industry executives said that is going to change, propelled mainly by the pandemic, with the number of such outlets set to double to more than 200 in a year. Companies are even trying to convert various existing

restaurants into drive-through outlets.

The McDonald's franchisee for north and east India, which operates 120 of its 150 outlets in India, operates 29 drive-through restaurants, now with physical barriers at the drive-through windows and contact less experience.

"At a McDonald's drive-through, a customer spends around 60-90 seconds between order placement and receiving their order at the next window. This allows our restaurants to serve more customers faster," a spokesperson for McDonald's North and East said.

Yum! Brands-owned KFC India has introduced kerb-side delivery, where food is handed over to customers in their cars or two-wheelers within the vicinity of the restaurant. KFC offers this service at 150 of its 350 restaurants in the country.

“We plan to extend it to other restaurants over the next couple of months” said KFC chief marketing officer Moksh Chopra. He said the initial consumer response been encouraging, with a “steady increase” in sales even though the concept is newer in India. Pizza Hut also liaise intensified kerb- side deliveries at many outlets.

A Burger King India spokesperson said the chain operates multiple drive-through restaurants in the country. “Drive-through offers high level of convenience to our guests and are an integral part of our future expansion plans. In the context of Covid-19, with the easing of the lockdown, we have seen good traction across our drive through restaurants,” he said.

## Can coffee growers deploy MGNREGA workers?

Labour alone accounts for up to 60-70% of the total cost of production

Source : The Hindu, New Delhi



Professional services firm Ernst & Young LLP has suggested coffee growers avail the services of MGNREGA workers to solve the issue of labour shortage and rein in the consequent high production cost.

If a draft report prepared by the firm on the strategic road map for the Indian coffee sector, the firm suggested the use of MGNREGA labour up to the yielding stage. Currently, only trenching activities inside coffee plantations are covered under MGNREGA.

The sector’s labour woes reached a boiling point in March after a large population of immigrant labourers returned to their home towns.

Ernst & Young was commissioned by the Coffee Board to undertake a study on behalf of the United Planters’ Association of Southern India and several coffee growers’ associations.

The draft recommended that the Coffee Board formulate cost norms similar to the convergence guidelines for rubber. It also suggested that small farmers, who hold up to 10 hectare of land, should be given access to MGNREGA labour pool.

### Clarity needed

Commenting on the recommendations, Coffee Board Chairman Shri M.S. Boje Gowda said, “A proposal to make MGNREGA labour available in the coffee sector is a positive thing. However, we have to decide what kind of work can be allotted to these labourers, because on a coffee plantation certain activities can be done only by skilled workers.”

Echoing similar sentiments, UPASI president ALRM Nagappan said linking MGNREGA scheme with the coffee sector was a constructive idea though a detailed scheme was required. Only then, the coffee growers would be able to take advantage of the scheme.



## JULY

### South –West Monsoon Area

1. Handling, centring and de-suckering. In marginal areas, centring should be minimised in Arabica to avoid exposure of main stem so as to minimise the risk of stem borer attack.
2. **Black Rot:** In black rot affected plants, removal and destruction of black rot affected twigs, leaves etc. should be done followed by drenching spray with Bavistin 50 WP @ 0.03% (Carbendazim 120g per barrel) during the break in rains.
3. Sash weeding.
4. Planting including supply planting- weather permitting.
5. Removal and burning of shot-hole borer infested twigs.
6. **Nursery:** Aftercare of seedlings.
7. **Berry Borer:** If berry borer is noticed, spot sprays with *Beauveria bassiana* may be taken up.

### North-East Monsoon Areas:

1. Dadap lopping.
2. Planting dadap stakes, permanent shade seedlings and Coffee depending on weather conditions.
3. Rest as above.

## AUGUST

### South-West Monsoon Areas:

1. Weeding to be continued.
2. Handling, centring and de-suckering to be continued. In marginal areas, centring should be minimised in Arabica to avoid exposure of main stem so as to minimise the risk of stem borer attack.
3. Planting, if weather permits.
4. **Stem Borer:** Tracing & destruction/disposal of stem borer affected plants.
5. Control measures against cockchafer, if necessary.
6. Removal and burning of shot-hole borer infested twigs.

7. **Black Rot:** In black rot affected plants, removal and destruction of black rot affected twigs, leaves etc. should be done followed by drenching spray with Bavistin 50 WP @ 0.03% (Carbendazim 120g per barrel) during the break in rains.
8. Mid monsoon manuring (during break in the monsoon)
9. **Berry Borer:** If berry borer is noticed, spot sprays with *Beauveria bassiana* or *Chlorpyrifos* 20EC may be taken up.

### North-East Monsoon Areas:

Pre-monsoon spraying with 0.5% *Bordeaux* mixture against leaf rust. Rest as above.

## SEPTEMBER

### South-West Monsoon Areas:

1. Planting coffee and shade trees
2. **Stem Borer:** Tracing & burning of Stem borer affected plants to be completed before end of March in the entire estate without fail. If uprooted stumps are to be retained for further use, immerse them in water for about 10 days to kill all pest stages.
3. Control measures against cockchafer, if necessary
4. Control measures against hairy caterpillars
5. Control measures against green scale, if necessary
6. **Leaf Rust:** Post-monsoon spray against leaf rust in Arabica with systemic fungicides like Triademefon @ 0.02% a.i. (Bayleton 25 WP @ 160g in 200 litres of water) or *Hexaconazole* @ 0.01% (Contaf 5% EC @ 400 ml in 200 litres of water). Tolerant Varieties

like Chandragiri, Sln.6, Sln.5B can be sprayed with 0.5% *Bordeaux* mixture

7. **Nursery:** Spraying nursery seedlings with dithane M-45 or Ferbam at 0.4% or Foltaf at 0.3% against brown eye-spot disease
8. Post monsoon manuring
9. Regulation of dadap shade
10. Shot-hole borer tracing, removal and burning of infested twigs
11. **Berry Borer:** Control measures against berry borer. Harvesting of borer infested berries, if present and treat them with hot water. Spot spray with *Chlorpyrifos* especially in the case of Robusta.

### North-East Monsoon Areas:

Same as above.

## June 2020

Dr. D.R. Babu Reddy, Dy. Director (Market Research), Coffee Board, Bengaluru



In this column, the extracted information from June 2020 Coffee Market Reports of ICO on global production, global prices, world consumption and global exports as well as domestic prices and exports are covered.

### Global Production and Consumption

Global coffee production in 2019/20 is estimated at 167.91 million bags, which could exceed consumption by 1.85 to 3.42 million bags, depending on impact of Covid-19. In 2019/20, world coffee consumption is estimated at 166.06 million bags, 0.5% higher than in 2018/19.

### World Supply/Demand Balance (in thousand 60-kg bags)

Coffee Year	2015	2016	2017	2018	2019*	% change 2018/19
<b>PRODUCTION</b>	<b>154823</b>	<b>158450</b>	<b>162657</b>	<b>171102</b>	<b>167906</b>	<b>-1.90%</b>
Arabicas	90982	100611	97229	100653	95271	-5.30%
Robustas	63842	57840	65428	70449	72634	3.10%
Africa	15583	16555	17299	18772	18536	-1.36%
Asia & Oceania	49484	45652	48458	48394	50522	4.40%
Mexico & Central America	17106	20322	21725	21749	20833	-4.20%
South America	72651	75921	75176	82187	78015	-5.10%
<b>CONSUMPTION</b>	<b>155491</b>	<b>158125</b>	<b>159913</b>	<b>165269</b>	<b>166058</b>	<b>0.50%</b>
Exporting countries	47548	48488	49793	50374	50288	-0.20%
Importing countries (Coffee Years)	107943	109637	110120	114895	115770	0.80%
Africa	10951	10843	9808	9890	9970	0.80%
Asia & Oceania	32863	34395	34832	35595	35959	1.00%
Mexico & Central America	5295	5173	5252	5322	5327	0.10%
Europe	52147	52045	53158	55741	55930	0.30%
North America	28934	29559	29941	31644	31848	0.60%
South America	25299	26111	26922	27077	27024	-0.20%
<b>BALANCE</b>	<b>-668</b>	<b>325</b>	<b>2744</b>	<b>5832</b>	<b>1848</b>	

### Prices

#### Domestic Market Prices: ICTA (Bangalore) Weekly Auction Prices (Rs./kg)

Month/ Week	June'20	June'19	June'20	June'19	June'20	June'19	June'20	June'19	June'20	June'19
	<b>I</b>		<b>II</b>		<b>III</b>		<b>IV</b>		<b>Average</b>	
Plant . 'A'	295.00	---	295.00	---	295.00	219.00	295.00	225.16	<b>295.00</b>	<b>222.08</b>
Arb.Chy. 'AB'	---	142.16	---	148.00	---	147.00	---	144.30	---	<b>145.37</b>
Rob.Pmt. 'AB'	---	200.00	160.00	202.00	---	210.00	---	215.00	---	<b>206.75</b>
Rob.Chy. 'AB'	---	---	---	139.00	---	140.56	---	140.00	---	<b>139.85</b>

## International Spot Prices - ICO Daily Group Indicator Prices of Arabica (Other Milds) and Robustas

In June 2020, the ICO composite indicator averaged 99.05 US cents/lb, 5.2% lower than in May. This is the first time since October 2019 that the ICO composite indicator has fallen below 100 cents/lb and the third consecutive month of decrease. The daily price of the ICO composite indicator spent more than half of the month below 100 US cents/lb, ranging between a low of 96.79 US cents/lb on 25 June and 101.27 US cents/lb on 8 June. Despite strong exports in the first half of the coffee year, the ongoing bearish outlook for demand, as global economic growth was further revised downwards in June by the International Monetary Fund, and expectations for a large harvest in Brazil put downward pressure on prices in June.

All Arabica group indicators trended downwards in June 2020, but prices for Robusta averaged 64.62 US cents/lb, 0.1% higher than in May 2020. Prices for Brazilian Naturals fell by 9% to 92.56 US cents/lb, as harvesting of Brazil's on-year Arabica crop is well underway with minimal impact so far from Covid-19. Additionally, shipments from the second largest exporter of Brazilian Naturals, Ethiopia, have remained strong in the last five months, signalling ample supply. Colombian Milds fell by 5% to 147.16

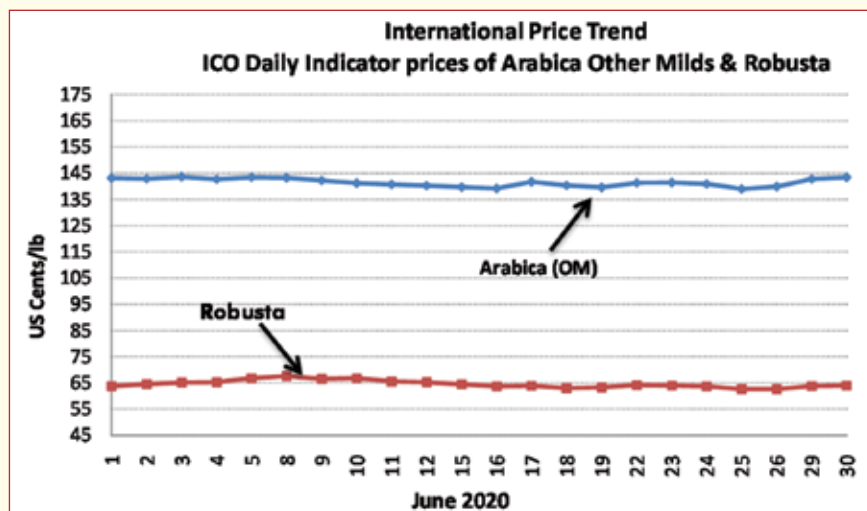
US cents/lb, and Other Milds by 5.6% to 141.52 US cents/lb. As a result, the differential between Colombian Milds and Other Milds increased by 10.2% to 5.64 US cents/lb.

The New York Arabica futures market fell by 7.5% to an average of 99.50 US cents/lb in June 2020 while the London Robusta futures market rose by 0.2% to 54.77 US cents/lb. As a result, the spread between Arabica and Robusta coffees, as measured on the New York and London futures markets, fell to 44.73 US cents/lb, which is 15.4% lower than in May. Certified Arabica stocks decreased by 5.6% month-on-month to 1.9 million bags in May 2020, which is the fifth consecutive month of decline. Certified Robusta stocks decreased for the fourth consecutive month, reaching 2.02 million bags in June, 7.3% lower than in May.

### Exports:

Global shipments in May 2020 fell by 14.6% to 10.49 million bags, as exports from all coffee groups decreased. However, this volume is the third highest on record for the month of May and follows unusually high shipments last year. Exports of Arabica decreased by 19.7% to 6.43 million bags. Shipments of Colombian Milds fell by 13.4% to 999,000 bags. This is due largely to a decline of 13.1% to 894,000 bags for exports from Colombia. Compared with May 2019, shipments of Other Milds decreased by 14.4% to 2.61 million as volumes fell for the five largest exporters of this type of coffee, notably Honduras where exports declined by 20.9% to 730,000 bags.

Exports of Brazilian Naturals decreased by 25.7% to 2.82 million bags. Brazil's green Arabica shipments fell by 27.3% to 2.2 million bags, reflecting the biennial downturn of its 2019/20 crop. However, Ethiopia's exports rose



by 7.8% to 381,000 bags.

Exports in the first eight months of coffee year 2019/20 reached 83.8 million bags, down by 4.7% from the 87.96 million bags registered in the same period in 2018/19. In October 2019 to May 2020, exports of Colombian Milds fell by 7.9% to 9.33 million bags, Other Milds by 7.4% to 16.58 million bags, and Brazilian Naturals by 9.6% to 26.23 million bags. In contrast, shipments of Robusta increased by 2.5% to 31.67 million bags in the first eight months of coffee year 2019/20.

Imports by ICO importing Members and the United States, which on average account for around 75% of global imports, increased by 5.1% to 11.76 million bags in March 2020 of which 8.25 million bags originated from exporting countries. In the first six months of coffee year 2019/20, imports by ICO importing Members and the United States decreased by 3.7% to 64.22 million bags. Imports by the EU in October 2019 to March 2020 fell by 2.9% to 41.6 million bags, and those of the United States decreased by 8.2% to 13.75 million bags. Imports by Japan declined by 8.3% to 3.6 million bags, Tunisia by 6.2% to 265,000 bags, and Norway by 0.5% to 363,000 bags. In contrast, imports by the Russian Federation grew by 8% to 2.99 million bags, while those of Switzerland increased by 7.8% to 1.65 million bags.

Brazil was the largest source of coffee imports by the European Union, accounting for 20% of its imports in October 2019 to March 2020. This was followed by Vietnam (13.8%), Colombia (3.9%), Honduras (3.8%) and Uganda (3.2%). Imports from Brazil and Vietnam decreased by 6.7% to 8.32 million bags and by 10.4% to 5.74 million bags, respectively. However, imports from Colombia grew by 0.3% to 1.63 million bags, from Honduras by 20.7% to 1.57 million bags and from Uganda by 7.6% to 1.35 million bags. Around 70% of the EU's imports are green coffee, particularly for those originating from producing countries, while soluble coffee accounts for

around 10% of its imports. In the first half of coffee year 2019/20, Brazil, India, and Vietnam were significant sources of soluble coffee, representing 5.4%, 4.7% and 3.5% of the EU's total soluble imports, respectively.

Imports from Brazil and Colombia accounted for 53.6% of imports by the United States in the first six months of coffee year 2019/20. Vietnam represented 9.1%, Mexico 4.9% and Peru 4.1% of US imports. Imports from Brazil decreased by 2.7% to 4.21 million bags, from Colombia by 10.3% to 3.15 million bags, and from Vietnam by 18.5% to 1.25 million bags. Shipments from Mexico amounted to 672,000 bags, 21.5% lower than in October 2018 to March 2019, while shipments from Peru fell by 27.3% to 558,000 bags. The top five largest sources of imports of soluble coffee came from Brazil, Mexico, Colombia, India, and Spain, which accounted for 87.8% of the total. Among the five largest origins for roasted coffee, Canada, Italy, and Switzerland represented 71.8% while Mexico and Colombia represented 10.8% and 7.3%, respectively.

Similarly to the European Union and the United States, Brazil, Vietnam and Colombia were the main origins for Japan's imports in the first half of coffee year 2019/20, accounting for 30.7%, 25.1%, and 15.3%, respectively. Ethiopia and Indonesia, representing 7% and 6.2% of Japan's imports, were the next two largest suppliers. Imports from Brazil fell by 27.2% to 1.1 million bags and from Indonesia by 21.3% to 223,000 bags. However, imports from Vietnam grew by 12.9% to 904,000 bags, from Colombia by 14.4% to 551,000 bags, and from Ethiopia by 6.8% to 252,000 bags. Nearly 90% of Japan's imports consist of green coffee, while soluble coffee accounts for around 9% of total imports. Brazil, Vietnam, and Colombia accounted for near 75% of total soluble imports. Brazil's shipments of soluble coffee to Japan rose by 5.4% to 145,000 bags and Colombia by 20.5% to 28,000 bags while Vietnam's fell by 14.7% to 68,000 bags.

## Indian coffee exports (01.01.2020 to 30.06.2020) in MT

Sl. No.	Exports	Provisional exports		Provisional re-exports		Total provisional exports	
		Indian coffee	corresponding period last year	Provisional re-exports	corresponding period last year	Total provisional exports	corresponding period last year
		1	2	3	4	(1+3)	(2+4)
1	Ar. Pmt.	21771	27351	5	7	21776	27357
2	Ar.Chy.	8033	7228	0	0	8033	7228
3	Rob.Pmt.	17228	23294	0	0	17228	23294
4	Rob.Chy.	78606	95448	0	0	78606	95448
5	Roasted Seeds	27	30	0	0	27	30
6	R&G	89	100	0	0	89	100
7	Instant	6345	10788	43500	44074	49845	54862
8	Total	132099	164237	43505	44081	175604	208318

## जून 2020

इस कॉलम में, भारतीय स्वदेशी मूल्य एवं निर्यात के साथ-साथ वैश्विक उत्पादन, मूल्य, उपभोग तथा निर्यात पर आई सी ओ कॉफ़ी बाज़ार रिपोर्ट जून 2020 की सार-सूचना सम्मिलित हैं।

### वैश्विक उत्पादन एवं उपभोग

वर्ष 2019/20 में वैश्विक कॉफ़ी उत्पादन 167.91 मिलियन बैग्स का अनुमानित किया गया है, जो कोविड -19 के प्रभाव से निर्भर कर उपभोग में 1.85 से 3.42 मिलियन बैग्स तक की वृद्धि ला सकती है। वर्ष 2019/20 में, विश्व कॉफ़ी के उपभोग 166.06 मिलियन बैग्स तक अनुमानित किया गया है, जो 2018/19 की तुलना में 0.5% अधिक है।

### वैश्विक आपूर्ति / मांग शेष (हजारों में - 60 कि.ग्रा. बैग्स में)

कॉफ़ी वर्ष	2015	2016	2017	2018	2019 *	2018/19 में परिवर्तन का %
<b>उत्पादन</b>	<b>154,823</b>	<b>158,450</b>	<b>162,657</b>	<b>171,102</b>	<b>167,906</b>	<b>-1.90%</b>
अरेबिका	90,982	100,611	97,229	100,653	95,271	-5.30%
रोबस्टा	63,842	57,840	65,428	70,449	72,634	3.10%
अफ्रीका	15,583	16,555	17,299	18,772	18,536	-1.36%
एशिया और ओशियानिया	49,484	45,652	48,458	48,394	50,522	4.40%
मेक्सिको और मध्य अमेरिका	17,106	20,322	21,725	21,749	20,833	-4.20%
दक्षिण अमेरिका	72,651	75,921	75,176	82,187	78,015	-5.10%
<b>उपभोग</b>	<b>155,491</b>	<b>158,125</b>	<b>159,913</b>	<b>165,269</b>	<b>166,058</b>	<b>0.50%</b>
निर्यातक देश	47,548	48,488	49,793	50,374	50,288	-0.20%
आयातक देश (कॉफ़ी वर्ष)	107,943	109,637	110,120	114,895	115,770	0.80%
अफ्रीका	10,951	10,843	9,808	9,890	9,970	0.80%
एशिया और ओशियानिया	32,863	34,395	34,832	35,595	35,959	1.00%
मेक्सिको और मध्य अमेरिका	5,295	5,173	5,252	5,322	5,327	0.10%
यूरोप	52,147	52,045	53,158	55,741	55,930	0.30%
उत्तर अमेरिका	28,934	29,559	29,941	31,644	31,848	0.60%
दक्षिण अमेरिका	25,299	26,111	26,922	27,077	27,024	-0.20%
<b>शेष</b>	<b>-668</b>	<b>325</b>	<b>2744</b>	<b>5832</b>	<b>1848</b>	

**मूल्य**

**स्वदेशी बाज़ार मूल्य: आईसीटीए (बेंगलूरु) साप्ताहिक नीलामी मूल्य (₹/कि.ग्रा.)**

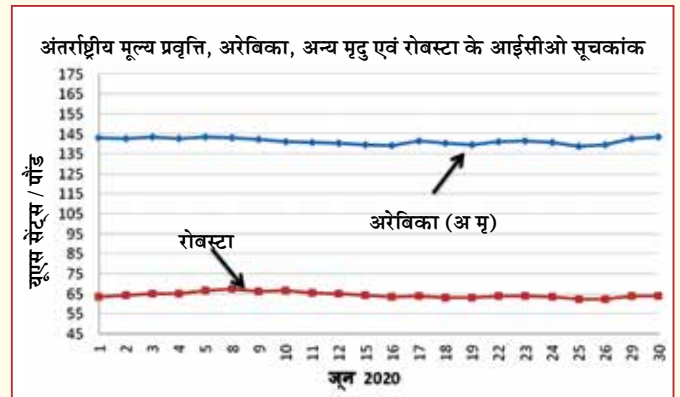
माह	जून ' 20	जून '19	जून ' 20	जून '19	जून ' 20	जून '19	जून ' 20	जून '19	जून ' 20	जून '19
सप्ताह	I		II		III		IV		औसत	
प्लांटे. 'ए'	295.00	---	295.00	---	295.00	219.00	295.00	225.16	295.00	222.08
अरे.चेरी. 'एबी'	---	142.16	---	148.00	---	147.00	---	144.30	---	145.37
रोब.पार्च. 'एबी'	---	200.00	160.00	202.00	---	210.00	---	215.00	---	206.75
रोब.चेरी. 'एबी'	---	---	---	139.00	---	140.56	---	140.00	---	139.85

**अंतर्राष्ट्रीय स्पॉट मूल्य- अरेबिका (अन्य मृदु) तथा रोबस्टा के आई सी ओ दैनिक समूह सूचकांक**

जून 2020 में, आईसीओ समष्टिक सूचकांक मई माह की तुलना में, 5.2% घटकर औसत 99.05 यूएस सेंट्स/पौंड तक पहुँच गया। अक्टूबर 2019 के बाद ऐसा पहली बार हुआ है कि आईसीओ समष्टिक सूचकांक 100 सेंट्स/पौंड से नीचे गिरा। यह गिरावट की लगातार तीसरे महीने था। आईसीओ समष्टिक सूचकांक का दैनिक मूल्य आधे से ज्यादा महीने तक 100 यू एस सेंट्स/पौंड से नीचे था, जिसका गिरावट जून 25 और जून 8 को क्रमशः 96.79 यू एस सेंट्स/पौंड तथा 101.27 यूएस सेंट्स/पौंड के बीच रहा। कॉफ़ी वर्ष की पहली छमाही में अत्यधिक निर्यात के बावजूद भी, अंतर्राष्ट्रीय मुद्रा कोष द्वारा जून में वैश्विक आर्थिक वृद्धि का फिर से निम्न संशोधित करने से तथा ब्राजील में अधिक फसल प्राप्ति की प्रत्याशित करने से, मांग के प्रति मूल्य कम होने के कारण जून में मूल्यों पर दबाव पड़ गया।

जून 2020 में सभी अरेबिका समूह सूचकांक निम्न होने लगे लेकिन, रोबस्टा के मूल्य 64.62 यूएस सेंट्स/पौंड का औसत पहुँचे, जो मई 2020 की तुलना में 0.1% अधिक है। ब्राज़िलियन नैचुरल्स के मूल्य 9% गिरकर 92.56 यू एस सेंट्स/पौंड हो गया। वैसे ही अब तक कोविड-19 के प्रभाव ब्राजील के अरेबिका की फसल पर कम पड़ने पर उसकी कटाई अच्छी तरह से चल रही हैं। इसके अतिरिक्त, ब्राज़िलियन नैचुरल्स के दूसरे सबसे बड़ा निर्यातक इथियोपिया में पर्याप्त आपूर्ति के साथ पिछले पांच महीनों से अत्यधिक नौभरण हो रहा है। कोलंबियाई मृदु 5% घट कर 147.16 यूएस सेंट्स/पौंड और अन्य मृदु 5.6% घट कर 141.52 यू एस सेंट्स/पौंड रह गया। इसके फलस्वरूप, कोलंबियाई मृदु और अन्य मृदु के बीच का अंतर 10.2% बढ़कर 5.64 अमेरिकी सेंट्स/पौंड हो गया।

जून 2020 में, न्यूयॉर्क अरेबिका फ्यूचर्स बाज़ार 7.5% गिरकर 99.50 यू एस सेंट्स/पौंड के औसत पर पहुँच गया जबकि, लंदन रोबस्टा फ्यूचर्स बाज़ार 0.2% बढ़कर 54.77 यू एस सेंट्स/पौंड हो गया। इसके परिणामस्वरूप, न्यूयॉर्क और लंदन फ्यूचर्स बाजारों में जैसे मापा गया है, अरेबिका और रोबस्टा कॉफ़ी के बीच का प्रसार 44.73 यू एस सेंट्स/पौंड तक गिरा, जो मई महीने की तुलना में 15.4% कम है। मई 2020 में प्रमाणित अरेबिका स्टॉक में महीने-दर-महीने 5.6% की घटौती होकर 1.9 मिलियन बैग्स हो गया जो निरंतर गिरावट की पांचवीं महीने हैं। प्रमाणित रोबस्टा स्टॉक में चौथे महीनों में लगातार कमी आई, जो मई की तुलना में 7.3% कम होकर जून में 2.02 मिलियन बैग्स तक पहुँच गया।



**निर्यात :**

कॉफ़ी के सभी समूहों के निर्यात में कमी होने के कारण, मई 2020 में वैश्विक नौभरण 14.6% से गिरकर 10.49 मिलियन बैग्स हो गया। यद्यपि, मई महीने में इस मात्रा की तीसरी सबसे बड़ी रिकॉर्ड है और पिछले साल जैसे अनियमित उच्च नौभरण हो रहा है। अरेबिका के निर्यात 19.7% घटकर 6.43 मिलियन बैग्स हो गया। कोलंबियाई

मृदुओं का नौभरण 13.4% गिरकर 999,000 बैग्स हो गया। इसका प्रमुख कारण यह है कि कोलंबिया से निर्यात 13.1% घटकर 894,000 बैग्स हो गया। मई 2019 की तुलना में, अन्य मृदुओं के नौभरण में 14.4% के साथ 2.61 मिलियन बैग्स की कमी आई, क्योंकि, इस प्रकार की कॉफी के सबसे बड़े पांच निर्यातकों से कम निर्यात हुआ विशेषकर, होंडुरास का निर्यात 20.9% के साथ 7,30,000 बैग्स तक कम हुआ।

ब्राज़ीलियन नैचुरल्स का निर्यात 25.7% घटकर 2.82 मिलियन बैग्स हो गया। ब्राज़ील के ग्रीन अरेबिका का नौभरण 27.3% के साथ 2.2 मिलियन बैग्स तक गिरा जो इसकी 2019-20 की फसल के द्विवार्षिक गिरावट को प्रतिबिंबित करता है। यद्यपि, इथियोपिया का निर्यात 7.8% बढ़कर 381,000 बैग्स हो गया।

कॉफी वर्ष 2019/20 के पहले आठ महीनों में निर्यात 83.8 मिलियन बैग्स तक पहुंच गया, जो 2018/19 के इसी अवधि की तुलना में 4.7% की कमी के साथ 87.96 मिलियन बैग्स था। अक्टूबर 2019 से मई 2020 तक, कोलंबियाई मृदुओं के निर्यात में 7.9% के लिए 9.33 मिलियन बैग्स, अन्य मृदुओं में 7.4% के लिए 16.58 मिलियन बैग्स और ब्राज़ीलियन नैचुरल्स में 9.6% के लिए 26.23 मिलियन बैग्स की गिरावट पाई गई। इसके विपरीत, कॉफी वर्ष 2019/20 के पहले आठ महीनों में रोबस्टा का नौभरण 2.5% बढ़कर 31.67 मिलियन बैग्स हो गया।

आईसीओ के आयातक सदस्य और संयुक्त राज्य अमेरिका से निर्यात, जो वैश्विक आयात के लगभग 75% औसत के हिसाब से, मार्च 2020 में 5.1% बढ़कर 11.76 मिलियन बैग्स हो गया, जिसमें से 8.25 मिलियन बैग्स निर्यातक देशों का है। कॉफी वर्ष 2019/20 के प्रथम छमाही में, आईसीओ के आयातक सदस्य और संयुक्त राज्य अमेरिका द्वारा आयात 3.7% घटकर 64.22 मिलियन बैग्स हो गया। अक्टूबर 2019 से मार्च 2020 तक यूरोपीय संघ द्वारा आयात 2.9% कम होकर 41.6 मिलियन बैग्स हो गया और संयुक्त राज्य अमेरिका द्वारा आयात 8.2% घटकर 13.75 मिलियन बैग्स हो गया। जापान द्वारा आयात में 8.3% के लिए 3.6 मिलियन बैग्स, ट्यूनीशिया में 6.2% के लिए 265,000 बैग्स और नॉर्वे में 0.5% के लिए 363,000 बैग्स की गिरावट देखी गई। इसके विपरीत, रूसी संघ द्वारा आयात 8% बढ़कर 2.99 मिलियन बैग्स हो गया, जबकि स्विट्ज़रलैंड में आयात 7.8% बढ़कर 1.65 मिलियन बैग्स हो गया।

यूरोपीय संघ में ब्राज़ील कॉफी के सबसे बड़े आयातक स्रोत था, जिसका अक्टूबर 2019 से मार्च 2020 तक 20% आयात हुआ। इसके बाद, वियतनाम (13.8%), कोलंबिया (3.9%), होंडुरास (3.8%) और

युगांडा (3.2%) का स्थान था। ब्राज़ील और वियतनाम के आयात घटकर क्रमशः 6.7% के लिए 8.32 मिलियन बैग्स तथा 10.4% के लिए 5.74 मिलियन बैग्स हो गया। तथापि, कोलंबिया से आयात 0.3% के साथ 1.63 मिलियन बैग्स, होंडुरास से 20.7% के साथ 1.57 मिलियन बैग्स तथा युगांडा से 7.6% के साथ 1.35 मिलियन बैग्स तक बढ़ गया। यूरोपीय संघ लगभग 70% ग्रीन कॉफी का आयात करते हैं, विशेषकर स्रोत उत्पादक देशों में, जबकि घुलनशील कॉफी उसके आयात का लगभग 10% करता है। कॉफी वर्ष 2019/20 की पहली छमाही में, ब्राज़ील, भारत और वियतनाम, घुलनशील कॉफी के प्रमुख स्रोत थे, जो यूरोपीय संघ के कुल घुलनशील आयातों का क्रमशः 5.4%, 4.7% और 3.5% का प्रतिनिधित्व करते थे।

कॉफी वर्ष 2019/20 के प्रथम छमाही में संयुक्त राज्य अमेरिका द्वारा 53.6% का आयात ब्राज़ील एवं कोलंबिया के आयात का बराबर था। संयुक्त राज्य अमेरिका के आयात, वियतनाम, मेक्सिको तथा पेरू के आयात का क्रमशः 9.1%, 4.9% तथा 4.1% का प्रतिनिधित्व किया है। ब्राज़ील, कोलंबिया तथा वियतनाम से आयात क्रमशः 2.7% के लिए 4.21 मिलियन बैग्स, 10.3% के लिए 3.15 मिलियन बैग्स तथा 18.5% के लिए 1.25 मिलियन बैग्स तक घटा। अक्टूबर 2018 से मार्च 2019 की तुलना में मैक्सिको से नौभरण 21.5% घटकर 672,000 बैग्स हो गया जबकि पेरू से नौभरण 27.3% गिरकर 558,000 बैग्स हो गया। घुलनशील कॉफी के आयात के शीर्ष पांच सबसे बड़े स्रोत हैं - ब्राज़ील, मैक्सिको, कोलंबिया, भारत और स्पेन, जिनका आयात कुल का 87.8% था। भुनी हुई कॉफी के पाँच सबसे बड़े स्रोत कनाडा, इटली और स्विट्ज़रलैंड जो 71.8% का प्रतिनिधित्व करते हैं, जबकि मेक्सिको और कोलंबिया ने क्रमशः 10.8% और 7.3% का प्रतिनिधित्व किया।

इसी प्रकार, कॉफी वर्ष 2019/20 के प्रथम छमाही में यूरोपीय संघ और संयुक्त राज्य अमेरिका के लिए ब्राज़ील, वियतनाम और कोलंबिया-ये तीनों जापान में आयात का मुख्य स्रोत थे जहां क्रमशः 30.7%, 25.1% और 15.3% आयात हुआ। इथियोपिया और इंडोनेशिया, अगले दो सबसे बड़े आपूर्तिकर्ता थे, जो जापान के 7% और 6.2% आयात का प्रतिनिधित्व करते हैं। ब्राज़ील से आयात 27.2% के साथ 1.1 मिलियन बैग्स और इंडोनेशिया से 21.3% के साथ 223,000 बैग्स तक गिर गया। हालांकि, वियतनाम से आयात 12.9% के साथ 904,000 बैग्स, कोलंबिया से 14.4% के साथ 551,000 बैग्स, और इथियोपिया से 6.8% के साथ 252,000 बैग्स बढ़ गया। जापान के आयात का लगभग 90% ग्रीन कॉफी है, जबकि कुल आयात का लगभग 9% घुलनशील कॉफी है। कुल घुलनशील आयात का 75%

ब्राज़ील, वियतनाम और कोलम्बिया का हिस्सा है। ब्राज़ील से जापान को घुलनशील कॉफ़ी का नौभरण 5.4% के साथ 145,000 बैग्स, कोलम्बिया का 20.5% के साथ 28,000 बैग्स बढ़ गया, जबकि वियतनाम का 14.7% घटकर 68,000 बैग्स हो गया।

**भारतीय कॉफ़ी निर्यात (01.01.2020 से 30.06.2020 तक) मे. ट.**

क्र. सं.	निर्यात	अनंतिम निर्यात		अनंतिम पुनः निर्यात		कुल अनंतिम निर्यात	
		भारतीय कॉफ़ी	विगत वर्ष की संगत अवधि	अनंतिम पुनः निर्यात	विगत वर्ष की संगत अवधि	कुल अनंतिम निर्यात	विगत वर्ष के संगत अवधि
		1	2	3	4	(1 + 3)	(2 + 4)
1	अरे. पार्च	21771	27,351	5	7	21,776	27,357
2	अरे. चेरी	8033	7228	0	0	8033	7228
3	रोब. पार्च.	17228	23294	0	0	17228	23294
4	रोब. चेरी	78606	95448	0	0	78606	95448
5	भुने बीज	27	30	0	0	27	30
6	भुने व पिसे	89	100	0	0	89	100
7	इंस्टंट	6345	10788	43,500	44074	49845	54,862
<b>कुल</b>		<b>132,099</b>	<b>164,237</b>	<b>43,505</b>	<b>44081</b>	<b>175,604</b>	<b>208,318</b>

संकलन : डॉ. डी. आर. बाबु रेड्डी, उप निदेशक (बाजार अनुसंधान), कॉफ़ी बोर्ड, बेंगलुरु

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