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Basmati rice: pride of India - current status and strategies for development of International market

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Abstract

Basmati is a unique product from Indo-Gangtic planes of Himalaya, having unmatched quality characters and aroma worldwide. This makes it a very important export product benefiting India in monetary terms. During last three years about 77 thousand crores have been earned through export of basmati rice in more than 135 countries. Since India is a major producer (<70%) of total Basmati and have opportunities to earn the foreign exchange through the spreading of aroma in each corner of the world. India has now established a good marketing system, the further improvement in production and processing is need of hour.

Keywords: Basmati rice, Indo-Gangtic planes, International market

Introduction

Basmati means the 'queen of fragrance', a variety of long grain rice, famous for its fragrance and delicate flavour (Mishra *et al.*, 2002) [1]. It is widely believed that 'Bas' in Hindi language means 'aroma' and 'Mati' means 'full of' hence the word Basmati describes it as full of aroma. It cultivated in a small geographical region of the Indian sub-continent for millennia with a recorded history of over 200 years.

Basmati, the long grained, non-glutinous rice which has a gorgeous perfume to it, gives lovely addition to any meal (Paroda R.S, 1988) [2]. This rice is different from other rice varieties mainly due to the aroma and elongation post cooking. No other rice has this combined characteristics. The post cooking elongation of more than twice its original length, the aroma and its sweet taste has made basmati rice a delicacy. Basmati rice is primarily cultivated in India and Pakistan. The Himalayan foothills are known for producing these best Basmati varieties (Shobha Rani N and K. Krishnaiah, 2001) [3].

Basmati varieties

There are known 23 varieties of basmati rice up to 2015, which have been approved under the Seeds Act, 1966. India is the largest producer and exporter of basmati rice in the world (Siddiq, 2002) [4]. India produce more than 70% of the total world basmati rice production and the rest is produced by Pakistan. The production of Basmati rice in India is 8.7 million tonnes from 2.1 Million hectares during 2014-15.

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Agronomic and quality characteristics of notified basmati varieties

Variety Name	Duration (days)	Yield t/ha	Milled rice length (mm)	Milled rice Breadth (mm)	Elongation Ratio	Hulling recovery (%)	Milled rice recovery (%)	HRR (%)
Basmati 370	155	2.5-3	6.89	1.75	1.8	78	70	60
Taraori Basmati	160-165	2-2.5	7.6	1.76	1.90	78	67	52
Ranbir Basmati	135	2.5-3	6.70	1.75	1.80	78	68	65
Pusa Basmati 1121	135	4-4.5	8.45	1.90	2.25	77	67	48
Pusa Basmati 1	135	4.45	7.7	1.70	2	77	67	52
Pusa Basmati 6 (1401)	150	4-5	7.8	1.75	2.15	78	67	58
Pusa Basmati 1509	125	5-6	8.45	1.85	2.25	77	67	48
Basmati 386	160-165	2-2.5	7.6	1.76	1.90	78	67	52
Mahi Sugandha	140	4-4.5	7.7	1.70	2	77	67	52
Haryana Basmati 1	140	4	6.74	1.65	1.76	78.3	71.8	44.7
Punjab Basmati 1	155	4	6.7	1.8	1.70	78.0	70	49
Basmati CSR 30	160-165	2-2.5	7.6	1.76	1.90	78	67	52
Kasturi	130	3.5	7.5	1.75	1.70	78.5	72	65
Type 3	155	2.5-3	6.61	1.75	1.8	78	70	60
Vallabh Basmati 21	121	43.0	7.64	1.79	2.57	76	66.2	51.0
Vallabh Basmati 22	145	36.21	7.45	1.72	3.57	76	69.37	52.01
Vallabh Basmati 23	140	34.77	7.22	1.73	3.21	76.8	67.3	52.1
Vallabh Basmati 24	143	43	7.48	1.65	3.1	76.5	66.8	51.5

Production area of basmati rice

Basmati rice is unique kind of rice and cultivated only in India and Pakistan. India is the largest producer and exporter of basmati rice in the world. India produce more than 70% of the total world basmati rice production and the rest is

produced by Pakistan. The Himalayan foothills are said to produce the best Basmati. Now Basmati rice is protected under geographical indication and the production area of basmati for all basmati varieties is limited as under.

Srl. No	State	Districts
1	Delhi	Entire state
2	Haryana	Entire state
3	Himachal Pradesh	Entire state
4	Uttarakhand	Entire state
5	Punjab	Entire state
6	Jammu & Kashmir	Jammu & Kathua
7	Uttar Pradesh	Agra, Aligarh, Badaun, Baghpat, Bareilly, Bijnore, Bulandshahr, Etah, Etawah, Farukkabad, Ferozabad, Gautam Budh Nagar, Ghaziabad, Hathras, J P Nagar, Kannuj, Mainpuri, Mathura, Meerut, Moradabad, Muzaffarnagar, Oraiya, Pilibhit, Rampur, Shahjahanpur, Saharanpur

Export potential of paddy

Due to the unique characters and unmatched aroma, Basmati have demands from the whole world on a premium prize. India is self sufficient in rice production and having surplus quantity available for export. During 2014-15 the share of Basmati rice in agricultural export was 21.7 % excluding 15.5% of Non Basmati rice.

- Saudi Arabia
- United Arab Emirates
- Iraq
- Kuwait
- Yemen Republic
- United Kingdom
- United States
- Jordan
- Qatar

Major rice importer countries of basmati

Basmati rice is exporting in more than 135 countries from India. The top 10 countries are as follows:

- Iran

Basmati export status from India

Years	Quantity million MT	Value (Crore Rupees)	Value in USD
2011-12	3.18	11450	3222
2012-13	3.46	19399	3564
2013-14	3.76	29300	4866
2014-15	3.70	27598	4518
2015-16	4.05	22718	3478
2016-17	3.99	21665	3222
2017-18 up to Sept.	2.13	13690	2126

(Source: DGCIS)

Supply chain of basmati rice

In the process of paddy movement from farm gate to final processing unit the ownership changes from farm to kaccha arhtiya - pakka arhtiya – trader and finally to the mill

increasing the paddy price without value addition. To bring down the cost of post harvest handling and bringing more flexibility in the organizational structure the need of the hour is to develop warehousing facilities to cater the needs of

farmers.

This practice of outsourcing has led to an increase in the number of organizations whose work involves satisfying the demands of customers. The work required to assure the demands of the customers is done by reducing the control of the management of the organization in day to day functions and logistic operations.

In order for a supply chain to be a high performing one, the support operations and market strategies should be prepared with integrated planning and the execution of these strategies should be done in such a manner that the service, inventory, investment and costs are optimized.

Farmer

- Purchase of the paddy seeds & other farm inputs from the local market.
- Planting of the seeds in the nursery and, subsequently, transplanting the same to the rice fields.
- Protecting the crop from biotic & abiotic stresses.
- Harvesting of the crop on maturity and, thereafter, threshing, drying and cleaning of the produce
- Sale of produce at the grain market

Kaccha Arhtiya

- Kaccha arhtiya provides loan to the farmer for the various farming activities and day-to-day needs.
- Facilitating the selling of the farmer's produce at the local grain market at competitive rates.
- Issuance of the J-Form (B1) to the farmer against sale of his produce.
- Issuance of the J-Form (B2) to the Pakka arhtiya.
- Recovery of the loan amount from the farmer after the sale of the farmer's produce.
- Providing for farm inputs such as seeds, fertilizers, insecticides & pesticides etc.

Pakka Arhtiya

- Purchase of the farmer's produce through the Kaccha arhtiya.
- Paying the Dammi (commission) & other expenses to Kaccha arhtiya against the purchases.
- Collection of the I-Forms from the Kaccha arhtiya.
- Selling the produce purchased to the exporter, as well as to the local market.

Traders

- Storing of the purchased produce at the warehouse.
- Selling of the produce in the local market, as well as to the exporter.

Rice Miller

- Visiting the growing areas and the identification of paddy.
- Purchase of the produce with approved specification issued by laboratory.
- Storing, drying, milling of paddy and sorting and grading, packing of rice.
- Selling the final product in the domestic and international market

Wholesaler

- Selling of the final product in bulk quantity.

Factors affecting prices of basmati rice

The factors which affect the price of Basmati Rice are as

follows:

- Demand:** Basmati Rice has a demand both for export as well as local consumption. India is the largest producer and exporter of Basmati rice with about 2/3rd of the production being exported. As a result of this export orientation, the import demands received by other countries affect the prices of Basmati Rice.
- Climatic Conditions:** In India, agriculture is dependent on the monsoons. Even the production of Basmati rice to a considerable extent is based on the monsoons. Weather as a whole is a key factor which plays a dominant role in the production as well as productivity of Basmati Rice.
- Government Policy:** Government export import policy plays a significant role in determining the price of the rice.
- Market Conditions:** The overall sentiments and the conditions in the rice market affect Basmati price trends.
- Pattern of Consumption:** The pattern of consumption in domestic market also affects the price of the rice.
- Economy:** The economic growth and performance of importing countries also affect the price. Other fragrant rice from other countries also has an influence on the market which further influence the price of Basmati Rice.
- Cost:** Cost of cultivation & processing
- Farmers Rising expectation for higher farmgate prices.

Basmati Production Technology

The steps for basmati production are described as under:

Selection of Field

- Free from soil problems
- Assured irrigation and drainage
- Isolation distance

Seed Source

- University/Institute responsible for developing the varieties
- Organization sponsored by the original University/Institute
- Make sure to retain the tag etc

Field Preparation

- Well leveled
- Well puddled

Nursery

- Seed treatment
- Sparse sowing
- Plant protection

Transplanting

- Single Seedling/hill
- Square transplanting
- Spacing 20 x 20 cm, 25 x 25 cm.
- 15 – 25 day old seedling
- 2 – 3 cm deep

Real time nutrition management

- Depends on varieties
- Soil test

Roguing

- Based on leaf color, size, thickness & plant height remove as and when noticed
- Too early and too late plants

- c) Based on grain size and shape.
- d) Even weak plants which are true to the types must be removed
- e) Plants with awn in awn less varieties
- f) Roguing must start before flowering, during flowering and after maturity

Harvesting

- a) Harvest at appropriate stage

Threshing

- a) Take care from mechanical mixture

Drying

- a) Bring to 14% moisture
- b) Take care from mechanical mixtures

Grading

- a) Remove weak seed by winnowing

Storage

- a) Store in safe place
- b) Protect from stored grain pests

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