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Export competitiveness of Uttarakhand organic basmati rice

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Abstract

“Basmati” is long grain aromatic rice grown for many centuries in the specific geographical area, at the Himalayan foot hills of Indian sub-continent. Basmati rice is unique among other aromatic long grain rice varieties. Basmati rice is possessing unique grain, cooking, eating and digestive qualities. Hence, majority of people in the country and abroad have developed liking for basmati rice. India is the world’s largest producer of aromatic and premier variety basmati rice. Apart from India all the major rice growing countries have their own traditional and evolved basmati varieties other leading countries are Pakistan, China, Indonesia, Philippines, Thailand and Vietnam. Gulf region remains the major markets for Indian basmati rice and inside Gulf, Saudi Arabia accounts for the major chunk of basmati imports from India. Pakistan is the sole competitor for India in the international market for basmati rice. India being the big player in basmati export, the product’s competitiveness has not been thought of so far. Export competitiveness is related to the country's ability to compete within export markets, maintain economic growth and employment. The demand for the increase in export competitiveness mostly is based on the necessity to consider the globalization challenges, affecting the competitiveness, and apply adequate decisions regarding to the increase of export competitiveness.

Uttarakhand Organic Commodity Board (UOCB), a government supporting institution is providing all kind of backward and forward linkages. State government needs to promote its brand in globally. For this government has to initiate few strategies to build a strong brand in International market.

Keywords: Uttarakhand organic commodity board, basmati rice, international market

Introduction

World Basmati trade scenario

In the International market rice is traded under two main categories such as fragrant and non-fragrant. In case of fragrant rice, India dominates the trade with its basmati rice followed by Pakistan.

Table 1: Share of organic basmati in total domestic organic product sale

S. No.	Product	Sale (Tonnes)	Percentage Share
1	Fruits and Vegetable	1801	28.51
2	Basmati Rice	1178	18.65
3	Tea	945	14.96
4	Wheat	900	14.25
5	Pulses	678	10.73
6	Coffee	546	8.64
7	Spices	267	4.22
	Grand total	6,315	

Source: ORG- Marg and Rice India

Export competitiveness, concept and importance

Pertains to the ability and performance of a firm, sub-sector or country to sell and supply goods and services in the international market in relation to the ability and performance of other firms, sub-sectors or countries in the same market. Competitiveness can be measured in terms of cost of products, as well as those related to non-price factors such as delivery schedules, reliability of producers, and such intangible factors like image of the country/company and brand equity. Together, these factors define the competitive aspect of

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product to compete under conditions of free market (Verma, 2018) [50].

A product is said to be export competitive if

1. The growth rate in unit value of the product exceeds average growth rate in unit value of the product from all suppliers in the international market
2. Its market share grows over the period at a rate which is more than or equal to average market growth rate

The detailed analysis of export competitiveness requires systematic consideration of inter related factors, which form an overall export competitiveness. Export competitiveness can be measured in several ways viz. analyzing one or various factors of the country's export, creating composite indices, factors which stimulate the international trade etc. One of the most frequently applied competitiveness measurement methods involves measurement by index. This index is described as an instrument artificially created for analysis of multi aspect problem, consisting of sub- indicators and based on which the analyzed objects can be rated (Sneiska and Bruneckiene, 2012) [6]. In modern practice the indices for the measurement of export specialization are applied. However,

theoretical and practical interpretations on their applicability have neither been formed nor comprehensively discussed by researchers yet. The proposed study will attempt to identify and analyze the factors felt important for increasing the export competitiveness of Uttarakhand organic basmati rice.

Basmati Production

As is clear from the table 2 that Punjab contributes about 40% to total production out of 18% of total basmati area as compared to Haryana which contributes about 42% to total production out of 50% area. This is because Punjab has the highest productivity in India for Basmati. The areas of Basmati Rice production in India are in the states of J & K, Himanchal Pradesh, Punjab, Haryana, Delhi, Uttarakhand and western Uttar Pradesh. Out of these organic Basmati initiative has been taken up in part of western UP, Punjab, Haryana, parts of HP, Uttarakhand and J& K only. With an eye on growing national and international demand, Jammu's agriculture department has begun cultivating organic basmati rice in the region. J&K has developed 200 ha of land under organic basmati cultivation in R.S. pura and nearby villages west of Jammu.

Table 2: State wise Basmati Production (lakh tons)

States	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Punjab	31.65	28.31	28.32	22.82	22.92	34.98
Haryana	24.32	27.52	26.77	22.61	28.98	37.01
Uttar Pradesh	9.86	14.43	20.66	14.28	12.70	12.60
Uttarakhand	0.58	0.97	0.80	0.53	0.54	0.66
J & K	0.79	0.79	0.94	0.96	0.92	2.40
Himachal Pradesh	0.00	0.10	0.43	0.05	0.03	0.02
Delhi	0.05	0.40	0.06	0.06	0.40	0.03
Total	67.27	72.17	77.98	61.33	66.16	87.73

Source: www.airea.net and BEDF

Export of Basmati rice from India

UAE, Saudi Arabia and other gulf countries are major importers of Indian basmati contributing to about 70% of total export. Table 3 shows past trends of some of the major importers of Indian basmati rice. Organic food exports increased from to 78 m\$ (2016-17) to 100 m\$ in (2017-18). Out of which export of organic basmati rice was 5630 MT

(2017-18) (Singh, 2018). During 2019-20, India exported 86 items with total volume of 37,533 MT, valued around Rs. 498 crores worth and cotton (43% contribution) leads (16,503 MT) among the products exported followed by Basmati rice which contributes for 15% of export volume, 13% of export value amounting to Rs. 59.2 Cr. (APEDA, 2020) [47].

Table 3: Export of Basmati rice from India to different countries LMT US \$ million

Country	2019-20		2020-21		2021-22	
	Qty	Value	Qty	Value	Qty	Value
Saudi Arabia	8.26	1,108.90	9.67	1,188.23	9.49	842.22
Iran	14.40	1,834.55	9.36	1,108.50	6.95	571.19
UAE	1.48	196.51	2.79	314.76	6.12	475.18
Iraq	2.20	271.14	2.35	259.13	4.18	340.97
Kuwait	1.76	247.95	1.66	250.53	1.81	211.68
Yemen Republic	1.47	183.94	1.74	196.15	1.42	110.49
UK	1.19	130.73	1.36	147.63	1.88	143.14
US	1.03	143.86	0.89	132.30	1.21	131.55

Source: DGCI&S

Status of Organic Basmati in Uttarakhand

Diversified Agriculture Support Project (DASP) introduced the concept of Organic Farming in select regions of the state in 1998. Dehraduni Basmati Project was started in May 2002 by Diversified Agricultural Support Project (DASP). It was a serious attempt to increase the production of Dehraduni Basmati by motivating the farmers to cultivate it and in turn,

helping them in realizing premium price for the produce. After completion of the DASP in March 2004 the Organic Basmati Production Program was adopted by Uttarakhand Organic Commodity Board and was renamed Organic Basmati Export Program (O.B.E.P.). Total 3600 tons Organic Basmati paddy was produced in both the areas in 2016. In Uttarakhand the area is reported to be 1400 ha and expanding

(UOCB). In India as a whole 44335MT of rice is produced out of 18134 ha area under organic management. Table 4

depicts that year wise total Basmati rice produced in the state.

Table 4: Area, Production and Productivity in Uttarakhand

Year	Area (ha)	Production (MT)	Productivity
2012-13	273662	540128	19.74
2013-14	259805	523203	20.14
2014-15	275711	528524	19.17
2015-16	270608	551716	20.39
2016-17	270416	495083	18.31
2017-18	261319	544497	20.84
2018-19	255037	561339	22.01
2019-20	246959	551758	22.34
2020-21	247698	561856	22.68
2021-22	250297	585921	23.41

Source: Directorate of Agriculture, Dehradun

Table 5: District wise production of Organic Basmati

District	Area		Production		Productivity	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
Dehradun	9179	10095	17672	21283	19.25	21.00
Haridwar	12985	14715	28856	31436	22.22	21.36
U.S. Nagar	101482	102280	330419	347132	32.55	33.93
Nainital	11597	10165	32544	28793	28.06	28.00

Regional issues faced by Basmati rice exporters

1. The basmati paddy raw material in Uttarakhand is not sufficient for fulfilling round the year demand of the rice export industry. Exporters from Uttarakhand have to source from neighboring mother state Uttar Pradesh to fulfill their requirement. As per export policy of UP, rice exporters in UP is exempted from mandi fee. But if an exporter in Uttarakhand procures the same paddy in UP, he has to pay a mandi fee of 2.5 percent, even if the Basmati is for exports. This double taxation is hampering competitiveness of basmati exporters of Uttarakhand.
2. Uttarakhand has Basmati Export Zone in U.S. Nagar and the contiguous districts of UP (Bareilly, Pilibhit and Rampur) from which paddy is procured, also fall under Basmati Export Zone.
3. For exports, exports need phyto-sanitary certificate and for this certificate the fees is Rs. 100. The official has to be called from Delhi for inspection and the company has to bear total expenses of calling him, it comes to approximately Rs. 3k-4k. Moreover every time a consignment has to be sent exporters need this certificate.
4. Exporters need an independent and private quality testing lab to be setup in nearby area to settle disputes arising between farmers and exporters regarding quality of rice.
5. If exporters are having direct purchase from mandi they are abided to pay mandi fee of 2.5 percent, which makes them less competitive.
6. Exporters have to pay a sale tax of 4 percent of inter-state selling of basmati rice, even if the purchased basmati is finally meant for exports.
7. Even the Uttarakhand to get exemption from mandi fee for basmati rice meant for export, exporters have to get prior permission for deciding on quotas for a year by submitting copies of the export orders in advance. Moreover, permission procedure takes 3-4 weeks for approval making this a great problem for the exporters.
8. Interrupted power supply results in additional operating

cost of Rs. 10,000 per hour. Moreover the bigger problem is that, the power breakdown occurs without prior information due to which sudden shut down occurs, which causes damage to the expensive machines. If the prior information of power breakdown will be given by electricity department then systematic shut down of machines can be done and damage to machines and raw material can be minimized. Due to frequently interrupted power supply, percentage of broken increase, thereby reducing quality of rice. Also on restarting, efficiency of machines decreases.

9. Exporters also face a lot of problem of DNA testing of rice as presently this facility is only in Hyderabad and it becomes a cumbersome and time consuming process to send samples for testing to Hyderabad and wait for result.
10. Uttarakhand has ICD (Inland Container Depot) in Rudrapur, which is so far from Dehradun and Haridwar, so the exporters have to send consignments to Moradabad in UP., which costs Rs. 3k-4k per container additionally. If this container facility will be provided in Dehradun then this money can be saved.
11. Also, there shall be single window contact, information and facilitation for providing all information and escort services to the entrepreneurs in the state.

Current status and concerns in Uttarakhand

1. Shrinkage in area

In district Dehradun, Haridwar, Pauri, Tehri and Almora of Uttarakhand most of the aromatic rice growing farmers are small or marginal food security is the foremost concern for them. They have now better technological options like improved high yielding varieties, both non aromatic and mild aromatic types. Alternate and more profitable cropping systems have also evolved. Sugarcane based cropping system for example has become prevalent in Dehradun and Haridwar belts often without rice in the sequence. A lot of area near cities has gone to housing and non-agricultural uses.

Coming specifically to U.S. Nagar, which is having most appropriate environment for basmati cultivation TDC (Tarai Development Corporation) has contract type arrangement with farmers for seed production which occupies about half of the rice area for seed production only.

2. Increasing demand for longer grain type

Since late seventies and early eighties, international rice market has undergone a sea change. The demand for long grain non aromatic and aromatic rice, even with a mild scent, but extra-long slender grain, has increased. Thus, there is now a less demand for once well-known traditional basmati varieties. In northern India, basmati 370, type 3 and hansraj used to be the most popular and widely grown among basmati varieties. At present Pusa Basmati-1 and Taraori Basmati are fast replacing these traditional aromatic varieties, especially by virtue of their extra-long slender grains, although, except for the grain length, other quality parameters are almost same or even inferior to basmati 370 or Dehraduni basmati. Nothing was done in the past to popularize high quality small and medium grained aromatic rices on domestic or international market.

3. Decline in quality

According to the farmer's perception, the basmati rice is losing aroma. different reasons for decline in aroma and grain quality, include several factors like varietal impurity, use of chemical fertilizers, soil factors including micronutrient deficiency, cultivation practices, global warming, lack of incentives to farmers, poor market support etc. (Singh *et al.*, 2000). However, one of the major factor for seed admixtures was lack of systematic seed production program and maintenance breeding of the prevalent scented varieties in the state.

4. Aroma crisis

Indigenous aromatic rice is gradually losing their bas (aroma). This is the unanimous opinion of farmers. Some of factors for decline in aroma are:

1. Varietal mixture: Since ages farmers are using their own saved seeds. But almost all these farmers give major emphasis to yield rather than quality in their selections.
2. Use of chemical fertilizers: Farmers has the strong opinion that FYM improves and nitrogenous fertilizers, particularly urea, adversely affect aroma formation. In literature there are many references dealing with dose optimization for nitrogenous fertilizers for the best yield of scented rice. They hardly give any consideration to the effect of these fertilizers on aroma or other quality traits.
3. Soil factors: soil factors do affect aroma formation but these are not yet defined. Leaching of minerals may result in decline in aroma. Clear cut symptoms of the deficiencies of micronutrients like Zn, Fe and sulfur are found in the area.
4. Cultivation practices: Although there is no experimental evidence, but farmer perceived that there is better aroma in direct owned rice crop then in transplanted once, particularly in Hansraj variety.
5. Rising temperature: both in scientific and farmers circle it is accepted that comparatively lower temperature (20-27 °C) at the time of flowering or grain filling engages aroma content of seeds. However, this critical temperature may vary in different varieties. Gradual

increase in temperature, deforestation and Industrialization may have affected aroma content.

5. Rapid loss of the germplasms

In the absence of any conservation programme, we are fast losing most valuable germplasm of scented rice. In most of the areas, the number of high quality rice germplasm which were in cultivation a few years ago, are now extinct.

6. Marketability

Small and medium grain aromatic rice command a very limited market base. Their prices are lower than Basmati type. In a few cases their prices could be equal to or even higher than basmati type but only in their native area of cultivation were farmers and consumers are aware of their qualities. However, in cities only long grain aromatic rice are in demand. So far no attempt has been made to explore the export market for Small and medium grain aromatic rice, which are superior than basmati in all characteristics except grain length.

7. Policies

- There should be price support to the farmers of native aromatic rice growing area to convince them not to shift to other cultivars of rice or to other crops. Some of the farmers said that increase in basmati price by Rs. 3 /kg. may change the situation and make the basmati cultivation more profitable than sugarcane. Traders and exporters of basmati rice should realize that their own survival and success depend on cultivation of these varieties in their native areas.
- There should be incentives for on farm conservation of germplasm. There is a need to improve rather than replace these varieties. Government and university extension services ought to be more pragmatic in their outlook and approach. Their aim should be to conserve rather than destroy or replace local varieties/ germplasms. So far their major goal has been to increase productivity (with little consideration to quality) and short term profitability of the farmers.
- Organize seed production and distribution programs for local rice cultivars.
- Restricting sale of land for non-agricultural use in prime scented rice growing area.

Exploring/ developing the international market for organic basmati. This should be primarily the job of AIREA and APEDA.

Export performance from India

The growth in export of Basmati rice from India in terms of quantity and value during the period 2002-2022, before and after commencement of Organic Farming. It is quite evident that except for few years the export of Basmati in terms of both quantity and value progressed well. The study revealed that there was a significant increase in export of Basmati rice from India in terms of quantity as well as in value.

Analysis of growth

The growth trends were estimated for the total Basmati exports for the period 2002 to 2022 by exponential function. It can be observed from table that the quantity and value of total Basmati exports registered a positive and significant

growth in their exports with compound growth rate of 4.44 percent and 16.65 percent respectively.

Table 6: Compound growth rate of total Basmati exports

Particular	Basmati rice export	
	Quantity	Value
Intercept	4.62	2.08
Slope	0.018 (0.004)	0.076 (0.003)
Growth	4.441* (0.049)	16.655* (0.103)

*Significant at 5 percent level

Table 7: Compound growth rate of Basmati export from India

Time duration	Export quantity	Value
2002-2012 (Before commencement of Organic Farming)	11.45	18.76
2013-22 (After commencement of Organic Farming)	17.68	35.78
Overall (2002-2022)	4.44	16.65

Significant at 5 percent level

Table 8: Instability in Export of Basmati

Year	Export quantity		Value	
	CV%	Instability Index	CV%	Instability Index
2002-2012 (Before commencement of Organic Farming)	73.53	65.47	64.87	51.70
2013-2022 (after commencement of Organic Farming)	66.47	60.29	101.70	71.56
Overall (2002-2022)	95.89	86.70	110.78	98.40

Significant at 5 percent level

In the period (2002-2022) the value of coefficient of variation was 95.89 percent. The nature of variation in export value was found to be quite reverse compared to variation in export quantity. The coefficient of variation in export value was 110.78 percent which was quite high as compared to CV % of export quantity, which indicates that the variation was found higher for export value than export quantity which might be due to change in international price, trade and tariff.

Competitiveness of Indian basmati

1. Nominal Protection co-efficient (NPC)

Competitiveness is the ability to produce and distribute product and/ or services that can compete in the international markets, and which simultaneously increase the real income

and living standards of its citizens. The significance of Basmati exports to the national exchequer was growing rapidly.

The Competitiveness of Indian Basmati is calculated on the basis of Nominal Protection co-efficient (NPC) which is the ratio of Domestic price (Pd) and International price (Pb). As already mentioned that the ratio less than one indicates the competitiveness. From table it is clear that Indian Basmati rice is competitive enough because the ratio turns out to be less than one. In this case the domestic price is taken as the average auction price at APMC.

Export price, domestic price and NPC for Basmati are reported in table for the year 2013 to 2022. The NPC value in 2020-21 and 2021-22 were found to be 0.901 and 0.926 respectively indicating that the commodity could be exported.

Table 9: NPC for Indian Basmati

Year	FOB price, Pb (Rs.)	Domestic Price, Pd (Rs./qtl)	NPC=Pd/Pb
2015-16	7384	6000	0.812
2016-17	7843	6200	0.790
2017-18	8139	6100	0.749
2018-19	8788	7050	0.802
2019-20	8543	7600	0.889
2020-21	8762	7900	0.901
2021-22	8907	8250	0.926

2. Domestic Resource Cost (DRC)

From DRC, RCR was obtained which was taken as a measure of comparative advantage at a given point of time and these are presented in table.

The marginal value of non-traded inputs of Basmati Farming system accounted to 47.72 as a result of the premium price of Saudi Arabia, the RCR ratio appeared to be lowest in Saudi Arabia market in the case of Basmati (0.18) and Organic Basmati (0.25) and commanded a substantial comparative advantage over the remaining countries, regardless of farming system.

The RCR ratio was found to be greater than one showing a comparative disadvantage in exporting of Basmati rice. Generally, consumer preference and product differentiation leads to price differentials across markets. At any point of time, the relevant price of any country depends on the quality of Basmati produced for export as well as that consumed in demand market. Thus it is clear that India has a larger comparative advantage in exporting Basmati rice to Saudi Arabia than to UAE and Iran markets. Largely because of the premium price received in the Saudi Arabia market.

Table 10: Resource Cost Ratio (RCR) Indices in Organic Basmati Production system

	Particular	Value (Rs.)	
		Basmati	Organic Basmati
1	Seed	6.82	7.09
2	Labour	30.89	40.67
3	Fertilizer or Green Manure	10.01	16.46
A	Total	47.72	64.22
B	International reference price in Saudi Arabia market (US\$/kg)	3.73	3.73
C	Exchange rate (1\$=Rs.)	68.07	68.07
D	Domestic resource cost = (A/B)	12.79	17.21
E	Resource cost ratio = (D/C)	0.18	0.25
F	International reference price in UAE market (US\$/kg)	3.64	3.64
G	DRC= A/F	13.10	17.64
H	RCR = G/C	0.19	0.26

I	International reference price in Iran market (US\$/kg)	3.18	3.18
J	DRC = A/I	15.00	20.19
K	RCR = J/C	0.22	0.29

3. Export Performance Ratio

The Export Performance Ratio/ Revealed Comparative Advantage (RCA) and Revealed Symmetric Comparative Advantage (RSCA) for export in Basmati rice and Organic Basmati were estimated to compare the export

competitiveness of India and have been presented in table. The perusal of the table reveals that RCA in Basmati rice were much higher than unity and RSCA were positive and higher. This indicate that India was highly competitive in Basmati rice export in the world product during the period.

Table 11: RCA and RSCA of Basmati Rice

Period	RCA			RSCA		
	Basmati	Organic Basmati	Total	Basmati	Organic Basmati	Total
TE 2015	11.54	5.58	10.74	0.73	0.54	0.71
TE 2018	14.16	10.76	12.84	0.75	0.71	0.75
TE 2021	18.72	21.73	19.05	0.80	0.81	0.80

Note: data are for triennium ending (TE) average

Development of Unique supply chain model

In the context of mountain area, due to the mountain specification and inherent inbound and outbound logistics. Development of supply chain is always being a major challenge in any market linkages. The proposed model has been developed in such a way that layers in the chain are minimum without scaling down vertical, horizontal and backward linkages. Around 500 bio villagers will be

interwoven directly into the chain and there will also good scope for expansion without increasing the layer. The major players in the chain will farmers, producer groups, master trainers, supply chain officer and retailers. Hare master trainers will act as connecting link among bio villages, UOCB or COF and markets. This is kind of model where information flows from both up and down side.

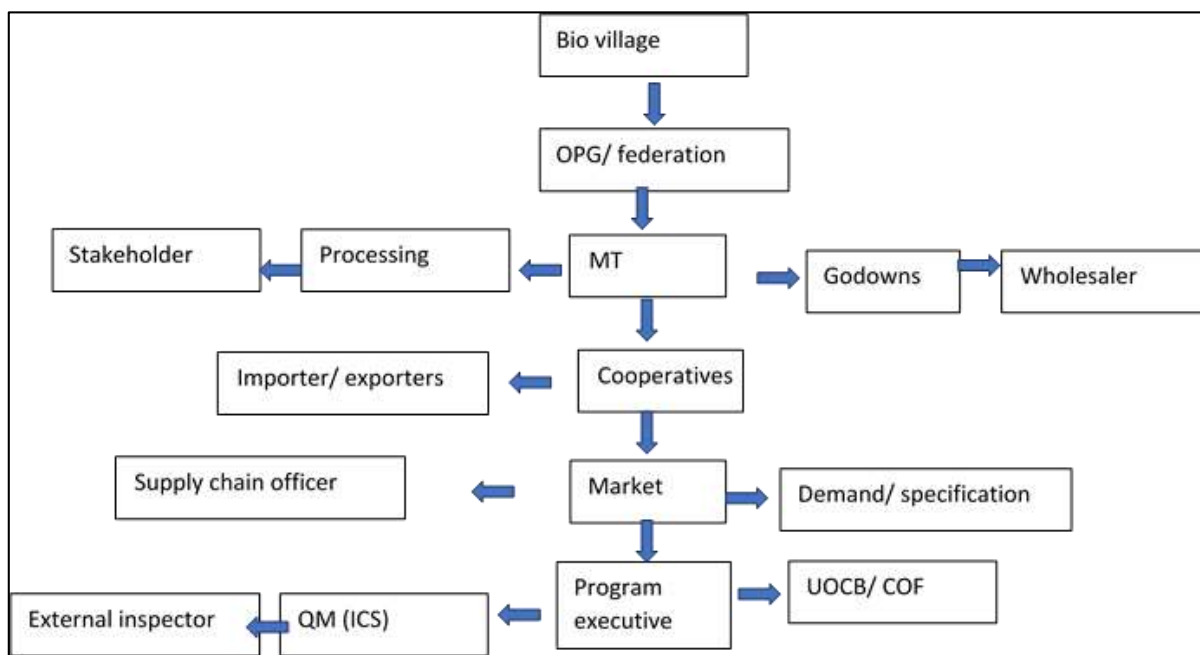


Fig 1: Unique supply chain model

Direct marketing

Center for organic farming should develop a retail format i.e. retail outlet. It should be named related to organic such as “Organic harvest or Harra Bhara” the produce should be displayed in the counter with full address where it has been cultivated. This means that it should contain all the information i.e. price, place of production, farmers name with address and specific health information.

SWOT analysis Basmati processing industry

There is under utilization of processing capacity has been meager. Thus the SWOT analysis is undertaken to assess the strength, weakness, opportunities and threats in the area. The results are presented in the SWOT analysis of processing units is done.

Table 12: SWOT analysis Basmati processing industry

Strengths	Weakness
Superior technology Well trained employee Institution collaboration Member of APEDA, AIREA FIEO High quality rice More nutritive rice	No brand promotion Lack of well-developed distribution channel Low brand awareness Low brand recognition
Opportunities	Threats
Huge domestic market Absence of technologically superior rice mill Tie up with organized retail store like HKB, VMM and TKB Educated people High literacy ratio High per capita income	Strengthening of distribution channel by the competitors More promotional efforts by the competitors Establishment of more technologically superior rice mill with well-structured distribution network.

Strategies to be adopted by exporters

After identifying the constraints exporters and government have to adopt these strategies so that they trade of Organic Basmati in the easy way. Price, Quality, Availability,

Logistics and Certification are the most focus area, which need more attention. Table 13 depicts that some aspect and there strategies.

Table 13: Identification of constraints in Organic Basmati export

Aspect	Constraints/ obstacle	Strategies to be adopted
Price	Price expectation are too high in relation to quality	The export trader from India should have realistic price.
Quality	Low consistency of quality, contamination	The quality must be consistent. For this reason, higher quality standards must be enforced to develop and maintain a good reputation. Post-harvest practices should be improved.
Availability	Reliability of export	More promotion from Indian traders and govt. institutions. Better understanding of the demand of buyers (small quantities). Suppliers must show financial stability.
Logistics	Slow shipment, restriction for importing Indian organic Basmati	The logistics must be better dispatch for shipment. Duty ports must reduce the time taken to complete the customs process. Enhance the infrastructure available to guarantee quality upon arrival (cool rooms).
Certification	Lack of national certification and accreditation	Local certification bodies accredited by national and international organization would enhance the acceptance of organic basmati from India.
Export authority	Time consuming and complicated paper work	Develop a fast track for export
Information	Lack of information on availability and certification	More promotional activities on the part of traders, farmers and governmental institutions (e.g. international fairs). Establish an internet portal to enable easy access to information and transaction for Organic Basmati.
Administration	Inconvenient mode of payment (letter of credit) the govt. banks system is too slow	Indian trader must show more flexibility in mode of payment. The bank system must reach higher standards.
Customer	Poor customer service from the Indian traders after sales	Increase service quality in particular, service client follow-up system must be implemented traders must accomplish what they promise.

Strategies

Uttarakhand government should carry out different measures in order to improve the trade image of Uttarakhand. According to APEDA, demand for Indian organic basmati rice is increasing. Various export markets have great interest in Indian organic basmati rice.

In order to increase and improve interest in Indian organic (organic basmati rice) products. APEDA, Uttarakhand Organic Commodity Board and other Indian institutions (e.g. Ministry of Agriculture and farmer welfare) should carry out the following measures.

- Uttarakhand lack in quality warehouse to store organic products infrastructure should be developed in order to minimize the post-harvest loss of the product.
- Training programs for producers and certification agencies.
- Improving the quality of research and development.
- National Centre of Organic Farming set up by ministry of agriculture and farmer welfare in Ghaziabad aimed at

improving different aspect of organic production should focus on whole chain, backward to forward linkages.

- Promoting certification programs.
- Developing national policies for organic production.
- Improving the quality of products, packaging, logistic, infrastructure and technical support.
- Promoting Indian organic product at international fairs (e.g. Bio-fach) and promotional program in the media.
- Application for recognition under different counters national organic regulation.
- Developing market links such as consumer awareness program, marketing fairs, Green restaurant etc.
- Development of unique supply chain model with emphasized on organic products.
- Introduction of direct marketing and brand promotion.
- Value addition and product development.
- Timely availability of organic inputs.
- Compensation for loss of profit during "0" and "1" year in conversation period.

- Government should provide financial support to those farmers who are willing to change from chemical to organic farming at least for first two years.
- Bio tourism concept should be implemented with relation to organic farming so that in international level awareness about state as well as its organic product could increase.
- Government should introduce the ITC model of procurement of organic product. So that sellers as well as buyers should be benefited equally by eliminating middle men.

Strategies for farmer's response

- To organize small farmers to act as an organization that produces and market their own products for the domestic and export market.
- APMC act would reduce dual taxation to the exporters, through contract farming both buyer and producer will get benefits.
- Training programs for farmers and NGO's not only in organic agriculture method (production, harvest and post-harvest techniques, basic standards etc.) but also in how to sell, promote and diversify their markets and how to fulfill certification requirement (internal control and administration).
- To include small farmers (consortium) in the operative organizations of the whole chain (from production over processing through to final sales outlet).
- Farmer should have access to financial support for organic production, administration, group certification and marketing programs for their products.
- To offer continuous organic market information to farm organizations and direct contact to possible buyers.
- To promote organic products in national and export market where farmers can participate for example, national and international fairs, commercial mission to specific export countries.

Strategies for trader's response

- To organize commercial mission to specific countries in order to meet potential customer, improve and enhance relationship and to understand the market.
- To offer continuous organic market information and direct contact to possible buyers.
- Training program for traders in hoe to promote and sell organic products in the domestic and international market (e.g. improve client follow-up system, reliability, to understand the customer etc.)

Strategies for certification

- National certification agency (Participatory Guarantee System (PGS)) provides compressive policy price (reduction in cost of certification), standardization and simplified certification procedure with less documentation, it should play major role in domestic market.

Strategies for government end

- Improve organic national rules and regulation through PGS system.
- Achieve recognition on the international level.
- Promotion of organic farming through training programs, financial support and subsidies.

- Improve image of Indian organic products and trade (domestic and export promotion).
- Facilitate the implementation of a producer, traders, processors national database.

Suggestions given in this chapter based on the study conducted for Agri Export Development Unit. Suggestions to AEZ of Basmati rice are given in three areas namely general suggestions, suggestions to maintain supply chain, suggestion to deal with problems of Basmati rice exporters.

General suggestions

1. AEZ may train farmers to adopt ICM (Integrated crop management) so as to enable them to produce more rice from lesser and lesser input, thus making them competitive in national and international markets.
2. Although, large proportion of our rice cultivation is already under a sort of organic farming where the farmers do not apply much of external input. Also keeping in mind the burgeoning demand for organic food in European and other developed countries, AEZ and agricultural universities may educate the farmers about the scientific methods of organic farming for basmati rice.
3. In the light of new trade opportunities setup by the market economy both at the national and international level government need to consider issues such as geographical indication, enhanced productivity, contract farming, establishing referral laboratories, laboratories for residue analysis, modernizing our processing units.
4. AEZ may give more focus on demonstration at farmers field the IPM modules developed for basmati rice.
5. AEZ may organize trainings for workers for rice mills.
6. Extension services (training and education) may be provided to basmati growers and extension workers.
7. AEZ may take up coordination and provide technical expertise in the establishment of agri clinics.
8. AEZ may promote and facilitate production of only those varieties which are accepted in international market in basmati.
9. AEZ may promote periodical replacement of existing varieties with new varieties having better disease and pest resistant, higher yielding and better all-round basmati traits.
10. AEZ may monitor strict quality control at all stages from seed to post harvest handling and export for the farmers.
11. AEZ may ensure regular exports to existing markets and development of new markets.

Suggestion to maintain supply chain

1. Exporting units and AEZ may sign agreements with selected farmers for participation under contract farming.
2. AEZ may facilitate setting up a market monitoring and development cell for constant study and data collection of existing markets and development and opening up of new markets.
3. AEZ may set up an independent quality monitoring facility equipped latest techniques like DNA fingerprinting etc. preferably at G.B. Pant University of Agriculture and Technology, Pantnagar.
4. Wide publicity about AEZ for basmati may be made in target districts through newspaper, handbills, tehsils, blocks, seed stores etc. by the government and nodal

agency.

5. AEZ may select interested farmers at village level and survey their lands regarding suitability for organic basmati rice cultivation.
6. AEZ may do effort to take up production of only one variety of basmati in whole village to avoid admixtures and maintain the quality of basmati.
7. AEZ may identify areas for organic basmati cultivation.
8. AEZ may look that all benefits, subsidies and incentives from state and central government or from other agencies must be made available to all farmers on priority under single window basis with least paper work.
9. AEZ may arrange/ provide cost of cultivation reducing and quality enhancing equipment (on custom hiring bases) like Rotavators, Power tillers, Transplanters both manual and mechanicals, Reapers/ threshers etc. on subsidize rates in time with least paper work.
10. Exporting units and AEZ may take steps to ensure buy-back of the farmers produce at agreed price by the designated agency under contract farming arrangement for initial few years.

Suggestion for enhancing export

1. AEZ may take up the matter to concerned authorities for setting up an office or appointing an officer in the state itself who has power to provide Phyto-sanitary Certificate.
2. AEZ may take up the matter to discussion with concerned department for setting up of an independent Hi-Tech Quality Testing Laboratory where tests like DNA testing can be done, also other quality tests can be done to settle dispute arising between farmers and exporters.
3. AEZ may take up the matter with mandi parishad of Uttar Pradesh for exemption of mandi fee, as in case of basmati is procured from U.P. for the purpose of export.
4. For contract farming of basmati rice, efforts may be made to facilitate farmers and exporters. In this way, exporters will be benefited as they will be getting the assured supply of the desired variety and quality, moreover they will also get relief from mandi fee and farmers will get assured market and better price to their produce. In broader sense, this will give basmati rice exports from the state enhancing competitive advantages.
5. AEZ may take up matter of abolition of quota system, as getting quota approved is a time taking process, also it is not feasible for exporters to *get all* orders in so much advance that they can get approval for that order.
6. AEZ may take up the matter of exemption of inter-state sale tax for four percent.
7. AEZ may discuss problem of rice exporters with CONCOR (container corporation of India) to settle their problem regarding inland container depot.
8. AEZ may take up capacity building programmes for entrepreneur exporters by organizing trainings on export credit guarantee scheme and documentation process for export.

Comments from UOCB

Basmati is long grain aromatic rice grown for many centuries in geographical area, at the Himalayan foot hills if Indian sub-continental, blessed with characteristics extra-long slender grains that elongate at least twice of their original size with characteristics soft and fluffy texture upon cooking, delicious

taste, superior aroma and distinct flavors, Basmati rice is unique among other aromatic long grain rice varieties.

Basmati paddy plays a major role in enhancing the income of farmers in Uttarakhand. In Uttarakhand major grown Basmati paddy varieties are Pussa Basmati-1, Pussa Basmati-1121, Taraori Basmati, Type-3 (Dehraduni Basmati) and Basmati-370 mainly in four district of Uttarakhand namely Dehradun, Haridwar, Udham Singh Nagar and parts of Nainital.

Organic Basmati Model of Uttarakhand is a great success where farmers are getting as high as Rs. 35-40 per kg at gate price. Companies like Kohinoor foods etc are procuring Organic Basmati directly from farmers field thus removing most of the intermediaries from the Basmati rice sector.

During the year 2021-22 Uttarakhand Organic Commodity Board has facilitated sale of 4570 quintals of Basmati paddy of worth Rs. 159 lakh. Apart from UOCB the sale of Basmati paddy is also being facilitated by other private agencies.

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