



## WTO CELL NewsLetter

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### WTO AND INDIAN AGRICULTURE

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Rice

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Editor's Desk on the New  
Year's eve, 2007

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### Greetings from the Chief Editor's desk on the New Year's eve, 2007

Wishing all the farm scientists and extension officers a very happy new year 2007, the Director of Research, ANGRAU indicated that this issue focussed on paddy is most appropriate and timely for post-harvest management.



Indicating the importance of paddy, he stated that rice is produced worldwide and is the primary staple food for more than half the world's population. It occupies 37 percent of the area and contributes to more than 40 percent production of food grains in India. While in the state, rice occupies 55.5% of food grain area and contributes to 69% of food grain production.

There is immense scope for the state to take advantage of the new trade opportunities in exports as well as inter state trade of rice and processed products of rice. However, thrust should be on with holding self-sufficiency and continuing the policy of public procurement. The suitable areas of the state can be used for intensive production of paddy by diversifying non-suitable areas. He specified the need for research to improve the productivity. He finally opined that the information provided in this issue would be useful to the scientists, farmers, extension officers and policy makers.

### Indian rice exports and competitors

In the world market, India is the second largest exporter of rice with 4.8 million tones after Thailand. In fact, India is facing stiff competition in the international markets. Thailand is the world's largest rice exporting country. Vietnam is another large exporter of rice, but currently due to fall in the demand for Vietnamese rice, India is likely to retain second position in the world as an exporter.

Thailand, India and U.S.A. are the only countries making parboiled rice and exporting it. Thailand, Vietnam and India are also exporting 100% broken rice.

### Rice trade in the world

In the international market, rice is traded in two categories as Fragrant and Non-Fragrant rice. Indian basmati rice is the most preferred one in the world followed by Pakistani basmati. In recent years, Non-Basmati rice is being exported by India in view of accumulation of buffer stock.

- Estimates show that global rice trade expands @2.4% per annum and growing population in countries like Indonesia demand 10-15% more imports by 2013 than now.
- Thailand, Vietnam, the United States, India, China, and Pakistan account for around 83 percent of rice exports in the coming days
- Major importers of rice are West Asian countries and African countries. Apart from these, countries like Japan, Malaysia and Brazil also figure in top ten importing countries. India is the major supplier of scented rice to West Asia and Middle East.
- Other countries exporting rice are Italy, Uruguay, Australia, China and Argentina.

### Rice in Andhra Pradesh

- Rice accounts for almost a quarter of the state's agricultural GSDP. Rice is the staple diet consumed in Andhra Pradesh.
- In order to encourage rice exports the restrictions on rice exports can be removed particularly during Kharif season.

### Productivity of rice in different states

(Kg/ha)

State	2005-06	2004-05	2003-04	2002-03	2001-02
A.P	2936	3111	3011	2597	2978
U.P	1996	1790	2187	1841	2120
W.B	2566	2574	2503	2463	2514
Punjab	3858	3943	3694	3510	3545
T.N	2833	2703	2307	2359	3263
India	2093	2026	2077	1744	2079

Productivity of paddy is low when compared to the Punjab but higher than all India average yields. There fore, productivity has to be enhanced through proper management practices, exploring the research and following SRI cultivation technique.

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On

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### Characteristics of Basmati rice varieties exported

Characteristics	Karnal Local	Basmati 370	Type-3	Basmati 385	Basmati 386
Yield (t/ha)	2.31	2.23	2.19	2.68	2.65
Plant Height (cm)	178	165	164	164	180
Duration (Days)	155	145	145	134	155
Tillers/Sqm	285	277	278	234	285
Grain/Panicle	138	140	142	210	141
Lodging Score	9	9	9	7	9
Amylose Content	23.46%	23.48%	23.39%	23.52%	23.52%
Aroma	Mild	Strong	Strong	Strong	Strong

### Varieties of International Demand:

India exports both Basmati and non-Basmati varieties but India's Basmati rice is famous in the world. The varieties, which have good demand, are furnished as under.

Traditional Varieties	New Varieties
Basmati 370, Basmati 386, Type-3, Taraori Basmati (HBC-19), Basmati 217, Ranbir Basmati (IET 113-48)	Pusa Basmati (IET 10364), Punjab Basmati-1 (Bauni Basmati), Haryana Basmati-1 (HKR-228/IET 10367), Mahi Sugandha, Kasturi

Source: [www.agmarknet.nic.in](http://www.agmarknet.nic.in)

### Global rice trade to expand in future

Global rice trade is projected to increase 2.4 percent per year, reaching a record of 32.9 million metric tons by 2013. Increased global rice trade is the result of rising import demand caused by larger populations and, in some importing countries, limited ability to expand rice area and competition for arable land from substitute crops.

Global rice consumption is projected to increase as well, largely due to rising populations in Asia and modest increases in per capita rice consumption in many non-Asian rice consuming countries. Most Asian countries are experiencing the declining per capita rice consumption caused by diet diversification resulting from higher incomes. Global rice production is also projected to increase each year, primarily due to higher yields.

### Major export markets for rice

Earlier, exports of Basmati rice were more than the non-Basmati rice but after the liberalization under the WTO regime, many new markets have been opened for Indian Basmati and Non-Basmati rice. The major markets of rice are as under

Type of rice	Countries where exported
Basmati rice	Saudi Arabia, Kuwait, UK, USA, Belgium, Canada, France, Germany, Netherlands, Italy, Oman, Qatar etc.
Parboiled rice	Saudi Arabia, Russia, Bangladesh, Egypt ARP, Singapore, Sri Lanka, United Arab Emirates, Yemen Republic, Malaysia, Maldives, Oman etc.
Non-Basmati (excluding Parboiled)	Bangladesh, Indonesia, Malaysia, Singapore, South Africa, Philippines and USA etc
Paddy (Rice in the husk)	Australia, Germany, Sri Lanka, Myanmar, Malaysia, South Africa and Saudi Arabia etc
Brown rice(husked)	Australia, Germany, Sri Lanka, Japan, South Africa, Saudi Arabia and USA
Broken rice	Ethiopia, France, Kuwait, Malaysia, Oman, South Africa, Saudi Arabia, Singapore, UAE, USA

### Identification of non-basmati rice varieties for export

Systemic research to identify ideal non-basmati varieties for export was undertaken under the research network namely Genetic Enhancement of Quality Rices for Higher Productivity and Export at four research centres - Raipur, Aduthurai, Faizabad and Nellore - and one testing centre (Siruguppa). The twin strategies of research include identification of varieties suitable for export from among those released, and objective of breeding for the quality traits sought by traditional rice-importing countries. The main selection criteria for the breeding programme are fineness of the grain, high head rice recovery, and preferred starch characteristics, which govern the cooking quality of rice (intermediate amylase and gelatinization, temperature, soft gel consistency).

Among the 155 high-yielding varieties released in several states, 11 of the long slender and eight of the medium slender categories were rated as good in terms of quality, based on high head rice recovery and starch characteristics. IR 64, Prakash, Saleem, Krishna Hamsa and PR 106, from the long slender group, and Samba Mahsuri, Sona Mahsuri, Krishna Veni, Kavya, Kamini and White Ponni, from the medium slender group, were some of the notable varieties that can be exploited for export. A large volume of breeding material has been developed at the research centres and several lines that fulfill the quality parameters set forth in the objectives have been entered into coordinated trials for evaluation.

### Released varieties identified as promising for key quality traits

Variety	Head rice (%)	Kernel length (mm)	Length-breadth ratio	Alkali value	Amylose (%)
Prakash	49.1	6.28	3.07	5.3, 4.6	24.3
PR 106	61.5	6.63	3.25	7.0, 7.0	22.7
Kavya	70.0	5.98	2.74	---	23.5
Kamini	61.2	4.83	2.77	4.3, 3.7	23.9
White Ponni	55.5	5.29	2.67	4.8, 4.6	24.9
Krishna Hamsa	58.8	6.38	3.50	3.7, 3.7	22.7
Sona Mahsuri	63.5	5.12	2.58	4.3, 3.9	25.2
Ranjit	65.6	5.26	2.60	---	25.8
Krishna Veni	66.0	5.68	2.96	4.3, 3.8	24.5
White Ponni	55.5	5.29	2.67	4.8, 4.6	24.9
IR 64	50.8	6.49	3.24	3.3, 3.2	22.1
Samba Mahsuri	60.5	4.75	2.58	4.3, 4.9	22.9

### Good management practices for rice

Generally Basmati varieties of rice are more susceptible to disease and pest infections. So, to overcome this problem, the following measures should be taken.

- Compulsory seed treatment.
- Raise the nursery beds in time followed by timely transplantation.
- Transplanting at correct age of seedling would enable the crop for proper maturity and retains the aroma.
- Balanced nutrient management, timely and proper management to control the pests and diseases.
- Proper weed management.
- To control bacterial blight disease, agronomic practices like proper management of water and nitrogenous fertilizers are essential.
- Harvesting and threshing should be done at proper time with great care to avoid any mixture and also for the better milling recovery

### Maximum residue limits for rice

Rice shall comply with those Sanitary and Phytosanitary standards (SPS) established by the developed countries, developing countries and Codex Alimentarius Commission (CAC) for this commodity.

#### SPS standards for exportable rice from India

Chemical name	Developed countries MRL (mg/kg)	CAC MRL (mg/kg)	Developing countries MRL (mg/kg)
Aldrin	0.20	0.02	0.02-0.50
Bromidolon	20	50	50-75
Carbendazim	0.01	0.05	0.05-0.10
Endosulphan	0.10	0.1	0.1
Malathian	3.0	8.0	8-15
Phosphomidon	0.05	0.1	0.2-0.5

Heavy metals like lead should not exceed more than 0.25mg/kg

### Consumer Preferences for rice in different countries

- Rice is one of the most difficult food commodities to trade because of rigid consumer preferences across the world. Different countries have specific preferences for particular kinds of rice. For example, Australia, the northern part of China, the Republic of Korea, Japan and Italy eat short or medium grain rice of the Japonica type.
- The preference in most parts of Asia and Africa is for the long grain or Indica type. Hence they are potent markets for us. The varieties of Japonica rice consumed in Italy, for example, are not acceptable to consumers in Japan or the Republic of Korea.
- Different countries also prefer different kinds of processing: in Bangladesh, people like parboiled rice (rice that is de-husked after being steamed); in Jordan, the preference is for camolino rice (rice treated with paraffin oil), and some African countries prefer milled white rice with a high proportion of broken grains. The Japanese consumer, for example, prefers Japonica rice, where as India grows the Indica variety.

### Care to be taken to avoid loss of grain

- Timely harvest at optimum moisture percentage (20 percent to 22 percent).
- Avoid excessive drying, fast drying and rewetting of grains, which causes more broken rice
- Immediate drying of the wet grain after harvest, preferably within 24 hours to avoid heat accumulation
- Ensure uniform drying to avoid hot and wet spots and mechanical damage due to handling
- Avoid the losses in threshing and winnowing by better mechanical methods
- Follow sanitation during drying, milling and after milling to avoid contamination of grains and protect from insects, rodents and birds on well built drying plat forms
- Use proper technique of processing i.e. while cleaning, parboiling and milling
- Adopt the grading and sorting to get more profit and to avoid the economic losses
- Use efficient and good packaging for storage, as well as in transportation, use disinfectants to avoid contamination in transportation
- Use proper scientific techniques in storage. Optimum moisture content is 12 percent for longer, 14 percent for shorter storage period and fumigate the storage structures.
- Stir grain bulk occasionally to provide aeration to stored grain.
- Move stocks in sacks to discourage pest development and its multiplication
- Proper handling while loading and unloading of paddy/rice with good transportation facilities helps to reduce losses at farm and market level

### Adulterants and toxins in paddy / rice

In paddy/rice, apart from foreign materials and inferior quality, some chemical, fungal as well as natural contaminations also occur, which tantamount to adulteration. The common adulterants found in paddy/rice are given below.

#### Effect of Adulterants in paddy/rice on health

Adulterants	Health effects
1. Admixtures: Sand, marble chips, stones etc.	Damages digestive tract
2. Chemicals: Residues on contaminated seeds like mercury, copper, tin, zinc etc. and pesticide residues (beyond safe limit)	Vomiting, diarrhoea, paralysis, damage to liver, kidney and brain, leading to death
3. Fungal : Toxins in moist grains due to: <i>Fusarium sportric hiella</i> , toxins in yellow rice due to <i>Penicillium inslandium</i> , <i>Penicillium citreovirede</i> , <i>Penicillium atricum</i> , <i>Rhizopus</i> , <i>Aspergillus</i>	Causes Urov disease (Kaschin Beck disease) Causes toxic mouldy rice disease, liver damage
4. Viral: Machupo virus : Due to rodent's urine	Bolivian hemorrhagic fever
5. Natural contamination : Asbestos (present in talc, Kaolin etc in polished rice)	Absorption in particulate form by human body may produce cancer

### Specifications for all varieties of paddy followed by Food Corporation of India (FCI)

**General characters:** Paddy shall be in sound merchantable condition, dry, clean, wholesome, of good food value, uniform in colour and size of grains and free from moulds, weevils, obnoxious smell, *Argemone mexicana*, *Lathyrus sativus* (Khesari), admixture of deleterious substances.

#### Special characters :

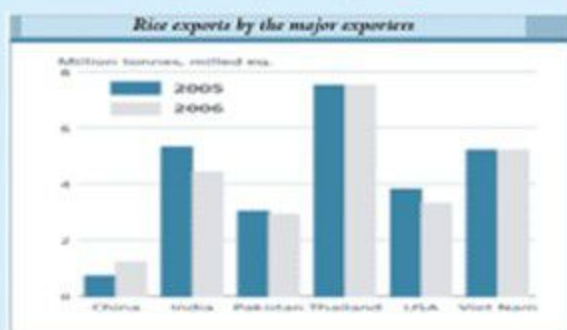
S.No.	Refractations	Maximum Limits(percent)
1.	Foreign matter a) Inorganic/ b) Organic	1.0
2.	Damaged, discolored, sprouted and weevilled grains	3.0
3.	Immature, shrunken and shriveled grains	3.0
4.	Admixture of lower class	10.0
5.	Moisture	17.0

Source : Food Corporation of India, New Delhi

#### International prices of Rice (\$/ton)

Country	Type of Rice	2002/03	2003/04	2004/05	2005/06
United States	Southern long grain milled	223	360	312	334
	Southern long grain rough	123	206	176	192
	California medium grain milled	327	533	405	484
Thailand	100% grain B	199	220	278	301
	5 % parboiled	195	222	278	293
	15% Broken	186	207	265	284
	35% Broken	175	199	252	266
Vietnam	5 % broken	182	210	243	257

#### Rice Exports by the Major Exporters



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#### Want to be a rice exporter?

For export of paddy/rice from India, exporter can take the help of following laid down procedure.

- Registration with RBI and obtain RBI code number. [Apply in prescribed form (CNX) to obtain registration No. from RBI and the number is to be quoted on all export papers].
- Importer-Exporter code (IEC) number to be obtained from Director General of Foreign Trade (DGFT).
- Register with Agricultural and Processed Food Products Export Development Authority (APEDA) to obtain registration cum membership certificate. This is required to obtain permissible benefits from the Government.
- For Basmati rice export RCAC (Registration Cum Allocation Certificate) is issued by APEDA. (Non-Basmati rice can be freely exported; no RCAC is required, only exporter has to register with APEDA).
- For RCAC, exporter will be required to submit the export details and contract along with fee.
- RCAC is valid for 3 months, after that revalidation is required. RCAC is a statutory document and no duplicates can be issued after the misplacement of the original one.
- Exporter then procures their export orders.
- Quality of the produce is to be assessed by the inspecting agency and a certificate is issued to this effect.
- Produce is then shifted to port.
- Obtain marine insurance cover from any insurance company.
- Contact clearing and forwarding (C. & F.) agent for sorting the produce in godowns and to get the shipping bill for allowing shipment by the Custom Authority.
- C. & F. Agent submits shipping bill to custom house for verification and verified shipping bill is given to the shed superintendent to obtain carting order for export.
- The C. & F. Agent presents shipping bill to preventive officer for loading into ship.
- After loading into ship, a mate's receipt is issued by captain of ship to the superintendent of the port, who calculates port charges and collects the same from the C. & F. Agent
- After the payment, C. & F. Agent takes mate's receipt and requests port authority to prepare bill of lading to the respective exporter.
- Then C. & F. Agent sends the bill of lading to the respective exporter
- After receiving the documents, exporter obtains a certificate of origin from chamber of commerce, stating that the goods are of Indian origin.
- Importer is informed by exporter regarding date of shipment, name of vessel, bill of lading, customer's invoice, packing list etc.
- Exporter submits all documents to his bank for verification and bank verifies the papers against original letter of credit.
- After verification, bank sends documents to foreign importer to enable him to take delivery of produce.
- After receiving papers, importer makes payment through bank and sends the GR form to RBI, an evidence of realisation of export proceeds.
- Exporter now applies for various benefits from duty drawback schemes.