

# Hybrid Rice Seed Market in Bangladesh



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**R**ice is a staple food in Bangladesh. The production of rice has increased four times (from 10 million tonnes to about 40 million tonnes) since the country's independence. Presently, Bangladesh is self-sufficient in rice production. It is the third largest rice-producing country. This progress has happened mostly thanks to the widespread cultivation of modern rice varieties (particularly inbred rice), the development of irrigation facilities, fertiliser use and intensive management practices. Interestingly, the present self-sufficiency is not a permanent solution in Bangladesh, as the country is facing the pressure of overpopulation. The arable land is decreasing trend too. Moreover, climate change is adding fuel to the fire. All these imply that the government has to increase rice production through by paying due attention to rice production and pursue new avenues of rice research and development. The government is in progress, but there are still a lot of barriers towards the extension of hybrid rice. As the circumstances are always a concern, I would suggest one option may be the increase of the hybrid rice area under cultivation. The main reason is that the hybrid rice seed market in Bangladesh is still in a transitioning stage.

Hybrid rice is nothing but exploitation of the heterosis of the first (F1) generation and typically produces at least 15-20% higher yield than traditionally purebred varieties and, in most cases, offers better resistance to diseases, insects, and environmental stresses. This concept is widely used in China, where the adoption rate is more than 50% of the rice land, and expanding in India, Vietnam, the Philippines and Bangladesh. Currently near 15% of rice acreage is under hybrid cultivation in Bangladesh, although this might be 25-30% in the Boro season, which could be increased up to 50%; that could be a potential option for the country's sustainable food security.

A key problem with hybrid rice expansion is seed production, as it remains complex and labour-intensive and needs special techniques for seed production, resulting in seed

prices 4-5 times higher than local inbred varieties. Moreover, farmers cannot keep seed for next season's usage. They have to buy hybrid rice seed every season with a comparatively higher price than locally developed inbred rice. Another major barrier has been poor grain quality of hybrid rice. However, recently it is shifting towards the development of slender, non-sticky varieties, which is gaining acceptance among the consumers.

As of now, 296 hybrid rice varieties are registered in Bangladesh so far for commercial cultivation, and maximum varieties are registered for the Boro season. Information is limited on how many varieties are locally developed and registered. The Bangladesh Rice Research Institute (BRRI) registered ten hybrid rice types that are locally developed, and parental lines can be obtained from BRRI at a reasonable cost. A few private companies locally developed and registered a very limited number of hybrid rice varieties, while the rest of the varieties originated from China, India and the Philippines. This is another drawback of hybrid rice cultivation in Bangladesh, as private companies have to import at least parental lines every year with the cost of foreign currency.

As hybrid rice cultivation can be a potential option for sustainable food security, it is necessary to prioritise developing hybrid rice as well as area expansion. There is ample scope to increase area coverage in Aman and Aus seasons. As traditionally hybrid rice cultivation is concentrated in the Boro season, the government should give due priority to developing hybrid rice suitable for Aman and Aus seasons. Side by side, it should take step to provide a subsidy for locally developed hybrid rice to save foreign currency.

Interestingly, hybrid rice coverage has almost doubled within the last five years, moving from 8% in 2020 to 15% in 2025, which accounts for 18-20% of total rice production in Bangladesh while occupying only 15% of the land. This highlights its superior yield. Therefore, if hybrid rice coverage could be increased by 30% to 40% by 2040, the total rice production might cope with projected population and food demand. It is well known that, in Bangladesh, the paddy yield of inbred rice is about 5-7 tonnes per hectare depending on season and rice variety. If 30-40% of the land provides 15-20% higher yield than inbred by adopting hybrid rice, the country would have a food surplus, especially in rice.

The market is heavily influenced by the private sector, which provides approximately 90% of hybrid seeds used in the country. Currently, the private sector demands that approximately 80% of hybrid seed be produced and distributed from local production by them. This implies that local production has increased sharply from the earlier stage of hybrid introduction when most seeds were imported from China and India. The most important issue is every private company has strong market linkage at the grassroots level. And, several multinational companies come forward in hybrid markets, which may hamper the development of local small entrepreneurs.

BRRI, as the only one public sector organisation, has registered ten hybrids to date. Recently developed hybrids are promising and yield is parallel or even higher than the private sector developed or imported varieties. As BRRI is focusing on developing locally adapted parental lines, it needs to expand widely. The main limitation is that BRRI does not have the strong market linkages that the private sector has. BRRI needs to establish a strong market linkage for wider expansion of their outcome. It may adopt a new theme for hybrid rice research and marketing. I would like to mention here that BRRI might just develop CMS, maintainer and restorer lines only and find out a suitable best combination for F1. After getting the registration done, the hybrid was handed over to a particular private company as a sole distributor of that particular combination. The private sector only produces F1 seed and makes it available for the farmers. On the other hand, BRRI would concentrate on developing parental lines only.

In short, hybrid rice has emerged as a strategic pathway for sustaining Bangladesh's future food security under increasing population pressure, shrinking arable land and climate variability. To fully realise the potential of hybrid rice, greater emphasis should be placed on developing high-quality hybrids suitable for Aman and Aus seasons, strengthening public-private partnerships, expanding farmer support through subsidies and credit facilities, and improving market linkage for locally developed technologies.

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