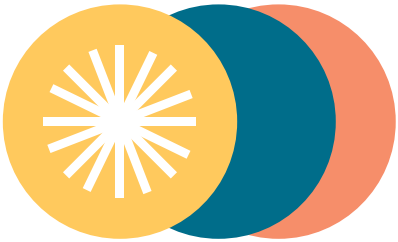

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Dr. Abed Chaudhury

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Dr. Abed Chaudhury, a renowned geneticist, was born on February 1, 1956, in Kanihat, Maulvibazar district of Sylhet.

He completed his secondary education at Maulvibazar Government High School and higher secondary education at Notre Dame College in Dhaka. He then enrolled at the University of Dhaka in the Department of Chemistry. Later, he pursued higher education in the United States, earning degrees from Oregon State Institute of Molecular Biology and Fred Hutchinson Cancer Research Institute in Washington State. In 1983, he discovered a new gene combination called "RecD" during his PhD research, which led to extensive research in the United States and Europe in the late 20th century. He discovered three new genes related to fecundity or asexual seed production, which have revolutionised the world of botany, enabling the production of seedless plants.

Dr. Abed Chaudhury has taught and conducted research at prestigious institutions such as the National Institutes of Health in the United States, the Massachusetts Institute of Technology, and the French Agricultural Research Center. Currently, he serves as the Head of Scientific Innovation at LoamBio, an Australia-based agricultural, biotechnology, and climate research institution. His research focuses on high-yielding rice production and food security in the future. He is currently researching how to produce rice six times a year from the same plant. So far, he has collected rice from nearly 300 species. Additionally, he has developed colourful rice varieties containing compounds that help prevent diabetes and cancer.

Panchabrihi Rice

According to Bangladeshi tradition, since rice is cultivated in three seasons - Boro, Aman, and Aus, the land needs to be prepared three times a year. Repeated cultivation of the same land is necessary to make it suitable for crops. This practice helps in the release of hidden carbon from the soil, reduces the use of groundwater, lowers the water table, and requires additional fertiliser for each planting. As a result, the land loses its natural fertility. Therefore, there has been a resurgence of the ancient practice of multiple cropping, which rejuvenates the crops, meaning that the crops are cultivated again every year.

Dr. Abed Chaudhury has been conducting research for the past few years and has been successful in developing several new varieties of rice to assist farmers. Among these are some advanced varieties of high-yielding Boro and Aman rice.

The most important and revolutionary discovery is the "Panchabrihi" rice. This rice, once planted, yields five crops. Typically, rice is harvested only once after planting. In some cases, after harvesting once, some rice can be obtained from the cut plant. In rural terms, this is called 'Nera' rice. In rice science, it is called 'ratoon' rice. Its yield is minimal. Only a small portion of the main crop remains. Commercially, it is not profitable at all. Therefore, farmers in our country are not very interested in cultivating 'Nedha' rice. Instead, cultivating another crop on the land at that time is more profitable for farmers.

However, the idea of harvesting five times a year from rice seedlings planted once in a field is truly innovative. Those which produce more on the second time than the first, again produce the same yield. Similarly, the third, fourth, and fifth times also yield. In this way, the rice plants are left in the field all year round and cared for. Surprisingly, five varieties of rice have emerged from the field and crops have been harvested seasonally. In this way, crops are harvested five times from the same plant, which includes one Boro crop, two Aman crops, and two Aus crops. The best variety yields more crops compared to other varieties. It is a quite groundbreaking event that will change the face of agriculture in the future.

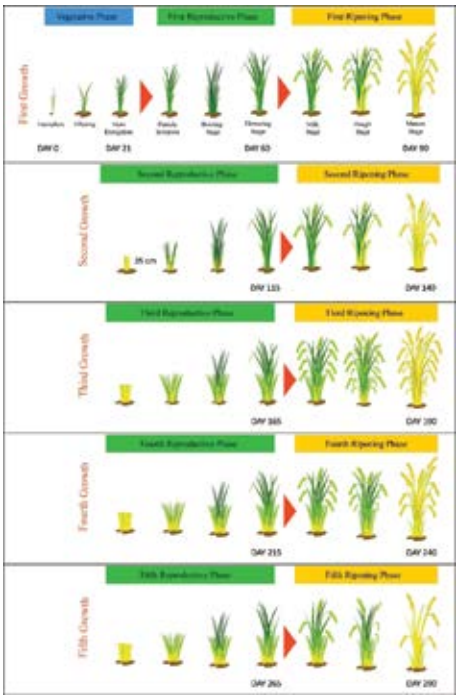
"Panchabrihi" is not an ordinary ratoon rice. It is high-yielding and commercially viable. No one in any other country has yet been able to implement this concept. Developed in China, the perennial rice of the PR 23 variety can stay in the field for up to four years. However, this variety of rice does not yield more than twice a year. But "Panchabrihi" rice yields five times a year. That's why this rice is named "Panchabrihi". In Bengali, "Panch" means five and another name for rice is "brihi". Combining these two, the compound numeral "Panchabrihi" means "five-bearing". After harvesting five times, this rice needs to be replanted the following year.

"Panchabrihi" rice is not an interspecific hybrid like the PR 23 rice developed in China. It has been developed entirely through crossbreeding and selection from native rice (Oryza sativa) using conventional methods. No genes of any other species of rice are added here. It is not a genetically modified organism or GMO.
"Panchabrihi" rice is planted in the Boro season. At the end of the season, the first crop is harvested. Then, during the middle of the Aus season, the second crop is harvested. The yield of the second crop is slightly less than the first. However, at the end of the Aus season, when the third crop is harvested, it is observed that the yield is close to the first crop, or slightly higher. Then, during the middle of the Aman season, the fourth crop is harvested, and at the end of the Aman season, the fifth crop is harvested. In terms of the fourth and fifth yields, they may be slightly less or more compared to the second yield. However, the fourth and fifth yields are generally higher than the second yield. Combining all these, an average yield of fifty tons of rice per hectare can be obtained from five crops. It is noteworthy that "Panchabrihi" rice is planted once and rice is harvested once, but it can be harvested five times. This is an extremely profitable cultivation method for farmers. However, for successful cultivation of "Panchabrihi" rice, farmers need to harvest the rice at a specific time and at a specific height, provide timely limited fertiliser to the field, and control pests and diseases. Usually, irrigation is not done in the Boro season after sowing, Aus and Aman seasons, as it depends on rainfall. However, if there is less rainfall during the Aus and Aman seasons, irrigation may be necessary in the field. If these rules are followed, cultivation of "Panchabrihi" rice will be completely effective.

"Panchabrihi" is a high-yielding rice variety. This rice ripens quickly. The number of tillers in "Panchabrihi" rice plants is higher than that of ordinary high-yielding rice. The length of the tillers is also much longer. As a result, "Panchabrihi" rice plants produce abundant yields. Another important feature is that, after harvesting the "Panchabrihi" rice plants, a considerable amount of new tillers emerge from the cut portion of the plants every time. The rice from these new tillers ripens very quickly. Thus, after harvesting the first rice, rice plants can be cut four times, and a total of five crops can be obtained. This is the essence of the cultivation method of "Panchabrihi" rice.

"Panchabrihi" is an environmentally friendly rice. Despite yielding five times in three seasons, this rice only needs to be planted once. As a result, the emission of greenhouse gases such as carbon dioxide, nitrous oxide, methane, etc., is significantly lower compared to conventional rice cultivation. Additionally, less seed, fertiliser, and other agricultural inputs are required for "Panchabrihi" rice cultivation. Consequently, there is less pressure on the environment. The most notable aspect is that the percentage of carbon sequestration in the soil is much higher in "Panchabrihi" rice due to the larger quantity of husks compared to ordinary rice. In scientific terms, this is called carbon sequestration. "Panchabrihi" rice can play a significant role in reducing the amount of harmful carbon dioxide gas in the atmosphere.

We hope that in the future, hybrid rice production can be achieved through successive generations from hybrid rice seeds using this new method. If done commercially, farmers will be able to store hybrid seeds for their next season. This will benefit the farmers. Moreover, due to climate change, there is also the possibility of using this discovery in the field of global warming. If the temperature in the atmosphere rises above 39 degrees Celsius during the flowering period, rice pollen becomes sterile. As a result, rice grains become empty, leading to reduced yields. In the future, it may be possible to produce rice without flowering, making it easier to tackle the challenge of global warming in agriculture.



Model of Panchabrihi rice

Their recent research paper on apomixis has been published in the online edition of the renowned journal Nature Plants.

Scan the journal to read more:

Photo Gallery

For More Info

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