

As the national fruit of India, the mango is not only an important commercial crop and precious commodity but is embedded in the culture of the world's second most populated country. Developing new varieties of the popular fruit has been the pursuit of many agricultural universities for decades, and continues to be so. At www.freshfruitportal.com, we spoke with the scientist behind breeding the very first variety of seedless mango in India more than 20 years ago, which is now going through an evaluation process to test for suitability in the state of Bihar.

When sections of the Indian press reported that an agricultural university in the Indian state of Bihar had developed a new variety of seedless mango recently, this didn't exactly tell the whole story. 

As scientists well know, the development of any new variety, least of all a seedless mango, takes years and the back story to the Sindhu variety dates to its original release in the state of Maharashtra in 1992.

Prior to that, a scientific team based at Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth Dapoli Agricultural University and led by Doctor Ramchandram Gunjate, had been working on a hybridization program for around 15 years.

"Developing a new variety is a long-term process; it takes about 12 to 15 years to release one variety, if you are lucky," Gunjate told us.

"The development of mango varieties is a continuous process because people want new varieties all of the time with better taste, better flavor, and better yield qualities.

"I was the leader of a great team of people and we all worked on this together and were very proud when it was approved, released and given to the farmers for plantation."

Cross breeding and Sindhu's development

The Sindhu mango - so named because Gunjate's breeding program happened in the Sindhudurg district of Maharashtra - is a finely textured, juicy fruit with a rich, sweet and distinctive flavor at maturity.

What sets it apart from other varieties is the fact that it is virtually seedless - although it is referred to as being seedless in general terms - and is a hybrid of Alphonso, largely considered to be the best Indian mango, and another variety Ratna.

"We were hybridizing the Alphonso and crossing this with other varieties. We already had

the hybrid named Ratna that was released some time ago in 1976-77," he said.

"We wanted to get a better variety than Ratna but with all the qualities of the Alphonso so we hybridized the two so that more qualities from the Alphonso were incorporated into the new variety.

"So we were doing this new breeding hybridization work and during that process we found this new particular hybrid had all the Alphonso qualities but the stone is very paper thin and light.

Gunjate explained the stone of an Alphonso was around 25 grams (0.055lbs) in weight, compared with the 6-gram (0.013lbs) stone of the Sidhu creation.

"This seed does not have a viable embryo which means it doesn't germinate so it's referred to as a non-viable seed and the process by which these non-viable seeds are developed is called parthenocarpy.

"So we found this parthenocarpic new hybrid and named it Sindhu when we released it in 1992. Just like parents give names they like to their children, we like to give our mangoes names. That is the prerogative of the breeder and so we named it Sindhu."

After going through the relevant approval and evaluation, much in the same way as Bihar Agricultural University experts are trialing now but with different parameters relevant to the growing conditions in a northern state, the Sindhu was released to farmers for commercial cultivation.

"The farmers began to grow the Sindhu variety because they knew it had all of the qualities of the Alphonso but practically seedless," Gunjate said.

"With mango, because the stone is usually so big it cannot become totally seedless as it were otherwise the fruit will not grow. So scientifically it's parthenocarpic which in laymen's language is called seedless fruit.

"This was the first scientifically developed parthenocarpic mango variety. So since the early nineties many farmers have been growing the Sindhu variety in many parts of India, especially in the Konkan region, the coastal area of Maharashtra, where it was developed."

Bihar Agricultural University planted Sindhu cultivars three years ago and this year was the first time trees yielded fruit weighing around 200 grams (0.44lbs) and the stones were discovered to be very small and almost seedless.

"Bihar has obviously found this is a good variety for them also. They can't claim that they developed this variety but they can certainly inform their farmers how good it is and recommend them to grow it.

"It is going through a suitability evaluation process for profitability and I think it's a good thing they [Bihar farmers] grow it."

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