Medicon Agriculture & Environmental Sciences
Volume 9 Issue 3 September 2025
Article Type: Editorial
ISSN: 2972-2691

Kalanamak Kiran, the Best variety of rice to Benefit Farmers and Consumers Alike

RC Chaudhary*

Chairman, Participatory Rural Development Foundation, 59 Nahar Road, Gorakhpur, U. P., India

***Corresponding Author:** RC Chaudhary, Chairman, Participatory Rural Development Foundation, 59 Nahar Road, Gorakhpur, U. P., India.

Received: July 22, 2025; **Published:** September 22, 2025

Historical Background

According to legend, Lord Gautam Buddha, after he received enlightenment, was returning from Bodha Gaya to his father's kingdom in Kapilvastu, the villagers of Bajaha jungle (now Bajaha and Mathala villages) prayed blessing. Since then Kalanamak was cultivated in an area of 50,000 ha but declined later to 2,000 ha, near extinction. The decline of Kalanamak rice can be attributed to the advent of High Yielding Varieties rice since 1965, which yielded double of Kalanamak. The second reason was the absence of its improved variety, and the third reason, the neglect of Kalanamak by researchers and governments.

Breeding of Kalanamak Kiran

Before Kalanamak Kiran, pureline selection Kalanamak KN 3 was developed in 2007 from a cross of KN 3 and , followed by its dwarf versions Bauna Kalanamak 101 and 102. Kalanamak Kiran in 2016, 2017 and 2019 was derived from a cross of KN 3 and Swarna Sub1. The segregating generations were handled by the Pedigree method of breeding and selection. The breeding line was purified as PRDF-2-14-10-1-1 and tested as PRDF-2-14-10.

The grain quality was tested in the Regional Food Analysis and Research Centre (R-FRAC) at Lucknow, and in the Asia Pacific Lab in Singapore. PRDF-2-14-10 has the same black husk, white and aromatic rice grain with excellent cooking quality, as the original Kalanamak KN3. Its aroma content was confirmed by the Indian Institute of Chemical Technology (IICT), Hyderabad through sophisticated tests. Its aroma content was confirmed by the Indian Institute of Chemical Technology (IICT), Hyderabad confirmed its aroma equal to KN3. Kalanamak Kiran has the same level of Iron and Zinc as its original parent Kalanamak KN3.

Compared to its 200 cm tall parent KN3, PRDF-2-14-10 (Kalanamak Kiran) is semi-dwarf (height 95 cm (Fig. 2), highly resistant to lodging and shattering, and is suitable for harvesting by combine harvester. PRDF-2-14-10 (Kalanamak Kiran) matures earlier than Kalanamak KN3 by about 10 days. This early maturity enables planting of the following Rabi crop earlier, by 10 days. Therefore, PRDF-2-14-10 was found superior to the checks in all these tests and was recommended for release as Kalanamak Kiran by the U. P. State Variety Release Sub-Committee in its 56th meeting held on 19th May 2017 at Lucknow. Based on the above superior features of PRDF-2-14-10, the U. P. State Variety Release Sub-Committee proposes that PRDF-2-14-10 should be released and notified as Kalanamak Kiran (Table 2). It was notified under Gazette No. 3220 (Part II (3) dated 06 08.2019).

Morpho-agronomic traits	*Description*	*Grain Traits*	*Description*
Basal leaf sheath colour	Green	Kernel length	5.76 mm
Tillering ability	Medium (20 tiller/hill)	Kernel width	2.18 mm
Days to 50% flowering	110 days (Photosensitive)	L/B Ratio	2.64 mm
Days to maturity	135 days (Photosensitive)	Grain type	Medium Slender
Culm angle	Slightly Open (45^0)	Kernel colour	White
Leaf length	59 cm	1,000-grain weight	15 grams
Leaf width	1.4 cm	Hulling	80 %
Panicle length	31 cm	Milling	75 %
No. of grains/panicles	400	Head rice	70 %
Plant height	95 cm	Alkali value	6 - 7
Aroma in plant	Highly scented	Volume Expansion	4.5 times
Apiculus colour	Brown (tawny)	Gel consistency	80 mm
Awning	Absent	Amylose content	20 %
Lemma, Palea colour	Green – Purple Black	Aroma in grain	Strong
Stigma colour	White	Taste	Soft, aromatic

Table 1: Morpho-agronomic and grain quality characters of Kalanamak Kiran.

S. No	*Parameter*	*Kalanamak*	*Basmati*	*Test method*
1	Fat %	0.51	0.50	IS12711: 1989 RA2005
2	Protein %	10.6	5.8	IS 7219: 1973 RA
3	Total Ash %	0.32	0.32	FSSAI Manual 2016
4	Iron mg / 100 g	3.0	1.0	FSSAI Manual 2016
5	Zinc mg / 100 g	16.37	4.23	FSSAI Manual 2016
6	Amylose %	18.86	24.50	ICAR – IIRR Hyderabad
7	Glycemic Index	49 – 52 %	80 – 85 %	ICAR – IIRR Hyderabad
8	Vitamin A (ß Carotene)	0.53	0.0	R-FRAC, Lucknow
9	Cooked rice softness	Soft	Hard	

Table 2: Comparative grain quality characters of Kalanamak rice and Basmati rice. (Analysed at R-FRAC, Dept. of Horticulture, Government of U. P., Lucknow).

Nutritional Properties

Kalanamak Kiran rice is prized for its aroma and its nutritional benefits. It is rich iron and zinc, which are essential for human health (Table 2). Kalanamak Kiran has 11% protein, which is nearly double that of Basmati. This has a low glycemic index (GI), ranging between 49% and 52%, making it suitable for people with diabetes as it does not cause a rapid spike in blood sugar levels. Kalanamak has a good amount of Vitamin A in the form of Beta Carotene. The quantity is more than that of Golden rice.

Prosperity of Kalanamak Farmers

The government announces a Minimum Support Price (MSP) for fine rice of around Rs. 2,300/ per quintal. However, most farmers can't get that MSP rate due to various reasons and are compelled to sell their paddy at lower prices, around Rs. 1,500 per quintal. Compared to that, Kalanamak paddy sells between Rs. 4,500 to Rs. 5,000 /- per quintal. Thus, the gross profit of Kalanamak Kiran is Rs.1,80,000 per hectare as compared to Rs. 92,000 of common rice (Table 3). Of organic Kalanamak Kiran rice, the gross profit is Rs. 1,90,000, now thus Kalanamak farmers are doubling or tripling their incomes. Protocol for producing Organic Kalanamak has been developed that fetches 20 percent higher price. Common rice with an average yield of 40 qtl/ha can give a net profit of Rs. 42,000 / ha. But Kalanamak Kiran can give an average yield of 45 quintals per ha. This amounts to a net profit of Rs. Kalanamak Kiran Rs. 1,30,000. Production of Organic Kalanamak further benefits organic farmers by as much as Rs. 1,60,000/- per ha, which amounts to tripling the Kalanamak farmers' income.

Item	*Common rice*	*Kalanamak KN3*	*Kalanamak Kiran*	*Organic Kalanamak**
Average Yield (qtl/ha)	40	25	40	38
Selling price of paddy (Rs./qtl)	2,300	4,500	4,500	5,000
Gross Profit (Rs.	92,000	1,12,500	1,80,000	1,90,000
Cost of Cultivation (Rs./ha)	50,000	50,000	50,000	40,000
Net profit (Rs./ha)	42,000	62,500	1,30,000	1,60,000
Incremental income in (Rs/ha)	0	20,500	88,000	1,18,000

* Bauna Kalanamak 101, Bauna Kalanamak 102, and Kalanamak Kiran.

Table 3: Comparative profitability (per ha) of Kalanamak Kiran over Common rice, 2024-25.

Figure 1: Paddy, polished rice of Kalanamak. ***Figure 2:*** Unpolished Kalanamak Kiran rice.

Figure 3: Kalanamak KN 3 (2m tall). ***Figure 4:*** My grandson Kiran in the field of Kalanamak Kiran rice variety.

Summary of the Journey from Extinction to Distinction

Kalanamak rice, often referred to as the 'Buddha rice,' boasts a fascinating journey that intertwines legend, history, and modern agricultural science. This aromatic rice variety, native to the Tarai region of Uttar Pradesh, India, has a storied past linked to Gautam Buddha, who is believed to have bestowed the rice upon the region's farmers. The legend says that Buddha, during his travels, gifted the villagers seeds of Kalanamak rice, blessing them with the promise that the rice would carry a fragrance that would remind them of him. The historical cultivation of Kalanamak rice flourished for centuries, known for its distinct aroma, taste, and health benefits. However, the advent of the Green Revolution in the mid-20th century brought high-yielding, modern rice varieties that overshadowed traditional types like Kalanamak. Farmers began to abandon Kalanamak rice due to its lower yield and the intensive labour required for its cultivation, leading to a drastic decline in its acreage.

Dr. Ram Chet Chaudhary's pioneering work in developing improved varieties such as KN3 and dwarf versions like Bauna Kalanamak 101, Bauna Kalanamak102, and Kalanamak Kiran played a crucial role in this revival. These varieties addressed issues of low yield and lodging, making Kalanamak rice more viable for modern agriculture. The Geographical Indication (GI) tag awarded to Kalanamak rice in 2013 marked a significant milestone, protecting its authenticity and boosting its market appeal. Branding initiatives, particularly the rebranding as 'Buddha Rice,' and export efforts under schemes like the One District One Product (ODOP) have expanded its reach to international markets. Farmer Producer Organizations (FPOs) and e-commerce platforms have further facilitated the commercialization and distribution of Kalanamak rice, ensuring better returns for farmers and contributing to the regional economy.

In conclusion, the journey of Kalanamak rice from near extinction to distinction is a powerful example of how traditional knowledge and modern science can come together to create sustainable solutions. By preserving the heritage of Kalanamak rice and promoting innovation, this unique rice variety continues to thrive and contribute to the well-being of farmers, consumers, and the environment. President of India, Mrs. Droupadi Murmu awarded me the second most prestigious award "Padma Shri" in April 2024 for this work.

Volume 9 Issue 3 September 2025