

ORGANIC FARMING: CULTIVATING A SUSTAINABLE FUTURE WITH KALANAMAK RICE

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Introduction

The demand of organically produced food is increasing day by day worldwide as per the report of IFOAM (2025). The global organic farming area increased by 2.5 million hectares in 2023, reaching almost 99 million hectares. The sales of organic food reached nearly 136 billion euros in 2023. Organic farmland increases by 2.5 million hectares by the end of 2023, 98.9 million hectares were managed organically, marking a 2.6 percent increase (+2.5 million hectares) from 2022. More than 2 million organic producers in India in 2023, there were 4.3 Million organic producers worldwide with India remaining the country with the most organic producers (2.36 million). Rice (*Oryza sativa* L.) is the utmost significant cereal crop of India and it provides 31 percent of caloric necessity of its population. Rice crop delivers a livelihood support system to a number of people who are mostly underprivileged as the rice production system has a major role to impact, security and on its political and economic stability.

Organic farming

Organic farming has on objective to encouraging and enhancing the health, biodiversity and soil biological of agro-ecosystem and Organic system of agriculture is defined as a production system which largely excludes or avoids the use of fertilizer, pesticides growth regulator's preservatives and livestock feed additives and totally rely on crop residues, animal's manures, legumes, green manures off-farm wastes, mechanical cultivation, mineral nutrient bearing rocks and biological pest control to maintain soil health, supply plant nutrients and minimize insect-paste and weeds. It's may also be defined as a system approach of crop production, observing the rules of the nature, targeted to produce nutritive, healthy and pollution free food, protecting the entire system of the nature, maximizing the use of on-farm resources,

minimizing the use of off farm inputs and avoiding the use of chemical fertilizers and pesticides (Chaudhary *et al.* 2014).

Case on Kalanamak Kiran

Development and release of kalanamak Kiran selected out of cross of kalanamak KN3 and Swarna Sub-1, it was tested at RATDS of department of agriculture as PRDF-2-14-10 (kalanamak Kiran), was tested at RATDS during 2013-2016. It stood at first rank with average yield of 32.95 quintal/ha (10-12% yield than other conventional varieties) and tolerant of major disease and pest. Its aroma content was confirmed by the Indian Institute of Chemical Technology (IICT), Kalanamak Kiran variety Developed by the legend of Kalanamak rice Dr. R.C. Chaudhary.



Fig. 1: Left Grain of Kalanamak Kiran, Right Standing Crop of Kalanamak Kiran

Cultivation practice

1. *Time of Cultivation:* - Kalanamak Kiran should be cultivated only during *Kharif* season to maintain its grain quality ideal time of its nursery sowing is last week of June to first week of July. Once the seedlings have attained the age of about 30 days, these are ready for transplanting.
2. *Nursery management:* - During seed bed preparation, organic manures such as FYM, Compost, Vermicompost can be used at 5 t/ha. The best time of nursery sowing is last week of June to the first week of July for raising nursery of Kalanamak wet seedbed method is recommended. To cultivate one hectare of kalanamak wet seedbed method is recommended. To cultivate one hectare of kalanamak, 0.1-hectare 1000 square meters of nursery area is needed seed is first soaked for 24 hours in water. After draining the water,

the seed is heaped on the floor or put in jute bags for incubation. If it is heaped on the floor, it should be covered with wet jute bags with the heat generated by soaked seeds the seeds germinate within 2 days. The sprouted seeds are then broadcast in the previously prepared seedbed sprouted seeds that have gathered in bunches should be carefully separated for uniform spreading in nursery.

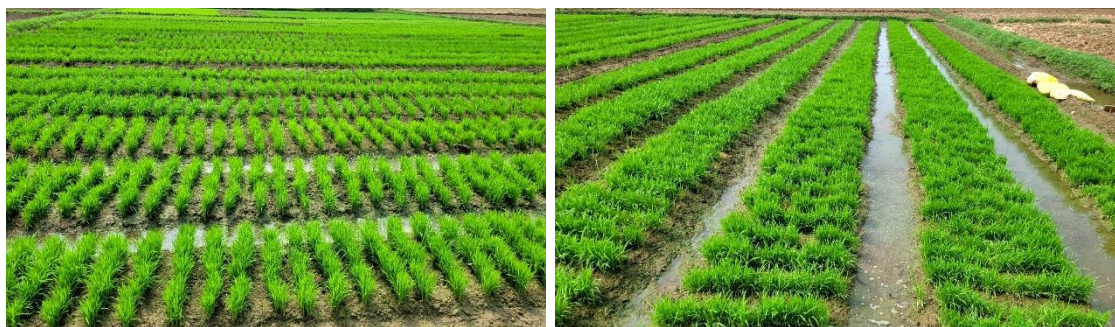


Fig. 2: Wed seedbed

3. *Preparation of main field:* - while the nursery is growing, preparation of main field must begin to prepare good tilth and also to kill the growing weeds. In order to avoid use of inorganic fertilizers, use FYM and green manure. If green manure is to be applied, *Sesbania* (Dhaincha) or *Crotalaria juncea* (sunhemp). It may be noted the field must be full with 20 cm water to allow a proper decomposition within a week. Such green manuring provides at least 40 kilogram of Nitrogen per ha. In case green manuring is not possible 6-10 tonnes of FYM or compost should be applied before ploughing. If green manuring has been done, amount of FYM may be reduced to half. It has also been found by experienced farmers that application of 2 quintals of neem cake is useful not only to supply the nitrogen but also to reduce the incidence of pests and diseases.
4. *Transplanting:* - A spacing of 20 cm row to row and 15 cm plant to plant is recommended. Once seedlings have attained age of 20-30 days these are ready for transplanting. Seedlings should be uprooted taking maximum care not to break the root or cut the leaf once the seedlings have been pulled out some days 2 to 3 seedlings should be transplanted at one place (Hill).
5. *Fertilizer management:* - There are number of ways, methods and combination to supply major nutrients to the plant. A combination of green manure, compost, FYM and cakes can be devised to supply required nutrition to kalanamak. This is the most desirable way to get best grain quality and reasonable yield of kalanamak.

Table No. 1: Morphological characters of grain of Kalanamak Kiran

S. No.	Character	Kalanamak Kiran
1	Kernel length	5.76 mm
2	Kernel width	2.18 mm
3	L/B Ratio	2.64 mm
4	Grain type	Medium slender
5	Kernel colour	white
6	1000 grain weight	15 gm
7	Aroma (Scent)	Highly Scented
8	Husk colour	Purplish Black
9	Hulling	80 %
10	Milling	75 %

6. *Weed control:* - For weed control herbicides should not be used. Since transplanting of kalanamak is done late, most of the weeds in the rice field have germination when it is time to transplant. These weeds get eliminated during puddling however within a fortnight fresh weeds germinate and pose a problem. Therefore, the first weeding needs to be done within a month. No weeding generally needed afterwards as kalanamak being a tall variety with good vigour covers the soil surface suppressing any weed growth. Only hand weeding or mechanical weeding or cultural practices are to be followed.

7. *Pest and disease management:* - kalanamak is cultivated at relatively lower fertility levels moreover, it has moderate degree of resistance against major pests and diseases. But it may get infested with stem borer and gundhi bug. Against stem borer no simple remedy can be recommended.

8. *Harvesting, threshing and storage:* - Usually crop matures within 30 days after full heading. However, data of harvest may be decided once the leaves have almost dried. Husk being black in colour does not turn golden or straw colour, thus leaves are better indicator of maturity. Threshing should be done immediately after harvesting. Grain should be sun dried to a moisture level of about 12% before it is stored.

Table No. 2: Organic kalanamak Area and Production

Item	Organic Kalanamak Rice
Rice area (ha)	2,000
Average yield (qt/ha)	35
Selling price of paddy (Rs. /ha)	4,000
Gross profit	1,40,000
Cost of cultivation (Rs. /ha)	30,000
Net profit (Rs. /ha)	1,10,000
Incremental income in (Rs. /ha)	74,750

Conclusion

Kalanamak Kiran has been the best aromatic rice of North-Eastern U.P. Kalanamak Kiran has been released by the central variety recommendation and notification committee of govt. of India in 2019. It has excellent aroma, very high in zinc, iron and protein. It has a low glycemic index of 53.1 making it suitable for consumption even by diabetic patients. Kalanamak Kiran has the best combination of the grain quality and yield. More production at less cost with health and wealth.

References

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