

Organic Paddy Cultivation: A Step Towards Safe Food and a Healthy Future

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Rice is more than just food—it is tradition, culture, and survival for billions of people across Asia, Africa, and beyond. In India, rice accompanies our meals from birth ceremonies to weddings, from festivals to daily life. For nearly 60% of the population, rice provides the bulk of daily calories. But the way rice is produced today raises serious questions. Over the last five decades, chemical-intensive farming has become the norm. Farmers rely heavily on synthetic fertilizers, pesticides, and water-guzzling practices to achieve high yields. While this ensured food security during the Green Revolution, it has also led to:



- Contaminated soil and water
- Loss of biodiversity
- Rising input costs for farmers
- Residues of harmful chemicals in food
- Long-term health concerns for consumers

As people become more conscious about what they eat, the demand for organic rice is increasing. Farmers, policymakers, and consumers are looking for alternatives that are sustainable and safe. This is where organic paddy cultivation comes into the spotlight—not only as a farming method but also as a lifestyle and a vision for the future.

Introduction: Rice, Life, and the Future of Food

Botanical Name: *Oryza sativa* L.

Family: Poaceae (Gramineae) – the Grass Family

Genus: *Oryza*

Species: *sativa*

Common Name: Rice / Paddy

Origin: Believed to be domesticated in the river valleys of Asia, especially the Ganga-Brahmaputra basin and Yangtze River basin in China.

The Meaning of Organic Paddy Cultivation

Organic paddy cultivation refers to growing rice without synthetic fertilizers, pesticides, or genetically modified organisms. Instead, it relies on natural processes—enriching the soil with organic matter, using bio-fertilizers, practicing crop rotation, managing pests through biological methods, and conserving water. It is not a “new” method but rather a revival of traditional wisdom, combined with scientific knowledge to suit modern conditions. Farmers are rediscovering practices once followed by their ancestors—manuring fields with cow

dung, green leaves, and compost; treating seeds with natural extracts; and protecting crops using herbal formulations.

Organic rice farming is guided by four principles of organic agriculture set by IFOAM (International Federation of Organic Agriculture Movements):

1. **Health** – maintaining the health of soil, plants, animals, and humans.
2. **Ecology** – working with natural cycles and biodiversity.
3. **Fairness** – ensuring fair relationships for farmers, workers, and consumers.
4. **Care** – protecting future generations and the environment.

Step-by-Step: How Organic Paddy is Cultivated

1. Selection of Varieties

Traditional and Indigenous Varieties: These are naturally resistant to pests and diseases, require fewer external inputs, and are often rich in aroma and nutrition. Examples: Navara, Gobindobhog, Mappillai Samba, Jeeraphool, Rajmudi, Kalabhat (Black Rice), Basmati (Traditional, Taraori, Dehraduni), Dubraj, Seeraga Samba, Kalanamak (UP), Gobindobhog (Bengal), Navara (Kerala), Mappillai Samba (Tamil Nadu).

- **Nutritional Advantage:** Many traditional varieties are rich in micronutrients, antioxidants, and even medicinal properties. For example, black rice from the Northeast is known as a “superfood.”

2. Seed Treatment

- Instead of chemical fungicides, farmers treat seeds with:
 - **Trichoderma** or *Pseudomonas fluorescens* (bio-agents)
 - **Cow urine or buttermilk** (natural disinfectants)
 - **Neem leaf extract** (anti-fungal and insecticidal)

This ensures healthy seedlings and prevents early-stage diseases.

3. Soil Preparation

- Fields are enriched with:
 - **Farmyard manure (FYM)**
 - **Vermicompost**
 - **Green manuring** crops like *dhaincha*, *sunnhemp*, *sesbania*
 - **Biofertilizers** (Rhizobium, Azospirillum, Azotobacter, PSB)

This improves soil fertility, enhances water-holding capacity, and restores microbial life.

4. Nursery and Transplanting

- Seedlings are raised in organic nurseries using compost and natural soil conditioners.
- In the **System of Rice Intensification (SRI)**, young seedlings (8–12 days old) are transplanted with wider spacing, which saves water and increases productivity.

5. Nutrient Management

- Instead of urea and DAP, farmers use:
 - **Jeevamrit** (fermented mix of cow dung, cow urine, jaggery, pulse flour, and soil)
 - **Panchagavya** (five cow products: dung, urine, milk, curd, ghee)
 - **Neem cake and fish amino acid**
 - **Liquid biofertilizers**

These inputs provide balanced nutrients and stimulate crop growth naturally.



6. Weed Management

- Weeds are controlled by:
 - **Hand weeding**
 - **Conoweeders or rotary weeders** (tools used in SRI)
 - **Mulching with straw**
- By avoiding herbicides, soil microbes and earthworms remain unharmed.

7. Pest and Disease Management

Organic methods focus on balance rather than elimination. Common practices include:

- **Neem oil sprays** against sucking pests.
- **Chilli-garlic extract** to repel insects.
- **Pheromone traps and light traps** to manage moths.
- **Biocontrol agents** like *Bacillus thuringiensis* (Bt) for caterpillars.
- **Encouraging natural predators** like dragonflies, frogs, and ducks in paddy fields.

8. Harvesting and Storage

- Paddy is harvested at full maturity.
- Storage is done using traditional methods—mixing rice with **ash, neem leaves, or camphor** to protect against insects.
- This avoids chemical fumigants and ensures safe grains for consumption.



The Benefits of Organic Paddy

For Consumers

- Rice free from harmful residues.
- Higher nutritional quality—better mineral content, antioxidants, and taste.
- Reduced risk of lifestyle diseases linked to pesticide exposure.

For Farmers

- Savings on costly fertilizers and pesticides.
- Premium price for organic rice in markets (sometimes 20–50% higher).
- Long-term soil fertility and reduced crop failure risks.

For the Environment

- Reduced water contamination.
- Protection of biodiversity—birds, fish, frogs, and beneficial insects thrive.
- Reduced greenhouse gas emissions by avoiding excessive nitrogen fertilizers.

Success Stories from India

- **Sikkim:** India's first fully organic state, where rice is grown entirely without chemicals.
- **Kerala Navara Rice:** Farmers revived the medicinal *Navara* variety through organic cultivation, now exported for Ayurvedic use.
- **Chhattisgarh Farmers:** Collectives are promoting traditional aromatic rice (*Basmati, Dubraj*) under organic systems, fetching higher income.
- **Andhra Pradesh Zero-Budget Natural Farming (ZBNF):** Farmers practicing natural farming report reduced costs and healthier crops.

Challenges in Organic Paddy Cultivation

- **Lower Yields Initially:** It may take 2–3 years for soil to recover from chemical dependence.
- **Labor Intensive:** Manual weeding and organic input preparation require more effort.
- **Certification Issues:** Getting official “organic certification” is costly and complicated.
- **Market Access:** Farmers often struggle to sell organic rice at fair prices without proper branding.

Solutions and Way Forward

1. **Training and Awareness:** Farmers need practical training in organic methods.

2. **Government Support:** Subsidies for organic inputs, easier certification, and procurement policies.
3. **Consumer Awareness:** Encouraging households, restaurants, and institutions to adopt organic rice.
4. **Farmer Cooperatives:** Collective marketing, branding, and export of organic rice.
5. **Technology Integration:** Mobile apps, AI-driven soil testing, and organic certification platforms can simplify adoption.

The Future of Organic Paddy Cultivation

Organic rice farming is not just an “alternative”—it is becoming a necessity. With rising global demand for organic food, India has a great opportunity to emerge as a leader. Farmers can earn better incomes while consumers get healthier food. If adopted widely, organic paddy cultivation could transform rural economies, restore soil fertility, conserve water, and secure a safe food future. It is a vision where farming is in harmony with nature, farmers are prosperous, and consumers are healthy.

Conclusion

- Organic paddy cultivation is more than a farming technique—it is a movement towards safe food, healthy living, and ecological balance. It reconnects us with our traditions while preparing us for the challenges of the future.
- When a farmer grows rice organically, he is not just producing grain—he is sowing hope, health, and sustainability. And when we, as consumers, choose organic rice, we are voting for a better tomorrow.

Organic paddy cultivation is the seed of a safe food system and a healthy future—for us and generations to come.