




The Future of Rice Production:

How Organica Biotech's Microbiome Technology is Driving Quality and Productivity




As the global population continues to grow, it has become increasingly clear that we need to address the looming crisis of food scarcity. According to estimates by the Food and Agriculture Organization (FAO), the world will need to produce 60% more food to feed nearly 10 billion people by 2050. That's a daunting challenge, given that we are already struggling to produce enough food to feed the current population.

The situation is made even more complicated by the fact that we will need to close two significant gaps to ensure sustainable food production:

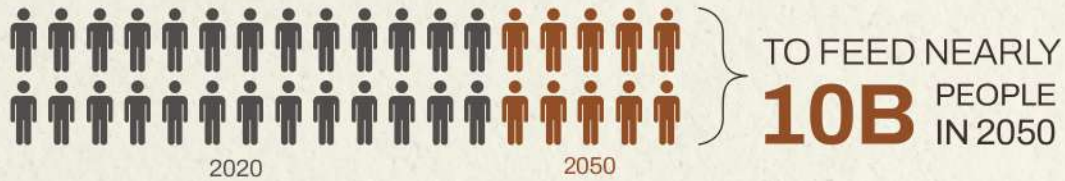
- ▶ **A 60% food gap between current crop yields and what will be needed in 2050.**
- ▶ **A land gap of nearly 600 million hectares, equivalent to an area twice the size of India.**

To meet this challenge, we need innovative solutions that can help us close these gaps and ensure a sustainable future for our planet.



Creating a Sustainable Food Future by 2050

1 How do we feed **10 billion** people ...



2 ... without using **more land** ...

We need to prevent agriculture from expanding



WE CURRENTLY USE **50%** OF THE WORLD'S VEGETATED LAND FOR AGRICULTURE



TO SAVE AN AREA **2x** THE SIZE OF INDIA TO FEED NEARLY 10B PEOPLE IN 2050.



The Significance of Rice:






A Critical Analysis of Its Role in Global Food Security

Rice, the ubiquitous staple food that has sustained communities for generations, is more than just a grain. It is the lifeblood of economies, a crucial source of nourishment for the world's poorest and undernourished, and a vital commodity for global food security. In fact, rice is the single most important crop in the world, feeding half of the global population and providing 20% of the world's dietary energy supply, surpassing even whole wheat and maize. In some Asian countries, rice is the mainstay of the diet, providing over 70% of calorie supply.



Yet, rice production and research are facing unprecedented challenges in recent years, with yield and total production plateauing in major rice production countries even as demand continues to rise. As we look to feed a growing global population, the future of rice and its impact on economies, social stability, and regional peace have never been more important.

Some of the major causes of low rice yields are:

-  Rising temperature due to climate change
-  Unsubstantial and delayed Rainfall
-  Loss of biological soil fertility
-  Increased disease pressure and pestilence
-  Poor Nutrient Management

The key to combating current issues faced in rice cultivation & enhancing productivity lies in revitalizing the living soil ecosystem called the microbiome.

We have developed two rice specific products through our innovative microbiome replenishment technology to address the challenges faced by rice farmers:

1 MagicGro Rice Seed Treatment

2 MagicGro Rice Crop Care



Through the use of these products, farmers can unlock their agricultural potential in the following ways:

- ▶ Boosting germination rates and seedling vigor to ensure healthy and robust plant growth.
- ▶ Facilitating early maturation at the nursery level, enabling farmers to get the most out of their land and resources.
- ▶ Replenishing the soil and crop microbiome, which is essential for promoting plant growth and development.
- ▶ Increasing nutrient uptake, leading to higher yields and better crop quality.
- ▶ Maintaining productivity even during off-season, allowing farmers to maximize their profits year-round.
- ▶ Improving resistance to biotic and abiotic stress, ensuring that crops can withstand harsh weather conditions and other environmental factors.

Our products are designed to work with any method of sowing, variety, and geo-climate conditions, making them suitable for rice farmers around the world. What's more, our technology has been validated by esteemed institutions such as the Agriculture University of Maharashtra (PDKV, Akola) at the genetic level and the Indian Institute of Rice Research (IIRR) at the field level, attesting to the effectiveness and reliability of our products.

Investing in sustainable agriculture practices is not only good for the environment but also critical for ensuring food security and economic growth. With our innovative microbiome replenishment technology, farmers can improve their yields, enhance their crop quality, and contribute to a sustainable future for all.

Our Positive Impact

The collection and analysis of data from various sources is essential for the evaluation of the effectiveness of any product or technology in the field of agriculture. At Organica Biotech, we have conducted extensive trials to evaluate the performance of our rice-specific sustainable products.

Our trials and data collection happened through:

- ▶ Agricultural university trials evaluated by agri experts
- ▶ NGO or third-party evaluation
- ▶ Farmer's field trials



This has assisted farmers widely in:



1) Improving the ancillary characters, such as:

- ▶ **Boosting the germination rates:** Helps the farmers to achieve higher number of crops by having more plants growing to maturity.
- ▶ **Increase in Effective tillers:** More the effective tillers a rice crop has, the more grains it can produce, ultimately leading to higher yield.
- ▶ **Increase in number of grains and weight per panicle:** More the number of grains and weight per panicle leads to significant increase in yield and better quality of rice.



2) Improving the yield by 30 - 70%

This significant improvement impacts the livelihoods of farmers who depend on rice production.



3) Imparting resistance to biotic and abiotic stress

MagicGro products are formulated with beneficial microbes that release bioactive hormones and peptides acting like a shield against diseases. Our solutions help farmer to alleviate the incidence of pest and disease especially rice blast disease. Rice blast disease is a major threat to rice crop and can cause a significant yield loss.

Under severe abiotic stresses like drought or high temperature, these beneficial microbes influence the plant gene expression system to help crop survive and function normally.



4) Enhancing the milling characters, such as:

- ▶ **Increase in Recovery of Rice:** Farmers are able to extract more rice from each batch, resulting in higher yield and better profits.
- ▶ **Increase in Head Rice Yield Percentage:** More the increase in percentage of head rice in each batch, leading to better quality rice.
- ▶ **Decrease in Broken Rice Percentage:** Due to the significant decrease in broken rice percentage in each batch, farmers are able to get better revenue.




5) Quality Parameters:

- ▶ **Increase in whole Polished Rice:** High quality of the produce can be sold for premium price and get better profits.
- ▶ **Reduction in Glycemic Index:** Rice is a major source of carbohydrates and can have a significant impact on blood sugar levels. So lower the glycaemic index of rice, more healthier is the rice.
- ▶ **Improvement in Texture Post Cooking:** The texture of rice is an important factor for consumers. Better the texture more it is preferred by the consumer.
- ▶ **Maintains Quality Grain Size and Aroma in case of Aromatic Rice:** Consumers find fragrant rice to be more appealing due to its uniform grain size and aroma. Therefore, such aromatic rice commands a premium price, increasing profit.

Overall, our sustainable products have been proven to assist farmers in improving various aspects of rice cultivation and achieve higher yields, ultimately leading to better livelihoods.



Recognitions and Accolades for Our Sustainable Agriculture Practices

ECOCERT , a leading certifying body, has certified our products for their organic and sustainable practices. This certification is a testament to our commitment to using only safe and natural ingredients in our products, ensuring that our customers get the best possible solutions without harming the environment.

Moreover, our dedication to promoting sustainable agriculture and our contribution to the industry has been recognized by the **National Order-of-Merit** for three consecutive years. This prestigious award acknowledges our commitment to advancing sustainable agriculture practices and promoting environmental stewardship in the industry.

These certifications and awards are a testament to our commitment to delivering sustainable agriculture solutions. We strive to continue our work and improve our practices to provide farmers with the most effective and eco-friendly products possible.

In conclusion, rice cultivation faces numerous challenges such as climate change, poor nutrient management, and pestilence. However, with the advancement of technology, it is now possible to address these issues and enhance productivity sustainably. Organica Biotech's MagicGro Rice Seed Treatment and MagicGro Rice Crop Care are excellent examples of such sustainable solutions, utilizing microbiome replenishment technology to boost germination rates, increase nutrient uptake, and improve resistance to biotic and abiotic stress.

To know more about our agriculture solutions, visit
<https://organicabiotech.com/soil-enzymes/>

You can also write to us at
jimcy.rajana@organicabiotech.com
to get more details

www.organicabiotech.com