



**Entrepreneurship Development Program  
on  
'Technologies Developed by ICAR-NRRI  
to Strengthen Rice Production'**

**21-26 December, 2020**



**Editors**

Sai Krishna Repalli  
Rakesh Kumar Nayak  
Trusha Das  
G.A.K. Kumar



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ICAR-National Rice Research Institute, Cuttack - 753006, Odisha



एक कदम स्वच्छता की ओर

**Compendium**  
**on**  
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**to strengthen rice production’**

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## **Blue green algae a potential biofertilizer to enhance rice yield**

Upendra Kumar, Scientist, ICAR-NRRI, Cuttack

Blue green algae (BGA) or cyanobacteria in rice fields are important microbial members that are employed as bio-inoculants for enhancing soil fertility and crop yields. Among the various inhabitants of rice fields, cyanobacteria play a significant role in providing photosynthetically fixed carbon, nitrogen, besides producing phytohormones and polysaccharides which promote plant growth and soil structure, respectively. Due to its agronomic importance, often used as a potential bioinoculant for enhancing crop yields, especially in rice, besides improving fertility and soil structures.

### **Recommended dose**

It is recommended that 50-60 kg fresh wt/ha or 6-7 kg dry weight BGA is required for rice crop, which can supply around 20-25 kg N/ha/season with increasing grain yield by 10- 20%

### **Entrepreneurial opportunity**

Farmers can earn about 3% greater income along with 41.1% reduction in dosage of urea while reaping 1-5% higher yield of rice.

### **Economics of BGA**

The benefits could be to the extent of 20-30 kg N/ha/season under ideal conditions.

### **Salient features**

- BGA are free living as well as symbiotic, photoautotrophic micro-organisms.
- They are capable of fixing nitrogen at an average of 20-25 kg N/ha/ season.
- Primary producers in the biosphere.
- BGA can sequester carbon, add organic matter, synthesize and liberate amino acids, vitamins and auxins.
- BGA are the key players to sequester carbon and to improve the nutrient use efficiency.
- It is an important component of integrated nutrient management system due to its significant role in soil sustainability.

