

# Review of: "Optimizing Agronomic Practices for Aerobic Rice under Calcareous Soil in Bihar"

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**Potential competing interests:** No potential competing interests to declare.

## Introduction

- In this section, there are many statements that are claimed without proper references. Below are these statements.

The state of Bihar heavily depends on the production of rice for self-sufficiency in food grains for the burgeoning population. Increased demand for rice has to be met from a shrinking resource base. Reduced availability of water and scarcity of labor during the peak rice growing season have been serious issues for sustainable rice production. Innovating into the aerobic system of rice cultivation is one alternative to sustain rice production.

This system is based on the concept of adapting input-responsive varieties to sustain the yield level of 70-80% of flooded rice. Time of sowing, plant density per unit area, and scheduling of nitrogen are some of the important factors determining crop productivity. Sowing time greatly influences the temperature and solar radiation, which affect the photosynthetic activities, thereby influencing crop yield. In order to get the best use of prevailing climatic factors, the response of varieties to different dates of sowing needs to be assessed. Nitrogen loss is comparatively higher under aerobic conditions compared to other methods due to alternate wetting and drying, created under this system, which encourages the nitrification[1]denitrification process resulting in nitrogen loss through N<sub>2</sub>O and N<sub>2</sub>. Brown manuring could be helpful to overcome this problem to a great extent as it not only supplies green biomass to the rice crop but also gives a mulching effect.

- Old references are used in this section such as Bouman *et al.* (2005) and Prasad (2011).

## Materials and Methods

- Geographical location should include degree, minute, and second. Please revise it.
- Paragraph 1, Line 3 - in the statement "Exp. (i) the experiment was laid out during 2014-16 in RBD with....." what does RBD mean? Please mention its full form at least once in the section.
- In the statement "The experiments received a uniform dose of P<sub>2</sub>O<sub>5</sub> (60 kg/ha) and K<sub>2</sub>O (40 kg/ha) through single superphosphate and muriate of potash, respectively, at the time of sowing. Nitrogen was applied as per treatment. The crop also received 25 kg ZnSO<sub>4</sub> /ha at the time of sowing....." Whose fertilizer packages are these? This comment is also applicable to the other agronomic packages applied.
- In the statement, "The benefit-cost ratio was worked out by dividing net returns by the cost of cultivation," please use

an equation to describe this.

- In the statement, "The experimental soil was sandy loam and calcareous with pH (8.1-8.4), low in organic carbon (0.41-0.43), low in available nitrogen (217-226kg/ha), medium in available P (15.5-16.2kg/ha), available K (131-137.8kg/ha), and high in calcium carbonate (CaCO<sub>3</sub> 23.4-29.8%)" did you conduct soil analysis to say so? If so, how and where did you conduct it?

### **Where are your conclusions and recommendations?**

### **References**

- Few references are used, some of which are old. Please revise!
- Full details of references should be included. Your references have many instances of missed information such as issue number
- Example: Bouman BAM, Peng S, Castaneda AR, and Vispeeras RM. 2015. Yield and water use of irrigated tropical aerobic rice system. *Agricultural Water Management* 74: 87-105
- Prasad R. 2011. Aerobic rice systems. *Advances in Agronomy*. 111:207-47
- Please ensure consistency in this section