

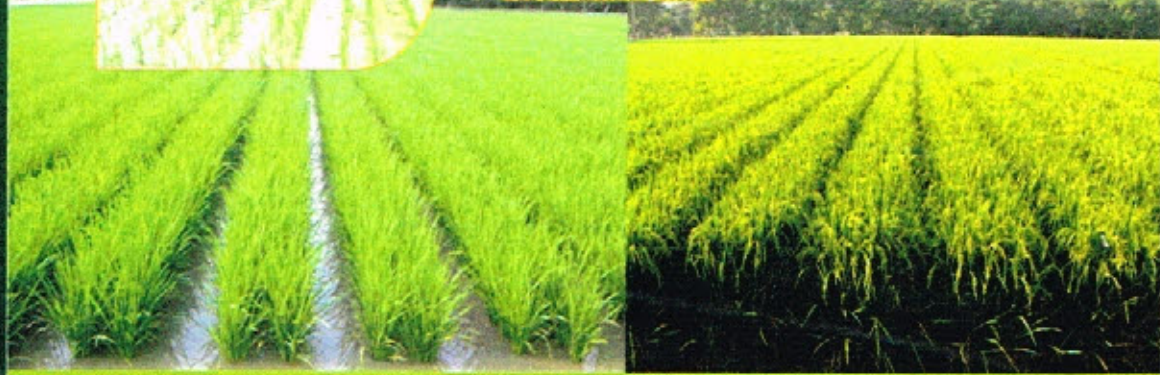
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PROCEEDING INTERNATIONAL SEMINAR

Technology Innovation for Increasing Rice Production and Conserving Environment under Global Climate Change



Book 1



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Indonesia Center for Rice Research
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**Technology Innovation for Increasing Rice Production
and Conserving Environment under Global Climate Change**



Indonesia Center for Rice Research
Indonesia Agency of Agricultural Research and Development
Ministry of Agriculture Republic of Indonesia
2013

PREFACE



The Ministry of Agriculture has targeted to increase national rice production of 10 million tons in 2014. It of course requires best efforts of all parties, because rice is a sensitive commodity to price change, market competition, and environmental constraints (biotic and abiotic).

Challenge of increasing rice production are includes biotic and abiotic stresses. Biotic environmental stresses due to plant diseases, such as brown planthoppers, rat, bacterial leaf blight, tungro, and blast. Furthermore, planting rice in lowland, upland, and swamps have constraints of abiotic stresses such as drought, flooding (submergence), salinity, also Fe and Al toxicity.

ICRR as a technology innovator of rice had held an International Seminar on 11-12 July 2012. The theme of seminar was "Technology Innovation for Increasing Rice Production and conserving Environment under Global Climate Change". Participants who attended the seminar was more than 300 people representing, i.e. government agencies, policy makers, agriculture extensions, agribusiness, students, and others rice stake holders.

Papers that had been presented was published in this proceedings of International Seminar. This proceedings was contained papers of rice groups, i.e. pest and diseases; agronomy; postharvest; socio-economic; as well as breeding, seed, and germplasm. In addition, there are 27 major papers from national and international research institutes, such as IRRI, Queensland University, Japan Space System, PhilRice/RDA, IAARD, Longping High-Tech Seed Science Institute, Chief Technology Officer-Agrinos, Country Manager of Dupont, General Sudirman University, Bogor Agricultural University, Marubeni Corporation, Indonesian Science Institute, RIACH (Research Institute for Agro-Climate and Hydrology, Hokkaido University, Germany, Indonesian Environment Agriculture Research Institute, Padjadjaran University, ICFORD, ICABIOGRAD, and ISARI.

I am grateful to all attendees, speakers, and guests, who had contributed to the success of the International Seminar. I appreciated to all editors team who hard work to edited volume 1 and 2 of the proceeding. I wish the proceeding of International Seminar would be of usefull references for researchers, extension-personnel, policy markers, and all who are concerned with rice.

Sukamandi, May 2013

Dr. Made Jana Mejaya
Director ICRR

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RESTORING THE HEALTH OF PADDY SOIL BY USING STRAW
COMPOST AND BIOFERTILIZERS TO INCREASE FERTILIZER
EFFICIENCY AND RICE PRODUCTION WITH SOBARI
(SYSTEM OF ORGANIC BASED AEROBIC RICE INTENSIFICATION)
TECHNOLOGY

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ABSTRACT

Sustainability of food security (rice) is highly dependent on the quality and health of soil and water availability. Current conditions indicate that about 70% of paddy fields in Indonesia has been experiencing severe degradation of land and can be categorized as an illness (sick soils), therefore, efforts to restore health and increase the productivity of paddy soil in a sustainable manner can be done by integrating fertilizer-based integrated management organic and biological fertilizers (bio-fertilizers) with SOBARI (System of Organic Based Aerobic Rice Intensification) technology. The experiment was conducted from March to August 2011 in the fields experiment Faculty of Agriculture Padjadjaran University, Ciparay. The aims were to test the use of straw compost + bio-fertilizer for efficiency inorganic fertilizer (N, P, K) and to increase rice production by SOBARI technology. Experiment was using a split plot design. The main plot consisted of 8 standard combination of organic fertilizer (compost straw 0; 2.5; 5.0; and 7.5 t/ha, with no biological fertilizers and biological fertilizers 400 g/ha. The sub plots consisted of 5 inorganic fertilizer levels on N, P, and K (100; 90; 80; 70; and 60% of recommended dosage). The data observed were analyzed by ANOVA (analysis of variance) and Duncan's Multiple Range Test (DMRT) at α 5%. The parameters observed were plant height, number of tillers, productive tillers, and rice production. There was an interaction occur between the provision of straw compost + bio-fertilizer to the yield per plot. Dosage of 5.0 t/ha of compost straw + 400 g/ha biological fertilizer by accompanied N, P, K 80% of the recommended, showed the highest yields and increase the yield of 13.3% compared to controls is 7.29 kg/plot (6.654 t/ha) and gained efficiency fertilizer N, P, K 20% of the recommendation.

Keywords: Fertilizer efficiency, straw compost.