

TENTATIVE SCHEDULE  
International Conference on  
**AGRICULTURE AT THE CROSSROAD**  
November, 25-26, 2009, Bandung, Indonesia

**BALE RUMAWAT**  
**UNIVERSITAS PADJADJARAN BANDUNG INDONESIA**

**November , 25, 2009**

Time	Topic	Speakers
09:00 – 09:15	Opening	
09:15 – 09:45	Remark of the Rector of Padjadjaran University	Prof. Ganjar Kurnia
09:45 – 10:45	<b>Key Note Session I:</b> Development Perspective of Indonesian Agriculture	Dr. Bayu Khrisnamurti (Vice Ministry of Agriculture, the Republic of Indonesia)
10:45 – 12:00	<b>Session II:</b> Impact of Climate Change	
	Indonesia's Agriculture in a Carbon Constrained World	Prof. Randy Stringer (Adelaide University)
	Climate Change and its Impact on Agriculture	Rizaldi Boer (IPB)
12:00 – 12:45	Break	
12:45 – 13:30	<b>Session III:</b> Agriculture for Food and Fuel:	
	Indonesian Food Market and Production Restructuring: Responding To Increase Demand For Food Safety And Quality	Dr. Ronnie S. Natawidjaja (Faculty of Agriculture, Unpad)
	Bioenergy: New Challenge and Opportunity	Dr. Wawang Suratmo (MIPA Unpad)
13:30 – 16:00	<b>Parallel Session:</b> <ul style="list-style-type: none"> <li>• Food Policy, Market, Safety and Security (10)</li> <li>• Climate Change, Environment, Biodiversity, Bioenergy (12)</li> <li>• Land and Water Resources Management (9)</li> </ul>	

**November , 26, 2009**

Time	Topic	Speakers
08:30 – 09:30	<b>Session IV:</b> Sustainable Agriculture	
	Sustainable Use of Soil: The role of Carbon and Mechanisms of Carbon Sequestration	Prof. Peter McGee (University of Sydney)
	Agriculture at the Crossroad: Challenges	Prof. Robert Lawn (James Cook

## PREFACE

The Golden Jubilee of Faculty of Agriculture Padjadjaran University in 2009 also mark an important phenomena where agriculture sciences facing new challenges. In one hand have to contribute and support the need for fast growing population with better food quality and safety, and on the other hand, respond to a new demand which also arising from the need for renewable energy, a bio energy. It was never happening in the past, where the energy price increase was so closely related to the food price increased at the international market. On the other dimension, we all face the consequences of climate change which also create another challenge as well the need for an appropriate respond from the agricultural sciences and agricultural communities.

The Agriculture at the Crossroad Conference brought together internationally recognized experts as well as national researchers, academia, and private sectors to share ideas and knowledge in facing the new challenges. Invited speakers on the first day of the conference highlight the major drivers creating the changes; those are growing demand for food quality and safety, bio energy, and climate change. Invited speaker on the second day, covers topics on responds of agriculture sciences to the new challenges, those are issue on sustainable agriculture, bio technology, bio diversity, and bio safety. Speakers on the parallel session and poster session present various research findings that contribute to the overall theme.

The organizing committee would like to thank the key note speaker, all invited speakers, and participants from all parts of Indonesia who come all the way to Bandung City. High appreciation is also given to the sponsors that make the conference successful.

The Organizing Committee

Ronnie S. Natawidjaja, Ph.D.  
Chairman

## FOREWORD FROM THE RECTOR OF PADJADJARAN UNIVERSITY

First of all, on behalf of the university, I would like to welcome you all to the Padjadjaran University main campus in Bandung.

Agriculture has always been the key sector in Indonesian economy, since it is not only provides food for more than 200 million peoples but also become the main source of income of about 30 million farmers, mostly with limited land holding. The university has a long history of contribution to the national development, including in the agricultural sector since the green revolution era.

The Faculty of Agriculture was among the pioneer in the university in term of academic research and post graduate programs. It is our main goal now to improve our research quality in a pathway to become the world class research university. Thus, I felt that this conference is very crucial and have an important contribution to the overall university goal.

I am very pleased and congratulate the Faculty of Agriculture which celebrating its 50'th years anniversary and successfully organizing this very important and timely conference. I am very hopeful that this conference will spark a new frontier of knowledge in contribution to the Indonesian agricultural development.

To the speakers and participants of the conference, I would like to congratulate you all for the contribution to this important event, have a good and most fruitful conference.

The Rector,

Prof. Gandjar Kurnia

**FOREWORD FROM THE DEAN OF  
FACULTY OF AGRICULTURE PADJADJARAN UNIVERSITY**

Faculty of Agriculture Padjadjaran University in its 50<sup>th</sup> years contribution has marked significant impact to the development of agricultural sciences in Indonesia, higher education in agriculture as well as to the national agricultural development.

Several lecturer staffs and alumni have received national awards, recognitions, and patents. Several alumni also have become high rank official at the Ministry Agriculture as well as at regional agricultural offices. The Faculty of Agriculture curriculum of sarjana (S1) degree study programs, agro technology and agribusiness, are now become the national reference for similar study programs.

We believe that in the future, the more complex and differs demand for agricultural products will require high quality seeds that produce all the intrinsic values that consumer and user want. Thus, we are determine to develop "the Seed Center" which will be expected to be also the main reference for seed re-production technology development in Indonesia in the near future.

This conference is marking one step further toward the realization of the above dream, where the internationally recognized experts on the subject gathered and share their expertise. We really appreciate our colleagues in the field of agricultural sciences who is willingly respond to our invitation and becoming invited speakers and key note speaker in the conference.

We highly appreciate the organizing committee for putting such an interesting and important program in celebrating the Faculty of Agriculture historical 50<sup>th</sup> anniversary.

The Dean of Faculty of Agriculture,

Prof. Yuyun Yuwariah AS.

**WATER SAVING AND REDUCING INORGANIC FERTILIZERS TECHNOLOGY  
FOR INCREASING THE SOIL BIOLOGICAL ACTIVITY AND RICE  
PRODUCTIVITY IN SYSTEM OF ORGANIC BASED AEROBIC RICE  
INTENSIFICATION (SOBARI)<sup>1</sup>**

Tualar Simarmata and Yuyun Yuwariah

Faculty of Agriculture, Padjadjaran University Bandung  
Jl. Raya Bandung Sumedang km 21, Bandung 40900 Telp/Fax 022-7797200,  
022-7796316 (Tualarsimarmata@yahoo.com)

**ABSTRACT**

As a main food crops in Indonesia, rice is belong to the most important grains and has a significant role on political, economical and social issue. Rice production is dominated by permanent flooding or inundation system. Intensification of permanent flooding (anaerobic) of paddy soils not only reduces the soil biological power significantly, but also restricts the roots growth. Virtually water to produce one kilogram of rice in continuously irrigated fields needs approximately 3,000 L of water, while the theoretical minimum at the crop scale is as low as 600 L. Under anaerobic condition, soil organisms cannot growth optimally and estimated only about 25% rice roots can growth normally. Intensive use of inorganic fertilizers, particularly N fertilizers such as urea accelerates the mineralization of soil organic matter. Consequently, soil organic content decreases rapidly. It is an indication that the rice production received high inorganic fertilizers dosage has reached a leveling off and caused the decreasing of soil quality and soil health. To increase the rice production and revitalize the soil quality and soils health can be reached by using the soil biological power in system organic based of aerobic rice intensification (SOBARI). SOBARI is a holistic rice production system by using and integrating the soil biological power, plant, fertilizers and water management according to the plan and design (by design). Composted straw or incorporating of 5 ton per ha is used as organic fertilizers to enhance the soil organic content, activity of beneficial microbes in soils and to reduce the inorganic fertilizers by at least 25%. The field results using various rice varieties in several Provinces of Indonesia revealed that the SOBARI can produce grain yield about 8 – 12 t/ha (average of an increasing about 50 – 150% compared to anaerobic rice cultivation) and the water irrigation was reduced by at least 30 - 50%. This high rice yield is highly correlated with the increasing of roots zone about 4 – 10 times, number of productive tillers about 60 – 80 tillers, number of panicles, length of panicles and number of grain/panicle, and as well as due to the increase of soil biodiversity (beneficial organism) under aerobic condition.

**Key words** : water saving, intensification, biological activity, irrigated rice, SOBARI, food security

<sup>1</sup> Internasional Conference & Seminar: Agriculture on Crossroad, November 25 – 26<sup>th</sup>, 2009 in Padjadjaran University, Bandung Indonesia