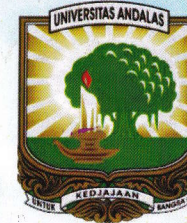


# CERTIFICATE



*Awarded to:*

**Dr. Renny Eka Putri**

*As Presenter*


*UGSAS-Gifu University, Japan The 4<sup>th</sup> International Workshop 2017 at Department of Agricultural Engineering,  
Faculty of Agricultural Technology, Andalas University, Padang, Indonesia*

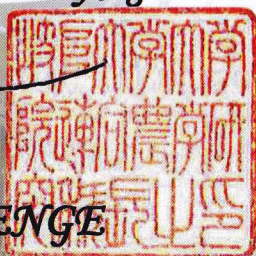
*Theme: "Recent Postharvest Technology for Sustainable Agriculture and Food"*

*Organized By:*


*Department of Agricultural Engineering-Andalas University and UGSAS-Gifu University  
Padang, July 17<sup>th</sup>, 2017*

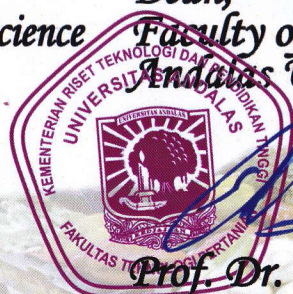
Dean,  
United Graduate School of Agricultural Science  
Gifu University

  
Prof. Masateru SENGU

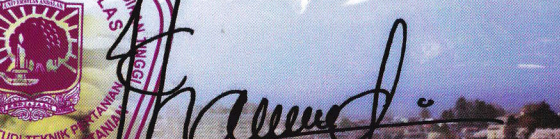


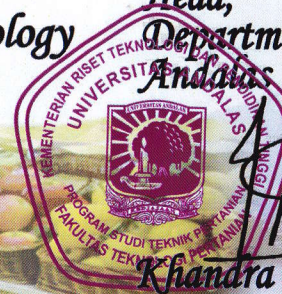
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Andalas University

  
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Andalas University

  
Khandra Fahmy, S.TP, MP, Ph.D





# UGSAS-GU&AE-UNAND

THE 4<sup>TH</sup> INTERNATIONAL WORKSHOP 2017 AT ANDALAS UNIVERSITY

## RECENT POSTHARVEST TECHNOLOGY FOR SUSTAINABLE AGRICULTURE AND FOOD

July 17<sup>th</sup>, 2017, Andalas University  
5<sup>th</sup> Floor Library Building,  
Limau Manis, Padang,  
West Sumatra,  
Indonesia



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Indonesia**

**WELCOMING SPEECH OF DEAN OF AGRICULTURAL TECHNOLOGY FACULTY  
OF ANDALAS UNIVERSITY PADANG INDONESIA**

**On event of**

**UGSAS, GU, Japan, The 4th International Workshop 2017 at Andalas  
University**

First of all, In this occasion, let us thanks to Almighty God who has given us His blessings and Mercies so we can gather today in healthy and good condition.

We are delighted and honoured to host this UGSAS-GU *The 4th International Workshop 2017 at Andalas University*, today and to welcome you Padang, West Sumatera Indonesia, Indonesia.



I wish to extend a warm welcome to delegates from the various countries. I realize that you are fully dedicated to the event but I do hope you will also take time to enjoy fascinating West Sumatera, Indonesia, with its tropical setting, friendly people and multi-cultural cuisine.

I recognize that this event is principally designed to enhance the development of relationship between Andalas University and UGSAS, Gifu University. This annual gatherings enable the building of a productive dialogue between Andalas University UGSAS-GU, Japan. It also provides an invaluable opportunity for networking.

In Indonesia, we have so many variety of agricultural product. As Indonesia is in tropical area, Indonesia has the specific fruits that could not be grown in other countries, for example cocoa and oil palm. Indonesia is the third cocoa production in the world. after Ivory coast 38.3%, Ghana 20.2% and Indonesia 13.6 %. As we knew that , cocoa is needed for making beverage, biscuit or any other foods. We need to improve and develop the post harvest technologies to enhance the value added of them. And also, oil palm, Indonesia is the biggest production of oil palm producer in the world. If we combine the production of oil palm Indonesia and Malaysia, it will reach 85 -90 % oil palm world production. Expectation of production in 2016 was 36 million tonns, however, we reach production only

**31.5 milion metric tonns. And malaysia expectation was 21 million metric tonns and realisation was 20 million metric tonns in year of 2016.**

**All material are exported to China, India, Europe, USA etc. In form of raw material or semi final products.**

**Therefore, we need the proper technology to be implemented to process and our agricultural products to increase the value added so that , it could increase the country income, especially farmers.**

**In this workshop, It is good opportunity to share our knowledge regarding the postharvest technologies to improve the value of agriculture product. We could share and keep fruitful contact between researcher to conduct the further relationships or other colaborations.**

**In closing, I wish to express my gratitude to all delegates for their full cooperation and contribution to the UGSAS-GU The 4th International Workshop 2017 at Andalas University. I would like to express my gratitude to Organizing Committee for their diligence. And also various sponsors for their kind hospitality.**

**Thank you.**

**Prof. Dr.Ir. Santosa, MP.**

## WELCOMING SPEECH OF RECTOR OF ANDALAS UNIVERSITY, PADANG INDONESIA

On event of

**UGSAS, GU, Japan, The 4th International Workshop 2017 at Andalas  
University**

First, on behalf of the Andalas University, please allow me to express my warm welcome to you all for joining us at The 4<sup>th</sup> International Workshop 2017 in Padang, Indonesia.

We are here in Padang to exchange ideas and share our research and knowledge. This workshop will give us an opportunity to share and understand contemporary developments in Postharvest Technology for Sustainable Agriculture and Food. This workshop will also encourage us to develop more critical and creative thinking on postharvest technology in our regions.



As tropical country, Indonesia consists of islands with low-lying and mountainous topography, and climate of hot, humid, and moderate. These advantages provide a high capacity of the growth of various fruits and vegetables. It makes Indonesia to develop the market of fresh produces by producing and selling of the fresh fruits and vegetables. However, these advantages have not been exploited well because of some obstacles of postharvest handling such as the inadequate technology, infrastructure facilities and other complex problems caused by thousands of islands in Indonesia. As a result, there are so many the amounts of losses of fruits and vegetables after harvest, particularly during storage and distribution chain which the amount of postharvest losses has been estimated approximately 30% or more of the total production of fresh produce worldwide. These factors hinder the expansion of Indonesian fruits and vegetables market, not only in domestic but also in overseas.

Therefore, the University of Andalas fully supports this workshop as the media for researchers to share and transfer new technological innovation, as well as disseminate their research results. I hope through this event all researchers, and especially those from the University of Andalas will be able to increase their number of international publications. We expect this event will create more

research cooperation which will lead to progress in the area of postharvest technology for the quality and welfare of mankind.

I would like to take this opportunity to thank all of the representatives of the professors, researchers, students and all participants who have joined the workshop. I would also like to thank the organizing committee who have worked hard to enable this workshop to become a reality. Last but not least, my deep appreciation goes to The United Graduate School of Agricultural Science, Gifu University which supported this program.

Thank you

**Prof. Tafdil Husni**

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# ON LINE QUANTITY AND QUALITY MONITORING OF HARVESTED PADDY ON COMBINE HARVESTER

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## Abstract

This research was initiated developed a dedicated and complete instrumentation system on board a rice combine harvester to accurately not only measurement in real-time the instantaneous yield but also accurately measure in-real time instantaneous grain quality during a harvesting operation. Various sensors have been calibrated to determine the relationship between the values of quantities from the measuring instrumentation system with the corresponding values realized by standards measured parameters with high confidence under specified conditions. The wireless transmission of the embedded system could cover up to a maximum distance of 140m to the on-ground workstation. The results have showed that all the sensors on the developed instrumentation system were able to measure, display and record all the parameters using the developed embedded system at one second interval during the harvesting operation. The plotted map have been successfully produced based on the collected data.

**Keywords:** Quantity; Quality; measurement; instrumentation, rice; embedded system