

1ST EDITION

E-EXTENDED  
**ABSTRACT**

**INTERNATIONAL  
AGROTECHNOLOGY  
INNOVATION  
SYMPOSIUM (i-AIS)**



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### INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

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Faculty of Plantation and Agrotechnology UiTM Cawangan Melaka Kampus Jasin

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## ABOUT FACULTY OF PLANTATION AND AGROTECHNOLOGY

The Faculty of Plantation and Agrotechnology was established in 2010 at Universiti Teknologi MARA (UiTM). The mission of the faculty is to play the vital role of producing well-trained professionals in all areas of plantation and agriculture-related industries at national and international levels.

Bachelor of Science (Hons) Plantation Technology and Management is a three-year program that strongly emphasizes the various aspects of Production Technology, Management, and Information Technology highly sought after by the agricultural and plantation sectors. Students in this program will be fully trained to serve as professionals in the plantation sector and related industries. They will have ample opportunities to fulfill important positions in the plantation industry such as plantation executives. This program provides a strong balance of technology and management courses essential for the plantation industry such as management of plantation crops, soil fertility, plantation management operation, plantation crop mechanization, and agricultural precision. As an integral part of the program, students will be required to undergo industrial attachment to gain managerial skills in the plantation industry.

The faculty is highly committed to disseminating, imparting, and fostering intellectual development and research to meet the changing needs of the plantation and agriculture sectors. With this regard, numerous undergraduate and postgraduate programs have been offered by the government's intention to produce professionals and entrepreneurs who are knowledgeable and highly skilled in the plantation, agriculture, and agrotechnology sectors.

## PREFACE

International Agrotechnology Innovation Symposium (i-AIS) is a platform to be formed for students/lecturers/staff to share creativity in applying the knowledge that is related to the world of Agrotechnology in the form of posters. This virtual poster competition takes place on the 1st of December 2022 and ends on the 8th of January 2023. This competition is an assessment of students in determining the level of understanding, creativity, and group work for the subject related to agrotechnology and being able to apply it to the field of Agrotechnology. The i-AIS 2022 program takes place from December 1, 2022, to January 8, 2023. The program was officiated by the Dean of the Faculty of Plantation and Agrotechnology, namely Prof. Madya Ts. Dr. Azma Yusuf. The program involves students from faculties of the Faculty of Plantation and Agrotechnology (FPA) and HEP participating in i-AIS 2022, namely, the Faculty of Education and Pre-Higher Education. This program involves the UiTM student and some of the non-UiTM students which come from the international university and the local university. Two categories are contested, namely UiTM and non-UiTM. To date, students from these programs have shown remarkable achievements in academic performance and participation in national as well as international competitions.

This competition is an open door for the students and lecturers to exhibit creative minds stemming from curiosity. Several e-content projects have been evaluated by esteemed judges and that has led to the birth of this E-Poster Book. Ideas and novelties are celebrated, and participants are applauded for displaying ingenious minds in their ideas.

It is hoped that such an effort continues to breed so that there is always an outlet for these creative minds to grow.

Thank you.

Dean  
On behalf of the Organizing Committee  
Conference Chair  
Universiti Teknologi MARA  
Faculty of Plantation and Agrotechnology  
<http://fpa.uitm.edu.my>

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## HARVERTING: EASY SEPERATE

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**ABSTRACT-** Malaysia is the country who planting paddy as their main crop due to good environmental and as a main consumption for all people. By the way, the increasing the population tend to decreasing the food resource. From the issue, government will take the data especially for rice paddy to estimate the yield in every state as their reference either the food supply is still insufficient or not. The agency under the government which is Department of Agriculture will estimate the yield every harvesting season. By the way, the process of estimating paddy sometime is not accurate. It is because, the process of separating paddy which make by the Department of Agriculture is by using manual method. As a result, some rice not dissolved and make the data be less aqurate. The purpose of the study is to create the tool that can dissolved all the selected paddy rice. the tool is like a pipe but can be open and close. The method is by opening the tool and put some paddy in it, close and the lastly pull out the paddy. The rice and paddy plant will separate without making any undissolved rice paddy. In conclusion, this will continuously increase and will take percentage of expected count of grains.

**Keywords:** Paddy, crop cutting survey, harvesting process, manual and mechanical.

## INTRODUCTION

Rice is one of the main sources of income in Malaysia. Rice is also a source of food for the people of Malaysia because rice produces rice to eat. Therefore, we need to take care of the paddy plant so that the resource becomes durable and safe to use. According to Kabir, (2016), rice accounts for roughly 80% of the nation's cropland. It is critical to precisely estimate rice yield and production in order to assess global rice production. Accurate estimation is required for national-level projections of future rice production in relation to population growth. For Jabatan Pertanian Tangkak, there was a programmed called CCS, or Crop Cutting Survey. This programmed is to estimate the paddy yield and the results will be share to the farmers. This programmed is also able to identify diseases on the rice plants. According to Selamat, (2009), The yield per unit area (tons/ha) is the central focus of any R&D programs quantitatively defined technological advancement goal. Utilizing tons/ha of rice yield. This programmed use to identified and assessed the effectiveness of technologies created through prior R&D programmed and activities. They have three ways to estimate the yield on paddy namely the test plot method, the bulk method, and the sack method. The test plot method is the most effective and accurate method of counting results. The test plot method uses manpower but is easier than other methods. When doing the method, it was found that the problem was that the threshing machine did not have a simple tool. As a result, the development of Easy Separate that allows us to easily dissolved the paddy rice easily. It is also can be used by farmers to make new rice seeds. The target market from this tool are the Department of Agriculture and farmers who want harvest the paddy rice in a small amount.




### Objective

1. To increase the productivity for crop cutting survey
2. To make a new seed for planting paddy

## MATERIAL AND METHOD

### Material

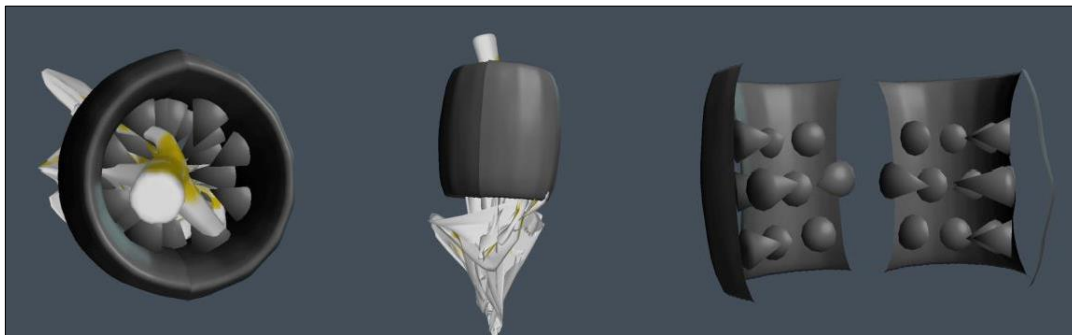
**Table 1. Material used**

	<p>Pipe PVC</p> <ul style="list-style-type: none"> <li>• Size 3 inch. Suitable size to hold by using hand.</li> <li>• Divide in two.</li> <li>• Used as a based to put the nail.</li> <li>• to make sure the paddy not scattered</li> </ul>
	<p>Nail or sharp object</p> <ul style="list-style-type: none"> <li>• put around the PVC pipe.</li> <li>• To make sure the rice can be dissolved.</li> </ul>
	<p>Engsel</p> <ul style="list-style-type: none"> <li>• Combine two of them.</li> <li>• Make sure the tool can be open or close.</li> </ul>

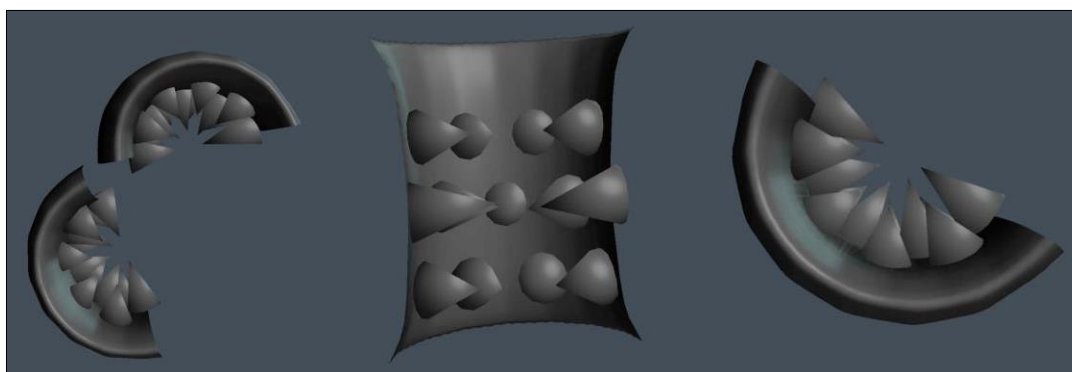
**Method**

First, we just put a handful of paddies in the machine. Next, we grip roundly for make sure the paddy will not fall to the ground. Then, we must put a container under the machine. After that, we pull out the paddy. The grain will fall down in the container. After that, we can weight the paddy. Next, we can estimate the yield in the paddy field

**RESULTS AND DISCUSSION**



**Figure 1: Prototype Design**



## Figure 2. Prototype Design

As the result from this innovation, it will help in minimizing the grain lost during the harvesting activity. This is the problem in current traditional method if harvesting paddy. Lost grain is not picked after smacking of paddy of harvesting. This will increase by time and will take percentage of lost and effect the target yield. Then, from this innovation it eliminates the manpower dependency of smallholder because it can be use solo by the farmer to harvest. The practicality of it will help small holder in harvesting paddy without needed additional workers. Harvesting loss of rice can be reduced 5.12% and 2.14% using mini-combine and reaper, respectively in comparison to manual harvesting system (Md. Rostom Ali et. Al., 2018).

### Comparison of manual and tool used

Table 2: Comparison Manual and Tool Used.

Productivity	Human	Machine
time	Slow	Fast
Harvesting losses	Larger	Lower
Efficient	Efficient	More efficient
Accurate	Accurate	More accurate
Labor energy	Many	Not too many

## CONCLUSION

What we can observe based on the current method of harvesting paddy that is been used ages by smallholders, there will be lost of paddy grain. This will continuously increase and will take percentage of expected count of grains. By count, it will shortage in number of yields hence profitability that will be send to the manufacture. Secondly, traditional method will require manpower to smack the paddy to separate the grain. This is the problem issued during pandemic where small holders are dependable with foreign workers to harvest. As pictured, this innovation is built to overcome the problem faced during the pandemic to eliminate the problem in paddy plantation. Harvesting becomes more ease where additional manpower is not needed and can be done the smallholder himself. Then, this innovation targets to minimalize the grain lost from the harvesting activity. Profitability can be optimized hence increase Malaysian Annual GDP.

## REFERENCES

- [1] Kabir, M. (2016). Estimating Area and Production of Rice under. Bangladesh rice, 6.
- [2] Selamat, A. (2009). Deterministic Model Approaches in Identifying and Quantifying. research gate, 25.
- [3] Md. Rostom Ali, Md. Kamrul Hasan, Chayan Kumer Saha, Md. Monjurul Alam, Md. Mosharraf Hossain, Prasanta Kumar Kalita, Alan Christopher Hansen. (2018). Role of Mechanical Rice Harvesting in Socio-Economic Development of Bangladesh. American Society of Agricultural and Biological Engineer.
- [4] Muhammad Syahir Bin Rahmat, Penolong Pegawai Pertanian Tangkak, Johor



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