

4TH EDITION

**E-EXTENDED
ABSTRACT**

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



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INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

19 June 2023

Faculty of Plantation and Agrotechnology UiTM Cawangan Melaka Kampus Jasin

Published 2023

Faculty of Plantation and Agrotechnology

Universiti Teknologi MARA Cawangan Melaka Kampus Jasin

77300 Merlimau Melaka.

E-EXTENDED ABSTRACT of the INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS) (4th EDITION)

Mode of access Internet

<https://sites.google.com/view/ais2023/publication>

Perpustakaan Negara Malaysia Cataloguing -in – Publication Data

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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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BUD-KIT AS A CLASSROOM LEARNING TOOL

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ABSTRACT- Some students find it challenging to grasp the concepts taught in class about theoretical plant propagation techniques. The propagated plants failed because they unable to demonstrate the correct propagating technique during completing their assessment. Hence, Bud-Kit was designed to enable the lecturers to bring hands-on-activities into their classrooms. Bud- Kit also developed with aim to provide students with hands-on experience during classroom learning session and this could enhance the students psychomotor and they could apply the skills on real situation. Bud-Kit is equipped with a knife, scissors, and models of plant parts as source of scion and rootstock. The instructions and illustrations of the various budding technique also provided inside the kit. Through the use of Bud-Kit during classroom learning, students have had the chance to understand the theory learned and put it into practice by using the kit provided during the learning session. Prior to executing the real task, this initiative has been able to assist students in understanding the correct technique of in propagating plant species using budding technique. Moreover, it can enhance their knowledge and abilities, allowing them to successfully produce new clone through budding techniques.

Keywords: Budding Technique, Bud-Kit, Classroom learning tool, Learning Kit, Plant Propagation,

INTRODUCTION

In traditional methods of learning, lecturers commonly need to sketch, writing on whiteboard and use self-contained modules to explain the theory deeply and deliver the lesson [1][2]. This method of teaching will cause student easily get bored, less enthusiastic and think the course is very difficult. Hence, it will contribute to the high failure rate [3].

Recently, the application of learning kit has been implemented in many technical and practical courses. Previous study reported that the use of learning kits can facilitate the process of information sharing among students with respect to subjects taught more clearly [4]. The effectiveness of how teachers select and employ the appropriate learning kits has a significant impact on the quality of student-centered learning [5].

Plant propagation is one of the courses taking by diploma student of Faculty of Plantation and Agrotechnology in Universiti Teknologi MARA (UiTM). The course only comprises of a two-hour lecture that covers the theory of various plant propagation techniques. The principles related to theoretical plant propagation methods that are given in class can be difficult for some students to understand. The plants that were propagated failed because they were unable to demonstrate the proper propagating procedure in the field.

In order to help lecturers, incorporate hands-on activities into their lectures, Bud-Kit was designed. Bud- Kit was created with the objectives to enable the lecturers to bring hands-on-activities into their classrooms and to give students practical experience during classroom teaching, which might improve their psychomotor abilities and allow them to apply their knowledge in real-life situations. Bud-Kit comes with a knife, scissors, and models of plant part as prototype sources of scion and rootstock. Moreover, the kit also included with the instructions and diagrams for the various budding techniques.

Students have had the opportunity to comprehend the theory taught in the classroom and apply it by using the kit provided during the classroom learning session. This initiative has been able to help students comprehend the proper method of propagating plant species using the budding technique before they carry out the task given. Additionally, it can improve their skills and knowledge, enabling them to successfully create new clones using budding methods.

MATERIAL AND METHOD

Preparation of Material and Development of Product

Bud-Kit was created using simple tools that easy to obtain and freely available. The recycle box was used as main item to produce the box according to the size required. The size of the box to was measured and it is depended on the size of tools and numbers of materials to be included in the box.

After cut into required size, the box pieces were assembling and propagating tools used for budding techniques such as knife, scissor, parafilm, ruler and instruction manual (Figure 1) were inserted.



Figure 1. Material used for development of Bud-Kit

Application of Bud-Kit

The prototype of Bud-Kit has been used during classroom learning for plant propagation courses. Students are divided into small groups to make the learning process more effective. Each group was assigned a task to show the correct procedure for propagating plants using budding techniques.

Monitoring Student Activity in Field Work

To complete a requirement for the course, students need prepare an assignment about the technique of budding. They have to explain clearly the procedures or steps in plant propagation using budding technique. Student need to report their task in form of report written and video presentation.

RESULTS AND DISCUSSION

The use of Bud-Kit in classroom learning has been successfully conducted. The activities able to attracted student interest and this could create active learning in class. Study conducted by Sillang [6] shows that the use of kit could improve the teaching and learning session in classroom. The hands-on activity conducted during the classroom learning session is illustrated in Figure 2. Students are also asked to bring extra plant parts if they want to practice the method on different plant species.

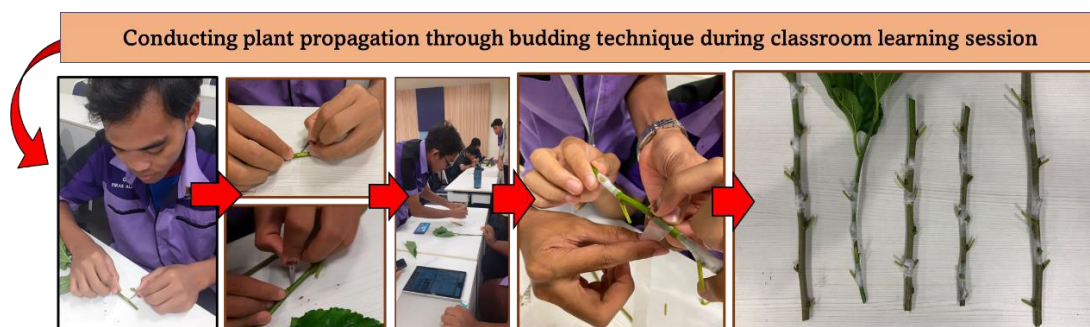


Figure 2. Hands-on activity during classroom learning session using Bud-Kit

Implementation of Knowledge and Skill in Completing Assessment Given

To complete a requirement for the course, students need prepare an assignment about the technique of budding. Hence, the task would not be too hard for them because they have been exposed to the hands-on activity during classroom learning. Furthermore, the students were able to demonstrate the perfect methods for budding techniques and explain the roles of scion and rootstock. Figure 3 depicts the student's work in propagating various plant species in order to accomplish the task given using Bud-Kit.



Figure 3. Hands-on activity during classroom learning session using Bud-Kit

In mechanical design, the application of learning kit has increased the student's interest in learning the Mechanical Design topics and helping them learn Mechanical Design through a misleading experience. Learning kits are crucial for both attracting students and helping them comprehend concepts in their teaching and learning [7]. Among the advantages of using Bud-Kit are as followed:

- [16] The Bud-Kit is simple tools, light, easy to carry, hence can be bring into classroom and field.
- [17] It is equipped with materials used for propagating plant and instructions to conduct the propagation technique.
- [18] It can be used to deliver the topic in propagating plant using budding technique during classroom session.
- [19] It can create student cantered learning environment in class thus attract student interest in learning
- [20] Enhance psychomotor and active learning in small group discussion among students

CONCLUSION

Lecturers play important roles in creating various methods of teaching to attract students' attention during classroom learning sessions. The application of teaching tools such as Bud-Kit has successfully increased student understanding of the topic. The Bud-Kit enables students to participate with hands-on experience during classroom learning sessions, and this could enhance their psychomotor and critical thinking, which could be applied to real-life situations. This could enhance student knowledge and skills during learning, which would be beneficial to universities, industry, and nations.

REFERENCES

- [1] C.M. Reigeluth, C. M. Instructional Theory and Technology for the New Paradigm of Education (2012). Retrieved from <http://www.um.es/ead/red/32/reigeluth.pdf>, on Jan 2, 2023.
- [2] N. Hashim, and S. Buyamin. Persepsi Pelajar Terhadap Penggunaan Kad Smart Aid (SA Card) Dan Kesannya Kepada Pelajar Yang Mengambil Kursus E4101 Dan P2114, Di Politeknik Sultan Azlan Shah (2011). Retrieved from <http://www.google.com.my/url?sa=t&trct=j&q=penggunaan+ABBM+dalam+P&P.pdf&source=web&ccd=28&cad=Rja>
- [3] http://www.psas.edu.my/2Fv7%2Findex.php%2Fmly%2Fmuat-turun%2Fpsdigest2011%3Fdownload%3D297%3Apsas%2520digest%25202011&ei=t_mgUbb5IcfrAft8oGQDw&usg=AFQj as-digest2011%3Fdownload%3D297%3Apsas%2520digest%25202011&ei=t_mgUbb5IcfrAft8oGQDw&usg=AFQj CN H 9ABstWHDmgw4r3yTajcG6MhmgUA& bvm=bv.47008514d.bmk
- [4] J. Hassan, J. and N. Ab Aziz, N. Faktor-Faktor yang Mempengaruhi Minat Terhadap Matematik di Kalangan Pelajar Sekolah Menengah (2011). Retrieved from <http://eprints.utm.my/11972/1/Faktor.pdf> on December 28, 2022.
- [5] C.K. Che Ghani, A. S. Halimaton Shamsuddin and N. A. Aslinda Norizan. 92019). The Effect of using
- [6] Learning Kit Material among Students. International Journal of Recent Technology and Engineering; 7(652), 2277- 3878.
- [7] A.Z. Mohd Jackie, M.F. A.Gahani and F. Elham. Keberkesanan Pengajaran Guru Tadika: Satu Kajian Awal. Jurnal Kepimpinan Pendidikan, Jurnal Kempimpinan Pendidikan, 3(4) (2016) 1-24
- [8] S. Sabilan, M.F. Ishak, M.F. Din and Nasirudin. (2014). Tahap Pelaksanaan Pendekatan Strategi, Kaedah dan Teknik Pengajaran dan Pembelajaran Dalam Latihan Mengajar Menurut Persepsi Guru-Guru Pelatih Fakulti Pendidikan KUIS :
- [9] Satu Tinjauan Awal. Jurnal Pendidikan (2014). re
- [10] Abdul Samad Hanif, Mohamed Nor Azhari Azman, Hendri Pratama & Nurul Nazirah Mohd Imran Ma'arof. (2016). Kit Pemantauan Penyambungan Litar Elektrik : Satu Kajian Efikasi Alat Bantu Mengajar. Fakulti Pendidikan Teknikal dan Vokasional : Universiti Pendidikan Sultan Idris.

E-EXTENDED ABSTRACT of the INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM
(i-AIS) (4th EDITION)



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