1ST EDITION

E-EXTENDED
ABSTRACT

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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REPLACEABLE SHOE SOLES

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ABSTRACT - Shoe is currently one of the world leading attires in fashion industry with people demanding for them every single day. However, people often buy new shoes due to some factors such as damage, thief incident and many others. The most common factor is due to the weary shoe sole. Every year in the US, people throw away over 300 million pairs of shoes, 95% of which wind up landfills (Tess DiNapoli et. al 2022). The manufacturing process releases large amount of carbon dioxide which is responsible for 1.4% of CHG emissions in the world. A pair of shoes generates 30 pounds of CO2 emissions, keeping a 100-watt light bulb on for a week. The goal of this study is about finding a better substitute material for making shoe soles in order to reduce the large amount of chemical release in shoe manufacturing. One of the reliable products to overcome this problem is the Replaceable Shoe Sole. This replaceable shoe sole can lengthen the life span of your shoes by just replacing a new one and also save the environment without wasting millions of shoes that can cause global harm. This product will also reduce the agricultural waste from coconut industries when using one of their waste product to create the shoe sole.

Keywords: Replaceable shoe soles, coconut husk.

INTRODUCTION

Companies in the footwear sector who specialize in the production of shoe soles are looking to improve their product design and manufacturing workflow and control in order to meet cost, quality, and time requirements within the present economic and industrial context (Davia-Aracil, et al., 2016).

Synthetic materials, which take years to biodegrade, are used in the production of shoes. It's possible that their effect on the environment won't be immediately noticeable. They are harmful to the environment from the moment they are produced until the moment they are discarded. Shoes give off poisonous compounds that are bad for human health and are harmful to the environment. In addition, they are detrimental to the health of wildlife and the environment in general (DiNapoli, Tess, 2022).

Our product makes use of an agricultural byproduct such as coconut coir fiber, which is often referred to as coco fiber in international commerce. Coir fiber is a result of the production of coconut coir. It is taken from the tough husk that surrounds the fruit of the coconut plant and is then processed. They might also be a very light brown or white color.

Objective

1. To reduce the number of shoe waste annually in the world.
2. To stop manufacturer from releasing too much chemical into the air due to the processing waste.

MATERIAL AND METHOD

The waste of the coconut coir that can be used will be selected and cut into sizes according to the shoe soles sizes. The larger the size of the shoe sole, the more amount of coconut coir will be used in the mixture to create the shoe sole. The mixture will be consisted of polyvinyl chloride, polyurethane, coconut coir, vulcanized rubber, and silica gel. The mixture will be mix mechanically and thoroughly for some time to get the right texture.

Once the mixture is done, they will be poured in different sizes of molds. This will make sure the demanded sizes of soles will be fulfilled. The process of molding will use pressure and heat to fill the cavity of a mold, a rigid frame also known as matrix. It will be kept under pressure until it solidifies. These molds will then be dried at room temperature for day. After they dried, it will be polished to get the best shape of the molds and ready to be send to outlets.

RESULTS AND DISCUSSION

Results

We employ a waste product like coconut coir to make the entire process more environmentally friendly and to bring down the cost of production. This replaceable shoe sole is simple to apply and can be done so at any time. The layout was devised with the user's convenience in mind. These shoe soles are significantly lighter than those of other shoes. Next, this shoe sole is able to adapt to any environment and is appropriate for a wide variety of sports. This shoe sole is water resistant, so you don't need to be concerned about it in the least when it gets wet. This outsole will provide you with superior traction in comparison to leather soles. They may be bent without breaking, and they provide dependable traction in either warm or cold weather situations. Additionally, this can still give a grip even when subjected to oil and water. Therefore, if you want to protect yourself from the odd slips and falls, then this outsole is the most effective anti-slip alternative for shoes that are now available. And at the end of the day, tranquility of mind is also essential to experiencing comfort.

Discussion

The brown, rough, and thick coir that surrounds and protects the fruit on the inside of a coconut is not only an adequate form of armor; it is also an effective shock absorber. We use the coir of the coconut to make a material that is essential in the construction of the soles of our shoes. The natural fibers of coconut coir allow air to circulate while also conforming to the shape of the soles. The manufacturing process that we use takes advantage of a natural resource that was previously squandered and converts it into a product that is eco- friendly, breathable, and stylish.

Utilizing a one-of-a-kind construction method that does not include glue is yet another chance to cut down on waste. We think it's important to have smart minds thinking about extending the life expectancy of a shoe, so we have designed our shoes for disassembly – the main components are removable for recycling or reuse, ensuring an easy way to repair shoes when they need re-soling. Given that an estimated three million pairs of shoes end up in landfills every day, we think it's important to have smart minds thinking about extending the life expectancy of a shoe.

Figure 1: Photo of Replaceable Shoe Soles

CONCLUSION

In conclusion, replaceable shoe soles were made from waste materials such as coconut coir, which significantly reduced the cost of production and simplified the process. Consequently, there are a lot of benefits associated with utilising waste product, such as the fact that it makes the environment cleaner and fresher. The user will also experience a comfortable experience when using this product. businesses with our enterprising attitude, which is geared toward creating a better, greener future. Our abilities are accelerating the discovery of new ways to address long-standing problems, and we intend to use this to inspire others. We're hoping you're as excited as we are.

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