"GREAT MINDS DISCUSS IDEAS"

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2ND NATIONAL UNDERGRADUATES DESIGN COLLOQUIUM

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DESIGN CONCEPT

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Agriculture Through Design Approach and Collaborative Product Development

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Abstract

The attacks of Golden Apple Snails have ruined paddy plants and have caused losses to farmers. This is because they have to spend more time and money to transfer affected paddy plots by applying the infill process. This is a process where the affected paddy is transplanted on to another paddy plot. Thus, this problem has prompted the researchers to identify and understand this phenomenon. The researchers come out with the best prevention in controlling the G.A.S and have proposed a design to help the farmers to ease the problem faced by them currently. The researchers have also explored the problem and solution, evaluated the solution by investigating user behaviour and describe the solution through usability testing. Based on this research, the researchers have designed a hand tool to take the eggs of golden apple snails

Introduction

Kedah and Perlis are the two states that are involved in Muda Irrigation Plan with total area of the whole Muda Territory inclusive of the two states is 126,155 hectares. For paddy planting activity, the area of Muda Agricultural Development Authority (MADA) paddy fields is 96,558 hectares where 77,882 hectares of land which is equivalent to 80.66% is located at Kedah. To ensure smooth administration of MADA, four division have been established : (a) Division 1: Kangar , Perlis: Arau, Kayang, Kangar, Tambun and Simpang Empat (b) Divison 2: Jitra,Kedah: Kodiang, Sanglang, Kerpan,Tunjang ,KubangSepat, Jerlun, Jitra, Kepala Batas dan Kuala Sungai (c) Divison 3: Pendang, Kedah :Hutan Kampung, Alor Senibong, Tajar, Titi Haji Idris, Ko'bah ang Pendang (d) Division 4: Batas Paip, Pendang Kundur, Kangkong,Permatang Buluh, Bukit Besar, Sungai Limau Dalam dan Guar Chempedak.

According to report in 2000 – 2008 (MADA,2008) the Golden Apple Snails attack, the Province which was worst hit is Province IV. This can be seen in Table 1.4 and Figure 1.2, the most attacked areas from Golden Apple Snail is Province IV, beginning in 2000 at the first season is the first attacked. Golden Apple Snails have been found; in total of 12 ha field was attacked. Sortie rates drastic rise in the second season in the same year that the difference of 96.80 ha. Figures in the Province IV Golden Apple Snail attacks increasing, reaching 4802.50 ha in 2008. It's a bit of factor contributing to the decline in yield towards 10 tons project per season.

Problem Statement

Halwart (1994) emphasizes that Golden Apple Snails is a serious pest of rice seedling. Basically an attacked by Golden Apple Snails will affect paddy crops at every harvest. According to Muda Agricultural Development Authority, a Golden Apple Snail is able to destroy one meter per sq feet of paddy with formation of spot in the paddy field as if the seed does not grow. The attacks of Golden Apple Snails always ruined paddy and unprofitable to farmers, consuming more time and money to transfer effected paddy plot by applying infill process, a process where the effected paddy transplanted to another paddy plot. Thus, this problem prompted the researcher to identify and understand this phenomenon.

Potential of Commercialization

G.A.S.P is a product that requires minimal cost in terms of material usage and manufacturing process. The average number of farmers also contribute to the commercialization of this product. This product also does not use chemicals such as pesticides to remove snails.

An application for intellectual property (IP) under copyright category has been approved by RIBU.

Design Process

The findings gained from the investigating user behaviour were used to establish conceptual design for hand picking tool. During the idea searching, brainstorming is the most common method used and at this stage, the researcher found that there are many ideas and usually it gets lost after the brainstorm. An efficient method for capturing and communicating the best idea indeed is important at this stage. The researcher has adapted the standard conceptual elements by Fogg (2003) to develop idea. The researcher started by stating:

i. Design challenge
ii. User description
iii. Features/functionality
iv. Justifications for design





Objectives

The objectives of this project are :

1. To understand the latent and salient needs of the paddy farmers in eradicating the Golden Apple Snails using hand picking.
2. To propose a solution to identified problem.
3. To evaluate the proposed solution.

Novelty

This study attempts to control reproduction and eradicate snails eggs in paddy field using approach of design in agriculture sector. This study uses the method of hand picking snails to collect eggs without using chemicals and other biological control. This product was inspired by the fingers, adapting the tweezer concept, the user's will grip the egg clusters and pulled upward. The egg clusters will drop in between the tweezer's container. The egg clusters then will be thrown into other container or plastic bag.



The ideation drawing using the hand picking method

Publication

Journal

Azmir Mamat Nawi, Wan Zaiyana Mohd Yusof, ***"Design Through Research : Handpicking Tools Case Study As Facilitator to Collaborative Product Development"***. Voice of Academia : Academic Series of Universiti Teknologi MARA Kedah, page:181, Vol:6, Issues:2

Conference

Azmir Mamat Nawi, Wan Zaiyana Mohd Yusof, Izza Syahida Abdul Karim, Rosaliana Rahim, ***"New tools for Golden Apple Snails eradication: Case study Kuala Muda area"*** International Conference on Arts, Social Sciences & Technology (i-CAST 2012),Park Royal ,Batu Feringgi,Penang,Malaysia, 3 March 2012

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