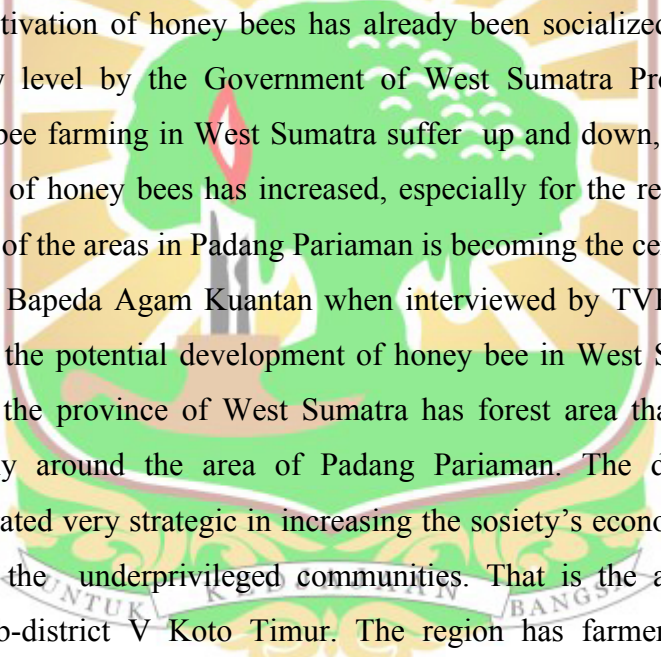


CHAPTER I

INTRODUCTION

This chapter explains the introduction of the research which consists of research background, problem formulation, research objective, research scopes, and outline of the report.

1.1 Background

The logo of Universitas Andalas is a circular emblem. It features a green tree in the center, with a red torch or flame rising from its base. The tree is set against a yellow background with radiating lines. The words "UNIVERSITAS ANDALAS" are written in a banner at the top. At the bottom, there is a banner with the text "UNTUK KEMAJUAN BANGSA".

The cultivation of honey bees has already been socialized since 1990 to the community level by the Government of West Sumatra Province, yet the current honey bee farming in West Sumatra suffer up and down, in recent years this cultivation of honey bees has increased, especially for the region of Padang Pariaman. One of the areas in Padang Pariaman is becoming the center of bee. Ms. Nursidah from Bapeda Agam Kuantan when interviewed by TVRI in 2013 said that in general the potential development of honey bee in West Sumatra is very great, because the province of West Sumatra has forest area that is more than 60%, especially around the area of Padang Pariaman. The development of beekeeping is rated very strategic in increasing the society's economic that is still categorized to the underprivileged communities. That is the area of Korong Patalangan Sub-district V Koto Timur. The region has farmer group named Generasi Muda Patalangan which consists of 23 active members.

Mr. Asril Effendi, a beekeeper who exists in Korong Patalangan, stated that he has developed a bee farmer since 1999 and has been interested with this effort due to the income which is quite satisfying and the farmers can harvest the honey bees one time in twenty days. The breeding stages of honey bees do not require longer time because within three months from the process of breeding, farmers can harvest their honey yield. For the process of harvesting, the farmers will go directly to the grid boards (Perm) which has already contained lots of

honey. Harvesting activities were conducted in the morning because in the morning, the bees are less active than day time. If it is done during the day the bees become more active so they can sting humans. Harvesting is done using protective equipment like masks, gloves, protective suits, and coconut fiber. Harvesting begins with the process of fogging around the box to tame the honey bees, and then a layer of thin candles that will be utilized to capture honey slashed. At the first harvest, farmers can produce 25-30 bottles of honey bees.

The initial observation was done on November 30th, 2016. Based on the result of interview with Mr. Supirman the chairman of farmers group GMP, it can be inferred that farmers have complained of tiredness and pain that sometimes they experience. By the request of the interviewees, they desperately need tool to extort beehive, The effort to have the extortion toll has ever been purposed to Government, but still has no respond yet. The process of cultivating honeybees begins with making boxes for bee farm, and then looks for Queen Bee to the forest where Queen Bee will attract other bees to nest in the box provided, two months later breeders can already harvest the honey. The process of harvesting is done by cutting the honeycomb from the boundary bulkhead in the box. The nest is collected in a basin then the process of extortion is done. The process of honeycomb extortion committed by farmers still uses the traditional way, by extorting using hands. The extortion using hand produces the existence of the remaining honey and wasted processing time takes quite long. The extortion 5 kg Beehive takes 75 minutes and remains about $\frac{1}{4}$ kg of honey. To wait until it becomes really dry will take approximately ten days. Based on cased study in GMP the reference that should be considered when extorting of honey can be seen in Table 1.1

Based on Table 1.1 the attitude of the operators that is not in the ideal state can lead the muscle fatigue constantly because the attitude of work bending and squatting are not recommended. From the result of the interview, Mr. Supirman mentions that desperately need tools to those processes so that the quality of honey can be assured.

Table 1.1 Reference Consider when Extortion using Hand Based on Case Study

References are considered	Extortion using hand (Actual Condition)
Source of energy	Human power
The length of time for process 5 kg Beehive	75 minutes
Hygiene	The cleanliness of the honey that is produced is not guaranteed because sometimes the operator does not wash their hands first and did not use gloves when extortion.
The result of extortion 5 kg Beehive	4 kg (4 bottles) efficiency = 80%
The rest of the extortion of the squeeze 5 kg Beehive	0,25 kg
The time needed for drying honeycomb so that the rest of the extortion is not wasted	10 days
Operator posture when doing filtering and extorting are not ideal	The right hand is more dominant in conducting extortion. The left hand is used only once when filter and pour honey. Operators work in sitting position and sometimes squat position with bent when performing the extortion.

The process of extortion, filtering and pouring the honey can be seen in Figure 1.1, Figure 1.2 and Figure 1.3



Figure 1.1 Extortion Process of Beehive to get Honey



Figure 1.2 Process of Honey Extortion



Figure 1.3 Process of Pouring Honey into the Bottle

1.2 Problem Formulation

Based on the background, the formulations of the problem in this study are it is important to evaluate position of honey extortion process and to design honey extortion tools.

1.3 Objective

The purpose of the research is designing honey extortion tool.

1.4 Research Scope

Research scope is the honey extortion tool design considering posture and processing time factor.

1.5 Outline of Report

This final project is divided into several chapters are arranged systematically in order to facilitate the reading and understanding. As for the Outline of the report are:

1. **CHAPTER I INTRODUCTION**

This chapter explains background, research formulation, objective and report outline in this research.

2. **CHAPTER II LITERATUR STUDY**

This chapter describe the theory related to definition ergonomics, anthropometry, design product, position of the arm and legs that is optimal for the application of style/design and work force, principle of determination of the height of the work surface, guidelines based on the use, the draft labels and signs, approaches ten physical ergonomic, index evaluation posture, biomechanics, material, the difference in static and dynamic style and the workload.

3. **CHAPTER III METHODOLOGY**

This chapter explains the steps in doing the research in order to make the process of data capture and report writing easier.

4. **CHAPTER IV COLLECTING AND PROCESSING DATA**

This chapter explains about data collection and processing data. The data have been collected is processed by following steps of flowchart.

5. **CHAPTER V DESIGNING**

This chapter explains about designing honey extortion tools.

6. **CHAPTER VI ANALYSIS**

This Chapter explains analysis of data that have been processed in previous chapter.

7. CHAPTER VII CONCLUTION

This chapter consist of two sub chapters. Conclusion of the research and suggestions for the next research.

