

# CHAPTER I

## INTRODUCTION

### 1.1 Background

In general, the traditional grain drying process is still widely practiced by most farmers. Practices include transporting rice in bags or sacks to drying areas such as fields and so on. This method usually starts from spreading the seeds of the crop on the drying floor using a wide board, then flattening them, if there is a pile, a wooden comb is used to flatten them again. Leveling and turning the clothesline is done regularly to ensure that the grains are evenly dried. After drying, the grains are pushed by a broom, then stacked using wooden planks. After that, the dried grains are placed into the sack using a metal spoon, while some are using nyiru. All of the above practices are done manually and consume too much time and effort. The collection and bagging operation is considered to be one of the challenges for agricultural business actors after drying in the field. This research was then conceptualized by looking at the design of the tools that previously existed. However, the grain collector feature that is stated in this final project is an update of the frame design, components, and the working principles of the previous tool.

Seeing this, of course, makes this also a challenge to research and create new breakthrough agricultural tools that are simple, inexpensive and without reducing quality. In particular, tools for post-harvest farming, such as grain collection tools, rice mills for rice production, etc. With the presence of this agricultural tools, it is also able to shorten the processing time and the required expenses.

Actually, this research is more directed at the modification of the previous tool, by replacing some components and slightly changing the design, but the goal is the same, to suctioning or collecting seeds and moving the seeds into a bag or some storage.

## 1.2 Problem Formulation

Because the government wants to improve people's welfare and advance the Indonesian agricultural sector. So innovation and efforts are needed to advance these targets. One of them is by making post-harvest agricultural aids, especially a means of collecting seeds. So that Indonesian agricultural products will increase and work efficiently without draining human labor manually.

Based on the background of the problem described so that it is formulated some problems:

1. How to design and manufacture a grain collecting machine
2. How to make shorten time for grain collecting processing
3. How effective is the grain collector using the sweeper and blower system

## 1.3 Objective

The main objective of this final project is to design and develop a grain collection tool that can replace the traditional grain collection process so that it will facilitate agricultural production activities. As for the general objectives, namely:

1. Make a design and manufacture pecess a grain collecting machine
2. To know the effectivity of grain collector machine using the suction blower system

## 1.4 Outcomes

The design that the author did would be useful for authors, readers, and interested parties. Besides of adding insight in academic aspects, the expected result of this final project is the development of a tool that can help farmers in collecting dried grains quickly by using grain collectors so that energy, time and production efficiency increases.

## 1.5 Problem of Scope

Limitations of the problems discussed in this study:

1. This tools inly used in flate area, good surface, and low dust.
2. Used for industrial scale or medium to upper farming
3. This tools only used for collecting grain
4. This type of driver uses a gasoline motor
5. The type of blower used is a elongated centrifugal blower system.

## 1.6 Writing Systematics

The writing systematics of this Final Project is based on:

**CHAPTER I** : This chapter consists of the background, problem formulation, research objectives, research benefits and writing systematics.

**CHAPTER II** : This chapter contains a summary of the basic theory of this project , previous research, blower mechanism and calculation.

**CHAPTER III** : This chapter describes testing procedures, tool design, data processing procedures, and design testing.

**CHAPTER IV** : This chapter explains the result and analysis of this project

**CHAPTER V** : This chapter explains the conclusion of this project

