

CHAPTER-1

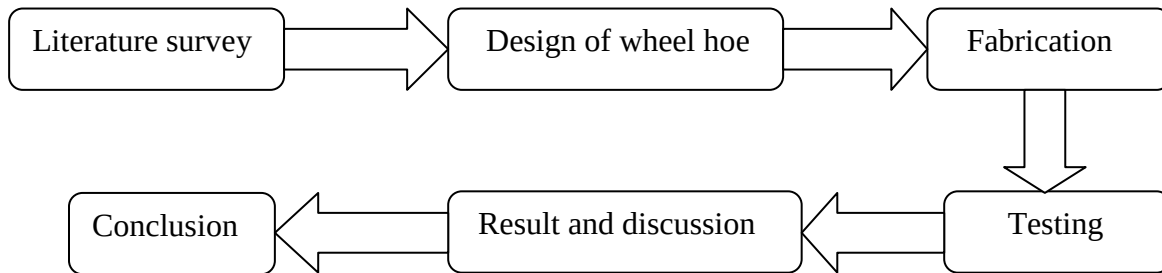
INTRODUCTION

A Wheel hoe is a mechanical device used by farmers for ploughing, weeding and cultivating. It was invented by a horse farm tools manufacturer Planet.Jr in the year 1890 Up to 1920 they used wheel hoe using animals like horses and ox etc... In 1920 Allen and company invented manual driven wheel hoes. They started with single wheel hoe and double wheel hoe, later wheel hoe was modified for various agricultural operations using different tools. The aim of our project is to design and development of semi automated multipurpose agricultural wheel hoe to use of various agricultural operations in single equipment. In India agriculture is practised mostly when compared to other countries in the World. Everyone knows that the farmers in India still follow the conventional methods such as hand weeding, ploughing and cultivating using animals and some farmers also uses recent technology and modern equipments. The main disadvantages of this modern equipment are high cost and also facing the problem in usage of these equipments. Very few Indian farmers have Tractors but all the farmers cannot afford tractor. There is an alternative for tractor that is power tillers which is also expensive. There exists another alternative called a wheel hoe. It is manual driven equipment used for agricultural operations. The main objective of this project is to design and development of semi automated multipurpose agricultural wheel hoe to use of various agricultural operations in single equipment and also to reduce overall cost of the equipment.

1.1 OBJECTIVES: The main objective of our project is to design and development of semi automated multipurpose agricultural wheel hoe to use of weeding, ploughing and cultivating in single equipment. Our aim is to reduce the man power required for the operation of the wheel hoe. The only way is to automate it but we cannot fully automate it due to few constraints such as it will require electricity which will not be mostly available in villages, we will be requiring Microprocessor and sensors which will again increase the cost and might require skill to use it. We thought of solution being that instead of automating it fully we planned to semi automate it using engine, motors and power transmission equipments. This might help us reaching our goal by reducing the man power as well as cost.

In this work we are planning to design, fabricate and testing of semi automated multipurpose agricultural wheel hoe to use of various agricultural operations.

1.2 METHODOLOGY: The methodology of the project work consists of fallowing stages.



- **Designing of the Equipment:** The first stage of our project is to make proper plan and preparing the design of the equipment as per approximate suitable dimensions (Reference from the manual wheel hoe).
- **Fabrication of the working model:** Once Designing is over we are planning to fabricate the working model using suitable materials.
- **Testing of the model:** Once the fabrication is over testing the equipment in the agricultural field by using different tools.
- **Result and conclusion:** Once testing is over compare the results with manual wheel hoe and this is helps to give conclusion of our project work.