**MULTIFUNCTIONAL AGRICULTURAL BACKPACK FERTILIZER APPLICATOR**

**Project work**

Submitted by: Goutam K. Patil & Team

Affiliation: Department of Mechanical Engineering, KLS VDIT, Haliyal, India

Date: February 2025

**Team members**

Manjunath N, Javalekar

Amar A, Haldukar

Goutam K, Patil

Rahul G, Kaloji

**Project Guide ,**

Prof.Gururaj R. Sattigeri

#### Abstract

This innovative backpack fertilizer applicator is designed for efficient and precise application of fertilizers, pesticides, and seeds in agricultural settings. The multifunctional device combines the benefits of a backpack sprayer, spreader, and seeder in one ergonomic unit, reducing labor costs and increasing productivity. Features include:

* Adjustable spray nozzle and spreader settings for customized application
* High-capacity tank for extended use
* Integrated seed dispenser for easy sowing
* Comfortable, ventilated backpack design for reduced fatigue
* Durable, corrosion-resistant materials for long-term reliability

This versatile tool aims to enhance crop yields, reduce waste, and streamline agricultural tasks for farmers and gardeners. Its user-friendly design and multifunctional capabilities make it an essential asset for modern agricultural practices.

### Introduction

A multifunctional agricultural backpack solid fertilizer applicator is an innovative tool designed to enhance the efficiency and effectiveness of fertilizer application in various agricultural settings. This device typically combines several features into a single, portable unit, allowing farmers and agricultural workers to distribute solid fertilizers more evenly and accurately across fields. Key components often include a durable backpack frame for ease of carrying, an adjustable dispensing mechanism to control the flow of fertilizer, and ergonomic design elements to reduce physical strain during use.

**Components Used**

* Handle
* Hubb pipe
* T-joint
* Bottom outer body
* Bottom inner body
* Bush
* Back Bagpack

**WORKING PROCEDURE**

The device is a human operating device. Where the farmer should carry it with the help of handle. The force applied by the farmer to the ground surface due to which the extended part of the applicator moves upwards due to which the alignment of holes provided to the inner and outer body then the fertilizer passes through the exhuast connected to it and then extended part which travel back to its original position with respect to spring or weight of the fertilizer and this cycle repeats to each plant or crop.

To-and-fro motion, also known as reciprocating motion, falls under the mechanism category of reciprocating mechanisms.

**CONCLUSION**

A fertilizing machine for solid fertilizer offers numerous advantages for agricultural productivity and efficiency. It ensures uniform distribution of nutrients, which promotes optimal plant growth and increases crop yields. The machine's precision application reduces fertilizer waste, thus lowering costs and minimizing environmental impact. Additionally, the use of such machinery streamlines the fertilization process, saving time and labors. Overall, investing in a solid fertilizer machine can significantly enhance the sustainability and profitability of farming operations.