Advanced Weed Management Mechanical and Chemical Weed Management

Mechanized weeders: A mini-tiller with vertical tines (left), a cutter with horizontal rotating blade (center), and a multi-purpose backpack weeder (right)

Weed Management for Optimal Yield

The Mechanical and Chemical Weed Management technology combines mechanical and chemical methods to control weeds in agricultural fields effectively. It aims to maximize crop yields by removing weeds throughout the growing season, improving crop health, and boosting agricultural productivity.

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity: 7/9; level of use: 8/9

250—500 USD
Mechanical weeders/unit

ROI: $$$ **35 %**
Net profit from implementing the technology in Ethiopia

27 USD
Pre-emergent herbicide and labor/Ha

46 USD/ha
Equipment and labor

743 USD
Net profit per Ha from implementing the technology in Ethiopia

IP
Open source / open access

Problem

- Common beans suffer significant yield losses due to weed encroachment.
- Weeds compete with beans for resources, hindering root and shoot development.
- Weed infestation can lead to pest and disease issues for common beans.
- Allelopathic chemicals from weeds harm common bean root systems.
- Shading by tall weeds increases the risk of bean stem lodging.
- Manual weed removal is labor-intensive and costly, impacting bean farming productivity.

Solution

- Increased productivity and higher yields
- Reduced labor and costs compared to manual weed removal
- Enhanced crop health by eliminating weeds that harbor pests and diseases
- Adaptability to various common bean growing areas
- Improved profitability and economic sustainability for farmers

Key points to design your business plan

- Increased agricultural productivity, crop yields, and weed management efficiency
- Reduced labor and costs
- Enhanced food security and economic growth in farming communities
- Promotion of sustainable practices and better livelihoods for farmers
- Consideration of costs for herbicides, mechanical weeders, and maintenance
- Importance of training and delivery expenses
- Potential for higher profits with the implementation of weed management strategies

Gender assessment 4

Climate impact 7

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)
Justin Mabeya Machini

Technology originally documented by

ProPAS

Commodities

Common bean

Sustainable Development Goals

+ 1 more

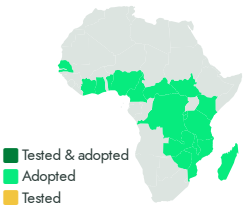
Categories

Production, Inputs, Herbicide

Best used with

- Integrated Management of Insects, Diseases and Weeds >

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.