

IPM Integrated Management of Insects, Diseases and Weeds

Smart Solutions for Safer Farming

IPM is a holistic approach to managing pests, diseases, and weeds in common bean cultivation, emphasizing environmental sustainability and food safety. It reduces reliance on chemical pesticides and promotes natural control mechanisms for crop productivity and food security.



Severe attack of black bean aphids

Alliance

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

This technology is **TAAT1 validated**.
 7-7
 Scaling readiness: idea maturity: 7/9; level of use: 7/9

Cost: \$\$\$ 5,000 USD
Installation of rearing colonies of parasitoid wasps

6,000 USD Operation cost per year	0.5 - 1 USD Coating 1kg of seed	25 - 35 USD/Ha Pre-emergence herbicides	IP Open source / open access
---	---	---	--

Technology originally documented by
ProPAS

Commodities
Common bean

Sustainable Development Goals

- ### Problem
- Common beans face threats from pests and diseases, affecting productivity.
 - Chemical pesticides, though effective, pose health and environmental risks and can lead to pest resistance.
 - Poor pest management can result in food insecurity and income loss for bean growers.
 - Overreliance on pesticides disrupts natural ecological balance and control mechanisms.

- ### Solution
- Holistic approach to crop protection
 - Minimization of chemical pesticide usage
 - Balanced ecosystems maintenance
 - Understanding beneficial organisms' life cycles and interactions
 - Utilization of strategies like natural predator release and cultural practices
 - Effective against common bean pests, diseases, and weeds
 - Adaptability to diverse soil and climate conditions

Categories
Production, Practices, Pest management, Weed management

Best used with

- [Mechanical and Chemical Weed Management >](#)
- [Seed dressing of Seed with Fungicide and Insecticide >](#)

Key points to design your business plan

IPM reduces chemical pesticide usage, promoting biodiversity conservation and enhancing ecosystem resilience while improving crop productivity, ensuring food security, and minimizing pesticide-related health risks.

Cost considerations include:

- Rearing parasitoid wasps costs around US \$5,000 for installation and US \$6,000 annually for operation.
- Seed coating with insecticide and fungicide ranges from US \$0.50 to \$1 per kilogram.
- Pre-emergence herbicides cost about US \$25 to \$35 per hectare.

Training is crucial, as is obtaining permits from national plant health agencies for biocontrol technology. Collaboration with development institutions, agro-input suppliers, and agricultural extension services is key. Profitability estimation is essential for assessing IPM's economic benefits.

Tested/adopted in

■ Tested & adopted
■ Adopted
■ Tested

Where it can be used

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

Gender assessment 4 Climate impact 7