HIL
PROTECT TO PROSPER

INDIA भारत
FARM
Sustainable Fields, Financial Yields

Actions to Accelerate Biocontrol

India FARM Project

Promoting Sustainable Pest Management through Biocontrol tools

20 YEARS ABIM
Annual Biocontrol Industry Meeting

Indian Agriculture
Transition towards Biocontrol

- India – world's most populous country (1.45 bn)

- Agriculture is the largest source of livelihoods in India (~60% population).

- ~85 percent of farmers being small and marginal.

- Second largest arable land resource, ~150 million ha (10% under Organic)

- Global Ranking: Second-largest agricultural output in the world.

- Largest Producer: milk, jute, and pulses.

- Second-Largest Producer: rice, wheat, sugarcane, cotton, groundnuts, and fruits and vegetables.

Indian Crop Protection Industry

Domestic Agrochemical market valued at ~ **USD 35 bn in 2024**

With increasing agriculture productivity and food demand - projected to grow to around **USD 55 billion by 2030 (CAGR 6.5%)**

Indian Agriculture
Transition towards Biocontrol

Indian Biocontrol Market
Market size ~ USD 260m (2024) to grow to USD 700m by 2035 (CAGR 10-15%)

Key trends driving the Biocontrol industry
- Regulatory reforms: The government is tightening regulations on HHPs. New Pesticide Management Bill under preparation. Supporting new innovations

- Growing focus IPM

- Rise of organic farming: Driven by increasing consumer health awareness, concerns on MRLs, rejection of exports, economic benefits

- Govt Support/Incentivising farmers-PKVY, MOVCDNER, ZBNF etc.

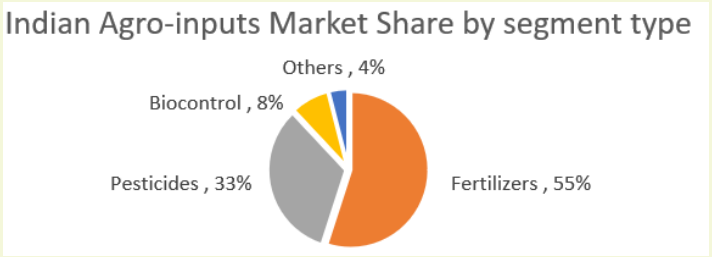
Strong Political Support
PM praised farmers for embracing organic farming and expressed his vision for India to become the world's organic food basket.

"Organic food is a need. We can become the organic food basket of the world. We must strive to make the lives of farmers better" PM Modi

Key Biopesticides and Registrations

>950 registrations, 423 players

- *Trichoderma viride* (289)
- *Pseudomonas fluorescens* (196)
- *Beauveria bassiana* (106)
- *Verticillium lecanii* (93)
- *Trichoderma harzianum* (51)
- *Btk* (42), *Bti* (22)
- *Metarhizium anisopliae* (30)
- *Helicoverpa armigera* NPV (30)
- Neem



About HIL (India) Limited

- A 100% Government of India owned entity under M/o Chemicals
- Incorporated in 1954, and sole public sector in the country engaged in Agrochemical manufacturing
- Also specialise in Seeds, Fertilizers and Public Health Products
- Manufacturing capability - 7 Technical and 43 Formulations grade of pesticides
- Strong Brand image among farming community – quality and reasonable pricing
- Strong supply chain network with pan India outreach
- State of art strategically located manufacturing unit – Rasayani, Maharashtra (Mumbai 80 Km)
- Closely associated with National/State Ministry
- Executing two GEF/UNEP/UNIDO projects -
  - (i) Development and Promotion of non-POP alternatives to DDT
  - (ii) FARM

INDIA भारत FARM Sustainable Fields, Financial Yields

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India FARM Project

- FARM – Financing Agrochemical Reduction and Management
- GEF/UNEP/UNIDO Project – 7 Countries
  (India, Philippines, Kenya, Uruguay, Lao PDR, Vietnam and Ecuador)
- Aims to reduce the use of harmful pesticides and plastics in agriculture by shifting policies, practices towards sustainable solutions that safeguard ecosystem, human health and food security. policies
- Global FARM Project launched in April 2024 at Nairobi Kenya
- HIL identified as executing entity of India FARM Project and Project launched in July 2024
- Supported by M/o Environment, M/o Agriculture and M/o Chemicals

Aim - ***"Promoting eco-friendly crop protection solutions for persistent organic pollutants (POPs) and highly hazardous pesticides (HHPs) reduction in Asia"***

Objective: *To establish sustainable financing, investment and incentive mechanisms in the formulations, production and application of eco-friendly crop protection solutions for reduction of POPs and HHPs enhancing livelihood, food safety and protection to human health and the environment.*

Regional FARM Project – India and the Philippines

Project GEBs

Phase-Out & Gradual Reduction POPs and HHPs:

- Eliminate POPs viz. Dicofol
- Gradual phase-out of HHPs viz. Acephate, Chlorpyriphos, Malathion, Mancozeb, Imidacloprid and Pendimethalin

Commercialising Safer Alternatives:

- Setting up manufacturing facility of identified biopesticides (*Btk, Trichoderma* and Neem) as safer alternatives

Land Transition:

- Shift 1.45 million hectare land from the use of conventional pesticides to safer alternatives

Farmer Protection:

- Safeguarding 1.45 million farmers from the exposure of harmful pesticides (including 0.32 million females)

Region of Intervention

States	Target Crop
Andhra Pradesh	Chilli, Vegetable
Assam	Tea
Bihar	Wheat, Paddy, Vegetable
Karnataka	Coffee, Cotton, Chilli, Vegetable
Madhya Pradesh	Wheat
Maharashtra	Cotton, Chilli, Vegetable, Fruits
Punjab	Wheat
Uttar Pradesh	Wheat, Paddy, Vegetables
Uttarakhand	Paddy, Vegetables
West Bengal	Tea, Paddy, Vegetable

Phasing out POPs / Gradual Reduction of HHPs

	Baseline 2023	2024	2025	2026	2027	2028
Production of POPs						(Qty in MT)
DDT	556	300	--	--	--	--
Dicofol	150	50	--	--	--	--
Production of HHPs						
Acephate	400	400	200	50	--	--
Imidacloprid	150	150	100	50	--	--
Chlorpyriphos	600	600	450	300	300	250
Malathion	1800	1800	1500	1200	900	750
Mancozeb	2000	2000	1700	1300	1000	700
Pendimethalin	400	400	200	50	--	--

Commercialising Biopesticide (Qty in MT/KL)

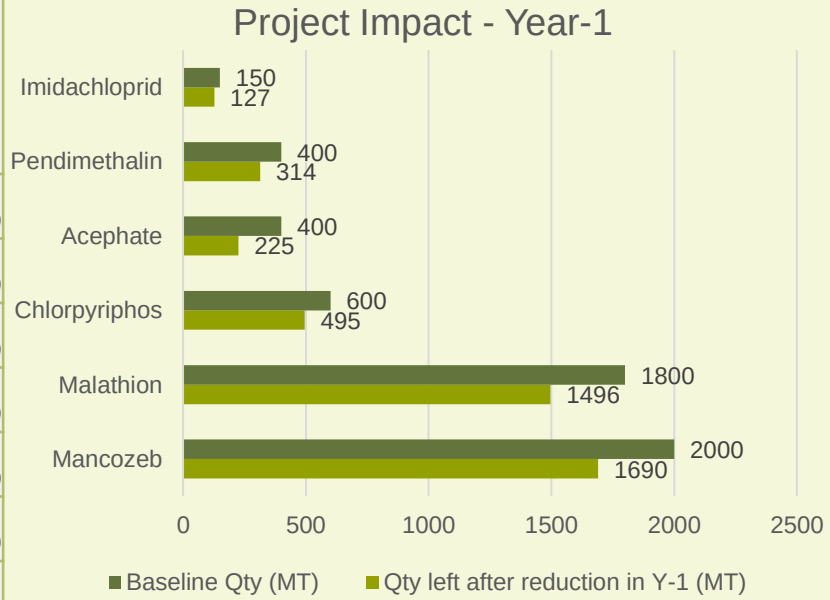
	2025	2026	2027	2028
Bacillus thuringiensis var. kurstaki (Btk)	--	100	200	200
Neem based pesticides	--	50	200	300
Trichoderma spp.	--	100	200	200

Baseline Vs Project Impact

Baseline (2023)	Project Impact
PoPs: 700 MT/yr	POP avoided: ~1400 MT during project period (2028) and ~1750 MT in 5 years post project (2033)
HHPs: ~5650 MT/yr (Acephate, Chlorpyriphos, Malathion, Mancozeb, Pendimethalin	HHP production avoided: ~11950 MT by 2028, and ~20500 MT by 2033
Approx. 15 million Ha land is under biocontrol or IPM practices	Additional 10% Agricultural land converted to biopesticides • Btk: ~0.65 million ha • Trichoderma: ~0.5 million ha • Neem: ~0.3 million ha

Year 1 Results

HHP	Baseline Qty	Qty reduced in Year 1	% Reduction
Mancozeb	2000	175	8.75%
Malathion	1800	105	5.83%
Chlorpyriphos	600	310	51.67%
Pendimethalin	400	86	21.50%
Acephate	400	310	77.50%
Imidachloprid	150	23	15.33%
TOTAL	**5350**	**1009**	**18.86%**



Our Stakeholders

1. Ministry of Environment Forests & Climate Change
2. Ministry of Agriculture & Farmers Welfare
3. Ministry of Chemicals & Fertilizers
4. Coffee Board of India
5. Tea Board of India
6. National Horticultural Research and Development Foundation (NHRDF)
7. Chandra Shekhar Azad University of Agriculture & Technology (CSAUT)
8. Dr. YS Parmar Agriculture University
9. Rani Lakshmi Bai Central Agricultural University (RLBCAU)
10. ICAR-Indian Institute of Horticultural Research
11. ICAR-National Bureau of Agricultural Insect Resources
12. NGO - Sova Foundation

MoUs with Government bodies and research institutions

Capacity Building and Knowledge Dissemination

Farmer ToT workshops organized across 10 states 58 districts:

- Benefitting nearly one million farmers/farm workers (~20% women farmers)
- Safe and judicious use of pesticides
- Promotion of safer alternative
- Crop specific safer alternatives to HHPs including biopesticides, and its cost-effectiveness.
- Financing & insurance schemes safeguarding the benefits of farmers
- Identification of spurious/counterfeit products

https://www.greenpolicyplatform.org/case-studies/empowering-1-million-farmers-transition-safe-agriculture-practices-case-india (SEPTEMBER 2025)

https://www.unido.org/stories/community-learning-safer-farming-india-mohameds-story (OCTOBER 2025)

Organised 3 Orientation workshops for Supply Chain Actors engaged in pesticide industry - Dealers/Distributor/Handling agents/ transporters) – Safer alternatives to HHPs

Key Sustainable Outcomes of India FARM Project

Phasing out POPs/HHPs

Safeguarding the human health from harmful pesticides

Making available safer alternatives to the farming community

Promoting Sustainable indigenous technologies

Increasing the farmer income

Thank you

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