Ministry of Investment,
industry and trade
of the Republic of Uzbekistan

Investment proposal:
Organization of agricultural insecticides and herbicides production complex

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Organization of agricultural insecticides and herbicides production complex

Economic impact:

- Job creation: 100+ new jobs (engineers, chemists, technicians, operators, managers, logistics personnel).
- The project will contribute to the local budget of Republic of Karakalpakstan through taxes and the development of related infrastructure.
- The project will significantly reduce the import of vital crop protection products, saving foreign currency.
- High potential to export high-quality products to Central Asian and other neighboring markets.

Social impact:

- Local production of affordable and effective insecticides and herbicides will increase crop yields, enhance food security, and improve farmers' profitability.
- Training and upskilling of local personnel in advanced chemical manufacturing processes and safety technologies.

Location of the project

The Republik of Karakalpakstan	
Size	166 600 km²
Population	2,0 million

Project description:

1. Raw material sources:
   - sourcing of high-quality active ingredients and chemical precursors from reliable local and international suppliers.
2. Production process:
   - synthesis, formulation, and purification of Active ingredients (AIs) using advanced chemical processes to create end-products.
3. Quality control:
   - A modern laboratory for quality assurance and testing, ensuring compliance with international standards (ISO, FAO, WHO).
4. Auxiliary facilities:
   - water treatment plant, compressor station, energy supply units, storage warehouses, and administrative buildings.

Economic indicators:

- Financing: 18 mln USD
- Area: 5 hectares
- Revenue: $21,3 million/year
- ROI: 27,2%
- NPV: ~ $5,8 million
- IRR: ~31,2%

Production indicators:

- Production capacity: 500 tons / year (formulated agricultural chemicals)
- Product types: pyrethroid-based insecticides, glyphosate-based herbicides.
- Technology: modern, energy-efficient, and environmentally friendly technologies compliant with international GMP and ISO standards.
- Export share: planned at 30-35% of total production capacity.

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Pharmaceutical manufacturing process & product yield

Key production stages

1. Raw material preparation & quality control
   - High-purity chemical precursors (e.g., for pyrethroids, glyphosate, solvents, emulsifiers) are carefully measured and prepared under controlled conditions to ensure agricultural-grade quality.
2. Chemical synthesis & formulation
   - Precursors undergo controlled chemical synthesis in reactors to form the active ingredients (AIs). The AIs are then formulated into end-use products (e.g., emulsifiable concentrates, soluble liquids) by mixing with solvents and adjuvants.
3. Purification & filtration
   - The synthesized mixture is purified through filtration and separation processes to achieve the required chemical purity and remove impurities.
4. Homogenization & stabilization
   - The final product is homogenized to ensure a consistent formulation and stabilized to guarantee shelf-life and efficacy.
5. Quality testing & packaging
   - Final products undergo rigorous analytical testing for identity, potency, and stability before being packaged in chemical-resistant, labelled containers (bottles, jerricans, drums).

Product yield breakdown

(approximate output from 1 ton of formulated product)

Product type	Active ingredient	Final product form	Primary application
Insecticides	Pyrethroids (e.g., cypermethrin, deltamethrin)	Emulsifiable concentrate (EC)	Control of pests in cotton, vegetables, and fruits
Herbicides	Glyphosate	Soluble liquid (SL)	Broad-spectrum weed control in orchards and vineyards

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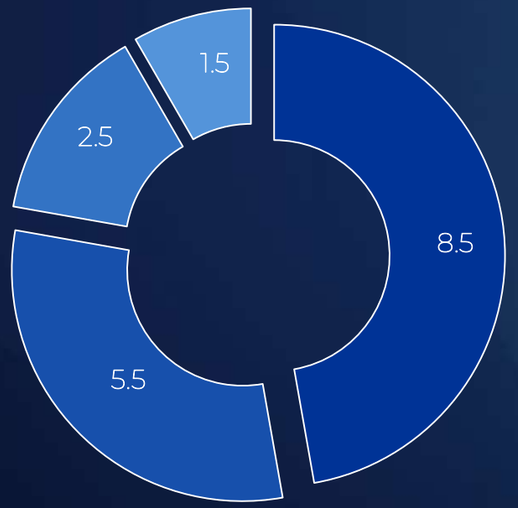
Project expenses

Initial Investment (CAPEX) *(mln dollar)*

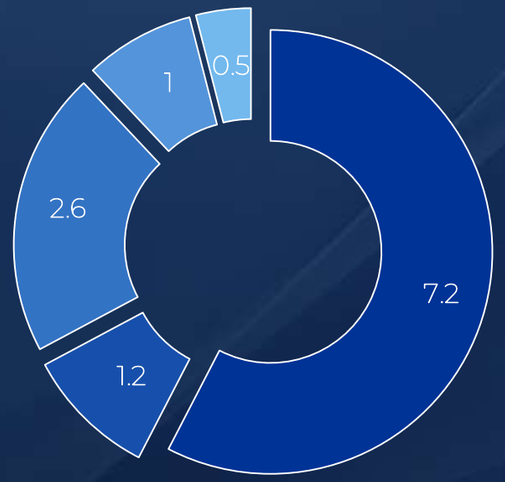
Total CAPEX: $18 mln



- Machinery & specialized equipment
- Plant construction & civil works
- Utilities & infrastructure
- Environmental & safety systems

Operating Costs (OPEX) *(mln dollar)*

Total OPEX: $12,5 mln



- Raw materials & chemicals
- Labor
- Energy & utilities
- Maintenance, spare parts & certification
- Quality control & other

This financial overview outlines a comprehensive cost structure and strong profitability of the proposed insecticides and herbicides production project. The breakdown includes both initial capital investment (CAPEX) and annual operating costs (OPEX), alongside projected revenue and profit estimates.

Revenue stream	Volume (tons/year)	Avarage price (per kg)	Annual revenue (million USD)
Pyrethroid-based insecticides	280	$25	$7
Glyphosate-based herbicides	220	$65	$14,3
TOTAL	500		~$21,3

Annual EBITDA:
= $21,3 mln - $12,5 mln - $1 mln
= $7,8mln

The project demonstrates high profitability, strong market demand, and a diversified product base, positioning it as a highly attractive investment opportunity.

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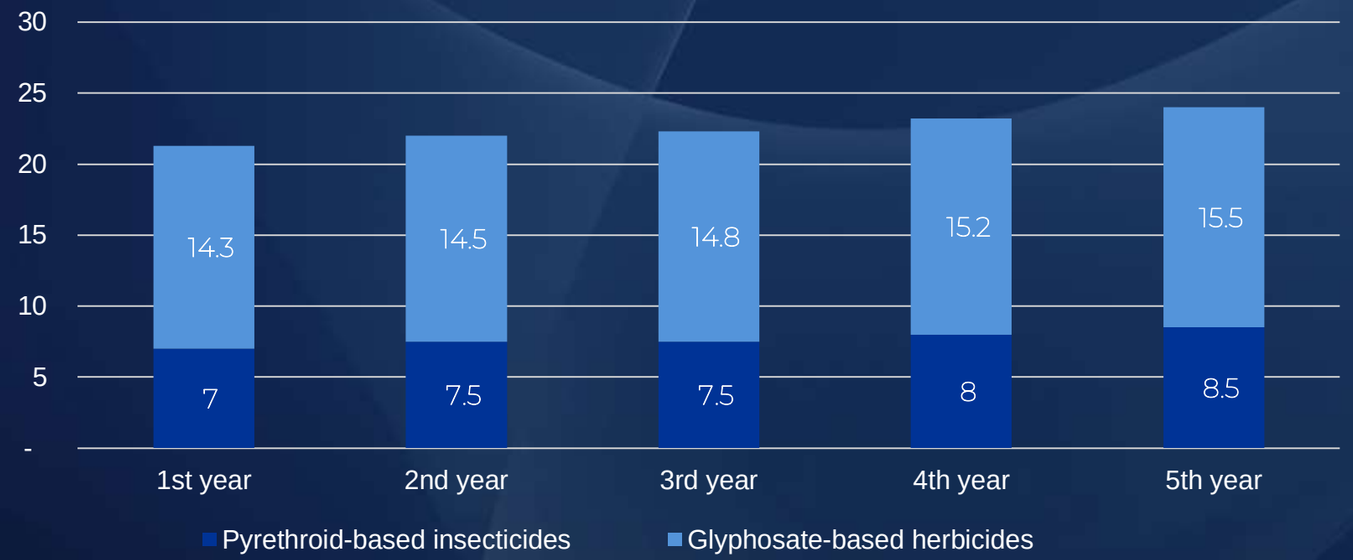
Financial indicators
(5-year projection)

Revenues *(mln dollars)*



Operating expenses *(mln dollars)*

Breakeven: achieved in year 2,8.

Total 5-year revenue:
$113M after full CAPEX recovery in 5 years.

EBITDA growth:
5% CAGR, reaching $24 mln by year 5.

NPV (10% discount rate):
= $5,8 million *(highly favorable!)*

IRR (Internal rate of return): ≈ 31,2%

Payback period (PP):
= 3-4 years

Profitability index (PI):
=(NPV+CAPEX)/CAPEX=
($5,8 mln+$15 mln)/$15 mln= 1,4