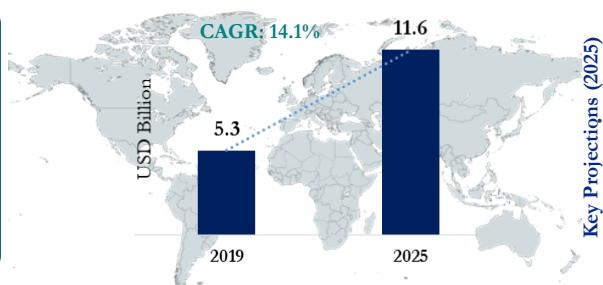


Agri Microbials: Market Insights and Industry outlook

Microbials are one of the major contributor in the Indian Biocontrol market in addition to macro-organism, semio-chemicals and botanicals. Within the next decade microbials hold potential to replace ~30 per cent of all forms of currently used synthetic fertilizers and pesticides globally.

Global Market size & projections



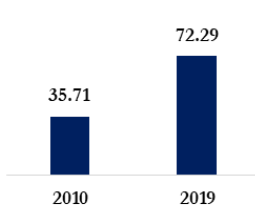
Key Projections (2025)

- Major Crop segment: F&V - USD 1.3 Bn
- Major growth in APAC segment @ CAGR: 20.59%
- Major Markets: North America - 31%; APAC: 16%
- Crop Protection Segment: 15.98%
- Major Sub segment: Bacteria 68% (1.41 million bacterial strains identified globally)

Industry Drivers



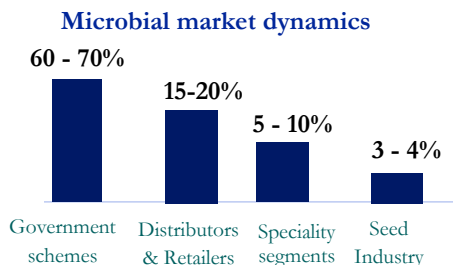
- Rising trend of adopting organic products and thereby farmers shifting to organic farming
- Increasing demand of organic foods and surging awareness about safe foods



Global organic agricultural land (mha)

- Lower developmental cost as compared to conventional chemical pesticides
- Target specificity associated with microbial pesticides
- Surge in adoption of IPM practices
- Achieving sustainable crop intensification and reducing negative impact on environment

Domestic Market Insights



200++ registrations of microbial in India

~1000 microbial formulations registered in India

Challenges hindering adoption of microbials

- Lack of awareness and low level of commercialization
- Limited private sector penetration
- High application cost and delayed effects of microbial inoculants
- Low seed survival rates and storage-stability hinders effective utilization

Competition dashboard



- Syngenta AG
- BASF SE
- Novozymes
- Dow AgroSciences
- Sumitomo Chemical
- Bayer Crop Science
- Nufarm
- Koppert
- Certis
- AgBiome
- T.Stanes
- Major players focusing on increasing their presence through expansions & investments, mergers & acquisitions, partnerships, joint ventures, and agreements
- Niche market, very few players ready to take risk of entering the price sensitive market

Way Forward

Research Intensity

Enhanced efforts on field efficacy assessment and optimizing applications costs. Diversification of technology

Strategic growth

Marketing not as a replacement for chemical pesticides but as part on INM/IPM. Mainstreaming adoption driven by industry.

Market Consolidation:

Fundamental drivers of consolidation will strongly drive growth in the industry. Broader portfolio; expanded geographic presence

Holistic Impact:

Promoting microbial tools beyond economic gain; linking with social and environmental benefits to drive adoption

