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ASIA-PACIFIC BIOPESTICIDES
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"For the promotion of Biopesticides and enhancement of trade opportunities"

Join Us to Discover:
**Role of the Private Sector in the
Manufacturing and Promotion of
Biopesticides**



Opening Remarks



**DR. RICHARD T.
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Immediate Past Dean
College of Agricultural
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Meet Our Technical Speakers!



**DR. MINSHAD
ANSARI**

CEO & Founder
Bionema Group
United Kingdom



DR. S.K. GHOSH

Head - R&D
Multiplex Biotech
Private Limited
India

AUGUST | 30th | 2024

2 PM - 3 PM (GMT+07.00) on Zoom



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Presentation 1: The Role of Biopesticide Manufacturers and Promotion

Presented by Dr. Minshad Ansari, CEO & Founder, Bionema Group, United Kingdom.

Dr. Minshad Ansari's presentation focused on two key aspects: the role of biopesticides in agriculture and the strategies for promoting their adoption. He introduced Bionema Group, a leader in biocontrol technology, with a mission to reduce reliance on chemical pesticides. One of the group's standout innovations is microencapsulation, an advanced method that delivers biopesticides with precision, increasing efficacy by 30%. Currently, Bionema has over 60 products and technologies in development, with a business model focused on developing these technologies and transferring them to partners for commercialization.

Dr. Ansari outlined various types of agricultural biocontrols and biopesticides, highlighting the rigorous registration process for some products. He noted that registering a single biopesticide product in Europe can cost between \$5–10 million and take 6–7 years, emphasizing the regulatory challenges involved.

Looking ahead, Dr. Ansari described the future of the biopesticides sector as promising, with exciting opportunities for investors, consumers, and manufacturers. He noted significant multinational acquisitions in the industry and rapid growth in emerging markets, particularly in Latin America. Brazil, for example, is one of the fastest-growing countries, thanks to recent regulatory changes that allow companies to get a dossier approved within 12 months if all necessary data is provided.

He also touched on the biopesticides market in Asia, where there is increasing focus on high-value crops like fruits and vegetables. Market projections suggest that the biopesticides sector will grow by \$8–10 billion by 2025–2027, with forecasts predicting growth to \$13.6 billion by 2028. Currently, North America and Europe hold 71.6% of the global market share, with the remainder divided among South America, Asia-Pacific, and other regions.

Dr. Ansari shared market data from Kynetec, noting that Brazil had the highest biopesticides spend in 2023 at \$850 million, with soybeans being the most treated crop, accounting for \$450 million. Around 80% of biopesticides are designed for high-value crops, and bioinsecticides dominate the market, though bionematicides are gaining ground.

He also discussed the competitive landscape of the biopesticides industry, noting that 20–30 companies are actively involved in manufacturing biopesticides. Many companies invest billions in R&D, particularly in Asia, where UPL is emerging as a key player. Dr. Ansari emphasized that most top-selling companies do not conduct their own R&D but invest in technology partnerships. Bionema Group differentiates itself by focusing on innovative technologies, while other biological companies rely on investments from larger corporations.

Looking ahead to 2024, Dr. Ansari noted that around 300 companies are developing biocontrol products targeting insects, mites, diseases, weeds, and nematodes, predicting significant growth in the biocontrol sector.

Addressing the challenges in the industry, Dr. Ansari pointed out that the EPA has registered only 185 active ingredients, while the EU has approved 142, highlighting variations in regulatory processes across

countries. He stressed the need for companies to focus more on promotional activities to raise awareness about biopesticides. He called for greater efforts in education programs, collaborations, and other initiatives to support the adoption and understanding of biopesticides, emphasizing that the industry must invest more in these areas.

Presentation 2: Industry Perspective on the Biopesticides Scenario

Presented by Dr. S.K. Ghosh, Head - R&D, Multiplex Biotech Private Limited, India.

Dr. S.K. Ghosh's presentation focused on the critical role biopesticides are expected to play in the near future. He began by discussing the current status of the industry in India and the challenges involved in advancing biopesticide technology. He emphasized the growing demand for biopesticides, driven by increased awareness of food and environmental safety, and the push toward adopting Good Agricultural Practices (GAP).

Dr. Ghosh provided an overview of India's efforts to promote biopesticides, noting that the country's first commercial use of biopesticides began in 1984 with natural enemies like *Trichogramma*, *Chrysoperla*, and ladybird beetles. Although this effort lasted for about 20 years, it faced challenges related to production, demand, and supply, leading to a shift toward microbiocides. He highlighted the current involvement of both private and government laboratories in biopesticide manufacturing and promotion. Despite India's extensive 207 million hectares of farmland, only 7.53% of the land is exclusively treated with biologicals, 10.25% uses them in combination with other methods, and 52.14% relies on chemical treatments.

In terms of biopesticide usage, the current demand in India is approximately 13,000 metric tons, with fungal biopesticides leading the market at 67%, followed by bacterial, viral, biochemical, and pheromone-based biopesticides. *Trichogramma* species represent 56% of the fungal biopesticide market. The outlook for the biopesticides market is promising, with a projected growth rate of 15.9% from 2024 to 2031. The Asia-Pacific region is expected to be the fastest-growing market, with India projected to grow by 9.78% from 2024 to 2029.

Dr. Ghosh highlighted the establishment of Multiplex Biotech Pvt. Ltd. in 2000, alongside ten other companies, with the goal of enhancing crop productivity. The company has developed around 300 biopesticide products across various categories. He also outlined several challenges faced by the biopesticide industry, such as scaling up production, commercialization, market expansion, education, supply chain development, R&D investment, and regulatory harmonization. He stressed the importance of private sector involvement in addressing these challenges and emphasized the need to target economically significant pests and diseases for effective commercialization.

He then discussed the current state of biopesticide manufacturing facilities, including in-vivo production for NPVs (nucleopolyhedroviruses) and EPNs (entomopathogenic nematodes), liquid fermentation for bacterial bioagents, and solid substrate fermentation for fungal bioagents. To address scaling-up challenges, Dr. Ghosh emphasized the importance of downstream processes, such as quality control, formulation processes, and automated bottling and packaging. Multiplex Biotech has established several

R&D facilities focusing on innovative products, including a micro-emulsion formulation of tea tree oil and camphor oil, as well as an oil-dispersible formulation targeting whiteflies.

In terms of marketing and value chain management, the company employs a farmer-centric business model, utilizing dealer-distributor networks, training programs, and farmers' clubs. The average turnover of biopesticide molecules is about 449.57 metric tons per year, with a growth rate of 9.14%. Multiplex Biotech holds permanent registrations for six active ingredients but faces challenges like high registration costs, lengthy approval processes, regulatory uncertainty, and return on investment.

Dr. Ghosh concluded by emphasizing the need for effective promotional strategies for biopesticides through education, extension programs, and both national and international collaborations. He also highlighted future strategies to further advance the biopesticide industry.