



SPEECH INFORMATION (For Conference Program Book)

Topic	Emerging Trends in Feed Microorganisms: A Win–Win Strategy for Enhancing Animal Health and Environmental Sustainability
Abstract	<p>In agricultural applications of microorganisms, the initial development of microbial products has traditionally progressed along separate paths across the crop, livestock, and aquaculture sectors, owing to fundamental differences in the physiology and biological characteristics of target species. However, from the perspective of functional requirements—ranging from enhancing organic matter decomposition, nutrient mineralization, and pathogen resistance in crops; to improving feed digestibility, nutrient utilization, gut microbiota modulation, and animal health in livestock; and ultimately to improving the overall living environment of agricultural systems—these applications reveal a shared underlying convergence.</p> <p>Accordingly, our research focuses on the development of microbial strains that exhibit high animal biosafety, strong environmental stress tolerance, and robust degradative and metabolic activities. Among these, members of the <i>Bacillus subtilis</i> species complex are particularly well suited as multifunctional microorganisms for cross-sector agricultural applications. These strains are widely recognized as GRAS (Generally Recognized as Safe) organisms with extensive use in food and industrial processes, and are capable of producing abundant amylases, proteases, and lipases, making them highly effective for agricultural utilization.</p> <p>Leveraging the integrated strengths of the Agricultural Technology Research Institute (ATRI) in crop, livestock, aquaculture, and microbial product manufacturing, and through collaborative partnerships with National Chung Hsing University, we have established a horizontal experimental framework linking strain selection, product optimization, and functional validation. By advancing technologies in mass production, formulation processing, and application strategies, we aim to develop value-added microbial technologies that support a circular agricultural system—from upstream crop cultivation, through midstream animal production, to downstream conversion of animal waste into organic fertilizers.</p> <p>This integrated approach not only validates the application efficacy of microbial technologies across multiple agricultural sectors, but also consolidates their ultimate value in promoting animal and plant health, environmental sustainability, and circular agriculture, highlighting microorganisms as key enablers of environmentally friendly and resilient agricultural systems.</p>

