Session Cross-cutting: April 13th 11.00 hrs

5s4b: : Waste reduction and novel resources for sustainable production of safe food or feed

Controlled Biologically-Based Indoor Circular Food Systems

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There is no area of human activity more basic to society than a sustainable agricultural, food and natural resource system. The 'major' question is, how will food be produced sustainably for the expected global population growth to 9.5-10 billion people by 2050? The agriculture and food system is a highly complex adaptive system, operating across the spectrum of economics, biophysics and sociopolitics. There is a need to move beyond contentious debates between many constituencies, rooted in ideological solutions, to acceptance of a broad array of different approaches. This poster focuses on the evolution from long and traditionally soil-based systems to biologically-based indoor systems, largely independent of soil with unique characteristics. Science and technology advancements have been critical to achievements of the existing land/soil-based systems and are equally critical in development of the emerging biologically-based indoor systems of controlled environment agriculture (greenhouses and vertical farms) and plant-based food alternatives, cell-cultured foods and 3D printed foods. Thus, there is no system more in need of, and more likely to benefit from a comprehensive application of convergence thinking across disciplines and stakeholders.

Keywords: soilless systems, plant-based alternatives, cultured foods, 3D printed foods