Seminar Abstract

The space food system is central to crew health and performance, but there are numerous challenges to provisioning an adequate system within the limited resources available on long-duration exploration missions. Shelf life studies have shown that the processed, shelf-stable foods used on the International Space Station (ISS) will only retain acceptable nutrition and quality for one to three years under ambient storage conditions. On a Mars mission the food may be prepositioned prior to crew launch, with no resupply, and possibly with no refrigeration, requiring stability for at least five years. Due to mass, volume, and other logistical constraints, the food for a multi-year Mars mission may be more limited in variety and choice than it currently is on 6-month ISS missions. Unacceptable food, either due to menu fatigue from limited choice or due to nutritional or quality degradation, may lead to under-consumption, body mass loss, muscle loss, and eventually nutritional deficiencies that may affect physical and behavioural health and performance. Technologies that provide a food system with adequate nutrition, acceptability, variety, and safety for long-duration missions are a critical need to support the success of human space exploration. Studies addressing formulation, processing, packaging, and storage strategies may help increase shelf life and/or reduce mass and volume. Alternative provisioning strategies, such as inclusion of bioregenerative salad crops grown during a mission, are challenged by resource constraints, and food safety and reliability concerns, but offer potential nutrition and variety solutions. Technologies that support personalized nutrition may enhance individual health. Studies addressing food system improvements and health outcomes could lead to the design of more efficient, targeted dietary interventions. Results from these studies will help to determine an optimal food system strategy and will identify areas where additional research is required to improve shelf life or food system composition.

Speaker

Dr Grace Douglas, NASA Johnson Space Centre, Houston, United States

Dr. Grace Douglas serves as the lead scientist for NASA’s Advanced Food Technology research effort, which focuses on determining methods, technologies, and requirements for developing a safe, nutritious, and palatable food system that will promote astronaut health during long-duration space missions. Her responsibilities include assessing the risk of an inadequate food system to crew based on vehicle design and mission concept and developing the research path that will ensure the food system meets crew health requirements on spaceflight vehicles. She earned a B.S. and M.S. in food science from the Pennsylvania State University and North Carolina State University, respectively, and a Ph.D. in functional genomics from North Carolina State University.
Food & Dairy Graduate Research Industry Partnerships (GRIP) Showcase

This session is to showcase the research outcomes of the Food & Dairy Graduate Research Industry Partnerships by PhD students. Drinks and Canapes will be served.

Food and Agriculture Thought Leadership Seminar and Networking

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<td>Registrations and GRIP Posters Showcase</td>
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<td>6.30 PM – 6.35 PM</td>
<td>Welcome</td>
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<td>6.35 PM – 7.00 PM</td>
<td>The Future of Food Innovation: A/Professor Victoria Haritos and Dr Sushil Dhital</td>
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<td>7.00 PM – 7.30 PM</td>
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Event Description:
A different approach to develop the Space Food that is inspirational and applicable to all researchers and technologists will be provided. Previously, major developments in food and processing methods have arisen from the space industry, such as the commercialisation of freeze drying. These events will be suitable to individuals in research and industry sectors, who would like to gain insights of food innovation and network with other individuals from various fields.

Date: Thursday 26 September 2019
Time: 5:30 pm to 8:00 pm
Venue: G29 and G30
New Horizons Building
20 Research Way
Clayton, Vic 3800 Australia

Registration link
https://forms.gle/7JJEBYQNk1pr3xbSA

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Panel:
Dr Grace Douglas, NASA Johnson Space Centre, Houston, United States together with industry alumni.