

34th IAA SYMPOSIUM ON SPACE AND SOCIETY (E5)
Interactive Presentations - 34th IAA SYMPOSIUM ON SPACE AND SOCIETY (IP)

Author: Mrs. Delphine URBAH
Université PSL (Paris Sciences & Lettres), France, delphine.urbah@free.fr

Ms. Lena Obaid
Space Generation Advisory Council (SGAC), Saudi Arabia, lenaobaid@gmail.com

Mr. Danny Tjokrosetio
Team Tumbleweed, The Netherlands, dannytjokrosetio@gmail.com

Mr. Nijanthan Vasudevan
Drexel University, United States, nijanthan.vasudevan@spacegeneration.org

Ms. Selene Cannelli
Space Generation Advisory Council (SGAC), Italy, selene.cannelli@live.isunet.edu

Mrs. Elizaveta SHASHKOVA
ISAE-Supaero University of Toulouse, France, Elizaveta.SHASHKOVA@student.isae-supaero.fr

FOOD PRODUCTION SYSTEMS AND METHODS
TOWARDS FOOD SECURITY AND SUSTAINABILITY
IN SPACE AND ON EARTH.

Abstract

Space food is currently largely focused on calories, protein and longevity of shelf-life, overlooking the many aspects of what nourishment is. Many nutrition focused organizations define good alimentation under the criterias of quantity, quality and palatability. For space food a shelf life argument may be added. Space food has therefore three main flaws currently. First there is a lack of focus on taste, culture, diversity, and celebration of food. Second, it is creating a large quantity of non recyclable waste. Finally, the way we are currently handling shelf time and restock is neither sustainable or (currently) feasible for long spaceflight missions. During the Space Generation Congress 2022, in Paris, a working group of 19 delegates, representing 15 different countries from all continents, discussed and suggested solutions to space food flaws and how they can be reused on earth. Following are the two main challenges that were deemed as the most pressing : 1. How to improve existing space food production systems and methods ? 2. How can developments in space food be reused on Earth to end hunger, achieve food security and improved nutrition (SDG 2) and reduce inequalities (SDG 10) ? This abstract tries to build a roadmap advising specific organizations such as Space Generation Advisory Council, the United Nations (UN) as a whole, Space Agencies such as ESA, NASA, Jaxa, Roscomos, CNSA, CSA and so on, and United Nations Office for Outer Space Affairs as well as the International Astronautical Federation, on specific actions they could take. We tackled each question with three approaches taking in consideration the UN sustainability and diversity goals (SDGs). To improve existing space food production systems and methods we looked at (a) improving the social aspect of meal prepping and sharing, then we looked at the (b) nutritional and the (c) packaging challenges. For the question on how space food innovations can be reused on Earth to end hunger, achieve food security, improve nutrition (SDG 2) and reduce inequalities (SDG 10) we concentrated our efforts on trying to find solutions for (a) waste management, (b) reduce inequalities by reusing technology from spatial RD companies and agencies, and (c) Improving the nutritional aspect of space and earth food by looking at the best food items candidates.

Keywords: Nutrition, Long-Term Spaceflight, Sustainability, SDG, hunger, health