Programme Brochure

2021 Online Summer School

Biotechnology, Agriculture and Food: Trends and Technologies

Course leader and program manager
Dr. Liu Zhen, zhen.liu@wur.nl, +31-(0)317 489190

Theme coordinator:
Dr. Xiaomei Yang, xiaomei.yang@wur.nl Environment
Ir. Davy Meijer, davy.meijer@wur.nl, Plant
Ir. Els van de Zande, els.vandezande@wur.nl, Plant
Dr. Xu Cheng, xu.cheng@wur.nl Plant, Food and Environment
Dr. Lu Zhang, lu1.zhang@wur.nl, Food

Platform: Brightspace, WUR online learning platform
Duration: 2 weeks, 20 hours in total
Intro start: 30 July 2021
Start date: 2 August, 2021
End date: 13 August, 2021
Time zone: Amsterdam time zone, 7 hours later than Beijing time
Organisation: Wageningen Academy | Wageningen University & Research

Program Design:

2021 Online Summer School Detail Program

Biotechnology, Agriculture and Food: New Trends and Technologies

(August 2-13, 2021)

July 30 Friday	Winter school pre introduction	Speaker	Group/Organization
9:00-10:00	Intro start: get familiar of Brightspace and virtual class of WUR	Zhen Liu	Wageningen Academy
Aug 2 Monday	**Winter school introduction**	**Speaker**	**Group/Organization**
8:30-9:00	Welcome and Meet theme coordinators	all coordinator	WUR
9:00-9:30	Introduction of Wageningen University and Research	Zhen Liu	Wageningen Academy
9:30-9:35	Short break		
9:35-10:00	Introduce of group Assignments and plenary reflection on the assignments	Zhen Liu	Wageningen Academy
10:00-10:30	Guest industrial speaker-Fruit and vegetable sector in the Netherlands	Kun Han	Groeten Fruiten Huis
Aug 3 Tuesday	**Global challenges and transitions**	**Speaker**	**Group/Organization**
pre-recorded video	Food transition 2030	Frans Kampers	Corporate Value Creation
pre-recorded video	Oneplanet program	Liesbeth Luijendijk	OnePlanet Research Center
08:30-9:00	Digital twin	Qingzhi Liu	Information Technology Group
9:00-9:30	Protein transition	Zhen Liu	Wageningen Food & Biobased Research
Aug 4 Wednesday	**Environment day-Soil**	**Speaker**	**Group/Organization**
8:30-9:00	Introduction of ESG	Xiaomei Yang	Soil Physics and Land Management
9:00-9:25	The importance of Soil	Xiaomei Yang	Soil Physics and Land Management
9:25-9:30	Short break		
9:30-10:00	Soil health and management transition	Xiaomei Yang	Soil Physics and Land Management
10:00-10:30	Soil pollution and potential treatments	Xiaomei Yang	Soil Physics and Land Management
Aug 5 Thursday	**Plant Day 1**	**Speaker**	**Group/Organization**
8:30-9:00	Introduction of Wageningen Plant Sciences	Davy Meijer	Laboratory of Entomology-WUR
9:00-9:30	Group discussion	all participants	
9:30-10:00	LEDs for sustainable greenhouse production	Leo Marcelis	Horticulture and Product Physiology-WUR
10:00-10:30	Group assignment (preparations)	Els van de Zande & Davy Meijer	Laboratory of Entomology-WUR
Aug 6 Friday	**Plant Day 2**	**Speaker**	**Group/Organization**
8:30-9:00	Introduction of Integrated Pest Management	Els van de Zande	Laboratory of Entomology-WUR
9:00-9:30	Group discussion	all participants	
9:30-10:00	Breeding for resistance	Colette Broekgaarden	KeyGene
10:00-10:30	Group assignment (presentations)	Els van de Zande & Davy Meijer	Laboratory of Entomology-WUR
10:30-11:00	Q&A session week 1	all coordinators	WUR

Aug 9 Monday	Food Day 1	Speaker	Group
8:30-9:00	Sustainable food processing	Julia Keppler	Food Process Engineering
9:00-9:30	Valorising asparagus waste stream into high quality food ingredients	Joanne Siccama	Food Process Engineering
9:30-10:00	Food Emulsions: Towards new ingredients and technologies	Anja Schroder	Food Process Engineering
10:00-10:30	Phytochemicals from plant waste	Wouter de Bruijn	Food Chemistry

Aug 10 Tuesday	Plant, Food and Environment	Speaker	Group
pre-recorded video	Feeding the World and Keeping our Planet Cool by Proven Food Losses and Waste Reduction Strategies	Heike Axmann	Wageningen Food & Biobased Research
8:30-9:00	Food loss and waste within food value chain: an in-depth overview	Xuezhen Guo	Wageningen Food & Biobased Research
9:00-9:30	Reusing food waste and wastewater sludge for replenishing soil organic materials and improving soil quality	Jiyao Liu	Environmental technology
9:30-10:00	Reusing food surplus and side streams from agri-food industries	Yujun Wei	Environmental technology
10:00-10:30	Importance of the Rhizosphere-Interaction between plant and soil	Xue Cheng	Plant Science Group

Aug 11 Wednesday	Food Day 2	Speaker	Group
8:30-9:00	Valorising waste stream from oil-rich seeds	Wanqing Jia	Food Process Engineering
9:00-9:30	Role of food safety in food waste and losses	Marko Appel	Wageningen Food Safety Research
9:30-10:00	Mild fractionation of plant-based food materials and its potential applications	Anna Moller	Food Process Engineering
10:00-10:30	Extrusion-based 3D food printing and its applications	Lu Zhang	Food Process Engineering

Aug 12 Thursday	Food and nutrition	Speaker	Group
pre-recorded video	Personalised Nutrition and Health	Martine van der Mast	Wageningen Food & Biobased Research
8:30-9:00	Sustainable, Healthy, Affordable, Reliable and Preferable Diets in China	Zhiyao Chang	ADG joint PhD
9:00-9:30	Experience sharing of 2 years Autonomous Greenhouses Challenges	QianXixi Min	Horticulture and Product Physiology
9:30-10:00	Interaction of food and nutrition	Coen Govers	Cell Biology and Immunology
10:30-11:00	Q&A session week 2	all coordinators	

Aug 13 Friday	Group presentation	Speaker	Group
8:30-8:40	Introduce the final group presentation	Zhen Liu	Wageningen Academy
8:40-9:45	8 groups, each group has 5 minutes presentation +3 minutes Q&A	all participants	
9:45-10:00	final closing and Q&A	all coordinators	

Biographies of the lecturers

2021 Online Summer School: Biotechnology, Food and Agriculture: New trends and Technologies

	Dr. Zhen Liu Zhen Liu received a doctoral degree on innovation management from Wageningen University in 2013. Since 2012, she has been worked as business developer of Food and Biobased Research of Wageningen University and Research, with a drive for research, innovation and entrepreneurship and aim at becoming the bridge between China and EU in the field of food and agricultural business. Since 2013, she has worked as program manager of Wageningen Academy, which is the port to provide life learning programs for professionals and students. She developed various executive programs for leading agrifood entrepreneurs such as Yili, Nongfu, Stanley, Pagoda, and also technology training programs from young professionals.
	Dr. Xiaomei Yang After completing her PhD and Postdoc in Environmental Science in Wageningen University, Xiaomei Yang went back to China and joined Northwest A&F University in 2017. With her knowledge and experience focusing on soil quality and pollution, as well as collaboration projects between Wageningen University and China, she has partly joined Soil Physics and Land Management group of as PhD student supervisors and lecturer since 2016. Recently, she is working on pesticide screening in agriculture soil, pollutant transport and modelling, microplastic impacts in soil-plant systems, etc.
	Davy Meijer After completing his MSc Biology at Wageningen University, Davy Meijer started a PhD project at the Laboratory of Entomology. His research focusses on the effects of LEDs on plant-insect interactions. Specific colors of light can influence plant defensive chemistry and might therefore be used as pest management strategies in horticultural crop production.
	Els van de Zande After completing her studies in Biology with a focus on insect-plant interactions and education, Els van de Zande started her PhD project at the Laboratory of Entomology. She studies how to use a side-stream from insect production for food and feed to promote crop growth and health. Ultimately, this will help the transition towards a circular and more sustainable agriculture

	Dr. Lu Zhang Lu obtained both her BSc and MSc degree in Chemical Engineering at Xiamen University in China. From 2014 to 2018, she conducted her PhD research on Bioactive ingredients during mini-bread baking at WUR, in collaboration with Soochow University in China. Since April 2020, she is appointed an assistant professor at Food Process Engineering group. She conducts research in the area of 3D food printing, food waste valorisation and data science.
	Xu Cheng
	Kun Han Kun Han obtained her master's degree at Wageningen University in 2011, and has been active in Sino-Dutch agriculture cooperation and communication since then. Kun Han is the chief China representative of the Dutch Fruit and Vegetable Association and has been involved in several Sino-Dutch biliteral fresh produce exportation dossiers (i.e., pear, sweet pepper, and potato mini tubers). Besides, Kun Han has also been engaged in organizing different types of training and business connection programs with sector players such as research institutes, leading companies, as well as governmental organizations.
	Dr. Frans Kampers After completing his PhD in physics in Eindhoven, the Netherlands Frans Kampers in 1989 joined what is now Wageningen University & Research. After management functions in instrumentation and measurement technology and information strategy he co-ordinated the bionanotechnology research in Wageningen, which focuses on applications of nanotechnology in food and nutrition. He was president of the International Society of Food Applications of Nanoscale Sciences (ISFANS) and is a member of the Executive Board of NanoNextNL, the Dutch research programme on nanotechnology. He coordinated the Belgium/Netherlands region in the proposal for a Knowledge and Innovation Community (KIC) for the European food sector, set up the cross-over research programme “High Tech to Feed the World”. He is the main author of the strategy document “Food Transitions 2030” on how the agro-

	food system must transition and can become future proof. He was the architect of the Groeifondsproposal FoodSwitch.
	Liesbeth Luijendijk Liesbeth Luijendijk is Director AgroFood & Environment in the managementteam of OnePlanet Research Center, on behalf of Wageningen University & Research. She has a master degree is in Business Informatics and broad and long industry experience in the application and management of digital technology in a diversity of industrial domains. In Wageningen University & Research she was a Business Development Manager specialised in the domain of Personalised Nutrition and Food Informatics.
	Dr. Qingzhi Liu Qingzhi Liu is a Lecturer at the Information Technology Group, Wageningen University, The Netherlands. He received the B.S. degree in Telecommunication and the M.Eng. degree in Software Engineering from Xidian University, China in 2005 and 2008 respectively. He received the M.Sc. (with cum laude) and the Ph.D. from Delft University of Technology, The Netherlands in 2011 and 2016 respectively. He was a Postdoctoral Researcher at Eindhoven University of Technology, The Netherlands from 2016 to 2019. His research interests include Internet of Things and Artificial Intelligence.
	Prof. Dr. Ir. Leo Marcelis After a long career as researcher in Cropping Systems and Crop Physiology, Leo Marcelis currently leads his own chair group at Wageningen University. The department of Horticulture and Product Physiology is the only academic group in the Netherlands focussed on horticulture, and holds a strong position in horticultural research and education on an international level. Their research and education focuses on the physiology of production and product quality in greenhouse horticulture and vertical farming, with a deeper focus on increasing the sustainability of horticultural production.

	Dr. Colette Broekgaarden After completing her PhD and Postdoc in insect-plant interactions at Wageningen University, Colette Broekgaarden moved to Utrecht to continue her research with a VENI grand on new strategies to protect crops against manipulative insects. In 2018 she started at the company KeyGene where she uses her skills and knowledge on transcriptomics, genomics, genetics and ecology to breed for crops with a higher and more durable resistance against pests.
	Dr. Julia Keppler Julia received her PhD in food science and technology in 2014 at the division of food technology, Kiel University (Germany). After that she continued as junior research group leader at Kiel university and was visiting researcher at several different institutions, among others at INRAe (France). In 2019, she went to Wageningen University (Netherlands) and is currently assistant professor in the group of food process engineering. Her expertise is the functionality oriented processing of proteins, including plant and cellular proteins.
	Joanne Siccama Joanne Siccama obtained her MSc degree in Food Technology at Wageningen University (2018) and Sustainable Energy Technology at Technical University Delft (2018). She currently works as a PhD candidate in the Food Process Engineering group at Wageningen University. In her PhD project she works on the development of innovative drying strategies to convert vegetable waste streams into a high value food ingredient with preserved flavour profile.
	Dr. Anja Schroder Anja Schröder received her PhD degree (2020) in the field of emulsions at the departments of food process engineering and physical chemistry & soft matter. After this, she started her post-doc in the same field. Her main expertise is on the physical and oxidative stability of particle-stabilized (or so called Pickering) emulsions.

	Dr. Wouter de Bruijn Wouter J.C. de Bruijn started studying food technology in Wageningen in 2009 and completed his MSc with honours in 2014. Immediately afterwards, he started working as a PhD candidate at the Laboratory of Food Chemistry at WUR. In 2019, he obtained his doctorate with a PhD thesis entitled “Legume and cereal defence metabolites as lead compounds for novel antimicrobials – Production, analysis, and structural modification”. Wouter continued his work as a postdoc, with a focus on modification and analysis of phytochemicals. In June 2020, he was appointed as assistant professor in phytochemicals at the Laboratory of Food Chemistry at WUR. His work involves production and modification of phytochemicals by enzymatic, microbiological, and chemical approaches. Additionally, analysis and characterization of phytochemicals, and other food constituents, is an integral part of his work.
	Heike Axmann Heike works as a senior researcher, international project leader and expertise leader at the Supply Chain Development group at Wageningen Food and Biobased Research, one of the applied research institutes from Wageningen University and Research. There, Heike is leading among others the Climate Change, Agriculture and Food Security project, the Task Force Against Food Loss and Waste in India, and the Postharvest Network. Over the last 20 years Heike Axmann developed and implemented sustainable food and agriculture strategies for private- and public organizations around the world. She has worked in various international supply chain positions "where sustainability meets economy”. She was responsible for starting up new routes, such as reducing food loss and waste and food loss and waste induced greenhouse gas emissions in international food supply chains, (re)designing agro-food supply systems, linking (small)producers to European high-end markets, and setting up standards and systems to increase sustainability and transparency in international value chains. Heike holds an MSc degree in agriculture, natural environment and tropical land use from the Wageningen University.
	Dr. Xuezhen Guo Xuezhen Guo is a PhD graduate from Wageningen University and currently works as a food supply chain scientist in Wageningen food and bio-based Research. He has more than 12-year industrial and research experience in the field of fresh food supply chain management, food logistics, food e-commerce, food waste monitoring and valorization, food footprint quantification, circular food systems. Xuezhen provides consultant service to the governments, NGOs and companies (e.g. EU committee, Dutch governments, Gates foundations, FAO, Mars Incorporated, Vion Food Group).

	Jiyao Liu Jiyao Liu is a PhD student in the Department of Environmental Technology at Wageningen University. In her PhD research, she works on the circular and evidence-based management of urban organic residues to restore Ecosystem services of agricultural soils (CURESOIL). Jiyao obtained her master degree in urban environmental management at Wageninge University (2016) and her research interests include urban system analysis and system engineering.
	Yujun Wei Yujun Wei received her MSc degree in Food Technology at Wageningen University (2019). After that, she joined Agricultural Green Development (AGD) Program. She currently works as a PhD student in the Environmental Technology group (ETE). Her research focuses on the development of food surplus and by-product valorization strategies to improve the sustainability performance of current food system.
	Wanqing Jia
	Marko Appel

	Anna Cäcilie Möller Anna studied technology and biotechnology of foods in her Bachelor's and Master's degree at the Technical University Munich. In 2018 she started her PhD at Wageningen University in the group of Food Process Engineering. In her PhD research she works on the development of fractionation technologies based on already proven technologies or novel process routes to create mildly refined fractions from structured materials. Those fractions should form the basis for novel functional food ingredients. A main goal of her project is to achieve significant reduction of the energy, water and carbon footprint, by replacing energy intensive pure ingredients with less processed fractions, efficient processing of total crops and focus on targeted functionalities with novel process routes.
	Martine van der Mast Martine van der Mast has over 20 years of international experience at the business side of the Infant and Clinical market and understanding the Research and Development needs of customers, combined with my scientific background in nutrition, she combines science with the needs and desires of the players in the food and health market to help them accelerate excellence in their business
	Dr. Nicole de Wit For many years, Nicole de Wit was active in molecular science, studying the metabolic effects of food along the intestinal tract. Nowadays, she focuses more on human food intervention studies, in clinical controlled settings as well as real-life settings. Personalised Nutrition fits the latter, in which we want to stimulate people to adapt to a more healthy life style.
	Qianxixi Min Qianxixi Min is PhD student at Wageningen University, Horticulture Product Physiology group. Her research focused on the LED light effects on postharvest quality of leafy vegetables in a background of vertical farm systems. As a member of AiCU team, she participants in the 1st and 2nd autonomous greenhouse challenge in Netherland. In this challenge, AiCU grew cucumber, tomato and strawberry in a AI driven greenhouse and explored the possibilities of using AI in order to 'grow more with less'.

	Zhiyao Chang After completing his Master study in Food Processing and Safety in China Agricultural University, Zhiyao Chang joined Agricultural Green Development (AGD) Program in 2020 as a PhD student, both in Division of Human Nutrition and Health (WUR) and College of Food Science and Nutritional Engineering (CAU). His research is aiming to development the Sustainable, Healthy, Affordable, Reliable and Preferable (SHARP) diets in China.
	Dr. Coen Govers Coen Govers received his PhD (2013) in the field of tumour immunology at the department of medical oncology, Erasmus MC-Cancer institute. After this, he took on a position as research scientist at Wageningen Food & Biobased Research where he studied food- or nutraceutical-mediated modulation of the intestinal immune barrier. Together with several PhD students he developed *in vitro* immune models representing the sentinel cells of the immune barrier. These models have been investigated for their responses to prebiotics, probiotics, chitin/chitosan, and PUFAs, also as part of a KWF and TKI grant he coordinated. As of 2021, Coen started a position as assistant professor at the department of cellular biology & immunology at Wageningen University where he will focus on immune-competent organotypic model systems.