



**JPFA 2021 Online Training Course on
Plant Factories with Artificial Lighting (PFALs)**
Feb. 18-March 11, 2021

**This newly arranged online English-language course is tailored for
people who care about PFALs.**

DON'T MISS THIS OPPORTUNITY!

Jan. 20, 2020

The Japan Plant Factory Association is offering a new online training course on plant factories with artificial lighting (PFALs) in English on Feb. 18-March 11, 2021, after the first such course in 2020 drew wide interest.

The JPFA is responding to calls from indoor farmers, researchers, business planners and other interested people for lessons on PFALs, also known as vertical farms. Since 2010, the JPFA and Chiba University have organized various in-depth and practical learning events including introductory and advanced training courses.

Course Features

The coming course will comprise introductory classes on PFALs and special content designed for participants to acquire practical knowledge and expertise.

The introductory course will have academic and practical classes on such topics as current PFALs and forthcoming technologies as well as environmental effects on plants. Special content will cover such issues as practical methods. For details, see the program below.

We will also provide participants with a virtual tour to a commercial, large-scale PFAL and exhibitions by companies in the PFAL and related businesses.

All lectures are prerecorded ones, but attendees can send any questions via a specified app. We are planning to hold a live Q&A session to answer these questions. The Q&A session will certainly be a great opportunity for participants to exchange views and deepen their understanding.

Never forget another important thing. While attendees cannot get together as in on-site courses, the app allows them to interact each other and with representatives of exhibitor companies.

On completion of the course, we can issue a certificate of participation if you need.

Objective and Goal

- To offer the foundation for theory and experience-based practices, with a view to fostering academic and industrial development of next-generation PFALs.
- To facilitate development and dissemination of technically and economically sustainable PFALs, by providing first-hand technical and conceptual classes by a variety of professionals in practice in both academia and the PFAL industry.

What Participants Say

Here are comments by participants in the 2020 Introductory Training Course on PFALs.

"The most useful time spent in Covid-19 pandemic." (A participant of Romania)

"Thank you so much for the opportunity to see into this 'world,' which is likely to reshape our future soon. " (The same participant)

"Very valuable and useful information for those who wish to learn about PFALs. " (A participant of Saudi Arabia)

"Learned so much from every perspective, from cultivation, to the business side of things, and even a preview into already successful plant factories. " (A participant of Malaysia)

"Lectures were interesting, and definitely felt the effort everyone put into making this online training a success. Makes me really want to visit when the pandemic is finally over in the future. " (The same participant)

Lecturers and Classes

■ Lecturers (in alphabetical order of family names)

Chiba University/JPFA: Eri Hayashi, Toyoki Kozai, Na Lu, Toru Maruo, Osamu Nunomura, Yutaka Shinohara, Satoru Tsukagoshi

The Ohio State University: Chieri Kubota

The University of Tokyo: Wei Guo

Lecturers from the PFAL industry: Katashi Kai (Shinnippou Ltd.--808 Factory), Kazuya (Kaz) Uraisami (marginal LLC)

■ Program

Introductory Classes

Category	Class Name	Notes
General	Current Global Situation	Plant factories with artificial lighting (PFALs) in the world
	Current PFALs	Current cultivation systems and protocols, the characteristics of LEDs, issues that remain to be solved and/or improved
	Principles, Structure and Environmental Control of PFALs	Meanings of basic technical terms for understanding the lectures, introduction to technical concepts and system design of PFALs
Environmental effects	Photosynthesis, Respiration and Transpiration of Plants	The basics of such matters as photosynthesis, respiration and transpiration, and effects of environmental factors on photosynthesis
	Light Environment and Plant Growth	Effects of a light environment on plant growth and the quality of produce
Nutrient solution	Basis of Hydroponic Cultivation and Nutrient Solution	Nutrient solution composition and management
	Plant Nutrition related with Nutrients and Water Uptake	The uptake of nutrients and water, function of transpiration, physiological disorders such as tip burn, and avoidance methods
Cultivation	Cultivation Management	Seeding, transplanting, harvesting, post-harvest processing, and precooling
	Cultivation Processes Demonstrated	Expert demonstration of cultivation processes
	Hydroponic Crop Production: Leafy greens - Microgreens and Baby Greens	Hydroponic crop production methods on microgreens and baby greens

Business	Business Administration of PFALs	Basic concepts of efficiency, productivity, and profitability, and simulation practices with business administration sheets
	Case Study of Commercial Large-scale PFAL: 808 Factory	How 808 Factory operates: pursuit of sustainable PFAL business, reduction of running costs, production of high-value plants, marketing and business model creation
Future developments	Forthcoming Technologies	Phenotyping, artificial intelligence, time shift lighting, automation and robots, renewable energy use, and breeding of plants suited to PFALs
Virtual tour	Virtual Tour inside PFAL	A virtual tour inside an automated PFAL
Q&A Session		Time for lecturers to answer questions on their classes from participants

Special Content

Category	Class Name	Notes
Methodology	Phenomics and Potential of Phenotyping	Phenomics, phenotyping and their possible application to PFALs
	Hands-On Technical Training on PFAL Business Management	In-depth study of PFAL business administration
	Tailored, Further Explanations on Previous-Course Lectures	Important questions in previous courses answered one by one
Business	A Close Look inside a Large-Scale Commercial PFAL	A virtual tour inside a commercial, large-scale PFAL in central Japan
	Operational and Hygiene Management, Future of PFALs in COVID-19 Times	A workshop held in 2020 to discuss coping with challenges posed by the COVID-19 pandemic

Notes: The classes are subject to change without notice.

■ Specified App--Swapcard

The course uses the Swapcard platform, which allows participants to easily connect and network with each other. The Swapcard app is available on personal computers as well as iPhone and Android.

After the registration, you will receive an email a few days before the start of the training that will give information on how you can access the training site.

Potential Audience

The course is targeted at enthusiastic current and prospective indoor farmers who plan to start or have started PFAL operations or research. It will offer elementary theory and practice of PFALs, basic knowledge of cultivation and operational management, and keys to business success.

The alumni of the JPFA training courses in 2018, 2019 and 2020 are welcome to join the new course.

The following is the fees for the course, which combines an introductory course and special content. Applicants who have not joined JPFA English-language training courses before need to take at least the introductory course, but the alumni can choose special content alone.

Price List for JPFA 2021 Training Course

Category	Choice	JPFA member	Non-member	What is included
First-time attendees	Introductory Course Only	JPY 35,000	JPY 65,000	Viewing lecture videos, downloading lecture files, attending virtual exhibitions and joining other course events.
	Introductory Course + Special Content	JPY 65,000	JPY 100,000	
Alumni of 2018, 2019, 2020 courses	Introductory Course Only	JPY 10,000	JPY 15,000	Same as above. *In a planned Q/A session, questions of first-time attendees are supposed to be given priority over alumni ones.
	Special Content only	JPY 30,000	JPY 35,000	
	Introductory Course + Special Content	JPY 40,000	JPY50,000	
Exhibitors	JPFA organizational members/organizations with participants in the 2021 training course	JPY 100,000		Networking and attending virtual exhibitions. Exhibitors upload digital content (e.g., videos, images, documents).

Registration

After receiving the application form, we will confirm your application category before starting the payment procedure.

▶ First-time attendees: Click [here](#).

URL: <https://select-type.com/e/?id=J37IlyKOTGO>

▶ The alumni of the training courses in 2018, 2019 and 2020:

Visit the URL in the email to be sent to all the alumni.

▶ Exhibitors: Click [here](#).

URL: <https://select-type.com/ev/?ev=UMXleQyta7c>

*Any organization where an applicant or applicants for the 2021 course belong is eligible to become an exhibitor on the course, in addition to JPFA organizational members.

Once your application for credit card payment is approved, credit card payment will be made immediately, and you will automatically get a receipt via Stripe.

If you have selected "pay via wire transfer" as your payment option, we will send you an invoice separately soon. After your payment by a wire transfer is completed, we will email you to confirm the receipt of your payment.

You will receive an invitation email a few days before the training course starts.

■ Schedule

First-time Attendees and Alumni

(1) Each applicant will receive an email on the training app a few days before the training starts.

(2) Course content will become accessible on Feb.18, 2020.

(3) A Q&A session is tentatively planned for early March 2021.

*You will receive necessary notifications after the course starts.

Exhibitors

On completion of the registration, we will inform you of the procedure.

■ Cancellation Policy

If any participant cancels the training course on/before Jan. 18, 2021, we will return the fee except for the cancellation fee of 15% of the payment. If the cancellation is made on/after Jan. 19, 2021, the fee shall be paid in full.

Instead of canceling, first-time attendees and the alumni can transfer their registration to another person without penalty on/before Feb. 10, 2021.

Japan Plant Factory Association

The Japan Plant Factory Association, a nonprofit organization founded in 2010, is devoted to advancing the plant factory industry and controlled-environment agriculture in and outside Japan through academia-industry collaborations.

Its mission is to develop and disseminate sustainable plant factory systems in a bid to address issues concerning food, the environment, energy and natural resources.

The JPFA oversees plant factories on the Chiba University Kashiwanoha campus in Kashiwa, northeast of Tokyo. Also, it works on about 20 R&D projects and runs workshops and training courses.

■ How to Become a JPFA Member

Apply for JPFA membership [here](#).

For more information, visit the [JPFA website](#) or email us at training@npoplantfactory.org.

We welcome your inquiries.



Japan Plant Factory Association

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