



IPB University
— Bogor Indonesia —



International Summer Course 2026

ADVANCED TECHNOLOGY IN PLANT BREEDING AND BIOTECHNOLOGY FOR AGRICULTURAL RESILIENCE

Hybrid program combining online and onsite activities
Online program: 29 June – 3 July 2026
Onsite program: 6 – 11 July 2026, Bogor City, Indonesia
Total duration: 11 days (5 online + 6 onsite)

<http://agrohort.ipb.ac.id>

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Summer Course 2026: Advanced Technology in Plant Breeding and Biotechnology for Agricultural Resilience

Brief Description

Agriculture today faces unprecedented challenges, including climate anomalies, land degradation, and the shrinking availability of fertile soils for crop production. Genetic approaches have become increasingly vital in developing sustainable agriculture, particularly through the creation of adaptive and stress-tolerant crop varieties. Universities play a strategic role in advancing human resources in plant breeding and biotechnology, equipping future scientists to develop superior cultivars that can withstand biotic and abiotic stresses.

Conventional plant breeding has historically driven agricultural progress, most notably during the Green Revolution. However, its limitations have highlighted the importance of modern biotechnological tools to accelerate crop improvement. Advances in cellular and molecular biotechnology—such as OMICS technologies, genetic transformation, CRISPR, and digital phenotyping—now enable more precise, efficient, and cost-effective breeding. These innovations have demonstrated tangible impacts on the development of high-yielding, resilient, and nutritionally enhanced crop varieties.

To support capacity building in these cutting-edge technologies, the Department of Agronomy and Horticulture, Faculty of Agriculture, IPB University, is organizing the Summer Course on Advanced Technology in Plant Breeding and Biotechnology for Agricultural Resilience. This program aims to enhance knowledge, foster international collaboration, and strengthen IPB's role as a world-class university in tropical agriculture.

Program Information

- **Credit earning:** Summer course program equivalent to **4 credits**
- **Theme:** *Advanced Technology in Plant Breeding and Biotechnology for Agricultural Resilience*
- **Format:** Hybrid program combining online and onsite activities
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Curriculum Structure & Expected Learning Outcomes

The Summer Course on Advanced Technology in Plant Breeding and Biotechnology for Agricultural Resilience carries a total workload of **180 hours (equivalent to 4 credits)** to achieve the designed learning outcomes.

Activities	Learning Hour		Learning Hour Total
	Online	Onsite	
Synchronous	24	40	64
Asynchronous (module, video, assignment, quizzes)	26	10	36
Group discussion & presentation	10	10	20
<i>Field Trip</i>	–	20	20
<i>Cultural Exchange</i>	–	10	10
<i>Independent Study & Reflection</i>	10	20	30
Total	70	110	180

Expected Learning Outcomes:

1. Master key terminology in plant breeding and cellular/molecular biotechnology.
2. Analyze genetic diversity and evaluate management strategies (e.g., in vitro conservation, prebreeding).
3. Interpret molecular and genomic tools (functional markers, diagnostics, OMICs, genomic selection).
4. Integrate advanced breeding technologies into agricultural resilience strategies.
5. Engage in group discussions to identify opportunities and challenges in regional contexts.
6. Gain intercultural understanding and appreciation of diverse traditions, languages, and practices.
7. Strengthen communication skills for effective crosscultural collaboration.

International Resource Person



Prof. Dr. Masaru Ohme-Takagi
National Cheng Kung University, Taiwan
Topic: Molecular Biology foundations



Prof. Dr. Bunyamin Tar'an
University of Saskatchewan, Canada
Topic: Speed Plant Breeding



Dr. Ming-Tsair Chan
Academia Sinica, Taiwan
Topic: Advanced Plant Genetics Engineering



Dr. Daisuke Tsugama
The University of Tokyo, Japan
Topic: Plant Genomic Analysis



Dr. Shu-Yun Chen
National Chung Hsing University, Taiwan
Topic: Molecular Marker Development and Its Application in Breeding for Disease Resistance



Dr. Nguyen Bao Quoc
Nong Lam University, Vietnam
Topic: Plant Molecular Diagnostic



Dr. Joong Hyoun Chin
Sejong University, Seoul, South Korea
Topic: Plant Breeding and Genetics

Program Fee for Partner Universities (International Participants)

The summer course program fee is **USD 450 per student**, which covers:

1. Accommodation in the student dormitory (two students per room, seven nights)
2. Meals are provided three times daily
3. Airport pick up service
4. Local transportation in Bogor during the onsite session

Special Discount for Invited Universities:

1. Students from invited universities will get a special rate of **USD 300 per student**.
2. This waiver applies to the **first 10 applicants** from these institutions.

Excluded costs (to be borne by participants):

1. International flight expenses
2. Travel insurance
3. Visa application fees
4. Personal expenses

Accompanying Officer/Lecturer:

1. Each invited university may send **one accompanying officer or lecturer** at the **regular program fee of USD 450** (cover meals, local transportation, field trip)
2. If the lecturer wishes to **deliver a lecture** during the summer course, this can be arranged with the committee.
3. If the accompanying officer would like to **organize collaboration meetings**, the committee will be pleased to facilitate.

Program Fee for National Participants

- A. Full online + offline (4 credits) : IDR 2.500.000 (cover copy of lecture materials, meals, certificate, and field trip)
- B. Full online (2 credits) : IDR 1.500.000 (cover copy of lecture materials and certificate of credit conversion)
- C. Full online (non-credit) : IDR 1.000.000 (cover copy of lecture materials and certificate of participation)

Contact Person

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