

Ye-Ji Kim

Ph.D

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RESEARCH INTEREST

As a postdoctoral researcher at the Department of Forest Genetics and Physiology in Czech University of Life Sciences Prague, my research focuses on the establishment and management of forest tree seed orchards by integrating genomic and biological data, with particular attention to changing climate conditions. Through my academic and professional experience, I have developed a strong understanding of genetic and biological mechanisms underlying tree improvement, reproductive processes, and seedling performance. My research aims to generate novel scientific insights and develop innovative, sustainable approaches to enhance forest health and productivity. Currently, I am conducting research on forest tree seed orchard management by integrating quantitative genetics, genomic information, and complementary biological data. I also apply optimization algorithms to maximize genetic gain while maintaining genetic diversity and use quantitative-genetic approaches to assess the potential impacts of climate change on seed orchard performance and management. My previous research has covered superior genotype selection, variation in flowering and seed production, seed orchard establishment and management, seed biology and seedling development, and freezing tolerance in evergreen *Quercus* species.

EDUCATION

1) Doctor of Philosophy in Agriculture

- Institution: Seoul National University, Department of Agriculture, Forestry, and Bioresources
- Advisor: Prof. Kyu-Suk Kang
- Period: 01/03/2021~26/02/2025
 - Thesis: Selection of Superior Individuals with Carbon Sequestration and Freezing Tolerance, and Development of Models for Establishment of Advanced Generation Seed Orchard of Evergreen Oaks, *Quercus acuta* and *Q. glauca*

2) Master of Science in Agriculture

- Institution: Seoul National University, Department of Agriculture, Forestry, and Bioresources
- Advisor: Prof. Kyu-Suk Kang
- Period: 01/03/2019 ~ 26/02/2025
 - Thesis: Development of Superior Seed Production Model through the Analysis of Cone and Seed Characteristics in a 1.5 Generation Seed Orchard of *Pinus koraiensis*

3) Bachelor of Science

- Institution: Konkuk University, Department of Forestry and Landscape Architecture
- Period: 03/03/2014~22/02/2019

PROFESSIONAL EXPERIENCE

1) Postdoctoral Researcher

- Institution: Czech University of Life Sciences Prague, Faculty of Forestry and Wood Sciences
- Period: 04/12/2025~present
- Advisor: Prof. Milan Lstibůrek
 - Conducting research on forest tree seed orchards management by integrating quantitative genetics, genomic information, and complementary biological data.
 - Applying optimization algorithms to maximize genetic gain under genetic diversity constraints.
 - Assessing the potential impacts of climate change on seed orchard performance and management using quantitative-genetic approaches.

2) Postdoctoral Researcher

- Institution: Seoul National University, Research Institute of Agriculture and Life Sciences
- Period: 01/03/2025~31/08/2025
- Advisor: Prof. Kyu-Suk Kang
 - Conducted research on seed production and the establishment of second-generation seed orchards for evergreen oak species
 - Investigated carbon sequestration characteristics across families with superior and inferior growth performance for *Pinus densiflora*

3) International Research Training

- Institution: Czech University of Life Sciences Prague, Faculty of Forestry and Wood Sciences
- Period: 25/08/2023~06/10/2023
- Advisor: Prof. Milan Lstibůrek
 - Applied optimization models for genetic gain and diversity in second-generation seed orchards of *Pinus densiflora* in Korea
 - Estimated breeding values and selection of superior parent trees in evergreen oak species using linear mixed models
 - Visited fields to seed orchards and experimental forests of major reforestation species in Czech Republic
 - Acquired hands-on experience in using the R package ONA (Optimum Neighborhood seed orchard design) for spatial optimization of seed orchard layouts

R&D PROJECT PARTICIPATION

1) Establishment of seed orchards and development of techniques of superior seed and seedling production for evergreen broad leaves tree species

- Duration: 2022-2024
- Korea Forest Service
- Project no. RS-2022-KF002178
- Participation Role: Researcher - contributed to the development of strategies for the establishment and management of seed orchards, as well as the selection of superior individuals and families.

2) Development of stable seed production and cone pest control technology for forest species vulnerable to climate change

- Duration: 2020-2022
- Korea Forest Service
- Project no. RS-2020-KF000914

- Participation Role: Researcher - contributed to field surveys and analysis of strobili/seed production stability.
- 3) Advancement of forestry technology and expert training for enhancing forest values and smart forestry**
- Duration: 2024-2025
 - Korea Forest Service
 - Project no. RS-2024-00404133
 - Participation Role: Researcher - coordinated and assisted in project operations.

INTERNATIONAL PRESENTATIONS

1) Seed Orchard 2026 International Conference (Oral presentation)

- Location: Suwon, Korea
- Date: 18/05/2026
- Title: OptOrch: A modular optimization toolkit for forest tree seed orchard deployment

2) Forest Genetics Conference 2025 (Oral presentation)

- Location: Pennsylvania, USA
- Date: 24/06/2025
- Title: Comprehensive Strategies for Managing Gene Diversity and Growth Potential of Crops by Mean of Selective Cone Harvest in a Seed Orchard of *Pinus koraeensis*

3) IUFRO World Congress 2024 (Oral presentation)

- Location: Stockholm, Sweden
- Date: 28/06/2024
- Title: Genetic selection using linear deployment for the 2nd generation seed orchards of *Quercus acuta* and *Q. glauca*.

4) Forest Genetics 2023 (Poster presentation)

- Location: British Columbia, Canada
- Date: 11/07/2023
- Title: Genetic variation of biomass, acorn production, and physiological trait among families in *Quercus acuta* and *Q. glauca* seed orchards.

5) Seoul National University – Kyushu University Joint Symposium (Oral presentation)

- Location: Kyushu, Japan
- Date: 31/08/2022
- Title: Cooperative research on evergreen broadleaf tree species for carbon neutrality

6) IUFRO Seed Orchard conference 2019 (Oral presentation)

- Location: Nanjing, China
- Date: 15/10/2019
- Title: Selection for carbon sequestration from 100 open-pollinated families in an early test of *Pterocarpus macrocarpus* in Cambodia.

TEACHING EXPERIENCE

1) Teaching Assistant at Seoul National University

- Course: Forest Medicinal and Nutritional Plant
- Semester: 03/2022~06/2022
- Responsibilities: Supported course administration and managed exam grading.

2) Teaching Assistant at Seoul National University

- Course: Forest Genetics and Breeding with Experimental Applications
- Semester: 09/2021~12/2021
- Responsibilities: Taught practical sessions on pine cone analysis and assisted with exam grading.

AWARDS

1) Outstanding Graduate Researcher Award

- Institution: Agriculture-forestry Bioresource Convergence Center by Brain Korea 21
- Location: Seoul, Korea
- Date: 11/09/2024

2) Excellence Award of Paper Competition at 8th International Youth Forest Contest

- Institution: Korea Forest Service
- Location: Daejeon, Korea
- Date: 19/10/2021

3) Best Paper Presentation Award at Korean Joint Conference of Forest Science

- Institution: Korea Society of Forest Science
- Location: Seoul, Korea
- Date: 24/02/2021

4) Best Poster Presentation Award at International Conference

- Institution: Korea Society of Forest Science
- Location: Seoul, Korea
- Date: 20/08/2020

5) Best Oral Presentation Award by a Young Scientist at IUFRO Seed Orchard conference

- Institution: IUFRO
- Location: Nanjing, China
- Date: 16/10/2019

SCHOLARSHIPS

1) Brain Korea 21 Scholarship

- Period: 03/2023~12/2024

2) Brain Korea 21 Fellowship for Outstanding Researchers

- Period: 03/2022~12/2022

3) Teaching Assistant Scholarship

- Period: 03/2021~12/2021

4) Evergreen Cultural Foundation, Seoul National University

- Period: 03/2019~12/2020

REFERENCE

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