

Curriculum Vitae  
Kiyotada HAYASHI

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National Agriculture and Food Research Organization  
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**Education**

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Doctor, Agricultural Sciences, Gifu University, 1999  
M.S., Agricultural Sciences, Gifu University, 1987  
B.A., Agricultural Sciences, Gifu University, 1985

**Experience and Affiliations**

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Senior Principal Researcher, 2021–present, Research Group for Integrated Mitigation Practices,  
Division of Climate Change Mitigation Strategies, Institute for Agro-Environmental Sciences,  
National Agriculture and Food Research Organization

Unit Leader, 2019–2021, Integrated Assessment Unit, Division of Environmental Informatics and  
Inventory, Institute for Agro-Environmental Sciences, National Agriculture and Food Research  
Organization

Senior Principal Researcher, 2016–2019, Integrated Assessment Unit, Division of Environmental  
Informatics and Inventory, Institute for Agro-Environmental Sciences, National Agriculture  
and Food Research Organization

Research Leader, 2011–2016, Division for Agricultural Management, National Agricultural Research  
Center, National Agriculture and Food Research Organization

OECD Fellow, 2006, Institute for Environmental Decisions, Swiss Federal Institute of Technology  
(ETH) Zurich

Team Leader, 2006–2011, Environmental Assessment and Management Research Team, National  
Agricultural Research Center, National Agriculture and Food Research Organization

Head of Laboratory, 2003–2006, Horticultural Management Laboratory, National Agricultural  
Research Center, National Agriculture and Bio-oriented Research Organization

Head of Laboratory, 2002–2003, Horticultural Management Laboratory, National Agricultural  
Research Center, National Agricultural Research Organization

Guest Research Scholar, 2001–2002, Risk, Modeling and Society Project, International Institute for

## Applied System Analysis (IIASA)

Senior Researcher, 2001–2002, Trend Analysis Laboratory, Department of Integrated Research for Agriculture, National Agricultural Research Center for Tohoku Region, National Agricultural Research Organization

Senior Researcher, 1997–2001, Trend Analysis Laboratory, Department of Integrated Research for Agriculture, Tohoku National Agricultural Research Station, Ministry of Agriculture, Forestry and Fisheries of Japan

Senior Researcher, 1996–1997, Integrated Research Team No.1, Department of Integrated Research for Agriculture, Chugoku National Agricultural Research Station, Ministry of Agriculture, Forestry and Fisheries of Japan

Researcher, 1994–1996, Integrated Research Team No.1, Planning and Liaison Office, Chugoku National Agricultural Research Station, Ministry of Agriculture, Forestry and Fisheries of Japan

Sort-Term Expert, 1992, Japan International Cooperation Agency (JICA), Koronivia Research Station, Republic of Fiji

Researcher, 1991–1994, Marketing Laboratory, Department of Integrated Research for Agriculture, Chugoku National Agricultural Research Station, Ministry of Agriculture, Forestry and Fisheries of Japan

Administrator, 1990–1991, Food and Marketing Bureau, Ministry of Agriculture, Forestry and Fisheries of Japan

Researcher, 1987–1990, Farm Management Laboratory No.1, Department of Farm Management, Chugoku National Agricultural Research Station, Ministry of Agriculture, Forestry and Fisheries of Japan

Researcher, 1987, Planning and Liaison Office, Chugoku National Agricultural Research Station, Ministry of Agriculture, Forestry and Fisheries of Japan

## **Awards**

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The EcoBalance Poster Award (Outstanding Poster), The Institute of Life Cycle Assessment, Japan, Yuma Sasaki, Rina Shinozaki, Takahiro Orikasa, Nobutaka Nakamura, Kiyotada Hayashi, Yoshihito Yasaka, Naoki Makino, Koichi Shobatake, Shoji Koide, Takeo Shiina, Modeling the relationship between life cycle environmental impacts of ripened peach and food loss reduction induced by transportation packaging, 2022

Best Paper Award, The Japanese Society of Agricultural Machinery and Food Engineers, Yuma Sasaki, Takahiro Orikasa, Nobutaka Nakamura, Kiyotada Hayashi, Yoshihito Yasaka, Naoki Makino, Koichi Shobatake, Shoji Koide, Takeo Shiina, Influence of plastic package on reduction of environmental burden during distribution of fruit and vegetables: Life cycle assessment (LCA) of strawberry considering damage by transport vibration, 2021

Outstanding Achievement Award, Institute of Life Cycle Assessment, Japan, Kiyotada Hayashi, Life

Cycle Assessment for the Establishment of Sustainable Agricultural Production Systems, 2018  
Best Paper Award, Institute of Life Cycle Assessment, Japan, Susumu Uchida, Kiyotada Hayashi,  
Indices of water footprint on the basis of the concept of acceptable delay in water use: Their  
application to evaluation of agricultural production, 2015  
Best Paper Award, Institute of Life Cycle Assessment, Japan, Kiyotada Hayashi, Practical  
recommendations for supporting agricultural decisions through life cycle assessment based on  
two alternative views of crop production: The example of organic conversion, 2014  
Best Paper Award, Institute of Life Cycle Assessment, Japan, Shingo Hokazono, Kiyotada Hayashi,  
Comparative life cycle assessment of organic and conventional soybean production in paddy  
fields under rotational cropping, 2013  
Young Researcher Award, Farm Management Society of Japan, Kiyotada Hayashi, Agricultural  
Decision Analysis under Multiple Criteria and Multiple Participants

### **Research Grants**

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2021–2022(2025), Theme Leader, Pilot Research Project to Establish Decarbonized Agriculture,  
Revolutionary Environmental Research, the Ministry of Agriculture, Forestry and Fisheries  
2021–2022(2023), Co-investigator, Development of Characterization Factors for Pesticide Ecotoxicity  
Refined by Action Mechanisms and Their Applications to Crop Protection Strategies,  
Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science  
2020–2022(2024), Co-investigator, Mitigation of Greenhouse Gas Emissions from Agricultural Lands  
by Optimizing Nitrogen and Carbon Cycles, the Moonshot Research and Development  
Program, New Energy and Industrial Technology Development Organization (NEDO)  
2020–2022(2023), Co-investigator, Advancement of Technology for Manufacturing Biodegradable  
Plastic-degrading Enzymes and Utilization Technology for Biodegradable Agricultural  
Materials that Contribute to Labor Saving in Upland Field Farming, Innovation Creation  
Enhancement Research Promotion Project, Bio-oriented Technology Research Advancement  
Institution (BRAIN)  
2019–2021, Co-investigator, Development and Demonstration of Biodegradable and Biomass-derived  
Novel Plastic Films for Agriculture, Demonstration Project for Building a Recycling System  
for Plastics and Other Resources that Supports a Decarbonized Society, the Ministry of the  
Environment  
2018–2022, Principal Investigator, Construction of Prospective LCA through Incorporating Temporal  
and Spatial Scenario Uncertainties, Grant-in-Aid for Scientific Research, Japan Society for the  
Promotion of Science  
2017, Japanese Representative, LCA across Borders, International Network Programme, Danish  
Academy of Science, Technology and Innovation  
2017–2019, Principal Investigator, Visualization of Environmental Load Reduction Effects in Golf  
Course Management Using Input Materials Derived from Brewery Sub-products, Funded Joint

Research with Accordia Golf Co. Ltd. and Asahi Biocycle Co. Ltd.

2016–2017, Principal Investigator, Visualization of Environmental Load Reduction Effects in Plant Production Using Agricultural Inputs Derived from Brewery Sub-products, Research Collaboration with Asahi Group Holdings, Ltd.

2015–2017, Theme Leader, Establishment of Economic Indicators and Assessment Methods for the Promotion of Integrated Pest Management, Regulatory Science Studies for Stable Provision of Safer Agricultural, Forestry, and Aquatic Products, the Ministry of Agriculture, Forestry and Fisheries

2015–2016, Principal Investigator, Visualization of Environmental Load Reduction Effects in Rice Production Using Agricultural Inputs Derived from Brewery Sub-products, Research Collaboration with Asahi Group Holdings, Ltd.

2014–2018, Principal Investigator, Life Cycle Assessment of Food Supply Chains through the Establishment of Asian Research Networks, Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science

2014–2016, Principal Investigator, Development and Applications of LCA-based Decision Support Methods for Resolving Trade-offs between Agricultural Production and the Environment, Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science

2013–2017, Co-investigator, Development of Stable Agricultural Production Technologies utilizing Biodiversity, Research Development to Cope with Climate Changes in Agriculture, Forestry and Fisheries, the Ministry of Agriculture, Forestry and Fisheries

2013–2015, Theme Leader, Establishment of Fundamental Technologies for Conducting Value Assessment and Generating Introduction Strategies for Renewable Energy, The Environment Research and Technology Development Fund (ERTDF), Ministry of the Environment

2011–2013, Principal Investigator, Designing Sustainable Agricultural and Energy Production Systems through Land Use Impact Assessment Based on LCA, Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science

2009–2013, Theme Leader, Development of Organic Materials and Their Utilization Technologies for Resource-saving Agriculture, Development of Circulated Food Production Systems under Climate Change, The Ministry of Agriculture, Forestry and Fisheries

2008, Co-operative Research Programme: Biological Resource Management for Sustainable Agricultural Systems, Conference Sponsorship Programme, Organisation for Economic Co-operation and Development (OECD)

2008–2010, Theme Leader, Biofuel Utilization Strategy for Sustainable Development in Asia-Pacific Regions, Environment Research and Technology Development Fund, The Ministry of the Environment

2008–2010, Principal Investigator, Designing Sustainable Agricultural Systems Through Integrated Environmental, Economic, and Social Modeling, Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science

2007, Bilateral Joint Seminars (Agroscope Reckenholz-Taenikon Research Station (ART)), Japan Society for the Promotion of Science

2007–2011, Team Leader, Construction, Demonstration, and Evaluation of Biomass Utilization Models, Development of Biomass Utilization Technologies for Regional Revitalization, The Ministry of Agriculture, Forestry and Fisheries

2006, Co-operative Research Programme: Biological Resource Management for Sustainable Agricultural Systems, Research Fellowship, Organisation for Economic Co-operation and Development (OECD)

2006, Invitation Fellowship Programs for Research in Japan, Short-Time (Dr. Thomas Nemecek), Japan Society for the Promotion of Science

2004–2007, Principal Investigator, Research on Construction of Sustainable Horticultural Production Systems Using Integrated Evaluation Methodologies, Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science

## **Professional Activities**

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### ***Contributions to Academic Societies/Associations***

The Institute of Life Cycle Assessment, Japan, Internationalization committee, January 2017–present

The Institute of Life Cycle Assessment, Japan, Awardee Selection Committee, January 2013–December 2018

The Institute of Life Cycle Assessment, Japan, Director, January 2012–present

International Scientific Advisory Board, 2011 International Conference on Climate Change, Agri-Food, Fisheries, and Ecosystems, Agadir, Morocco, May 20–22, 2011

Expert Panel, Workshop on Biodiversity Modelling in LCA, Sustainability 2.0 - From Green to Blue, Stuttgart, Germany, October 26–28, 2010

International Scientific Advisory Board, 2009 International Conference on the Integration of Sustainable Agriculture and Rural Development in the Context of Climate Change, the Energy Crisis and Food Insecurity, Agadir, Morocco, November 12–14, 2009

International Conference on Life Cycle Assessment in the Agri-Food Sector (LCA Food), Scientific Committee, October 2007–present (2008 Zurich, Switzerland; 2010 Bari, Italy; 2012 Saint-Malo, France; 2014 San Francisco, USA; 2016 Dublin, Ireland; 2018 Bangkok, Thailand; 2020 Berlin, Germany (virtual); 2022 Lima, Peru (hybrid))

Technical Program Committee, European Safety and Reliability Conference, Stavanger, Norway, June 25–27, 2007

The Institute of Life Cycle Assessment, Japan, Organizing committee, the International Conference of EcoBalance, January 2006–present

Technical Program Committee, European Safety and Reliability Conference, Tri City, Poland, June 27–30, 2005

Japanese Society of Agricultural Informatics, Councilor, April 2005–present

Agricultural Economics Society of Japan, Director, April 2004–March 2006  
Scientific Program Committee, The 3rd Safety and Reliability International Conference, Gdynia, Poland, May 26–30, 2003  
Program Committee, Advanced Research Workshop on Predictive Risk Assessment and Decision Support Systems, Technical University of Gdansk, Gdansk, Poland, June 25–27, 2001  
Editorial Panel, The 2nd International Conference on Multiple Objective Decision Support Systems for Land, Water and Environmental Management, Brisbane, Australia, August 1–6, 1999

### ***Contributions to Academic Journals***

Journal of Life Cycle Assessment, Japan (The Institute of Life Cycle Assessment, Japan), Editorial Committee, January 2014–present; Vice-chairman, January 2017–December 2018; Chairman, January 2019–present.  
Journal of Cleaner Production, Guest Editor for the special issue “Towards eco-efficient agriculture and food systems: Selected papers from the Life Cycle Assessment (LCA) Food Conference, 2012, in Saint Malo, France”, October 2012–June 2014.  
Journal of Cleaner Production, Guest Editor for the special issue “Working towards a more sustainable agri-food industry: Main findings from the Food LCA 2010 conference in Bari, Italy”, September 2010–June 2012.  
Journal of Rural Economics (Agricultural Economics Society of Japan), Editorial Committee, April 2007–March 2009.  
Agricultural Information Research (Japanese Society of Agricultural Informatics), Editorial Committee, April 2004–March 2009.  
Information Technology for Economics and Management, Editorial Board, January 2002–December 2006

### ***Journal Reviewers***

Agricultural Information Research (in Japanese)  
Agricultural Systems  
Agronomy  
Agronomy for Sustainable Development  
Animal Science Journal  
British Journal of Education, Society & Behavioural Science  
Central European Journal of Operations Research  
Earth Science Informatics  
Ecological Economics  
Environmental Economics and Policy Studies  
Environmental Impact Assessment Review  
Environmental Management

Environmental Modeling and Assessment  
Environmental Science and Technology  
International Journal of Foresight and Innovation Policy  
International Journal of Plant Production  
International Journal of Production Economics  
International Journal of Sustainable Development  
Japanese Journal of Farm Management (in Japanese)  
Japanese Journal of Rural Economics (in Japanese)  
Journal of Agricultural Science and Technology  
Journal of Cleaner Production  
Journal of Environmental Management  
Journal of Japan Society of Civil Engineers, Ser. G (Environmental Research) (in Japanese)  
Papers in Regional Science  
Reliability Engineering and System Safety  
Stochastic Environmental Research and Risk Assessment  
Sustainability  
Sustainability Science  
Sustainable Production and Consumption  
The International Journal of Life Cycle Assessment  
The Journal of Life Cycle Assessment, Japan (in Japanese)  
The Science of the Total Environment

***Engagement in Agricultural and Environmental Policy***

Selection and Review Committee, Project to Strengthen Countermeasures Against Plastic Problems in  
Agricultural and Livestock Industries, Sustainable Plastic Use Project in Agriculture, Forestry,  
and Fisheries (Ministry of Agriculture, Forestry and Fisheries), 2020–2022  
Evaluation Committee for Plastic Food Containers and Packaging, Plastic Waste Management  
Institute, 2016–2020  
Review Committee, Visualization of Water Resource Recycling, Mizuho Information and Research  
Institute (Ministry of Agriculture, Forestry and Fisheries), 2014–2015  
Selection and Review Committee, Visualization of Integrated Environmental Information in  
Agriculture, Forestry, and Fisheries (Ministry of Agriculture, Forestry and Fisheries), 2014  
Selection and Review Committee, Research and Examination Project for Visualization of Water  
Resource Recycling (Ministry of Agriculture, Forestry and Fisheries), 2013–2015  
Selection and Review Committee, Research Strategies for Utilizing International Water Footprint  
Standards in the European and American Agriculture, Food, and Distribution Industries  
(Ministry of Agriculture, Forestry and Fisheries), 2013  
Adviser, Demonstration and Promotion of Introduction of Farmland Management Technology

Utilizing Local Resources that Contribute to the Mitigation of Global Warming and Conservation of Water Quality, Practical Technology Development Project to Promote New Agricultural, Forestry, and Fisheries Policies (Ministry of Agriculture, Forestry and Fisheries), 2011–2013

Task Force Committee for Energy Systems and Evaluation, Tsukuba Environment-Energy-Economy Forum, 2009–2013

Review Committee, Promotion Project of “CO<sub>2</sub> Visualization” in Agriculture, Forestry and Fisheries, Mitsubishi Research Institute (Ministry of Agriculture, Forestry and Fisheries), 2012–2013

Review Committee, Promotion Project of “CO<sub>2</sub> Visualization” in Agriculture, Forestry and Fisheries, Institute for Reflexive Community (Ministry of Agriculture, Forestry and Fisheries), 2010–2012

Carbon Footprint of Products (CFP) Verification Panel, CFP Pilot Project, Japan Environmental Management Association for Industry (Ministry of Economy, Trade and Industry), 2010–2011

Product Category Rule (PCR) Approval Committee, Carbon Footprint of Products (CFP) Pilot Project, Japan Environmental Management Association for Industry (Ministry of Economy, Trade and Industry), 2010–2011

Services Working Group, Carbon Footprint of Products (CFP) Pilot Project, Mizuho Information and Research Institute (Ministry of Economy, Trade and Industry), 2010–2011

Verification Panel of CO<sub>2</sub> equivalence data, Carbon Footprint Data Accumulation Project, Japan Environmental Management Association for Industry (Ministry of Economy, Trade and Industry), 2010

Verification Committee of CO<sub>2</sub> equivalence data, Carbon Footprint Data Accumulation Project, Japan Environmental Management Association for Industry (Ministry of Economy, Trade and Industry), 2010–2011

Review Committee, Support of Participation in Emission Trading in Agriculture, Forestry and Fisheries, Mizuho Information and Research Institute (Ministry of Agriculture, Forestry and Fisheries), 2010

Review Committee, Project on Soil Carbon Sequestration through Farm Management Practices, Japan Soil Association (Ministry of Agriculture, Forestry and Fisheries), 2009–2012

Working Group Committee, Technology Validation Project on Biofuels in Hokkaido, Hokkaido Intellect Tank (Ministry of Agriculture, Forestry and Fisheries), 2009

Chairperson, Impact Assessment Project of “Biomass Towns,” Exploratory Committee, Mizuho Information and Research Institute (Ministry of Economy, Trade and Industry), 2008

Advisory Committee, National Project on Mechanization of Agricultural Production, Japan Agricultural Development and Extension Association (Ministry of Agriculture, Forestry and Fisheries), 2002–2008

Working Group Member, Research on the Development of New Farmland, Water and Environmental Conservation Technologies, Japan Association for Techno-innovation in Agriculture, Forestry



and Fisheries (Ministry of Agriculture, Forestry and Fisheries), 2006  
Expert Committee, Management/Life Subcommittee, Agriculture, Forestry and Fisheries Festival,  
Japan Agriculture, Forestry and Fisheries Promotion Association, 2002–2005  
Theory Construction Committee, Management Enhancement System Research and Development  
Project, Japan Rural Information System Association (Ministry of Agriculture, Forestry and  
Fisheries), 2003–2005  
Review Committee, Mechanization of Heavy Vegetable Production Systems in Kanto Region, Kanto  
Agricultural Administration Bureau, 2002  
Expert Committee for National Civil Service Employment Examination, National Personnel Authority,  
2002–2004

### ***Research Grant Reviewer***

Review Committee, Grants-in-Aid for Scientific Research, Environmental Policy and Eco-friendly  
Society, Japan Society for the Promotion of Science, 2018, 2019, 2020  
Reviewer, AgreenSkills+ fellowships (an international mobility programme co-funded by the  
European Commission in the frame of the COFUND - FP7 People Programme, coordinated by  
the French National Institute for Agricultural Research (INRA) and Agreenium), 2017  
Review Committee, Grants-in-Aid for Scientific Research, Environmental Agriculture (incl.  
Landscape Science), Japan Society for the Promotion of Science, 2016  
Evaluation Committee for Research Progress, Grants-in-Aid for Scientific Research, Japan Society for  
the Promotion of Science, 2015  
Review Committee, Grants-in-Aid for Scientific Research, Sustainable Systems, Japan Society for the  
Promotion of Science, 2013, 2014  
Review Committee, Grants-in-Aid for Scientific Research, Agricultural Economics, Japan Society for  
the Promotion of Science, 2010, 2011

### **Publications**

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#### ***Refereed Journals (in English)***

Kiyotada Hayashi. 2023. Partitioning product footprint changes into yield and environmental  
improvement effects: toward life cycle assessment of agricultural system transitions. *The  
International Journal of Life Cycle Assessment*, 28(4): 336–348. DOI:  
10.1007/s11367-022-02112-2  
Yuma Sasaki, Takahiro Oriyasa, Rina Shinozaki, Nobutaka Nakamura, Kiyotada Hayashi, Yoshihito  
Yasaka, Naoki Makino, Koichi Shobatake, Shoji Koide, Takeo Shiina. 2022. Ideal packaging  
for ripened peaches determined through modeling the relationship between food loss reduction  
and life cycle environmental impacts. *Packaging Technology and Science*. DOI:  
10.1002/pts.2708  
Yuma Sasaki, Takahiro Oriyasa, Nobutaka Nakamura, Kiyotada Hayashi, Yoshihito Yasaka, Naoki

- Makino, Koichi Shobatake, Shoji Koide, Takeo Shiina. 2022. Determination of the most environmentally friendly packaging for peach during transportation by modeling the relationship between food loss reduction and environmental impact. *Journal of Food Engineering*, 331: 111120. DOI: 10.1016/j.jfoodeng.2022.111120
- Yuma Sasaki, Takahiro Oriksa, Nobutaka Nakamura, Kiyotada Hayashi, Yoshihito Yasaka, Naoki Makino, Koichi Shobatake, Shoji Koide, Takeo Shiina. 2022. Optimal packaging for strawberry transportation: Evaluation and modeling of the relationship between food loss reduction and environmental impact. *Journal of Food Engineering*, 314: 110767. DOI: 10.1016/j.jfoodeng.2021.110767
- Yuma Sasaki, Takahiro Oriksa, Nobutaka Nakamura, Kiyotada Hayashi, Yoshihito Yasaka, Naoki Makino, Koichi Shobatake, Shoji Koide, Takeo Shiina. 2021. Dataset for life cycle assessment of strawberry-package supply chain with considering food loss during transportation. *Data in Brief*, 39: 107473. DOI: 10.1016/j.dib.2021.107473
- Yuma Sasaki, Takahiro Oriksa, Nobutaka Nakamura, Kiyotada Hayashi, Yoshihito Yasaka, Naoki Makino, Koichi Shobatake, Shoji Koide, Takeo Shiina. 2021. Life cycle assessment of peach transportation considering trade-off between food loss and environmental impact. *The International Journal of Life Cycle Assessment*, 26(4): 822–837. DOI: 10.1007/s11367-020-01832-7
- Kiyotada Hayashi. 2020. Inconsistencies between regional- and field-scale biodiversity indicators within life cycle assessment: The case of rice production systems in Japan. *The International Journal of Life Cycle Assessment*, 25(7): 1278–1289. DOI:10.1007/s11367-020-01749-1
- Longlong Tang, Kiyotada Hayashi, Keiya Inao, Morten Birkved, Sander Bruun, Kazunori Kohyama, Motoko Shimura. 2020. Developing a management-oriented simulation model of pesticide emissions for use in the life cycle assessment of paddy rice cultivation. *Science of the Total Environment*, 716: 137034. DOI: 10.1016/j.scitotenv.2020.137034
- Kiyotada Hayashi, Erwinsyah, Vita Dhian Lelyana, Kohji Yamamura. 2020. Acoustic dissimilarities between an oil palm plantation and surrounding forests: Analysis of index time series for beta-diversity in South Sumatra, Indonesia. *Ecological Indicators*, 112: 106086. DOI: 10.1016/j.ecolind.2020.106086
- Kiyotada Hayashi. 2019. Creating a “family tree” on fertilizer inventory use in life cycle assessment of oil palm: Visualization of earlier studies and its implications. *The International Journal of Life Cycle Assessment*, 24(10): 1805–1815. DOI: 10.1007/s11367-019-01607-9
- Longlong Tang, Kiyotada Hayashi, Kentaro Ohigashi, Motoko Shimura, Kazunori Kohyama. 2019. Developing characterization factors to quantify management impacts on soil quality of paddy fields within life cycle assessment. *Journal of Cleaner Production*, 238: 117890. DOI: 10.1016/j.jclepro.2019.117890
- Longlong Tang, Kiyotada Hayashi, Kazunori Kohyama, Ai Leon. 2018. Reconciling life cycle environmental impacts with ecosystem services: A management perspective on agricultural

- land use. *Sustainability*, 10(3): 630. DOI: 10.3390/su10030630
- Motoko Shimura, Hidehiro Takahashi, Chiharu Ito, Makoto Shibuya, Kiyotada Hayashi, Kenji Matsumori. 2017. Improvement potential of life cycle greenhouse gas emissions from paddy fields: Assessing influence of sparse transplanting and non-puddling. *Japan Agricultural Research Quarterly*, 51(2): 155–164. DOI: 10.6090/jarq.51.155
- Kiyotada Hayashi, Yoshifumi Nagumo, Akiko Domoto. 2016. Linking environment-productivity trade-offs and correlated uncertainties: Greenhouse gas emissions and crop productivity in paddy rice production systems. *Science of the Total Environment*, 571: 134–141. DOI: 10.1016/j.scitotenv.2016.07.138
- Kiyotada Hayashi, Hiroki Hondo, Yue Moriizumi. 2016. Preference construction processes for renewable energies: Assessing the influence of sustainability information and decision support methods. *Sustainability*, 8(11): 1114. DOI: 10.3390/su8111114
- Shingo Hokazono, Kiyotada Hayashi (Corresponding Author). 2015. Life cycle assessment of organic paddy rotation systems using land- and product-based indicators: A case study in Japan. *The International Journal of Life Cycle Assessment*, 20 (8): 1061–1075. DOI: 10.1007/s11367-015-0906-7
- Kiyotada Hayashi, Naoki Makino, Koichi Shobatake, Shingo Hokazono. 2014. Influence of scenario uncertainty in agricultural inputs on life cycle greenhouse gas emissions from agricultural production systems: The case of chemical fertilizers in Japan. *Journal of Cleaner Production*, 73: 109–115. DOI: 10.1016/j.jclepro.2013.11.051
- Kiyotada Hayashi. 2014. Ecological-economic assessment of farms using multi-input multi-output models: Life cycle assessment with multiple paired comparisons. *International Journal of Sustainable Development*, 17(1): 9–21. DOI: 10.1504/IJSD.2014.058431
- Hayo van der Werf, Tara Garnett, Michael Corson, Kiyotada Hayashi, Donald Huisingsh, Christel Cederberg. 2014. Towards eco-efficient agriculture and food systems: Theory, praxis and future challenges. *Journal of Cleaner Production*, 73: 1–9. DOI: 10.1016/j.jclepro.2014.04.017
- Yann B. Blumer, Michael Stauffacher, Daniel J. Lang, Kiyotada Hayashi, Susumu Uchida. 2013. Non-technical success factors for bioenergy projects: Learning from a multiple case study in Japan. *Energy Policy*, 60: 386–395. DOI: 10.1016/j.enpol.2013.05.075
- Kiyotada Hayashi. 2013. Practical recommendations for supporting agricultural decisions through life cycle assessment based on two alternative views of crop production: The example of organic conversion. *The International Journal of Life Cycle Assessment*, 18(2): 331–339. DOI: 10.1007/s11367-012-0493-9
- Susumu Uchida, Kiyotada Hayashi (Corresponding Author), Mitsuru Gau, Tsutomu Kajiyama, Shigekiyo Shirasawa, Hiroyuki Takahashi, Yoshifumi Terajima, Makoto Matsuoka, Masaru Yoshinaga. 2012. Life cycle assessment of energy crop production with special attention to the establishment of regional biomass utilisation systems. *International Journal of Foresight and Innovation Policy*, 8(2/3): 143–172. DOI: 10.1504/IJFIP.2012.046108

- Shingo Hokazono, Kiyotada Hayashi (Corresponding Author). 2012. Variability in environmental impacts during conversion from conventional to organic farming: A comparison among three rice production systems in Japan. *Journal of Cleaner Production*, 28: 101–112. DOI: 10.1016/j.jclepro.2011.12.005
- Susumu Uchida, Kiyotada Hayashi (Corresponding Author). 2012. Comparative life cycle assessment of improved and conventional cultivation practices for energy crops in Japan. *Biomass and Bioenergy*, 36: 302–315. DOI: 10.1016/j.biombioe.2011.10.043
- Bruno Notarnicola, Kiyotada Hayashi, Mary Ann Curran, Donald Huisingh. 2012. Progress in working towards a more sustainable agri-food industry. *Journal of Cleaner Production*, 28: 1–8. DOI: 10.1016/j.jclepro.2012.02.007
- Shingo Hokazono, Kiyotada Hayashi, Masaei Sato. 2009. Potentialities of organic and sustainable rice production in Japan from a life cycle perspective. *Agronomy Research*, 7(s1): 257–262
- Kiyotada Hayashi. 2006. Environmental indicators for agricultural management: Integration and decision making. *International Journal of Materials and Structural Reliability*, 4(2): 115–127
- Kiyotada Hayashi, Hiroki Kawashima. 2004. Integrated evaluation of greenhouse vegetable production: Toward Sustainable Management. *Acta Horticulturae*, 655: 489–469. DOI: 10.17660/ActaHortic.2004.655.59
- Kiyotada Hayashi. 2000. Multicriteria analysis for agricultural resource management: A critical survey and future perspectives. *European Journal of Operational Research*, 122(2): 486–500. DOI: 10.1016/S0377-2217(99)00249-0
- Kiyotada Hayashi. 2000. Evaluation of alternative farming systems by multicriteria analysis. *Japan Agricultural Research Quarterly*, 34(3): 209–213
- Kiyotada Hayashi. 1998. Multicriteria aid for agricultural decisions using preference relations: Methodology and application. *Agricultural Systems*, 58(4): 483–503. DOI: 10.1016/S0308-521X(98)00063-8

### ***Reviews and Commentaries in Journals (in English)***

- Shinsuke Murakami, Jun Nakatani, Kenichi Nakajima, Eri Amasawa, Ryota Ii, Kiyotada Hayashi, Naoki Yoshikawa, Ichiro Daigo, Yusuke Kishita, Tomohiko Ihara, Koichi Shobatake, Yuki Kudoh, Masaharu Motoshita, Keiichiro Kanemoto, Minako Hara, Aiichiro Kashiwagi, Seiji Hashimoto, Yosuke Shigetomi, Masayuki Kanzaki, Yasunori Kikuchi, Hajime Ohno, Yasuhiro Fukushima. 2019. EcoBalance 2018—Nexus of ideas: innovation by linking through life cycle thinking (9–12 October 2018, Tokyo, Japan). *The International Journal of Life Cycle Assessment*, 24(8): 1544–1552. DOI: 10.1007/s11367-019-01641-7
- Keisuke Nansai, Masaharu Motoshita, Ichiro Daigo, Seiji Hashimoto, Kiyotada Hayashi, Keiichiro Kanemoto, Aiichiro Kashiwagi, Yoshinori Kobayashi, Shinsuke Kondo, Yuki Kudoh, Yasunari Matsuno, Hiroki Tanikawa, Eiji Yamasue, Naoki Yoshikawa. 2017. EcoBalance 2016—responsible value chains for sustainability (October 3-6, 2016, Kyoto, Japan). The

International Journal of Life Cycle Assessment, 22(7): 1165–1174. DOI:  
10.1007/s11367-017-1310-2

Shigeyuki Miyamoto, Toshiharu Ikaga, Minako Hara, Shun Kawakubo, Yasunari Matsuno, Kenichi Nakajima, Kiyoshi Dowaki, Masaharu Motoshita, Kiyotada Hayashi, Kazuyo Matsubae, Michiyasu Nakajima, Hideki Kakisawa, Seiji Hashimoto. 2013. The 10th International Conference on EcoBalance (EcoBalance 2012): Challenges and Solutions for Sustainable Society, November 20–23, 2012, Tokyo, Japan. The International Journal of Life Cycle Assessment, 18(7): 1425–1433. DOI: 10.1007/s11367-013-0598-9

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