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Developing circular agricultural production systems

Edited by Professor (UZ) Dr Barbara Amon, University of Zielona Góra, Poland and Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Germany



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About the book

The book addresses recent advances in understanding and developing closed-loop systems to optimise crop nutrient cycles and resource use, as well as ways agricultural wastes can be recycled back into agricultural production or used as feedstock to produce a range of bio-based materials.

About the editor

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Engineering and Bioeconomy (ATB), Germany. Professor Amon sits on many panels, including the Intergovernmental Panel on Climate Change (IPCC), UNECE, UNEP and the FAO LEAP Partnership.

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- Circular, closed-loop agricultural systems: key principles and challenges: Rolf Meyer, Institute for Technology Assessment and Systems Analysis (ITAS), Karlsruhe Institute of Technology (KIT), Germany
- 2. Understanding and developing closed-loop nutrient cycles in crop production: Theun Vellinga, Wageningen University and Research, The Netherlands
- 3. Closed-loop combined crop-livestock farming systems: Friedhelm Taube, John Kormla Nyameasem and Friederike Fenger, University of Kiel, Germany
- 4. Closed-loop precision farming technologies to optimize resource use: C. Maraveas and T. Bartzanas, Agricultural University of Athens, Greece

Part 2 Re-using agricultural and other wastes

- Using crop residues/by-products as livestock feed in a circular economy: Andre F. Brito and Kleves V. Almeida, University of New Hampshire, USA; and Luiz H. P. Silva, Western Kentucky University, USA
- 6. Optimizing slurry management: David Fangueiro, LEAF-Instituto Superior de Agronomia-ULisboa, Portugal; Jihane Elmahdi, Wageningen University and Research, The Netherlands; Jared Nyang'au, Aarhus University, Denmark; Stamatis Chrysanthopoulos, LEAF-Instituto Superior de Agronomia-ULisboa, Portugal; Jerke De Vries, Wageningen University and Research, The Netherlands; and Peter Sørensen, Aarhus University, Denmark
- Optimizing livestock manure as a biofertilizer and bioenergy source: V. Riau, L. Morey, R. Cáceres, M. Cerrillo and A. Bonmatí, Institute of Agrifood Research and Technology (IRTA), Spain; and A. Robles, BETA Tech Center (UVIC-UCC), Spain
- Safe and sustainable use of bio-based fertilizers in agricultural production systems: April Leytem, Robert Dungan, Mindy Spiehs and Dan Miller, United States Department of Agriculture, USA

Part 3 Co-products

 Producing biogas from livestock manure and agricultural biomass: R. Fragoso, University of Lisbon, Portugal; D. Hidalgo, CARTIF Technology Center – Circular Economy Area, Spain; and M. Paterson, Kuratorium für Technik und Bauwesen in der Landwirtschaft e.V. (KTBL), Germany

- Multi-feedstock biorefineries for converting agricultural wastes and microalgae into co-products: Butch Bataller, University of the Philippines at Los Baños (UPLB), The Philippines; and Sergio Capareda, Texas A&M University, USA
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Part 4 Case studies

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