Understanding and minimising fungicide resistance
Edited by: Dr Francisco J. Lopez-Ruiz, Curtin University, Australia

Endorsement:
“This new book provides a comprehensive coverage of the issue of fungicide resistance in agriculture. The content of the chapters in Part one is well supported by the inclusion of several case studies – written by representatives from the scientific community and the chemical industry – in Part two which detail recent advances in understanding resistance to key groups of fungicides. Edited by a leading name in the field and featuring contributions from a very impressive list of international experts, the volume promises to be an excellent reference for the future management of fungicide resistance.” (Lise Nistrup Jørgensen, Senior Scientist, Aarhus University, Denmark)

Description:
The emergence of fungicide resistance is a major challenge facing agriculture. With increasing regulation and costs limiting the development of new fungicides, farmers remain reliant on a relatively small group of working fungicides, many of which are decreasingly effective as major crop disease pathogens develop resistance to them.

Understanding and minimising fungicide resistance provides an authoritative review on the wealth of research on understanding the development of fungicide resistance in agricultural crops and the establishment of preventative measures which can be implemented to limit its spread and the consequent impact of disease on yields. This collection includes ways of understanding and preventing resistance to key groups of fungicides, such as SBI, Qol, SDHI and OSPBI.

Key features:
- Reviews good practices for minimising the development of fungicide resistance in crop cultivation
- Provides a comprehensive overview of our current understanding of resistance to the key groups of fungicides used across agriculture
- Considers trends in the development of resistance in key staple crops and advances in techniques to predict future patterns in resistance development

Audience:
University and other researchers in crop protection and agronomy; plant pathologists; farmers; as well as government and private sector agencies supporting sustainable crop production and regulating the development and use of fungicides throughout agriculture

Editor details:
Dr Francisco J. Lopez-Ruiz leads the Fungicide Resistance Group at the Centre for Crop and Disease Management (CCDM). Based in the School of Molecular and Life Sciences at Curtin University, Australia, the Fungicide Resistance Group has made major contributions towards the management of fungicide resistance in several key plant pathogens. Dr Lopez-Ruiz has published widely on the molecular mechanisms of fungicide resistance and its detection.
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• Part 1 Understanding and managing resistance
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  2. Molecular evolution and mechanisms of fungicide resistance in plant pathogenic fungi: Laetitia Chartrain and James K. M. Brown, John Innes Centre, UK;
  3. Tracking the development of fungicide resistance: Francisco J. Lopez-Ruiz, Curtin University, Australia;
  4. Crop disease control efficacy and selection for resistance: two sides of the same coin?: Frank van den Bosch, ADAS High Mowthorpe, UK; Stephen Parnell, The University of Warwick Wellesbourne, UK; and Neil Paveley, ADAS High Mowthorpe, UK, UK;
  5. Fungicide resistance risk assessment: Mike Grimmer, ADAS Boxworth, UK;
  6. Good practice in minimising the development of fungicide resistance in crop pathogens: Neil Paveley, and Frank van den Bosch, ADAS High Mowthorpe, UK;
  7. Fungicide resistance: Evolutionary questions and practical implications Nichola Hawkins, NIAB, UK;
  8. The role of Extension in fungicide resistance management: Guido Schnabel, Clemson University, USA; and Phillip M. Brannen, University of Georgia, USA;
  9.Key challenges in developing new fungicides: Gregory M. Kenmittle, Corteva Agriscience™, UK;

• Part 2 Case studies: resistance in key groups of fungicides
  10.Understanding resistance to sterol biosynthesis inhibitor fungicides: Andreas Mehl, Bayer AG, Crop Science Division, Germany;
  11.Quinone outside inhibitor fungicide resistance: selection patterns and the current situation: Stefano F. F. Torriani and Helge Sierotzki, Syngenta Crop Protection AG, Switzerland;
  12.Understanding resistance to succinate dehydrogenase inhibitor fungicides: Wesley Mair, Centre for Crop and Disease Management, Curtin University, Australia;
  13.Understanding resistance to Anilinopyrimidine fungicides: Seiya Saito and Chang-Lin Xiao, USDA-Agricultural Research Service, San Joaquin Valley Agricultural Sciences Center, USA;
  14.Understanding resistance to oxysterol binding protein inhibitor fungicides: Jean-Luc Genet, Corteva Agriscience, France;

Related products:
Achieving durable disease resistance in cereals, 978-1-78676-601-4, 19 Oct 2021, GBP 180.00, EUR 215.00, USD 235.00, CAD 305.00, and AUD 325.00
Achieving sustainable cultivation of maize Volume 2, 978-1-78676-012-8, 31 Jul 2017, USD 220.00, EUR 205.00, CAD 290.00, GBP 170.00, and AUD 305.00
Achieving sustainable cultivation of wheat Volume 1, 978-1-78676-016-6, 30 Jun 2017, USD 245.00, EUR 230.00, CAD 325.00, GBP 190.00, and AUD 340.00
Integrated disease management of wheat and barley, 978-1-78676-216-0, 23 Oct 2018, CAD 290.00, USD 220.00, EUR 205.00, GBP 170.00, and AUD 305.00
Integrated management of diseases and insect pests of tree fruit, 978-1-78676-256-6, 10 Sep 2019, GBP 190.00, EUR 230.00, USD 245.00, CAD 325.00, and AUD 340.00
Advances in cultured meat technology

Edited by: Professor Mark Post, Maastricht University, The Netherlands, Professor Che Connon, Newcastle University, UK and Dr Chris Bryant, University of Bath and Bryant Research, UK

Endorsement:
“Advances in cultured meat technology provides a timely overview of the critical components in the commercialisation pathway for cultivated meat...This book provides insights on the wider considerations around novel food regulation and consumer adoption and will be a valuable go-to resource for anyone interested in exploring the current technical status of the cultivated meat landscape.” (Professor Ivan Wall, University of Birmingham and co-founder and CEO of Quest Meat Limited)

Description:
With the global population estimated to reach 9 billion by 2050, agricultural production must align with this growth to alleviate any further burden on our current food systems. More sustainable and alternative modes of production are required to ensure that this overburden doesn’t occur and that the food security of millions isn’t compromised in the process.

Advances in cultured meat technology reviews the growing interest and emergence in the field of cellular agriculture as one possible solution to achieving this. The book reviews the major technologies used in cultured meat product development, including cell line sourcing, cell growth media, bioreactors for cell multiplication and tissue engineering using scaffolds. The need to establish regulatory frameworks to permit the creation and trade of this new type of product is also highlighted, as is the key issue of consumer acceptance of this new technology.

Key features:
- Considers the potential benefits and challenges of cultured meat production, including the need to scale the current technology up at an affordable cost to produce nutritious and affordable products
- Addresses the key quality and sustainability issues of cultured meat production, highlighting consumer attitudes and how further education is required to increase consumer acceptance of cultured meat products
- Reviews the major technologies used in cultured meat product development, such as cell line sourcing, cell growth media and tissue engineering using scaffolds

Audience:
Researchers in agricultural, environmental and social science, government and other private sector agencies responsible for the establishment of regulatory frameworks that permit the production and trade of food items, pharmacologists involved in the study of cells and animal tissues

Editors’ details:
Dr Mark Post is Professor of Sustainable Industrial Tissue Engineering in the Faculty of Health, Medicine and Life Sciences at Maastricht University, The Netherlands.
Dr Che Connon is Professor of Tissue Engineering and FMS Director of Business Development at Newcastle University, UK.
Dr Chris Bryant is an Honorary Research Associate at the University of Bath, UK and Director of Bryant Research.
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2. Understanding the cultural context for cultured meat: Neil Stephens, University of Birmingham, UK
4. Creating an infrastructure for cultured meat: Irfan Tahir, The University of Vermont, USA; Miranda Stahn, Independent Consultant, Canada; N. Stephanie Kawecki, University of California Los Angeles, USA; Vicky Andriessen, Mosa Meat, The Netherlands; Blanca Datta, Massachusetts Institute of Technology, USA; Dwayne Holmes, Stichting New Harvest, The Netherlands; Lejjy Gafour, CULT Food Science Corp, Canada; and Isha Datar, New Harvest Inc., Canada;

Part 2 Technologies
5. Cell line sourcing and characterisation for cultured meat product development: Gareth Sullivan, University of Oslo, Norway
6. Developments in cell growth media for cultured meat product development: Andrew Stout, Tufts University, USA
7. Bioreactors for cell multiplication in cultured meat product development: Philipp Nold, Eppendorf Bioprocess Center, Germany
8. Tissue engineering using scaffolds in cultured meat product development: Shulamit Levenberg, Technion, Israel
9. Scaling cell production sustainably in cultured meat product development: Petra Hanga, University College London, UK;

Part 3 Quality and sustainability issues
10. Developing cultured meat as a food product: Jette Young, Aarhus University, Denmark
11. Assessing the environmental impact of commercial cultivated meat production: Hanna Tuomisto, University of Helsinki, Finland
12. Consumer attitudes to cultured meat products: improving understanding and acceptance: Christina Hartmann, ETH Zurich, Switzerland
13. Techno-economic analysis of cultured meat production: John P. Ellersick, Next Rung Technology, USA;

Related products:
Assessing the environmental impact of agriculture, 978-1-78676-228-3, 27 Aug 2019, CAD 270.00, USD 210.00, EUR 190.00, GBP 160.00, and AUD 290.00
Climate change and agriculture, 978-1-78676-320-4, 28 Apr 2020, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Genome editing for precision crop breeding, 978-1-78676-447-8, 20 Apr 2021, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Reducing greenhouse gas emissions from livestock production, 978-1-78676-439-3, 20 Jul 2021, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Consumers and food: Understanding and shaping consumer behaviour
Edited by: Professor Marian Garcia Martinez, The University of Kent, UK

Description:
In recent years, consumers have become increasingly interested not just in price and quality but in where and how food is produced. However, these changes to consumer attitudes have highlighted a considerable gap between intention and actual purchasing behaviour, particularly where ethical and environmental issues are concerned.

Consumers and food: Understanding and shaping consumer behaviour reviews what we know about changing food purchasing behaviours so that farmers, food manufacturers, retailers and policymakers can better meet and influence customer needs and expectations. The book reviews existing models of customer behaviour such as dual process and neuroscience approaches.

The book also considers contemporary issues such as the growing use of mobile apps to buy food, regional and cultural influences on consumer purchasing behaviour, as well as how consumers assess attributes such as food origins and sustainability.

With its unique approach, the book provides an extensive insight into consumer behaviours and attitudes, enabling the key stakeholders in the agri-food supply chain to better understand consumers and help them make healthier and more sustainable purchasing decisions.

Key features:
• Provides a comprehensive overview of the contemporary issues which have influenced consumer behaviour, such as the impact of the COVID-19 pandemic, online marketing and purchasing, as well as the use of loyalty schemes
• Addresses the need to understand consumer attitudes to new technologies and sustainability issues in agricultural production, welfare issues in livestock production and fair trade products
• Considers the regional, cultural and generational factors which can influence consumer purchasing behaviour, including geographic location, gender and age

Audience:
Researchers in the agricultural, environmental and social sciences,economists; nutritionists; food marketers, manufacturers and retailers; government and private sector agencies responsible for ensuring the sustainability and security of global agri-food supply chains

Editor details:
Dr Marian Garcia Martinez is Professor of Marketing and Innovation and Dean of the Business School at the University of Kent, UK. Professor Garcia is also Director of Kent Business School Open Innovation Network and has worked with the UKRI ESRC-funded Enterprise Research Centre on innovation for small businesses. She is internationally known for her research on open innovation management and product development by businesses working collaboratively with customers. Her publications include a recent book on open innovation in the food industry.
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- 2. Assessing neuroscience approaches to understanding consumer behaviour: Gordon Foxall, Cardiff University, UK;
- 3. Changing patterns of food purchasing behaviour in sub-Saharan Africa: John Kuada, Aalborg University, Denmark;
- 4. The effects of age differences on food purchasing behaviour: Irene Kamenidou, International Hellenic University, Greece;
- 5. Behavioral changes towards sustainable food consumption: Getachew Abate Kassa, Technical University of Munich, Denmark;

Part 2 Product attributes
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- 7. Trends in consumer preference for locally-sourced food products: Matthew Gorton, Newcastle University, UK;
- 8. Understanding consumer perceptions of food safety/quality in making decisions to purchase food products: Anne Wilcock, University of Guelph, Canada;
- 9. Understanding consumer attitudes towards organic agricultural produce: Tatiana Anisimova, Linnaeus University, Sweden;
- 10. Understanding consumer attitudes to sustainability issues in agricultural and food production: Caroline Saunders, Lincoln University, New Zealand;

Related products:
Developing smart agri-food supply chains, 978-1-78676-749-3, 07 Dec 2021, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Energy-smart farming, 978-1-78676-835-3, 17 May 2022, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Improving the nutritional and nutraceutical properties of wheat and other cereals, 978-1-78676-479-9, 11 May 2021, GBP 145.00, EUR 175.00, USD 190.00, CAD 245.00, and AUD 260.00
Understanding and improving the functional and nutritional properties of milk, 978-1-78676-819-3, 15 Mar 2022, GBP 160.00, EUR 190.00, USD 210.00, CAD 270.00, and AUD 290.00
Understanding and optimising the nutraceutical properties of fruit and vegetables, 978-1-78676-850-6, 30 Aug 2022, GBP 150.00, EUR 180.00, USD 220.00, CAD 290.00, and AUD 305.00
Understanding the behaviour and improving the welfare of chickens, 978-1-78676-422-5, 29 Sep 2020, GBP 170.00, EUR 205.00, USD 220.00, CAD 290.00, and AUD 305.00
Understanding the behaviour and improving the welfare of dairy cattle, 978-1-78676-459-1, 23 Feb 2021, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Understanding the behaviour and improving the welfare of pigs, 978-1-78676-443-0, 16 Feb 2021, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Improving the quality of apples
Edited by: Professor Fabrizio Costa, University of Trento, Italy

Description:
Apples are one of the most highly consumed fruits globally, with estimations that almost 88 million tonnes of apples are produced worldwide each year. As a result of this popularity, consumers have extremely high expectations of the sensory quality of the apples they consume.

Improving the quality of apples provides a comprehensive review of the wealth of research on the processes which determine the key quality attributes of apples, including texture, flavour and nutritional content. The book addresses how these properties can be enhanced during the pre- and postharvest stages to ensure product quality and customer satisfaction, as well as the role of breeding programmes in identifying genes directly related to sensory quality characteristics.

In its detailed exploration of the key quality attributes of apples, the book provides its readers with an insight into the science behind producing the ‘perfect’ product and how influential quality attributes are on consumer purchasing behaviours.

Key features:
• Reviews recent advances in understanding and improving the major quality attributes of apples, including texture development, flavour development and nutritional content
• Considers the utilisation of particular breeding and crop management practices to optimise fruit quality during the pre- and postharvest stages of production, including the use of preservation techniques such as hydrocooling and edible coatings
• Addresses the influence of the genetic and biochemical factors which can affect texture, flavour and the development of key nutraceutical compounds in apples

Audience:
Researchers in horticultural science, fruit growers, processors and retailers, as well as consumers, nutritionists and governmental and private sector agencies supporting the horticultural industry

Editor details:
Dr Fabrizio Costa is Associate Professor of Apple Genetics and Plant Breeding in the Centre for Agriculture, Food and Environment (C3A) at the University of Trento, Italy. He was formerly a Senior Scientist at the Fondazione Edmund Mach where he was one of the team that published in 2010 the first complete sequenced genome of Golden Delicious, the well-known apple reference variety. Professor Costa is internationally renowned for his research on the genetics of fruit ripening and post-harvest quality. He is on the editorial boards of such journals as Fruit Research and the Journal of Experimental Botany, and is the Convenor of the 14th ISHS Symposium on Plant Regulators in Fruit Production in 2022.
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4. Advances in understanding the nutritional and nutraceutical properties of apples: **Gabriela Ploscutanu**, University of Galati, Romania
5. Advances in understanding the development of nutraceutical compounds in apples: **Matteo Scampicchio**, Free University of Bolzano, Italy;

#### Part 2 Breeding and crop management to optimise quality
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9. Post-harvest management of apple quality: **Zora Singh**, Edith Cowan University, Australia;

#### Related products:
- Achieving sustainable cultivation of apples, 978-1-78676-032-6, 16 Jun 2017, USD 245.00, EUR 230.00, CAD 325.00, GBP 190.00, and AUD 340.00
- Achieving sustainable cultivation of temperate zone tree fruits and berries Volume 1, 978-1-78676-208-5, 30 Jun 2019, GBP 140.00, EUR 170.00, USD 180.00, CAD 240.00, and AUD 250.00
- Achieving sustainable cultivation of temperate zone tree fruits and berries Volume 2, 978-1-78676-212-2, 30 Jun 2019, GBP 140.00, EUR 170.00, USD 180.00, CAD 240.00, and AUD 250.00
- Advances in postharvest management of horticultural produce, 978-1-78676-288-7, 21 Jan 2020, GBP 150.00, USD 195.00, EUR 180.00, CAD 255.00, and AUD 270.00
- Consumers and food: Understanding and shaping consumer behaviour, 978-1-80146-354-6, 24 Oct 2023, CAD 255.00, GBP 150.00, AUD 270.00, EUR 180.00, and USD 195.00
- Understanding and optimising the nutraceutical properties of fruit and vegetables, 978-1-78676-850-6, 30 Aug 2022, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Developing drought-resistant cereals
Edited by: Professor Roberto Tuberosa, University of Bologna, Italy

Endorsement:
"This new book titled Developing drought resistant cereals edited by Professor Tuberosa will be an important resource for scientists worldwide, especially with climate change increasing the frequency of drought conditions. Professor Tuberosa and the contributing authors are among the leading authorities in the cutting-edge science of crop improvement for drought tolerance. I look forward to using this important resource in my research program."
Professor Mark Sorrells, Cornell University, USA

Description:
Drought remains the biggest single threat from climate change to the production of key cereal crops, such as wheat and barley. Cereals also respond in complex ways to drought stress, making improved drought tolerance a challenging trait to achieve. With many cereals recognised as staple food crops due to their nutritional value, more research is required into improving drought tolerance as a means of ensuring the future food security of millions.

Developing drought-resistant cereals reviews the wealth of research which addresses how to overcome this challenge in order to mitigate climate change effects in cereal production. This collection details our understanding of the mechanisms of drought tolerance, as well as the development of techniques for improving resistance, including phenotyping, genome-wide association studies (GWAS) and genome editing.

Key features:
• Provides a comprehensive overview of the effect of drought on cereal crop yield and yield stability
• Explores recent developments in techniques for improving drought resistance, such as nested association mapping (NAM) and phenotyping
• Assesses the role of physiological traits (e.g. root characteristics, canopy architecture) on cereals response to drought stress

Audience:
University and other researchers in cereal science; arable farmers and breeders; as well as government and private sector agencies supporting sustainable cereal production

Editor details:
Dr Roberto Tuberosa is Professor of Plant Biotechnology and Breeding in the Department of Agriculture and Food Science at the University of Bologna, Italy. Professor Tuberosa is internationally renowned for his genomic studies to dissect the genetic basis of drought resistance in cereals and how to leverage this knowledge toward the release of climate-resilient cultivars. He is on the editorial board of several leading journals, has been involved in many European and international research projects in cereal breeding, represents Europe in the International Crop Science Society (ICSS) and has published over 170 articles as well as edited a number of books. Amongst other honours, Professor Tuberosa has been elected a Fellow of the Crop Society of America.
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Part 1 Understanding mechanisms of drought tolerance

• 1. Physiological traits affecting water use and water use efficiency in cereals in response to drought stress: Thomas R. Sinclair, North Carolina State University, USA; and Michel E. Ghanem, Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), France and Mohammed VI Polytechnic University, Morocco;

• 2. The role of plant hormones in adaptation to drought stress in cereals: Arnauld A. Thiry, Lancaster Environment Centre, UK; Matthew P. Reynolds, International Maize and Wheat Improvement Center (CIMMYT), Mexico; and William J. Davies and Ian C. Dodd, Lancaster Environment Centre, UK;

• 3. The role of drought stress-induced proteins in regulating drought resistance in cereals: John Cushman, University of Nevada-Reno, USA;

• 4. Genetics of drought tolerance in cereals: Roberto Tuberosa, University of Bologna, Italy;

Part 2 Techniques for improving resistance

• 5. Advances in phenotyping to identify drought-resistance traits in cereal roots: Jack Christopher, University of Queensland, Australia;

• 6. Identifying and exploiting genes related to root system architecture in improving drought resistance in cereals: Eric Ober, NIAB, UK;

• 7. Identifying and exploiting photosynthetic genes in improving drought resistance in cereals: Ruilian Jing, Chinese Academy of Agricultural Sciences, China;

• 8. Genomic selection, gene editing and genetic engineering for drought tolerance in cereals: Rodomiro Ortiz, Swedish University of Agricultural Sciences (SLU), Sweden;

• 9. Meta-QTL analysis to identify loci for the plastic response of tetraploid wheat to drought stress: Agata Gadaleta, University of Bari Aldo Moro, Italy;

• 10. Recent progress concerning corn and drought tolerance: Robert Bensen, Umbrella Genetics

Related products:
Achieving durable disease resistance in cereals, 978-1-78676-601-4, 19 Oct 2021, GBP 180.00, EUR 215.00, USD 235.00, CAD 305.00, and AUD 325.00

Achieving sustainable cultivation of barley, 978-1-78676-308-2, 04 Feb 2020, GBP 170.00, EUR 205.00, USD 220.00, CAD 290.00, and AUD 305.00

Achieving sustainable cultivation of maize Volume 1, 978-1-78676-008-1, 09 Jun 2017, USD 195.00, EUR 180.00, CAD 255.00, GBP 150.00, and AUD 270.00

Achieving sustainable cultivation of maize Volume 2, 978-1-78676-012-8, 31 Jul 2017, USD 220.00, EUR 205.00, CAD 290.00, GBP 170.00, and AUD 305.00

Achieving sustainable cultivation of rice Volume 1, 978-1-78676-024-1, 22 May 2017, USD 180.00, EUR 170.00, CAD 240.00, GBP 140.00, and AUD 250.00

Achieving sustainable cultivation of rice Volume 2, 978-1-78676-028-9, 22 May 2017, USD 195.00, EUR 180.00, CAD 255.00, GBP 150.00, and AUD 270.00

Achieving sustainable cultivation of sorghum Volume 1, 978-1-78676-120-0, 09 Jul 2018, GBP 160.00, EUR 190.00, USD 210.00, CAD 270.00, and AUD 290.00

Achieving sustainable cultivation of sorghum Volume 2, 978-1-78676-124-8, 16 Apr 2018, GBP 130.00, EUR 155.00, USD 170.00, CAD 220.00, and AUD 235.00

Achieving sustainable cultivation of wheat Volume 1, 978-1-78676-016-6, 30 Jun 2017, USD 245.00, EUR 230.00, CAD 325.00, GBP 190.00, and AUD 340.00

Achieving sustainable cultivation of wheat Volume 2, 978-1-78676-020-3, 31 Jul 2017, USD 170.00, EUR 155.00, CAD 220.00, GBP 130.00, and AUD 235.00

Advances in breeding techniques for cereal crops, 978-1-78676-244-3, 28 Jun 2019, GBP 190.00, EUR 230.00, USD 245.00, CAD 325.00, and AUD 340.00
Developing circular agricultural production systems

Edited by: Professor Barbara Amon, Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Germany

Endorsement:
“Current agriculture wastes both agricultural inputs and outputs, leading to lower system productivity, higher costs and environmental pollution. A drive toward circular agricultural production systems is necessary to ensure nutrition security and to meet our goals of tackling climate change, biodiversity loss and environmental pollution. This volume, edited by Professor Barbara Amon – a world-leading scientist in the field – features contributions from an array of expert authors and will be a must have item to anyone concerned with the challenge of developing circular agricultural production systems.” (Pete Smith, Professor of Soils & Global Change, University of Aberdeen, UK and Science Director of Scotland’s ClimateXChange)

Description:
With the agricultural sector pledging to improve its sustainability, there is an urgent need to move away from linear food production models which rely on significant raw material inputs and generate large amounts of residual waste.

Developing circular agricultural production systems reviews the emergence of circular agriculture as an approach to improving the sustainability of the agricultural sector. 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.

With its comprehensive coverage, the book showcases how to develop circular agricultural production systems, from using crop residues as livestock feed and developing new bio-based fertilizers, to producing biogas from livestock manure and manufacturing bio-plastics from agricultural waste.

Key features:
• Summarises the wealth of research on the ways in which circular agricultural production systems can be achieved
• Highlights how agricultural waste can be reused and upcycled for the benefit of crop and livestock production, e.g. the use of crop residues as biofertilisers and livestock feed
• Reviews our current understanding of closed-loop farming systems and includes case studies of the successful development of closed-loop dairy farms, pig production and aquaponic systems

Audience:
Academic researchers involved in the agricultural and environmental sciences, as well as government and private sector agencies supporting sustainable agriculture and the UN’s Sustainable Development Goals (SDGs)

Editor details:
Dr Barbara Amon is an Associate Professor for Environmental Engineering and Agricultural Engineering at the University of Zielona Góra, Poland, and a Senior Research Scientist and Coordinator of the Research Programme “Precision farming in crop and livestock production” at the Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB) in Potsdam, Germany. In addition to her research, she sits on many panels looking at sustainable agriculture, including the Intergovernmental Panel on Climate Change (IPCC).
**New title information**

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3. Closed-loop precision farming technologies to optimise resource use: Thomas Bartzanas, Agricultural University of Athens, Greece
4. Closed-loop combined crop-livestock farming systems: Friedhelm Taube, Kiel University, Germany
5. Developing closed-loop dairy farms: Rodolfo Garcia-Flores, CSIRO, Australia
6. Aquaponics as a closed loop agricultural system: Alberto Pardossi, University of Pisa, Italy;

**Part 2 Re-using agricultural and other wastes**
7. Using crop residues/by-products as livestock feed in a circular economy: Andre Brito, University of New Hampshire, USA
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9. Optimising slurry management: Daniel Fanguiero, ISA, Portugal
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12. Multi-feedstock biorefineries for converting agricultural wastes into co-products: Butch Bataller, University of the Philippines Los Banos, The Philippines
13. Developing bioplastics/bio-packaging from agricultural wastes: Marianna Villano, University of Rome, Italy
14. Developing polyphenols from agricultural wastes: Miguel Prieto, University of Vigo, Spain;

**Related products:**
Achieving carbon-negative bioenergy systems from plant materials, 978-1-78676-252-8, 11 Feb 2020, GBP 150.00, EUR 180.00, USD 195.00, AUD 270.00, and CAD 255.00
Assessing the environmental impact of agriculture, 978-1-78676-228-3, 27 Aug 2019, CAD 270.00, USD 210.00, EUR 190.00, GBP 160.00, and AUD 290.00
Climate change and agriculture, 978-1-78676-320-4, 28 Apr 2020, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Energy-smart farming, 978-1-78676-835-3, 17 May 2022, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Reducing greenhouse gas emissions from livestock production, 978-1-78676-439-3, 20 Jul 2021, GBP 150.00, EUR 180.00, USD 195.00, CAD 255.00, and AUD 270.00
Advances in agri-food robotics

Edited by: Professor Eldert van Henten, Wageningen University, The Netherlands; and Professor Yael Edan, Ben-Gurion University of the Negev, Israel

Endorsement:
"Edited by two internationally distinguished domain experts, this new book offers a comprehensive overview of robotics technology and outlines the recent advancements of applying robotic equipment in agri-food systems. The contributing authors have included a selection of outstanding examples of the successful application of these technologies as a means of illustrating how the adoption of robotic technologies can contribute to improvements in product quality and yields. Thus, I am confident that this book – edited by Professor Eldert van Henten and Professor Yael Edan – will prove to be an excellent resource for understanding and adopting robotic technologies to support innovation in modern agri-food systems."
Professor Qin Zhang, Director, Center for Precision and Automated Agricultural Systems, Washington State University, USA

Description:
The global population is expected to reach 9 billion by 2050. Feeding this growing population more sustainably is a huge challenge facing agriculture. Developing agricultural robotics is seen as one potential solution to tackling this challenge. Advances in agri-food robotics reviews the utilisation of agricultural robots to deal with increasing labour shortages in agriculture whilst bringing greater precision and efficiency into farming operations. The book addresses recent advances in agricultural robotic technologies and how these can be optimised to monitor and manage crop production more effectively, from phenotyping for improved varieties to harvesting the finished product.

In its comprehensive exploration of the technologies available, the book provides farmers with the means necessary to invest – and trust – in agricultural robotics to improve the productivity and profitability of their farm.

Key features:
• Provides a comprehensive review of the recent advances in agricultural robotics, such as advances in sensing and perception, as well as technologies and actuation
• Addresses our understanding of the social, ethical and economic aspects of agricultural robotics, including the regulatory frameworks and standards required to authorise their adoption
• Provides examples of the practical application of agricultural robotics in an array of agricultural settings, from greenhouse and orchard cultivation, to meat/fish processing

Audience:
Academic researchers in crop and livestock science, agricultural engineers, data scientists, as well as government and private sector agencies supporting sustainable agriculture and the development of agricultural technology

Editors' details:
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