

Data Science For Food Security

Knowledge of Africa's complex farming systems, set in their socio-economic and environmental context, is an essential ingredient to developing effective strategies for improving food and nutrition security. This book systematically and comprehensively describes the characteristics, trends, drivers of change and strategic priorities for each of Africa's fifteen farming systems and their main subsystems. It shows how a farming systems perspective can be used to identify pathways to household food security and poverty reduction, and how strategic interventions may need to differ from one farming system to another. In the analysis, emphasis is placed on understanding farming systems drivers of change, trends and strategic priorities for science and policy. Illustrated with full-colour maps and photographs throughout, the volume provides a comprehensive and insightful analysis of Africa's farming systems and pathways for the future to improve food and nutrition security. The book is an essential follow-up to the seminal work *Farming Systems and Poverty* by Dixon and colleagues for the Food and Agriculture Organization (FAO) of the United Nations and the World Bank, published in 2001.

Data Science for COVID-19, Volume 2: Societal and Medical Perspectives presents the most current and leading-edge research into the applications of a variety of data science techniques for the detection, mitigation, treatment and elimination of the COVID-19 virus. At this point, Cognitive Data Science is the most powerful tool for researchers to fight COVID-19. Thanks to instant data-analysis and predictive techniques, including Artificial Intelligence, Machine Learning, Deep Learning, Data Mining, and computational modeling for processing large amounts of data, recognizing patterns, modeling new techniques, and improving both research and treatment outcomes is now possible. Provides a leading-edge survey of Data Science techniques and methods for research, mitigation and the treatment of the COVID-19 virus Integrates various Data Science techniques to provide a resource for COVID-19 researchers and clinicians around the world, including the wide variety of impacts the virus is having on societies and medical practice Presents insights into innovative, data-oriented modeling and predictive techniques from COVID-19 researchers around the world, including geoprocessing and tracking, lab data analysis, and theoretical views on a variety of technical applications Includes real-world feedback and user experiences from physicians and medical staff from around the world for medical treatment perspectives, public safety policies and impacts, sociological and psychological perspectives, the effects of COVID-19 in agriculture, economies, and education, and insights on future pandemics

This book constitutes the proceedings of the XVIII International Conference on Data Science and Intelligent Analysis of Information (ICDSIAI'2018), held in Kiev, Ukraine on June 4-7, 2018. The conference series, which dates back to 2001 when it was known as the Workshop on Intelligent Analysis of Information, was renamed in 2008 to reflect the broadening of its scope and the composition of its organizers and participants. ICDSIAI'2018 brought together a large number of participants from numerous countries in Europe, Asia and the USA. The papers presented addressed novel theoretical developments in methods, algorithms and implementations for the broadly perceived areas of big data mining and intelligent analysis of data and information, representation and processing of uncertainty and fuzziness, including contributions on a range of applications in the fields of decision-making and decision support, economics, education, ecology, law, and various areas of technology. The book is dedicated to the memory of the conference founder, the late Professor Tetiana Taran, an outstanding scientist in the field of artificial intelligence whose research record, vision and personality have greatly contributed to the development of Ukrainian artificial intelligence and computer science.

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For nearly a century, scientific advances have fueled progress in U.S. agriculture to enable American producers to deliver safe and abundant food domestically and provide a trade surplus in bulk and high-value agricultural commodities and foods. Today, the U.S. food and agricultural enterprise faces formidable challenges that will test its long-term sustainability, competitiveness, and resilience. On its current path, future productivity in the U.S. agricultural system is likely to come with trade-offs. The success of agriculture is tied to natural systems, and these systems are showing signs of stress, even more so with the change in climate. More than a third of the food produced is unconsumed, an unacceptable loss of food and nutrients at a time of heightened global food demand. Increased food animal production to meet greater demand will generate more greenhouse gas emissions and excess animal waste. The U.S. food supply is generally secure, but is not immune to the costly and deadly shocks of continuing outbreaks of food-borne illness or to the constant threat of pests and pathogens to crops, livestock, and poultry. U.S. farmers and producers are at the front lines and will need more tools to manage the pressures they face. Science Breakthroughs to Advance Food and Agricultural Research by 2030 identifies innovative, emerging scientific advances for making the U.S. food and agricultural system more efficient, resilient, and sustainable. This report explores the availability of relatively new scientific developments across all disciplines that could accelerate progress toward these goals. It identifies the most promising scientific breakthroughs that could have the greatest positive impact on food and agriculture, and that are possible to achieve in the next decade (by 2030).

This book presents the emerging developments in intelligent computing, machine learning, and data mining. It also provides insights on communications, network technologies, and the Internet of things. It offers various insights on the role of the Internet of things against COVID-19 and its potential applications. It provides the latest cloud computing improvements and advanced computing and addresses data security and privacy to secure COVID-19 data.

This edited collection brings together voices of the strongest thought leaders for diversity, equity and inclusion in the field of statistics and data science, with the goal of encouraging and steering the profession into the regular practice of inclusive and humanistic leadership. It provides both futuristic ideas for promoting opportunities for equitable leadership, as well as tested approaches that have already been found to make a difference. It speaks to the challenges and opportunities of leading successful research collaborations and making strong connections within research teams. Curated with a vision that leadership takes a myriad of forms, and that diversity has many dimensions, this volume examines the nuances of leadership within a workplace environment and promotes storytelling and other competencies as critical elements of effective leadership. It makes the case for inclusive and humanistic leadership in statistics and data science, where there often remains a dearth of women and members of certain racial communities among the employees. Titled and non-titled leaders will benefit from the planning, evaluation, and structural tools offered within to contribute inclusive excellence in workplace climate, environment, and culture. The book presents the proceedings of two conferences: the 16th International Conference on Data Science (ICDATA 2020) and the 19th International Conference on Information & Knowledge Engineering (IKE 2020), which took place in Las Vegas, NV, USA, July 27-30, 2020. The conferences are part of the larger 2020 World Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE'20), which features 20 major tracks. Papers cover all aspects of Data Science, Data Mining, Machine Learning, Artificial and Computational Intelligence (ICDATA) and Information Retrieval Systems, Information & Knowledge Engineering, Management and Cyber-Learning (IKE). Authors include academics, researchers, professionals, and students. Presents the proceedings of the 16th International Conference on Data Science (ICDATA 2020) and the 19th International Conference on Information & Knowledge Engineering (IKE 2020); Includes papers on

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topics from data mining to machine learning to informational retrieval systems; Authors include academics, researchers, professionals and students.

Data Science Applied to Sustainability Analysis focuses on the methodological considerations associated with applying this tool in analysis techniques such as lifecycle assessment and materials flow analysis. As sustainability analysts need examples of applications of big data techniques that are defensible and practical in sustainability analyses and that yield actionable results that can inform policy development, corporate supply chain management strategy, or non-governmental organization positions, this book helps answer underlying questions. In addition, it addresses the need of data science experts looking for routes to apply their skills and knowledge to domain areas. Presents data sources that are available for application in sustainability analyses, such as market information, environmental monitoring data, social media data and satellite imagery Includes considerations sustainability analysts must evaluate when applying big data Features case studies illustrating the application of data science in sustainability analyses

This 16th International Conference on Information Technology - New Generations (ITNG), continues an annual event focusing on state of the art technologies pertaining to digital information and communications. The applications of advanced information technology to such domains as astronomy, biology, education, geosciences, security and health care are among topics of relevance to ITNG. Visionary ideas, theoretical and experimental results, as well as prototypes, designs, and tools that help the information readily flow to the user are of special interest. Machine Learning, Robotics, High Performance Computing, and Innovative Methods of Computing are examples of related topics. The conference features keynote speakers, the best student award, poster award, service award, a technical open panel, and workshops/exhibits from industry, government and academia. This book covers both basic and high-level concepts relating to the intelligent computing paradigm and data sciences in the context of distributed computing, big data, data sciences, high-performance computing and Internet of Things. It is becoming increasingly important to develop adaptive, intelligent computing-centric, energy-aware, secure and privacy-aware systems in high-performance computing and IoT applications. In this context, the book serves as a useful guide for industry practitioners, and also offers beginners a comprehensive introduction to basic and advanced areas of intelligent computing. Further, it provides a platform for researchers, engineers, academics and industrial professionals around the globe to showcase their recent research concerning recent trends. Presenting novel ideas and stimulating interesting discussions, the book appeals to researchers and practitioners working in the field of information technology and computer science.

Master Data Analytics Hands-On by Solving Fascinating Problems You'll Actually Enjoy! Harvard Business Review recently called data science "The Sexiest Job of the 21st Century." It's not just sexy: For millions of managers, analysts, and students who need to solve real business problems, it's indispensable. Unfortunately, there's been nothing easy about learning data science—until now. Getting Started with Data Science takes its inspiration from worldwide best-sellers like Freakonomics and Malcolm Gladwell's Outliers: It teaches through a powerful narrative packed with unforgettable stories. Murtaza Haider offers informative,

jargon-free coverage of basic theory and technique, backed with plenty of vivid examples and hands-on practice opportunities. Everything's software and platform agnostic, so you can learn data science whether you work with R, Stata, SPSS, or SAS. Best of all, Haider teaches a crucial skillset most data science books ignore: how to tell powerful stories using graphics and tables. Every chapter is built around real research challenges, so you'll always know why you're doing what you're doing. You'll master data science by answering fascinating questions, such as: • Are religious individuals more or less likely to have extramarital affairs? • Do attractive professors get better teaching evaluations? • Does the higher price of cigarettes deter smoking? • What determines housing prices more: lot size or the number of bedrooms? • How do teenagers and older people differ in the way they use social media? • Who is more likely to use online dating services? • Why do some purchase iPhones and others Blackberry devices? • Does the presence of children influence a family's spending on alcohol? For each problem, you'll walk through defining your question and the answers you'll need; exploring how others have approached similar challenges; selecting your data and methods; generating your statistics; organizing your report; and telling your story. Throughout, the focus is squarely on what matters most: transforming data into insights that are clear, accurate, and can be acted upon.

Food Safety and Quality Systems in Developing Countries: Volume III: Technical and Market Considerations is a practical resource for companies seeking to supply food products from developing countries to developed country markets or to transnational business located in developing countries. It explores practical approaches to complying with food safety and quality systems requirements, backed by the science-based approaches used in the major markets applied in a developing country context. It explores the topic from the perspective of agribusiness value chains and includes deconstructions of regulatory and market channel-specific technical requirements in North America, Europe, and other major markets. Volume III builds on the platforms laid by the previous two volumes, providing guidance from industry-leading experts on addressing regulatory and market-specific microbiological, chemical, packaging and labelling, supply chain, and systems-related food safety and quality compliance requirements. This book addresses technical and market-determined standards that value chain participants in developing countries face supplying developed country markets or transnational firms, including hotels, major multiples, and quick serve restaurant brands. Provides detailed, scientific, and technical information to assist food safety and marketing professionals operating in the global market Helps farmers, processors, exporters, food scientists and technologists, regulators, students, and other stakeholders in the global food industry understand and apply tailored technical and scientific information to their food industry sector Uses specific real-world examples of systems implementation, supported by case studies and the required scientific and marketing inputs in a range of product categories including fruits and vegetables, sauces and spices, beverages, produce staples, dairy products, seafood, and others

Precision agriculture integrates new technologies with the agronomic experience to intelligently manage the high spatial variability of all agricultural variables and the time scales at which these variables change. The right application of this approach increases the size and quality of the agricultural production; saves resources; improves environmental quality; helps to achieve self-

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sufficiency, food security, and agricultural sustainability; increases exports; and more. Precision Agriculture Technologies for Food Security and Sustainability is an essential reference source that compiles a comprehensive, multidisciplinary review of current research in the field of precision agriculture. It also discusses cutting-edge tools and models that can help facilitate and improve the systems implementation. Featuring coverage of a wide range of topics including agronomy, public policy, and internet of things, this book is ideally designed for agriculturalists, government officials, economists, environmentalists, academicians, researchers, students, and engineers in the fields of electronics, ICT, and agriculture.

This two-volume set constitutes the proceedings of the Third Conference on Creativity in Intellectual Technologies and Data Science, CIT&DS 2019, held in Volgograd, Russia, in September 2019. The 67 full papers, 1 short paper and 3 keynote papers presented were carefully reviewed and selected from 231 submissions. The papers are organized in topical sections in the two volumes. Part I: cyber-physical systems and Big Data-driven world. Part II: artificial intelligence and deep learning technologies for creative tasks; intelligent technologies in social engineering.

This book brings to you a simple yet effective 40 to 60 mins introduction that will clear all your doubts about Data Science and will answer some important questions like: What is data Science ? The book explores all the initial concepts a person might want to know about the data science workflow. There's not coding, math or statistics required to successfully understand the goals and end results of this process. This book takes you on an exclusive tour of datasets and sites to download your first datasets. Then jumps into a comprehensive and easy-to-follow data science process letting you go through 3 data visualization projects. (Python Code Understanding is Recommended for the Data Visualization projects) - 40 to 60 mins reading time. - 3 Data Visualization projects. - 10 Datasets sources. - 26 Quality datasets for your first visualizations. - Get the code and reuse in your own projects. The ebook covers: - Intro to Data Science. - The Workflow of Data Science. - Data Science and Machine Learning. - Datasets to start right away. - Data Visualization Projects. (Python Code Understanding Recommended)

Since its inception in 2013, Mathematics of Planet Earth (MPE) focuses on mathematical issues arising in the study of our planet. Interested in the impact of human activities on the Earth's system, this multidisciplinary field considers the planet not only as a physical system, but also as a system supporting life, a system organized by humans, and a system at risk. The articles collected in this volume demonstrate the breadth of techniques and tools from mathematics, statistics, and operations research used in MPE. Topics include climate modeling, the spread of infectious diseases, stability of ecosystems, ecosystem services, biodiversity, infrastructure restoration after an extreme event, urban environments, food security, and food safety. Demonstrating the mathematical sciences in action, this book presents real-world challenges for the mathematical sciences, highlighting applications to issues of current concern to society. Arranged into three topical sections (Geo- and Physical Sciences; Life Sciences, Ecology and Evolution; Socio-economics and Infrastructure), thirteen chapters address questions such as how to measure biodiversity, what mathematics can say about the sixth mass extinction, how to optimize the long-term human use of natural capital, and the impact of data on infrastructure management. The book also treats the subject of infectious diseases with new examples and

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presents an introduction to the mathematics of food systems and food security. Each chapter functions as an introduction that can be studied independently, offering source material for graduate student seminars and self-study. The range of featured research topics provides mathematical scientists with starting points for the study of our planet and the impact of human activities. At the same time, it offers application scientists a plethora of modern mathematical tools and techniques to address the various topics in practice. Including hundreds of references to the vast literature associated with each topic, this book serves as an inspiration for further research.

On top of a decade of exacerbated disaster loss, exceptional global heat, retreating ice and rising sea levels, humanity and our food security face a range of new and unprecedented hazards, such as megafires, extreme weather events, desert locust swarms of magnitudes previously unseen, and the COVID-19 pandemic. Agriculture underpins the livelihoods of over 2.5 billion people – most of them in low-income developing countries – and remains a key driver of development. At no other point in history has agriculture been faced with such an array of familiar and unfamiliar risks, interacting in a hyperconnected world and a precipitously changing landscape. And agriculture continues to absorb a disproportionate share of the damage and loss wrought by disasters. Their growing frequency and intensity, along with the systemic nature of risk, are upending people's lives, devastating livelihoods, and jeopardizing our entire food system. This report makes a powerful case for investing in resilience and disaster risk reduction – especially data gathering and analysis for evidence informed action – to ensure agriculture's crucial role in achieving the future we want.

This book constitutes the refereed proceedings of the 6th International Conference on Data Science, ICDS 2019, held in Ningbo, China, during May 2019. The 64 revised full papers presented were carefully reviewed and selected from 210 submissions. The research papers cover the areas of Advancement of Data Science and Smart City Applications, Theory of Data Science, Data Science of People and Health, Web of Data, Data Science of Trust and Internet of Things.

This book brings together experts from within and outside Africa to discuss the current status of biotechnology in southern Africa, the conceptual framework for multistakeholder dialogues, the political and ethical issues surrounding biotechnology, food safety and consumer issues, biosafety, intellectual property rights, and trade involving genetically modified foods.

Discover how data science can help you gain in-depth insight into your business - the easy way! Jobs in data science abound, but few people have the data science skills needed to fill these increasingly important roles. Data Science For Dummies is the perfect starting point for IT professionals and students who want a quick primer on all areas of the expansive data science space. With a focus on business cases, the book explores topics in big data, data science, and data engineering, and how these three areas are combined to produce tremendous value. If you want to pick-up the skills you need to begin a new career or initiate a new project, reading this book will help you understand what technologies, programming languages, and mathematical methods on which to focus. While this book serves as a wildly fantastic guide through the broad, sometimes intimidating field of big data and data science, it is not an instruction manual for hands-on implementation. Here's what to expect: Provides a background in big data

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and data engineering before moving on to data science and how it's applied to generate value Includes coverage of big data frameworks like Hadoop, MapReduce, Spark, MPP platforms, and NoSQL Explains machine learning and many of its algorithms as well as artificial intelligence and the evolution of the Internet of Things Details data visualization techniques that can be used to showcase, summarize, and communicate the data insights you generate It's a big, big data world out there—let Data Science For Dummies help you harness its power and gain a competitive edge for your organization.

The aim of this book is to provide insight into Data Science and Artificial Learning Techniques based on Industry 4.0, conveys how Machine Learning & Data Science are becoming an essential part of industrial and academic research. Varying from healthcare to social networking and everywhere hybrid models for Data Science, AI, and Machine Learning are being used. The book describes different theoretical and practical aspects and highlights how new systems are being developed. Along with focusing on the research trends, challenges and future of AI in Data Science, the book explores the potential for integration of advanced AI algorithms, addresses the challenges of Data Science for Industry 4.0, covers different security issues, includes qualitative and quantitative research, and offers case studies with working models. This book also provides an overview of AI and Data Science algorithms for readers who do not have a strong mathematical background. Undergraduates, postgraduates, academicians, researchers, and industry professionals will benefit from this book and use it as a guide.

Data Science & Business Analytics explores the application of big data and business analytics by academics, researchers, industrial experts, policy makers and practitioners, helping the reader to understand how big data can be efficiently utilized in better managerial applications.

This two-volume set, LNCS 12565 and 12566, constitutes the refereed proceedings of the 6th International Conference on Machine Learning, Optimization, and Data Science, LOD 2020, held in Siena, Italy, in July 2020. The total of 116 full papers presented in this two-volume post-conference proceedings set was carefully reviewed and selected from 209 submissions. These research articles were written by leading scientists in the fields of machine learning, artificial intelligence, reinforcement learning, computational optimization, and data science presenting a substantial array of ideas, technologies, algorithms, methods, and applications.

Science Breakthroughs to Advance Food and Agricultural Research by 2030 National Academies Press

The United States is viewed by the world as a country with plenty of food, yet not all households in America are food secure, meaning access at all times to enough food for an active, healthy life. A proportion of the population experiences food insecurity at some time in a given year because of food deprivation and lack of access to food due to economic resource constraints. Still, food insecurity in the United States is not of the same intensity as in some developing countries. Since 1995 the U.S. Department of Agriculture (USDA) has annually published statistics on the extent of food insecurity and food insecurity with hunger in U.S. households. These estimates are based on a survey measure

developed by the U.S. Food Security Measurement Project, an ongoing collaboration among federal agencies, academic researchers, and private organizations. USDA requested the Committee on National Statistics of the National Academies to convene a panel of experts to undertake a two-year study in two phases to review at this 10-year mark the concepts and methodology for measuring food insecurity and hunger and the uses of the measure. In Phase 2 of the study the panel was to consider in more depth the issues raised in Phase 1 relating to the concepts and methods used to measure food security and make recommendations as appropriate. The Committee on National Statistics appointed a panel of 10 experts to examine the above issues. In order to provide timely guidance to USDA, the panel issued an interim Phase 1 report, *Measuring Food Insecurity and Hunger: Phase 1 Report*. That report presented the panel's preliminary assessments of the food security concepts and definitions; the appropriateness of identifying hunger as a severe range of food insecurity in such a survey-based measurement method; questions for measuring these concepts; and the appropriateness of a household survey for regularly monitoring food security in the U.S. population. It provided interim guidance for the continued production of the food security estimates. This final report primarily focuses on the Phase 2 charge. The major findings and conclusions based on the panel's review and deliberations are summarized.

This book includes selected papers from the International Conference on Data Science and Intelligent Applications (ICDSIA 2020), hosted by Gandhinagar Institute of Technology (GIT), Gujarat, India, on January 24–25, 2020. The proceedings present original and high-quality contributions on theory and practice concerning emerging technologies in the areas of data science and intelligent applications. The conference provides a forum for researchers from academia and industry to present and share their ideas, views and results, while also helping them approach the challenges of technological advancements from different viewpoints. The contributions cover a broad range of topics, including: collective intelligence, intelligent systems, IoT, fuzzy systems, Bayesian networks, ant colony optimization, data privacy and security, data mining, data warehousing, big data analytics, cloud computing, natural language processing, swarm intelligence, speech processing, machine learning and deep learning, and intelligent applications and systems. Helping strengthen the links between academia and industry, the book offers a valuable resource for instructors, students, industry practitioners, engineers, managers, researchers, and scientists alike.

Cyber-security is a matter of rapidly growing importance in industry and government. This book provides insight into a range of data science techniques for addressing these pressing concerns. The application of statistical and broader data science techniques provides an exciting growth area in the design of cyber defences. Networks of connected devices, such as enterprise computer networks or the wider so-called Internet of Things, are all vulnerable to misuse and attack, and data science methods offer the promise to detect such behaviours from the vast collections of cyber traffic data

sources that can be obtained. In many cases, this is achieved through anomaly detection of unusual behaviour against understood statistical models of normality. This volume presents contributed papers from an international conference of the same name held at Imperial College. Experts from the field have provided their latest discoveries and review state of the art technologies.

Textual Statistics with R comprehensively covers the main multidimensional methods in textual statistics supported by a specially-written package in R. Methods discussed include correspondence analysis, clustering, and multiple factor analysis for contingency tables. Each method is illuminated by applications. The book is aimed at researchers and students in statistics, social sciences, history, literature and linguistics. The book will be of interest to anyone from practitioners needing to extract information from texts to students in the field of massive data, where the ability to process textual data is becoming essential.

Reimagining Leadership on the Commons examines leadership approaches derived from an, open, whole systems perspective and a more collaborative paradigm that recognizes that rather than being individualist self-maximizers, people prefer to work together to share benefits and found a society based on equality and justice.

Data science is a multi-disciplinary field that uses scientific methods, processes, algorithms, and systems to extract knowledge and insights from structured (labeled) and unstructured (unlabeled) data. It is the future of Artificial Intelligence (AI) and a necessity of the future to make things easier and more productive. In simple terms, data science is the discovery of data or uncovering hidden patterns (such as complex behaviors, trends, and inferences) from data. Moreover, Big Data analytics/data analytics are the analysis mechanisms used in data science by data scientists. Several tools, such as Hadoop, R, etc., are used to analyze this large amount of data to predict valuable information and for decision-making. Note that structured data can be easily analyzed by efficient (available) business intelligence tools, while most of the data (80% of data by 2020) is in an unstructured form that requires advanced analytics tools. But while analyzing this data, we face several concerns, such as complexity, scalability, privacy leaks, and trust issues. Data science helps us to extract meaningful information or insights from unstructured or complex or large amounts of data (available or stored virtually in the cloud). Data Science and Data Analytics: Opportunities and Challenges covers all possible areas, applications with arising serious concerns, and challenges in this emerging field in detail with a comparative analysis/taxonomy. FEATURES Gives the concept of data science, tools, and algorithms that exist for many useful applications Provides many challenges and opportunities in data science and data analytics that help researchers to identify research gaps or problems Identifies many areas and uses of data science in the smart era Applies data science to agriculture, healthcare, graph mining, education, security, etc. Academicians, data scientists, and stockbrokers

from industry/business will find this book useful for designing optimal strategies to enhance their firm's productivity. The Encyclopedia of Food Security and Sustainability covers the hottest topics in the science of food sustainability, providing a synopsis of the path society is on to secure food for a growing population. It investigates the focal issue of sustainable food production in relation to the effects of global change on food resources, biodiversity and global food security. This collection of methodological approaches and knowledge derived from expert authors around the world offers the research community, food industry, scientists and students with the knowledge to relate to, and report on, the novel challenges of food production and sustainability. This comprehensive encyclopedia will act as a platform to show how an interdisciplinary approach and closer collaboration between the scientific and industrial communities is necessary to strengthen our existing capacity to generate and share research data. Offers readers a 'one-stop' resource on the topic of food security and sustainability Contains articles split into sections based on the various dimensions of Food Security and Food Sustainability Written by academics and practitioners from various fields and regions with a "farm to fork understanding Includes concise and accessible chapters, providing an authoritative introduction for non-specialists and readers from undergraduate level upwards, as well as up-to-date foundational content for those familiar with the field The world almost conquered famine. Until the 1980s, this scourge killed ten million people every decade, but by early 2000s mass starvation had all but disappeared. Today, famines are resurgent, driven by war, blockade, hostility to humanitarian principles and a volatile global economy. In Mass Starvation, world-renowned expert on humanitarian crisis and response Alex de Waal provides an authoritative history of modern famines: their causes, dimensions and why they ended. He analyses starvation as a crime, and breaks new ground in examining forced starvation as an instrument of genocide and war. Refuting the enduring but erroneous view that attributes famine to overpopulation and natural disaster, he shows how political decision or political failing is an essential element in every famine, while the spread of democracy and human rights, and the ending of wars, were major factors in the near-ending of this devastating phenomenon. Hard-hitting and deeply informed, Mass Starvation explains why man-made famine and the political decisions that could end it for good must once again become a top priority for the international community.

This is an empirically rich, theoretically grounded and timely analysis of an important aspect of the political economy of South-South relations. -Seifudein Adem, Professor, Graduate School of Global Studies, Doshisha University, Japan. This book makes a valuable contribution in outlining ways for India and Africa to work together towards ensuring greater food security. -Philani Mthembu, Executive Director, Institute for Global Dialogue, University of South Africa, Pretoria, South Africa. This volume showcases the ongoing trends and challenges in South-South cooperation between India and select countries in Africa, for achieving food security and poverty reduction. Scholars and practitioners share diverse

perspectives on the role of India's development compact; aid, trade, private sector driven Foreign Direct Investments (FDIs), and concessional Lines of Credit (LOCs) to the agricultural and agro-processing sectors in Africa. India- Africa cooperation also underscores that the sharing of knowledge and capabilities -technical and financial, along with North-South partnerships- through trilateral and multilateral mechanisms, can upscale the agriculture and agro-processing sectors, address the food security agenda, and reduce poverty. The axial questions in this volume explore how cooperation between India and countries in Africa impact intra-South trading, capacity building, and the investment landscape. Renu Modi is Professor and former Director at the Centre for African Studies, University of Mumbai Meera Venkatachalam is Research Affiliate at the Indian Diaspora Centre and Centre for African Studies, University of Mumbai.
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