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Efficiency and Biotechnological Avenues for Improvement -- Nitrogen Loss when using Organic and Mineral Fertilizers on Soddy Podzolic Sandy-loam Soil in Central Russia -- Sorghum Response to Nitrogen in Organic Carbon-Categorized Ferralsol and Andosol in Uganda -- Evaluating Resource Use Efficiency and Stock Balances of Nitrogen and Phosphorus Fertilizer Inputs: The Effect of Soil Supply Capacity in Tigray (Ethiopia) -- Rice Response to Nitrogen and Supplemental Irrigation under Low Phosphorus and Potassium in Upland Production Systems in East Africa -- Contribution of Gliricidia sepium Pruning and Fallow to Sweet Corn (Zea mays L. var. rugosa) Yield, Nitrogen Uptake, Release Pattern and Use Efficiency in a Humid Tropical Environment of Malaysia -- Part II Nitrogen Impacts on Health, Ecosystems and Climate -- Further Evidence of the Haber-Bosch – Harmful Algal Bloom (HB-HAB) Link and the Risk of Suggesting HAB Control through Phosphorus Reductions only -- Human Health Effects of Exposure to Nitrate, Nitrite, and Nitrogen Dioxide -- Nitrogen Deposition to China's Coastal Seas: Status and Ecological Impacts -- Anthropogenic Nitrogen Loads to Freshwater: A High-Resolution Global Study -- Atmospheric Nitrogen Deposition in Spain: Emission and Deposition Trends, Critical Load Exceedances and Effects on Terrestrial Ecosystems -- Nitrogen Aspects of the Free-Air CO2 Enrichment (FACE) Study for Paddy Rice Ecosystems -- Nitrous Oxide (N2O) Emissions from Forests, Grasslands and Agricultural Soils in Northern Spain -- Effect of Climate Change and Crop-year on the Yield and Nitrogen Fertilizer Efficiency in Winter Wheat (Triticum aestivum L.) Production -- Part III Management Tools and Assessment -- DNMARK: Danish Nitrogen Mitigation Assessment: Research and Know-how for a Sustainable, Low-Nitrogen Food Production -- Farm Level Assessment of Nitrogen Use Efficiency as part of Environmental Management -- Agroforestry and Opportunities for Improved Nitrogen Management -- Global Nitrogen and Phosphorus Pollution -- A First Approach to the Calculation of Nitrogen Footprint in Lisbon, Portugal -- The INI European Regional Nitrogen Centre: Concepts and Vision -- The INI African Regional Nitrogen Centre: Challenges and Opportunities in Africa -- The INI South Asian Regional Nitrogen Centre: Capacity Building for Regional Nitrogen Assessment and Management -- The INI East Asia Regional Nitrogen Centre: Balancing Food Production and Environment — Nitrogen-related Research and Management in East Asia -- The INI North American Regional Nitrogen Center: 2011–2015 Nitrogen Activities in North America -- The Latin America Regional Nitrogen Centre: Concepts and Recent Activities -- Part IV Conclusions and Outlook -- Global Challenges for Nitrogen Science-Policy Interactions: Towards the International Management System (INMS) and Improved Coordination between Multi-Lateral Environmental Agreements -- Pre-informed Consumers on a Pre-adjusted Menu had Smaller Nitrogen Footprints during the N2013 Conference, Kampala, than those on a Conventional Menu -- The Kampala Statement-for-Action on Reactive Nitrogen in Africa and Globally -- Appendix -- Index.

Sommario/riassunto

This volume provides a unique collection of contributions addressing both the 'too much' and 'too little' sides of the nitrogen story. Building on analyses started at the 6th International Nitrogen Conference, Kampala, the book explores the idea of 'just enough nitrogen': sufficient for sustainable food production, but not so much as to lead to unsustainable pollution and climate problems. The range of nitrogen threats examined, solutions evaluated and science-policy analyses presented here has provided the foundation to agree the 'Kampala Statement-for-Action on Nitrogen in Africa and Globally,' as reported in this volume. Humanity today faces unprecedented challenges: How

to feed a growing population? How to reduce air pollution, water pollution and climate change? How to handle regional differences in an era of increasing globalization? These questions are at the heart of this edited volume which examines the multi-dimensional nature of the global nitrogen challenge. While humans have massively altered the nitrogen cycle, the consequences have become polarized. Some regions have too much nitrogen, associated with pollution and wasteful use of a valuable resource, while other regions have too little nitrogen, leading to constraints on food production and depletion of soil nutrient stocks. Together, the contributions in this book are now informing actions by the International Nitrogen Initiative (INI) in working with the United Nations Environment Programme and others to establish the International Nitrogen Management System (INMS). A key outcome has been to catalyse development of the first Resolution on Sustainable Nitrogen Management, as adopted by the fourth UN Environment Assembly (UNEA/EA.4/Res.14). The work is written for researchers and policy makers and all those interested in seeing how sustainable nitrogen management can contribute to meeting many of the UN Sustainable Development Goals. .