Soil Fertility Fertilizers And Integrated Nutrient Management

Soil Fertility Improvement and Integrated Nutrient Management: A Global Perspective presents 15 invited chapters written by leading soil fertility experts. The book is organized around three themes. The first theme is Soil Mapping and Soil Fertility Testing, describing spatial heterogeneity in soil nutrients within natural and managed ecosystems, as well as up-to-date soil testing methods and information on how soil fertility indicators respond to agricultural practices. The second theme, Organic and Inorganic Amendments for Soil Fertility Improvement, describes fertilizing materials that provide important amounts of essential nutrients for plants.The third theme, Integrated Nutrient Management Planning: Case Studies From Central Europe, South America, and Africa, highlights the principles of integrated nutrient management. Additionally, it gives case studies explaining how this approach has been implemented successfully across large geographic regions, and at local scales, to improve the productivity of staple crops and forages.

Sustainable agriculture; Soil fertility; Organic manures; Biological nitrogen fixation; Integrated plant nutrients; Plant nutrients from mineral fertilizers; The enviromental impact of fertilizer use; Improving the efficiency of nutrient use and facilitating the transfer of technology; Epilogue;

This publication is structured on the main themes of the consultation: the importance of plant nutrition for meeting agricultural product requirements; soil organic matter, biomass, soil microflora and management of integrated plant nutrition systems; renewable supply of plant nutrients from natural sources and plant nutrient transfer to crops; the place and role of local and external sources of plant nutrients in cropping systems and their evaluation; plant nutrient management in farming systems and in watersheds and territories; and priorities for FAO's Integrated Plant Nutrion Systems (IPNS) programme

In India, there is sufficient availability of organic manures like animal dung manure (791.6 mt), crop residues (603.5 mt), green manure (4.50 m ha), rural compost (148.3 mt), city compost (12.2 mt) and biofertilizer (0.41 mt)and these may become a good substitute of chemical fertilizers to maintain the soil physico-chemical and biological properties. The incorporation of organic manures improves the nutrient content and uptake. Although organic manures contain plant nutrients in small quantities as compared to the fertilizer, the presence of growth promoting principles like enzyme and hormones besides plant materials make them essential for improvement of soil fertility and productivity.For better utilization of resources and to produce crops with less expenditure, INM is the best approach. In this approach all the possible source of plant nutrients are applied based on economic consideration and the balance required for the crop is supplemented with chemical fertilizers. The combined use of organic and inorganic sources of plant nutrient not only pushes the production and profitability of field crops, but also it helps in maintaining the permanent fertility status of the soil.

Fruit Crops: Diagnosis and Management of Nutrient Constraints is the first and only resource to holistically relate fruits as a nutritional source for human health to the state-of-the-art methodologies currently used to diagnose and manage nutritional constraints placed on those fruits. This book explores a variety of advanced management techniques, including open field hydroponic, fertigation/bio-fertigation, the use of nano-fertilizers, sensors-based nutrient management, climate- smart integrated soil fertility management, inoculation with microbial consortium, and endophytes backed up by ecophysiology of fruit crops. These intricate issues are effectively presented, including real-world applications and future insights. Presents the latest research, including issues with commercial application Details comprehensive insights into the diagnosis and management of nutrient constraints Includes contributions by world renowned researchers, providing global perspectives and experience

As part of its efforts to improve fertilizer use and efficiency in West Africa, and following the recent adoption of the West African fertilizer recommendation action plan (RAP) by ECOWAS, this volume focuses on IFDC's technical lead with key partner institutions and experts to build on previous and current fertilizer recommendations for various crops and countries in West Africa for wider uptake by public policy makers and fertilizer industry actors.

During the last decades, soil organic carbon (SOC) attracted the attention of a much wider array of specialists beyond agriculture and soil science, as it was proven to be one of the most crucial components of the earth’s climate system, which has a great potential to be managed by humans. Soils as a carbon pool are one of the key factors in several Sustainable Development Goals, in particular Goal 15, “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss” with the SOC stock being explicitly cited in Indicator 15.3.1. This technical manual is the first attempt to gather, in a standardized format, the existing data on the impacts of the main soil management practices on SOC content in a wide array of environments, including the advantages, drawbacks and constraints. This manual presents different sustainable soil management (SSM) practices at different scales and in different contexts, supported by case studies that have been shown with quantitative data to have a positive effect on SOC stocks and successful experiences of SOC sequestration in practical field applications. Volume 3 includes a total of 49 practices that have a direct impact on SOC sequestration and maintenance in cropland, grassland, integrated systems and farming approaches.

Continuous applications of only needy nutrients through chemical fertilizers have deleterious effect on soil health leading to unsustainable yields. Wheat contributes about 30% of total grain production in India. The major constraint in boosting up the wheat production is the poor soil health. Therefore; there is a need to improve nutrient supply system in terms of integrated nutrient management involving the use of chemical fertilizers in conjunction with organic manures coupled with input through biological processes. Balanced fertilizer is the application of essential plant nutrients in right proportion and in optimum quantity for a specific soil crop condition. Imbalanced use of fertilizer led to the deterioration in the soil fertility and decrease in soil productivity. Higher yield at balanced nutrition is a safe guard to soil fertility. Integrated plant nutrient management helps in meeting the goals of balanced fertilization.

This is an applied reference book written by a soil scientist with practical experience, shows the importance of integrated nutrient management on vegetable production in home stead garden. It is a useful document of the valuable research findings on integrated nutrient management technologies developed by the author. Prescribing rational and balanced use of plant nutrients from both organic manure and inorganic fertilizers, Integrated Nutrient Management for Home stead Gardening covers wide range of vegetables including cabbage, radish, tomato, brinjal, okra, stem amaranth and red amaranth in pattern basis considering environmental, social and economic imperatives. It also explains the present constrains of soil fertility indicating possible measures for the maintenance of soil health. This volume contains huge bibliographical citations, tables and graphs, which have made it an incomparable resource book for Soil Scientists, Agronomists, Horticulturists, Plant Breeder, Extension Personnel, Teachers and Post-Graduate Students. Genuine and careful use of these recommendations would be very helpful in achieving food security and maintaining soil fertility and productivity.

This is an applied reference book written by a soil scientist with practical experience, shows the importance of integrated nutrient management on rice production. It is a useful document of the field crops research findings on integrated nutrient management technologies developed by the author. Prescribing rational and balanced use of plant nutrients from both organic manure and inorganic fertilizers, Integrated Nutrient Management for rice production covers wide range of rice including Aush, Aman and Boro rice in alone or pattern basis considering environmental, social and economic imperatives. It also explains the present constrains of soil fertility indicating possible measures for the maintenance of soil health. This volume contains huge bibliographical citations, tables and graphs, which have made it an

incomparable resource book for Soil Scientists, Agronomists, Horticulturists, Plant Breeder, Extension Personnel, Teachers and Post-Graduate Students. Sincere and careful use of these recommendations would be very helpful in achieving food security and maintaining soil fertility and productivity.

Forward. A call for integrated soil fertility management in Africa. Introduction. ISFM and the African farmer. Part I. The principles of ISFM: ISFM as a strategic goal, Fertilizer management within ISFM, Agro-minerals in ISFM, Organic resource management, ISFM, soil biota and soil health. Part II. ISFM practices: ISFM products and fields practices, ISFM practice in drylands, ISFM practice in savannas and woodlands, ISFM practice in the humid forest zone, Conservation Agriculture. Part III. The process of implementing ISFM: soil fertility diagnosis, soil fertility management advice, Dissemination of ISFM technologies, Designing an ISFM adoption project, ISFM at farm and landscape scales. Part IV. The social dimensions of ISFM: The role of ISFM in gender empowerment, ISFM and household nutrition, Capacity building in ISFM, ISFM in the policy arena, Marketing support for ISFM, Advancing ISFM in Africa. Appendices: Mineral nutrient contents of some common organic resources.

Soil Fertility book presents nine chapters written by renowned soil fertility experts from Africa, Asia and South America. The book is divided into two sections. Section 1, Biological Processes and Integration of Inorganic and Organic Fertilizers for Soil Fertility Improvement, examines biological processes that can enhance the soil fertility. It discusses the use of both organic and inorganic fertilizers and their integration in improving soil fertility. The second section, Improving Fertilizer Recommendation and Efficiency, looks at the state-of-the-art in leaf sampling and analysis. Proper leaf sampling and standardized methods of analysis are important steps in providing good recommendations.

Soil Fertility, Fertilizer and Integrated Nutrient Management

Food production remains the highest agricultural priority, subject to the constraint that it be done in harmony with nature, or at least with minimum environmental pollution. The amount of fertilizer applied can be controlled using modern application techniques, including soil and crop management, guaranteeing higher economic profit and lower environmental cost. It is in such a context that the present book addresses the efficient and rational use of mineral and organic fertilizers while preserving environmental quality. The book discusses the impact on surface and groundwaters, soils and crops, and experience of nitrate leaching, denitrification, ammonia volatilization, heavy metal pollution, agricultural and urban waste management, and international and national legislation. Audience: Agronomists, environmentalists, soil and food chemists, ecologists, policy makers, and managers in the fertilizer industry concerned with the trend of public opinion.

Contributions of various authors on organic fertilizers and integrated plant nutrition are compiled. Subjects covered are: characteristics of biofertilizers (like FYM, rhizobium, algae, azolla), bulky organic manures, crop residues, biofertilizers in upland crop production and flooded rice ecosystems

Legumes play an important role in the cropping systems of sub Saharan Africa (SSA). Legumes are an important source of nutrition to both humans and livestock by providing the much needed protein, minerals, fibre and vitamins. The sale of legumes seed, leaves and fibre generates income for the marginalized communities especially women. Cultivation of legumes is essential for the regeneration of nutrient-deficient soils. By biologically fixing nitrogen (BNF) in the soil, legumes provide a relatively low-cost method of replacing otherwise expensive inorganic nitrogen in the soil. This enhances soil fertility and boosts subsequent cereal crop yields. Production of legumes in SSA is however; hampered by a number of constraints among them low and declining soil fertility, low soil pH, high salinity, drought and flooding, poor access to improved germplasm, diseases, pests and weeds. Farmers need to learn how to overcome these constraints if the full benefits of legumes are to be gained. This book presents a synthesis of research work on legumes and draws attention to the importance of legumes in integrated soil fertility management (ISFM) and poverty alleviation in SSA.

Seminar paper from the year 2019 in the subject Geography / Earth Science - Geology, Mineralogy, Soil Science, grade: A-, , course: Graduate Seminar, language: English, abstract: Soil fertility decline is a big issue in the Agriculture of Ethiopia. The depletion of soil fertility is the main problem to sustain agricultural production and productivity in many countries. Soils in Ethiopian have low levels of plant nutrients due to their removal by erosion and leaching by high rainfall. One of the major constraints for crop production in Ethiopia is improper nutrient management. Organic fertilizer improves physical and biological activities of soil but they have comparatively low in nutrient content, so larger quantity is required for plant growth. However, inorganic fertilizer is usually immediately and fast containing all necessary nutrients that are directly accessible for plants, but the continuous use of inorganic fertilizers alone causes soil organic matter: degradation, soil acidity, and environmental pollution. So the integrated nutrient management system is an alternative system for the sustainable and cost-effective management of soil fertility by combined apply of inorganic with organic materials resulting in rising soil fertility and productivity without affecting the environment. In this review the improvement of soil fertility and crops production (Girma Chala and Gebreyes Gurmu, 2018) Conducted an experiment on Organic and Inorganic Fertilizer Application and its Effect on Yield of Wheat and Soil Chemical Properties of Nitisols the research finding output at Holetta Agricultural Research Center in 2014 to 2015 these results of soil analysis after harvesting revealed that application of organic fertilizer improved soil pH, OC, total N and available P, the highest wheat grain and biomass yield (6698 kg/ha and 19417 kg/ha respectively) were obtained from the application of 50% VC and 50% N and P followed by full dose of recommended rate N and P from inorganic fertilizer resulting in 6241 kg/ha grain and 18917 kg/ha biomass yields respectively. The objective of this review has assessed the effects of integrated organic and inorganic fertilizers on soil fertility and productivity. The study revealed that the appropriate application of organic with inorganic fertilizers increases productivity without negative effect on yield quality and improves soil fertility than the values obtained by organic or inorganic fertilizers separately.

Tropical Africa escaped from the glaciers that covered the temperate parts of the world during the Ice Age. The legacy is that most of the parent materials of the soils of tropical Africa are old, highly weathered and devoid of bases and phosphate-bearing minerals. Traditional farming systems which were relatively stable and sustainable relied on long fallow periods after one to two years of cropping to maintain the productive capacity of the soils. In recent times and especially in densely populated areas, a sizeable class of 'landless' farmers have begun to cultivate marginal lands or to invade the 'forest reserves' thereby exacerbating the problems of land and environ mental degradation. of soil fertility that will facilitate the production of adequate quantities of the principle Maintaining a level staples has become a major challenge to agricultural scientists in tropical Africa. To increase the nutrient supplying power of soils requires the inputs of fertilizers. These can be organic or inorganic. The efficiency with which these externally supplied inputs can increase agricultural production and reduce soil and environmental deterioration is dependent on the ability of scientists to determine the right types and quantities of the products to apply to each soil, crop and cropping system as well as the ability of farmers to acquire requisite farm manage ment skills.

"Molecular Environmental Soil Science at the Interfaces in the Earth's Critical Zone" presents contributions from the 1st International Symposium of Molecular Environmental Soil Science at the Interfaces in the Earth's Critical Zone held in Hangzhou, China. It introduces new ideas, findings, methods, and experience on above new and emerging subject areas. A broad range of topics are covered: the role of mineral colloids in carbon turnover and sequestration and the impact on climate change, biogeochemical interfacial reactions and dynamics of vital and toxic elements, ecotoxicology of anthropogenic organics, environmental nanoparticles and their impacts, and ecosystem health. The book will be a valuable reference for researchers in soil chemistry, environmental chemistry, mineralogy, microbiology, ecology, ecotoxicology, and physics. Jianming Xu is a Professor at the Institute of Soil and Water Resources and Environmental Science, Zhejiang University, China. Pan Ming Huang is a Professor at the Department of Soil Science, University of Saskatchewan, Canada.

Sustainable agriculture is a rapidly growing field aiming at producing food and energy in a sustainable way for our children. This discipline addresses current issues such as climate change, increasing food and fuel prices, starvation, obesity, water pollution, soil erosion, fertility loss, pest control and biodiversity depletion. Novel solutions are proposed based on integrated knowledge from agronomy, soil science, molecular biology, chemistry, toxicology, ecology, economy, philosophy and social sciences. As actual society issues are now intertwined, sustainable agriculture will bring solutions to build a safer world. This book series analyzes current agricultural issues and proposes alternative solutions, consequently helping all scientists, decision-makers, professors, farmers and politicians wishing to build safe agriculture, energy and food systems for future generations.

The recent concept of integrated nutrient supply involving organic, inorganic and bio -fertilizers has developed to meet the growing need for nutrients under intensive cultivation. In integrated plant nutrition supply system, the basic goal is to maintain or possibly improve the soil fertility and plant nutrient supply to an optimum level for sustaining the desired crop productivity through optimization of the benefits from all possible sources of plant nutrients in an integrated manner. The continuous increase in the use of inorganic fertilizers results in decrease in soil fertility. The plant nutrients need to be applied through natural organic sources for profitable fruit production. This has become important to use available chemical fertilizers efficiently through suitable application methods and to follow integrated nutrient management practices by combining inorganic fertilizers with organics, which not only improve the fruit quality and soil health but also remain for longer period in soil to make it healthy and in productive Condition.Therefore this book aims to increase the yield and quality of guava with the adoption of integrated nutrient management.

Today, as agriculture has comfortably nestled itself within the lap of the technological revolution, soil fertilisation for agricultural growth and productivity has undertaken a whole new dimension.

The increasing food demands of a growing human population and the need for an environmentally friendly strategy for sustainable agricultural development require significant attention when addressing the issue of enhancing crop productivity. Here we discuss the role of integrated nutrient management (INM) in resolving these concerns, which has been proposed as a promising strategy for addressing such challenges. INM has multifaceted potential for the improvement of plant performance and resource efficiency while also enabling the protection of the environment and resource quality. Objective of this book are: 1. To promote Integrated Nutrient Management (INM) through judicious use of fertilizers, including secondary and micro nutrients, in conjunction with organic manures and bio-fertilizers, for improving soil health and its productivity. 2. To strengthen soil testing facilities and provide soil test based recommendations to farmers for improving soil fertility and economic return to farmers. 3. To upgrade the skill and knowledge of Soil Testing Laboratory staff / extension workers and farmers and their capacity through training and demonstration on farmers fields.

Contributed articles.

Fertilizers in a changing world. Soil fertility - past and present. Growth and the factors affecting it. Elements required in plant nutrition. Basic soil-plant relationships. Soil and fertilizer: phosphorus, potassium, sulfur, calcium, and magnesium. Micronutrients and other beneficial elements in soils and fertilizers. Fertilizer manufacture. Soil acidity and liming. Soil fertility evaluation. Fundamentals of fertilizer application. Cropping systems and soil management. Ecomomics of plant-nutrient use. Fertilizers and efficient use of water. Interaction of plant nutrients in a high-yield agriculture.

India is one of the largest producer of safflower and ranks first in acreage, accounting about 36% of the world total area. Nutrient management is the major factor which influences the productive capacity of soils. Fertilizer is the major input through which the productivity can be increased by exploiting the varietal potential, since the cost of inputs of major nutrients through chemical fertilizers is increasing. Hence, this supports the integrated nutrient management approach not only to boost the production but also to preserve the ecosystem and to maintain its health. The conjunctive use of organics with the nitrogen fertilizer increased the use efficiency of nitrogen, improves the soil health and minimizes soil pollution. The results showed that performance of safflower crop improved significantly with integrated use of inorganic and organic sources of N (Farm Yard Manure/Poultry manure/Vermicompost) when compared with the application of inorganic N alone. Among the different combinations tried, application of 50 % N through inorganic fertilizer + 50% N through VC recorded highest seed yield, oil yield and also improves soil fertility leading to better soil health.

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Integrated Soil Fertility Management (ISFM) is widely promoted to enhance soil fertility, yields and livelihoods among smallholders, and ultimately combat environmental degradation. Its core is the combined use of organic and inorganic fertilizers with improved crop varieties. Yet, farmers face adoption barriers, such as additional monetary and labor investments. To date, much of the evidence on ISFM effects comes from experimental field trials instead of micro-level farmer data. In particular, studies on labor outcomes are scarce, but important to assess the viability of ISFM in smallholder settings. This study addresses this gap by providing a comprehensive analysis of ISFM effects on land productivity, net crop value, labor demand, labor productivity and returns to unpaid labor using survey data from over 6,000 teff, maize and wheat plots and 2,000 households in Ethiopia. We employ a multinomial endogenous switching model to account for endogeneity from observed and unobserved heterogeneity. We find that both partial and complete ISFM adoption lead to significant increases in land productivity and net crop value, in particular when improved seeds are used. In moister regions, complementing improved varieties with inorganic fertilizer seems most important, while in drier regions, enhancing it with organic fertilizer appears crucial. ISFM is related to higher labor demand, but also significantly increases labor productivity and financial returns to labor. These findings imply that ISFM can contribute to improve farmers' livelihoods by breaking the nexus between low productivity, environmental degradation and poverty.

The decline in soil fertility is widespread in Tigray and is threatening food security. Integrated Nutrient Management (INM) which implies combined application of organic and inorganic fertilizers, helps to overcome the problems associated with single application of either source for enhanced crop productivity. Based on this fact, an experiment was conducted to evaluate the effect of integrated application of inorganic fertilizers and FYM on soil fertility status, agronomic and socioeconomic performance of rice. A 4x3 factorial

experiment consisting of four levels of inorganic fertilizers (0, 25, 50 and 75 kg/ha) and three levels of FYM (0, 6 and 9 t/ha) was laid out in RCB Design with three replications. The results revealed that application of 9t/ha FYM with 75 kg/ha of IF resulted in grain yield of 44.4Ql/ha (p

Seminar paper from the year 2017 in the subject Biology - Botany, grade: 3, , course: HORTICULTURE, language: English, abstract: This work focuses on horticulture, more precisely on integrated nutrient management in underground vegetable crops. Vegetable comprises large number of plants, consumed as leaf, fruits, flowers, stem, roots etc. They are rich in nutrients like carbohydrates, proteins, fats, minerals and vitamins. They are mostly cultivated around the year throughout the country. India is the second largest producer of vegetables next to China in the world. It is cultivated in an area of 9575 (‘000’ ha) with production of 166608 (‘000’ MT) with the productivity of 17.40 MT/ha (NHB, 2016). Nowadays, modern agriculture depends heavily on use of chemical fertilizers for boosting crop yield. However, indiscriminate use of fertilizers has an adverse effect on long term soil health and environment which has global attention. The realistic solution is Integrated Nutrient Management system are the combined application of chemical fertilizers, alongwith organic manure, green manure, bio-fertilizer and other organic recyclable materials for crop production. Vegetable comprises large number of plants, consumed as leaf, fruits, flowers, stem, roots etc. They are rich in nutrients like carbohydrates, proteins, fats, minerals and vitamins. They are mostly cultivated around the year throughout the country. India is the second largest producer of vegetables next to China in the world. It is cultivated in an area of 9575 (‘000’ ha) with production of 166608 (‘000’ MT) with the productivity of 17.40 MT/ha (NHB, 2016). Vegetable growing is the most remunerative enterprise as it is adopted on small and marginal holding with high production in short duration. Being a source of farm income, it creates impact on the agricultural development and economy of the country. Vegetables are cheaper source of minerals, vitamins and fiber with high calorific values. There is an increasing demand of vegetables both for domestic as well as for export, which can earn valuable foreign exchange for country.

Agriculture is the main occupation in India and about 75% of its population depends directly or indirectly on agriculture for their livelihood. It is the dominant sector that contributes 18% of the gross domestic product. Thus, agriculture is the foundation of the Indian economy. The maximum share of Indian exports is also from the agriculture sector. As the population of the country is increasing trem- dously, approximately at the rate of 19 million every year over the existing popu- tion of more than 1 billion (approximately 1. 18 billion), the food grain production must necessarily be increased. This can be done by increasing crop production to match the population growth rate of 2. 2% per annum, which is expected to stabilize at 1. 53 billion around 2050. There is no doubt that the Green Revolution in India during the late 1960s brought self-sufficiency in food grain production, mainly through the increase in rice and wheat crop yields – the two main crops of the country which play an important role from food security point of view. However, the excessive use of fertilizers and pesticides, and the neglect of organic manures for these crops, has resulted in the deterioration of physical, chemical and biological health of the ri- and wheat-growing soils. Owing to the deterioration of the health of these soils, the productivity of the rice–wheat cropping system has now either got reduced or in some places has become constant for the last decade.

Master's Thesis from the year 2018 in the subject Agrarian Studies, grade: 8.5, , course: Agronomy, language: English, abstract: The aim of this study is to study the effect of integrated nutrient management on the growth and yield of kharif Maize and to work out the economics of different nutrient management treatments. As the chemical’s fertilizers play an important role in plants life so that these chemicals should not be avoided completely as they are the potential sources of the high amount of nutrients in easily available forms. These fertilizers greatly affect enzymatic activities in the soil profile but poor management of the chemical fertilizers has a key role in lowering the yield productivity and deteriorate the soil health also. So, to achieve optimum crop production, there is a need to use the combination of organic sources, inorganic sources, bio-fertilizers. Maize (Zea mays L.) requires the nutrients i.e., macronutrients as well as micronutrients for obtaining the higher crop growth and yield. The micronutrients content in organic manure may be sufficient to meet the crop requirement but the low soil fertility is the major problem to maintain sustainability in production. The application of organic manure do not produce optimum yield due to low nutrient status but they play a direct role in plant growth by the mineralization they provide the essential nutrients which furthermore improves the physical and biological properties of the soil. The use of organic plays an important role in maintaining soil health due to the build-up of soil organic matter, beneficial microbes. “Biofertilizer” is a substance that contains living organisms. It promotes growth by increasing the supply or availability of primary nutrients to the host plant. These are not fertilizers because fertilizers directly increase soil fertility by adding nutrients. They add nutrients through the natural processes of fixing atmospheric nitrogen, solubilizing phosphorus, and stimulating plant growth through the synthesis of growth promoting substances. Azotobacter is dominant among the free-living forms of nitrogen fixers. It has been used extensively as a production technology in many countries and there were 20-29 percent increase in yield. Hence, the judicious application of these combinations can sustain soil fertility and productivity. In general, scheduling of fertilizers is based on the individual nutrient requirement of the crop and the carry-over effect of manure and fertilizer applied to precede crop is ignored.

Fertilizer application can increase crop yields and improve global food security, and thus has the potential to eliminate hunger and poverty. However, excessive amounts of fertilizer application can contribute to groundwater pollution, greenhouse gas emissions, eutrophication, deposition and disruptions to natural ecosystems, and soil acidification over time. Small farmers in many countries think inorganic fertilizers are expensive and degrade soils, and thus policymakers want to promote organic instead of inorganic fertilizers. To develop practical fertilizer recommendations for farmers, yield responses to applied fertilizers from inorganic and organic sources, indigenous nutrient supply from

soil, and nutrient use efficiency require consideration. There is a lack of sufficient scientific understanding regarding the need and benefit of integrated nutrient management (i.e., judicious use of inorganic and organic sources of nutrients) to meet the nutrient demand of high-yielding crops, increase yields and profits, and reduce soil and environmental degradation. Inadequate knowledge has constrained efforts to develop precision nutrient management recommendations that aim to rationalize input costs, increase yields and profits, and reduce environmental externalities. This Special Issue of the journal provided some evidence of the usefulness of integrated nutrient management to sustain soil resources and supply nutrients to crops grown with major cereal and legume crops in some developing countries.