

Haramaya University College Of Agriculture And

As the global climate shifts, communities are faced with a myriad of mitigation and adaptation challenges. These highlight the political, cultural, economic, social, and physical vulnerability of social groups, communities, families, and individuals. They also foster resilience and creative responses. Research in hazard management, humanitarian response, food security programming, and other areas seeks to identify and understand factors that create vulnerability and strategies that enhance resilience at all levels of social organization. This book uses case studies from around the globe to demonstrate ways that communities have fostered resilience to mitigate the impacts of climate change. We document the state of the extension system in Ethiopia and review the empirical evidence on the links between the key extension services provided, adoption of modern inputs, and agricultural productivity. In particular, we take stock of the provision of agricultural extension services, synthesize the evidence on the performance of the system, and suggest ways that it might contribute to accelerating agricultural growth and poverty reduction in the years ahead.

This book features influential scholarly research and technical contributions, professional trajectories, disciplinary shifts, personal insights, and a combination of these from a group of remarkable women scholars within precision agriculture. The authors provide a holistic and critical overview of the field of precision agriculture (both crop and livestock), highlighting breakthroughs and impactful research led by women investigators including relevant technologies, decision making strategies, practices, applications, economics, opportunities and challenges. They discuss the urgent need for reduced cost, increased productivity, more optimal use of resources, and reduced impact on our environment. The leading female researchers contributing to this book are creating new technological advances that are revolutionizing agriculture. Focuses on advances in precision agriculture led by leading women researchers, scholars, and professionals; Provides insight into women's technical contributions in precision agriculture; Takes a holistic approach to precision agriculture, addressing both land and livestock applications.

This book explores the most important aspects of the biology, ecology and management of what is one of the world's worst weeds. Originally regarded as a major weed in Australia and India, Parthenium weed is now widespread in around 48 countries in Africa, Asia and the South Pacific, and has the potential to spread to new countries in Africa, Asia and Europe. This book, which is a collective effort by 27 members of the International Parthenium Weed Network, addresses research and knowledge gaps for different countries. It examines the weed's mode of spread, its impact on agricultural production, its effect on the environment and on human health, and its management using biological control, as well as cultural, physical and chemical approaches. It also considers the coordination of the weed's management, possible uses for Parthenium weed, its present distribution and how this is impacted by climate change. This book includes: A detailed analysis of Parthenium weed biology. Experiences with Parthenium weed worldwide. An explanation of practical management options. This book will be of interest to graduate students and researchers in universities and institutes, in the fields of plant ecology, botany, agriculture, conservation and restoration ecology.

Considerable poverty and food insecurity in Ethiopia, combined with the overwhelming majority of Ethiopians who depend on agriculture for their livelihoods, make agricultural transformation a crucial development goal for the country. One promising improvement is to increase production of teff, the calorie- and nutrient-rich but low-yielding staple. The Economics of Teff: Exploring Ethiopia's Biggest Cash Crop

examines key aspects of teff production, marketing, and consumption, with a focus on opportunities for and challenges to further growth. The authors identify ways to realize teff's potential, including improving productivity and resilience, selecting and scaling up new technologies, establishing distribution systems adapted to different areas' needs, managing labor demand and postharvest operations, and increasing access to larger and more diverse markets. The book's analysis and policy conclusions should be useful to policy makers, researchers, and others concerned with Ethiopia's economic development.

This book is a printed edition of the Special Issue "Genetics and Breeding for Productivity Traits in Forage and Bioenergy Grasses" that was published in *Agronomy*

Addis Ababa is one of the fastest transforming environments on the globe and a prototype of an emerging territory. What can architecture and urban design as disciplines contribute to such transformation? According to which criteria can processes of the kind encountered in Addis Ababa be evaluated? And, how can all of this be steered? Aiming to identify sustainable strategies—rather than upholding an a priori vision of an ideal city—the publication acknowledges the heterogeneous conditions of urban territories. The book highlights questions of method and procedure that can be transferred to other 'cities of change'. This revised edition covers recent developments, such as the increasing influence of China in African countries or the chances of high-density, low-rise developments.

Bachelor Thesis from the year 2008 in the subject Agrarian Studies, grade: A, , course: RURAL DEVELOPMENT AND

AGRICULTURAL EXTENTION, language: English, abstract: The research was intended to answer the following questions: 1.

What are the factors impeding adoption of small scale irrigation? 2. What are the problems contributing for less participation of farmers on small scale irrigation? 3. What are possible solutions to improve community participation on irrigation? Agriculture is the major primary economic activities of the Ethiopian population. Due to the existence of diversified topography, soil, weather and climatic conditions that favor agricultural activities the majority of the Ethiopian population have been engaged in and generate their income from the sector. However, agriculture in Ethiopia is mainly characterized by the use of backward & traditional farm implements and subsistence farming system dominates by rain fed agricultural production that resulted to low and declining productivity of the sector. The use of supplementary irrigation from either traditional or modern water harvesting structures is considered by the government.

With one volume each year, this series keeps scientists and advanced students informed of the latest developments and results in all areas of the plant sciences. The present volume includes reviews on genetics, cell biology, physiology, ecology, and vegetation science.

The Encyclopedia of Library and Information Sciences, comprising of seven volumes, now in its fourth edition, compiles the contributions of major researchers and practitioners and explores the cultural institutions of more than 30 countries. This major reference presents over 550 entries extensively reviewed for accuracy in seven print volumes or online. The new fourth edition, which includes 55 new entire entries and 60 revised entries, continues to reflect the growing convergence among the disciplines that influence information and the cultural record, with coverage of the latest topics as well as classic articles of historical and theoretical importance.

Heat Stress In Food Grain Crops: Plant Breeding and Omics Research is a timely compilation of advanced research on heat stress affecting crop yield, plant growth & development of common food grain and cereal crops. Chapters in the book cover several aspects of crop science including the identification of potential gene donors for heat tolerance, physiological mechanisms of adaptation to heat stress, the use of conventional and modern tools of breeding for imparting tolerance against terminal temperature stress and precise mapping of heat tolerant QTLs through biparental and genome wide association mapping. The use of genomics and phenomics methods is focused on through chapters dedicated to important crops such as groundnut, pearl millet, maize, chickpea, mungbean and wheat. Authors of the respective chapters explain the importance of harnessing a diverse crop gene pool for sustaining crop production under conditions of increasing heat stress. Readers will be able to understand the relevance of functional genomics in elucidating candidate genes and their regulatory functions contributing to heat tolerance

Academic Paper from the year 2019 in the subject Sociology - Work, Profession, Education, Organisation, Wollega University, language: English, abstract: This research study assesses the factors that affect the self-employment of the persons with disabilities in Urban Areas of East Wollega Zone and analyses gender disparities on participation of the households in income generating activities and household income. A simple random sampling of the persons with disabilities is therefore made from all the six sub cities, under Nekemte town, proportional to their size in each sub city. A total of 121 persons with disabilities are drawn and analysed using both descriptive and econometric analysis. The study reveals that 25.62 percent of persons with disabilities are engaged in income generating activities equally with other healthy (active) citizens of the people in the area. The use of credit, the social capital and better health condition are variables identified in significantly influencing their participation in income generating activities. The proportion of participation of female persons with disabilities is higher as compared to male counterpart. There is discrepancy in annual income of female heads compared to male headed. At the same time the study indicates that a significant number, 30.58 percent, still require a continuous support (health, food, sheltering, clothing, and so on) from any source to cope up with the highly competitive living condition. The study recommends support on enhancing their educational level through training, health condition and provision of credit to increase their engagement in income generating activities for the healthy (able to work) persons; and provision of a continuous assistance for the remaining households that are in bad health condition.

With the current Second Growth and Transformation Plan (2015-2020), the Government of Ethiopia expects the agro-industrial sector to play key role in economic growth of the Country. Accordingly, the creation of Integrated Agro-Industrial Parks has been identified as one of the key mechanisms for accelerating the development of the sector and the structural transformation of agriculture. Agro-industrial parks will play a significant role in transitioning Ethiopia from an agricultural-led into an industrial-led economy. In view of that, the development of Integrated Agro-Industrial Parks has been prioritized in Ethiopia's national development strategy and four Agro Industrial Growth Corridors have been selected for piloting the establishment of four Integrated Agro-Industrial Parks. The initiative aims at driving the structural transformation of the Ethiopian economy while

reducing rural poverty and creating a better environment for increased investments in agro-processing and allied sectors. Since 1981, FAO has been a strong partner of the Government of Ethiopia towards the achievement of national food security and economic growth goals. FAO is working closely with the Ministry of Agriculture and Natural Resources to empower value chain actors and to promote inclusive, efficient and sustainable agricultural value chains. The present document is the fourth one of a series of detailed analyses of prioritized commodities, which will lead to inclusive, sustainable and stronger agricultural value chains in the Agro-Commodities Procurement Zone of the pilot Integrated Agro-Industrial Park in Central-Eastern Oromia.

Doctoral Thesis / Dissertation from the year 2018 in the subject Agrarian Studies, Haramaya University, language: English, abstract: White haricot bean is the major source of cash in domestic and international markets and serves as the cheapest source of protein diet for the rural households. Double hurdle model and parametric stochastic frontier model of Cobb Douglas type production and cost functions were used to analyze the determinants of adoption and estimate production and cost efficiency scores, respectively. Adoption study revealed that the two decision tiers are independent and same or different factors affected the two tiers. The decision to adopt is positively and significantly influenced by frequency of extension contacts, land holding size, agricultural income, perception of the household heads (about price, contribution to soil fertility and nutritional importance), training, and crop diversification; and negatively by distance to market and form of possession of haricot bean plot (tenure). Intensity of adoption is positively affected by non-farm income, contact with NGOs, and negatively with the number of dependents and form of possession of haricot beans plot (tenure). Technical efficiency is significantly and positively influenced by sex (male=1), membership in farmers cooperatives, education of the family, experience in haricot beans farming, use of certified seeds, income from the farm sector and crop diversification; and negatively affected by age of the households. Allocative efficiency differential is significantly and positively influenced by farming experience and household size; and negatively influenced by sex, distance to market and fragmentation of land. Economic efficiency is significantly and positively affected by the education of the family and household size, and negatively by distance to market and fragmentation of land. Provision of improved extension services, enhancing the perceptions on the important attributes of the crop

Agricultural Research in Africa Investing in Future Harvests Intl Food Policy Res Inst

The need for agricultural research resources in the developing world cannot be underestimated, but the availability of such resources is often poor due to lack of funding and investment. In order for Africa and other such developing countries to achieve productivity in agriculture - vital to food security, poverty reduction and sustainable management of natural resources - investment and policy development needs to be assessed. This book, a joint effort from IFPRI, ILRI and the Kellogg Foundation, explores the importance of impact assessment studies in Africa, and assembles important evidence to pave the way for further, much needed investment in agricultural research all over the developing world.

To improve their well-being, the poor in developing countries have used both collective action through formal and informal groups and property rights to natural resources. Collective Action and Property Rights for Poverty Reduction: Insights from Africa and Asia examines how these two types of institutions, separately and together, influence quality of life and how they can be strengthened to improve the livelihoods

of the rural poor. The product of a global research study by the Systemwide Program on Collective Action and Property Rights (CAPRI) of the Consultative Group on International Agricultural Research, this book draws on case studies from East Africa and South and Southeast Asia to investigate how collective action and property rights have contributed to poverty reduction. The book extends the analysis of these institutions beyond their frequently studied role in natural resource management by also examining how they can reduce vulnerability to different types of shocks. Essays in the volume identify opportunities and risks present in the institutions of collective action and property rights. For example, property rights to natural resources can offer a variety of advantages, providing individuals and groups not only with benefits and incomes but also with assets that can counter the negative effects of shocks such as drought, and can make collective action easier. The authors also demonstrate that collective action has the potential to reduce poverty if it includes more vulnerable groups such as women, ethnic minorities, and the very poor. Preventing exclusion of these often-marginalized groups and guaranteeing genuinely inclusive collective action might require special rules and policies. Another danger to the poor is the capture of property rights by elites, which can be the result of privatization and decentralization policies; case studies and analysis identify actions to prevent such elite capture.

As urban populations continue to increase it is essential to consider ways of reducing their impact in terms of the use of natural resources, waste production and climate change. The increasing number of people in cities requires new strategies to supply the necessary food with limited provision of land and decreasing resources. This will become more challenging unless innovative solutions for growing and distributing food in urban environments are considered. The scale of modern food production has created and exacerbated many vulnerabilities and the feeding of cities is now infinitely more complex. As such, the food system cannot be considered secure, ethical or sustainable. In the last few years, there has been a rapid expansion in initiatives and projects exploring innovative methods and processes for sustainable food production. The majority of these projects are focused on providing alternative models that shift the power back from the global food system to communities and farmers improving social cohesion, health and wellbeing. It is therefore not surprising that more people are looking towards urban farming initiatives as a potential solution. These initiatives have demonstrated that urban agriculture has the potential to transform our living environment towards ecologically sustainable and healthy cities. Urban agriculture can also contribute to energy, natural resources, land and water savings, ecological diversity and urban management cost reductions. The impact urban agriculture can have on the shape and form of our cities has never been fully addressed. How cities embed these new approaches and initiatives, as part of new urban developments and a city regeneration strategy is critical. The 2nd International Conference on Urban Agriculture and City Sustainability addressed these challenges and the search for new solutions. The presented papers which form this volume detail research works looking at how urban agriculture can contribute to achieving sustainable cities.

Ayurveda is widely considered to be one of the oldest health care traditions still in practice today. Originating in India over 3,000 years ago, it is now increasingly recognized and practiced globally including in many European countries and the United States. Food and nutrition play a crucial role in the health care wisdom of Ayurveda. The Ayurvedic Science of Food and Nutrition discusses the various principles of healthy eating as prescribed by Ayurveda. Divided into three sections, it addresses the fundamentals, the clinical applications, and the future challenges of Ayurveda. Specifically, the book discusses issues such as the concept of diet, the use of food as medicine, especially to treat diabetes and cancer, convalescent food practices, and fasting therapy. The Ayurvedic Science of Food and Nutrition is unique in that it is one of the only books to investigate the scientific rationale behind Ayurveda, enabling this health care tradition to potentially be incorporated into a Western clinical practice model when this latter conventional therapy is found to be ineffective.

Enormous changes are affecting African production agriculture, urbanization, and food consumption patterns, requiring new approaches to training and knowledge generation and dissemination to achieve food security. Many agricultural universities and other tertiary agricultural education (TAE) organizations have been slow to respond, hindered by inadequate staffing and facilities and growing competition for funds. However, some African agricultural universities are transforming themselves and are achieving remarkable success. This book documents successful approaches to remaking TAE in Africa to inspire leaders, both formal and informal, of other TAE organizations. It emphasises adaptive strategies and processes creating an internal culture driven by stakeholder needs and where organizational transformation improves the quality and relevance of teaching, research, and outreach. The chapters cover the role of TAE in agricultural transformation, trends in TAE in Africa, solutions to the rigour-versus-relevance dilemma, curriculum design informed by actual and emerging labour market conditions, innovation and entrepreneurship, TAE quality assurance, and networking among TAE institutions.

High-quality seed is essential for healthy crops and greater agricultural productivity. At the same time, advances in breeding technology require equivalent advances in seed technology. In order to ensure food security, it is crucial to develop seeds that are high yielding, and resistant to drought, heat, cold, and insects. Gathering the latest research in seed sciences, the book includes contributions on seed production in crops such as legumes, sugar, rice, wheat and other cereals. It discusses a range of topics, like the effect of climate change on seed quality, production and storage; seed rouging; seed certification for different crop species; seed biology; and seed pathologies and their effective management. Integrating basic and applied research, this compendium provides valuable insights for researchers and students in agricultural and life sciences; professionals involved in seed certification and those working in quarantine laboratories; as well as plant pathologists.

Despite a rapidly growing enthusiasm around applications of information and communications technologies (ICTs) to smallholder agriculture in developing countries, there are still many questions on the effectiveness of ICT-based approaches. This study assesses the effects of videomediated agricultural extension service provision on farmers' knowledge and adoption of improved agricultural technologies and practices in Ethiopia. The study focuses on a program piloted by the Government of Ethiopia and Digital Green and poses three questions. First, to what extent does video-mediated extension lead to increased uptake of improved agricultural technologies and practices by smallholder farmers? Second, is video-mediated extension targeted at both spouses of the household more effective than when only targeted at the (typically male) household head? Third, how cost-effective is a video-mediated approach to extension provision? The study explores these questions with a randomized controlled trial designed to evaluate the video-mediated approach as applied to three priority crops (teff, wheat, maize) and three technologies (row planting, precise seeding rates, and urea dressing). The trial was implemented in 347 kebeles (village clusters) during the 2017 meher (rainy) season in Ethiopia's four most agriculturally important regional states. Analysis of data from our surveys of 2,422 households and 896 extension agents indicates that the video-mediated approach is more effective than the conventional approach in achieving several key outcomes. Specifically, we find that videomediated extension reaches a wider audience than the conventional approach and leads to higher levels of agricultural knowledge and uptake of technologies in those kebeles randomly assigned to the program. While our results do point to greater participation and greater knowledge of female spouses in kebeles where both male and female spouses were targeted by the program, we do not find clear evidence that the more inclusive approach translated into higher uptake of the subject technologies and practices. Finally, we find that the video-mediated approach becomes less costly as the scale of operation increases.

The perception of Ethiopia projected in the media is often one of chronic poverty and hunger, but this bleak assessment does not accurately reflect most of the country today. Ethiopia encompasses a wide variety of agroecologies and peoples. Its agriculture sector, economy, and food security status are equally complex. In fact, since 2001 the per capita income in certain rural areas has risen by more than 50 percent, and crop yields and availability have also increased. Higher investments in roads and mobile phone technology have led to improved infrastructure and thereby greater access to markets, commodities, services, and information. In *Food and Agriculture in Ethiopia: Progress and Policy Challenges*, Paul Dorosh and Shahidur Rashid, along with other experts, tell the story of Ethiopia's political, economic, and agricultural transformation. The book is designed to provide empirical evidence to shed light on the complexities of agricultural and food policy in today's Ethiopia, highlight major policies and interventions of the past decade, and provide insights into building resilience to natural disasters and food crises. It examines the key issues, constraints, and opportunities that are likely to shape a food-secure future in Ethiopia, focusing on land quality, crop production, adoption of high-quality seed and fertilizer, and household income. Students, researchers, policy analysts, and decisionmakers will find this book a useful overview of Ethiopia's political, economic, and agricultural transformation as well as a resource for major food policy issues in Ethiopia. Contributors: Dawit Alemu, Guush Berhane, Jordan Chamberlin, Sarah Coll-Black, Paul Dorosh, Berhanu Gebremedhin, Sinafikeh Asrat Gemessa, Daniel O. Gilligan, John Graham, Kibrom Tafere Hirrfot, John Hoddinott, Adam Kennedy, Neha Kumar, Mehrab Malek, Linden McBride, Dawit Kelemework Mekonnen, Asfaw Negassa, Shahidur Rashid, Emily Schmidt, David Spielman, Alemayehu Seyoum Taffesse, Seneshaw Tamiru, James Thurlow, William Wiseman.

Forest tenure reforms are occurring in many developing countries around the world. These reforms typically include devolution of forest lands to local people and communities, which has attracted a great deal of attention and interest. While the nature and level of devolution vary by country, all have potentially important implications for resource allocation, local ecosystem services, livelihoods and climate change. This book helps students, researchers and professionals to understand the importance and implications of these reforms for local environmental quality, climate change, and the livelihoods of villagers, who are often poor. It is shown that local forest management can often be more successful than top-down management of common pool forest resources. The relationship of local forest tenure reform to the important climate change initiative REDD+ is also considered. The work includes a number of generic chapters and also detailed case studies from China, Ethiopia, Kenya, Nepal, Tanzania and Uganda. Using specific examples and a wide variety of disciplinary perspectives, including quantitative and qualitative analytical methods, the book provides an authoritative and critical picture of local forest reforms in light of the key challenges humanity faces today.

Scientific Study from the year 2012 in the subject Sociology - Medical Care, , language: English, abstract: This study was initiated with the specific objectives of assessing the impact of HIV/AIDS on sorghum output. Cross-sectional data collected from a total of 120 respondents were used in this study whereby 40 were affected households and 80 were non-affected households. Cobb-Douglas (CD) production function was used to estimate the productivity difference in sorghum output between affected and non-affected households. The agricultural sector in general and sorghum production in particular in the rural part of Ethiopia is characterized by low productivity which mainly uses labour as an input. However, the availability of the labour force is greatly reduced in both quantity and quality due to the prevalence of HIV/AIDS.

N/A

The book provides a comprehensive overview of the hydrology of the Nile River, especially the ecohydrological degradation and challenges the basin is facing, the impact of climate change on water availability and the transboundary water management issues. The book includes

analysis and approaches that will help provide different insights into the hydrology of this complex basin, which covers 11 countries and is home to over 300 million people. The need for water-sharing agreements that reflect the current situations of riparian countries and are based on equitable water-sharing principles is stressed in many chapters. This book explores water resource availability and quality and their trends in the basin, soil erosion and watershed degradation at different scales, water and health, land use and climate change impact, transboundary issues and water management, dams, reservoirs and lakes. The link between watershed and river water quantity and quality is discussed pointing out the importance of watershed protection for better water resource management, water accessibility, institutional set-up and policy, water demand and management. The book also presents the water sharing sticking points in relation to historical treaties and the emerging water demands of the upstream riparian countries. The need for collaboration and identification of common ground to resolve the transboundary water management issues and secure a win-win is also indicated.

Understanding deserts and drylands is essential, as arid landscapes cover >40% of the Earth and are home to two billion people. Today's problematic environment–human interaction needs contemporary knowledge to address dryland complexity. Physical dimensions in arid zones—land systems, climate and hazards, ecology—are linked with social processes that directly impact drylands, such as land management, livelihoods, and development. The challenges require integrated research that identifies systemic drivers across global arid regions.

Measurement and monitoring, field investigation, remote sensing, and data analysis are effective tools to investigate natural dynamics.

Equally, inquiry into how policy and practice affect landscape sustainability is key to mitigating detrimental activity in deserts. Relations between socio-economic forces and degradation, agro-pastoral rangeland use, drought and disaster and resource extraction reflect land interactions. Contemporary themes of food security, conflict, and conservation are interlinked in arid environments. This book unifies desert science, arid environments, and dryland development. The chapters identify land dynamics, address system risks and delineate human functions through original research in arid zones. Mixed methodologies highlight the vital links between social and environmental science in global deserts. The book engages with today's topical themes and presents novel analyses of arid land systems and societies.

This book is a contribution to the global history of the transfer of political ideas, as exemplified by the case of modern Ethiopia. Like many non-European nation-states, Ethiopia adopted a western model of statehood, that is, the nation-state. Unlike the postcolonial polities that have retained the mode of statehood imposed on them by their colonial powers, Ethiopia was never successfully colonized leaving its ruling elite free to select a model of 'modern' (western) statehood. In 1931, via Japan, they adopted the model of unitary, ethnolinguistically homogenous nation-state, in turn copied by Tokyo in 1889 from the German Empire (founded in 1871). Following the Ethiopian Revolution (1974) that overthrew the imperial system, the new revolutionary elite promised to address the 'nationality question' through the marxist-leninist model. The Soviet model of ethnolinguistic federalism (originally derived from Austria-Hungary) was introduced in Ethiopia, first in 1992 and officially with the 1995 Constitution. To this day the politics of modern Ethiopia is marked by the tension between these two opposed models of the essentially central European type of statehood. The late 19th-century 'German-German' quarrel on the 'proper' model of national statehood for Germany – or more broadly, modern central Europe – remains the quarrel of Ethiopian politics nowadays. The book will be useful for scholars of Ethiopian and African

history and politics, and also offers a case in comparative studies on the subject of different models of national statehood elsewhere.

This book—prepared by Agricultural Science and Technology Indicators (ASTI), which is led by IFPRI—offers a comprehensive perspective on the evolution, current status, and future goals of agricultural research and development in Africa, including analyses of the complex underlying issues and challenges involved, as well as insights into how they might be overcome. Agriculture in Africa south of the Sahara is at a prospective tipping point. Growth has accelerated in the past decade, but is unsustainable given increasing use of finite resources. The yield gap in African agriculture is significant, and scenarios on feeding the world's population into the future highlight the need for Africa to expand its agricultural production. *Agricultural Research in Africa: Investing in Future Harvests* discusses the need to shift to a growth path based on increased productivity—as in the rest of the developing world—which is essential if Africa is to increase rural incomes and compete in both domestic and international markets. Such a shift ultimately requires building on evolving improvements that collectively translate to deepening rural innovation capacity.

This edition of *Nature & Fauna* journal explores the intricacies of sustainable pastoralism and rangeland management in Africa. It contains articles on the realities of livestock production in Africa, including: extensive rangeland conditions; rangeland ecosystems and sustainability; wildlife benefits and conflicts in pastoral systems; land tenure systems in pastoral settings, forest feed for livestock; animal disease control; agro-silvo-pastoralism; and impact of livestock on water and soil degradation. This lends support to the initiative of encouraging the United Nations to designate 2020 the International Year of Rangelands and Pastoralists.

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