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Editorial

Selected papers on ongoing research to address climate change challenges and for strengthening Africa Agri-food Systems

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ABSTRACT
This Issue, Volume 7 Issue 4 of the African Journal of Rural Development has nine papers. As in the previous issue (Vol 7 Issue 3), this particular Issue also focuses largely on issues related to Climate Change, (two papers), a clear indication of the impact climate change is having in Africa and of the ongoing efforts to mitigate its impact on the continent. The two papers cover aspects of climate variability trends (Osaliya *et al*.), and access to agrometeorological information (Atsiaya *et al*.). Two other papers discuss issue of land tenure and related management practices (Denga et al. and Ogwal *et al*.). Three other papers discuss feasibility of using fungi for biocontrol of bacterial wilt diseases (Kariuki *et al*.), properties of extruded cowpea-cassava composite flour (Kessely et al.) and lastly the crucial issue of effective extension delivery services to farmers- the case in Uganda of engaging soldiers in agricultural input distribution (Ochen *et al*.). The remaining two papers discuss the impact of the COVID 19 Pandemic on groundnut farmers in Burkina Faso and Mali (Sylla et al.) and harnessing ICTs for knowledge sharing, especially to strengthen extension delivery services (Tulinayo *et al*.) These papers highlight some of the key development issues facing agricultural development in the continent, namely, climate change and its associated impacts, natural resource and environment degradation, land tenure, delivery of extension services to farmers, need for food formulations to cope up with changing dietary and eating habits and the recurrent problem of managing bacterial wilt diseases in crops such as bananas, vegetables and horticultural crops. The papers cover diverse topics and profile some of the ongoing research for development initiatives to respond to some of the challenges. We invite for more papers on the above and other issues.

Key words: Africa, agrometeorological information, Climate change, cowpea-cassava flour, extension services, Household Food Security determinants, land tenure, Operation Wealth Creation, Uganda

RÉSUMÉ
Ce numéro, Volume 7 Numéro 4 du Journal Africain du Développement Rural, comprend neuf articles. Comme dans le numéro précédent (Vol 7 Numéro 3), ce numéro se concentre également en grande partie sur les problèmes liés au changement climatique (deux articles), une indication claire de l'impact que le changement climatique a en Afrique et des efforts en cours pour atténuer son impact sur le continent. Les deux articles abordent des aspects des tendances de la variabilité climatique (Osaliya *et al*.) et de l'accès à l'information agrométéorologique (Atsiaya *et al*.). Deux autres articles discutent de la question du régime foncier et des pratiques de gestion associées (Denga *et al*. et Ogwal *et al*.). Trois autres articles discutent de la faisabilité de l'utilisation de champignons pour le biocontrôle des

maladies bactériennes du flétrissement (Kariuki et al.), des propriétés de la farine composite extrudée de niébé-manioc (Kessely *et al*.) et enfin de la question cruciale de la prestation de services de vulgarisation efficaces aux agriculteurs - le cas en Ouganda de l'engagement des soldats dans la distribution des intrants agricoles (Ochen *et al*.). Les deux derniers articles discutent de l'impact de la pandémie de COVID 19 sur les agriculteurs de l'arachide au Burkina Faso et au Mali (Sylla *et al*.) et de l'exploitation des TIC pour le partage des connaissances, notamment pour renforcer les services de vulgarisation (Tulinayo *et al*.) Ces articles mettent en lumière certains des principaux problèmes de développement auxquels fait face le développement agricole sur le continent, à savoir, le changement climatique et ses impacts associés, la dégradation des ressources naturelles et de l'environnement, le régime foncier, la prestation de services de vulgarisation aux agriculteurs, le besoin de formulations alimentaires pour s'adapter aux habitudes alimentaires et diététiques changeantes et le problème récurrent de gestion des maladies bactériennes du flétrissement dans les cultures telles que les bananes, les légumes et les cultures horticoles. Les articles couvrent des sujets divers et profilent certaines des initiatives de recherche pour le développement en cours pour répondre à certains des défis. Nous invitons à soumettre davantage d'articles sur les sujets susmentionnés et d'autres problèmes.

Mots-clés: Afrique, information agrométéorologique, changement climatique, farine de niébé-manioc, services de vulgarisation, déterminants de la sécurité alimentaire des ménages, régime foncier, Opération Création de Richesse, Ouganda

Climate Change is a major challenge affecting livelihoods and economies across the globe. Africa in particular has been and continues to be severely affected because of its limited copying capacity, with a large proportion of the populations and all the sectors grossly affected. The impact is across the continent as well described by Badji *et al*. (2022). In this Issue of AFJRD, Volume 7 Issue 4, Osaliya *et al*. (2022) describes how the now frequent and severe droughts associated with climate change are making water scarcity more acute resulting in devastating impact on agropastoral communities in arid and semi arid regions of Eastern Africa, resulting in crop failure, loss of life of the people and widespread death of livestock. The paper analyses climate variability trends in two semi-arid regions of Uganda, Karamoja and Teso. In other areas, total rainfall has on the contrary increased also in some cases resulting in widespread flooding throughout Uganda. The paper recommends close monitoring of climate variability trends and designing ecosystem based adaptation strategies. This would include, among others, strengthening early warning systems and agrometeorological information services delivery. In this vein, the paper by Atsiaya et al. (2022) examines factors influencing access to agrometeorological information amongst sorghum farmers in Kenya. Related studies have been conducted in Ethiopia (see Ayalew *et al*., 2012; Hadgu *et al*., 2013) and in other countries (see for example work in Ghana by Gbangou *et al*., 2020).

Two papers address the issue of land use and management. Denga *et al*. (2022) provides a systemic review of drivers of riverbank cultivation and associated impact on conservation measures in southern Africa. The main drivers of the cultivation practice are the need for land for cultivation for basic livelihood needs and also income, and the practice is on the increase due to the spiraling population increase. Unfortunately it is not accompanied by sound land and biodiversity conservation measures. This is a challenging situation, as the trade-offs between conservation and human livelihoods

is often not a win-win situation. Nevertheless, appropriate policy measures need to be put in place and should involve active participation of key stakeholders and beneficiaries. Relatedly, the second paper by Ogwal et al. (2022) examine apiculture practices in Uganda, an increasingly important activity in terms of honey production and trade. Unfortunately there is limited use of new technologies to improve bee keeping, honey harvesting and processing practices leading to low returns.

In several tropical and subtropical regions, bacterial wilt diseases are a menace, in spite of decades of research on the subject. The paper by Kariuki *et al*. (2022) explores the use of Bacillus and Trichoderma species for the management of *Ralstonia solanacearum, Xanthomonas campestris* pv *campestris* and *Pseodomonas* sp in vivo. The results are promising but further studies are needed to develop practical application protocols. This is urgent as bacterial wilt diseases are causing havoc in crops such as bananas and tomatoes, amongst several other crop species.

Apart from the increasing demand for food supply, the world also has to cope up with the demand for new food products to meet the changing eating habits of the population especially urban dwellers and youth. There is also the need to add value to foods so as to create different food types for the different market segments. The study by Kesselly *et al*. (2022) explored use of extruded cowpea-cassava composite flour to replace wheat and as an options to produce new types of cassava products for the markets. A related study also involving cassava and cowpea composing has been done by Dada *et al*. (2018). The inclusion of cowpea is not surprising as this is food (legume) source has high nutrient content and research is ongoing to commercialise the commodity further.

The paper by Ochen *et al*. (2022) addresses an old age challenge of providing extension services to farmers. Various models have been tried in different countries some with remarkable success as is the case with USA Land Grant Universities and what is being done in China. In the case of Uganda, after trying several models the Government has now deployed soldiers as Input suppliers, downgrading the traditional extension advisory services. Farmers report more timely distribution of input but the quality remains a challenge more so since the solders lack technical knowledge. These issues are described and discussed in the paper by Ochen *et al*. (2022).

The Final paper, by Tulinayo *et al*. (2022), examines factors that influence smallholder farmers' use of Information and Communication Technologies (ICTS), a case study in Uganda. The results indicate that availability of shared infrastructure and individual characteristics including education are key. Being a member of a Farmers' Community Organisations is an enabler and helps in obtaining and sharing information and knowledge. With the increase in the role of Information Technologies for information, trade and education, it is critical that African Governments make significant investment to advance use of ICTs for education, knowledge sharing, business and for other social services.

The nine papers in AFJRD Vol 7 Issue 4 therefore address topical issues that require policy attention and more research support. Clearly a number of Action Areas were identified during the 2021 United Nations Food System Summit that relate to the issues being addressed in the papers and in several Research for Development activities ongoing in the continent and globally. The need to ensure sustainable agri-food systems amidst the climate change challenges, the need for Green economies, the need to harness Information Technologies, the need to strengthen Post-Harvest Management and Value Addition

practices, and the need to ensure Inclusivity in the interventions and investments, remain critical and urgent. AFJRD invites for papers on the above and other issues.

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