



Editorial

Promoting dissemination and application of African Universities' research outputs

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ABSTRACT

In the current context of demographic explosion, particularly in Sub-Saharan Africa, empirical research on aspects that relate to livelihoods is deemed to have considerable long-term implications for societal well-being and sustainable development. Whereas these aspects are various and include a wide range of specific issues from agriculture and food security to health sciences and environment, it is increasingly becoming evident that impacts on society are greater when research outputs are practical and locally exploitable. This editorial introduces the third issue of the fourth volume of the *African Journal of Rural Development* (AFJRD: Vol. 4, Issue 3), which presents seven research and one review papers on topics that are relevant to the journal audience. In particular, the issue highlights research studies that have investigated complementary aspects of (i) livestock productivity; (ii) crop productivity and marketing; and (iii) interdisciplinary research capacity and scholarly publishing in African universities. The work presented in this issue provides recommendations that enable livestock farmers attain profitable returns and assure economic sustainability of dairy, piggery and small ruminant farming. Further, it highlights the importance of managing infected soil and debris to address the spread and control of plant pathogens. Finally, the results of the studies in this issue highlight some of the challenges faced by universities in Africa in producing original research output and building research collaboration, in particular, the need to evaluate existing capacities and map out strategic areas of development in higher education institutions. Our goal in collating and sharing these findings is to catalyze understanding of the issues being addressed, promote research application and facilitate advancement in scientific research on the continent.

Key words: African universities; agricultural productivity; livelihoods; plant breeding; postharvest stability

RÉSUMÉ

Dans le contexte actuel de poussée démographique, plus particulièrement en Afrique subsaharienne, la recherche scientifique sur des aspects liés aux conditions de vie des populations a d'importantes implications pour le bien-être social et le développement durable. Quand bien même ces aspects couvrent des questions spécifiques dans des domaines variés de l'agriculture aux sciences de la santé, il demeure de plus en plus évident que l'impact sur la société est encore plus important si les résultats de recherche sont pratiques et exploitables. Cet éditorial présente le troisième numéro du quatrième volume de la *Revue Africaine pour le Développement Rural* (AFJRD: Vol.4, Numéro 3), avec sept articles de recherche et une revue sur des sujets pertinents pour les lecteurs. En particulier, il met en évidence des études qui ont examiné des questions de recherche sur

(i) la productivité animale; (ii) la productivité agricole et la commercialisation; puis (iii) la capacité de recherche interdisciplinaire et la publication dans les universités en Afrique. Les travaux présentés dans ce numéro mettent en exergue des recommandations qui permettent aux éleveurs d'atteindre des rendements rentables et d'assurer la durabilité économique de leur élevage. De plus, il souligne l'importance de gérer le sol et les débris infectés pour contrôler et lutter contre la propagation des phyto-pathogènes. Enfin, les résultats des études dans ce numéro soulignent quelques défis auxquels sont confrontées les universités en Afrique en ce qui concerne la production des résultats de recherche originale et la collaboration, en particulier la nécessité d'évaluer les capacités existantes et de définir des domaines stratégiques de développement. Notre objectif en rassemblant et en partageant ces résultats est de catalyser la compréhension des problèmes abordés, de promouvoir la recherche scientifique et son application sur le continent.

Mots clés: Universités africaines; productivité agricole; moyens de subsistance; amélioration des plantes; stabilité après récolte

INTRODUCTION

Improving the quality of life in rural areas and the economic well-being of people has not only remained a constant goal but also a long term challenge. Worldwide, rural areas are undergoing rapid transformations caused by demographic explosion, policy interventions, environmental change and globalization, among other processes. Sustaining both rural development and improved livelihoods requires practical solutions that target social expectations. The importance of quality research output for local development is acknowledged, widely. Scientific outputs are critical to pave the way to develop new innovations or technologies, solve practical problems, and make informed decisions. They also contribute to build knowledge and satisfy curiosity. In the current context of demographic explosion, particularly in Sub-Saharan Africa, evidence based research on aspects that relate to livelihoods is deemed to have considerable long-term implications for societal well-being, development and sustainability.

The agriculture sector has remained a vital pillar across the African continent, as it provides employment for millions. Improved agricultural productivity is central to achieving inclusive development and reducing poverty (Akande et al., 2017). However, Sub-Saharan Africa, like many parts of the world, has long been grappling with

challenges related to growth and development, notably decreasing agricultural productivity, food insecurity and malnutrition. Research providing solutions along the agricultural value chain can significantly contribute to enhancing the living standards of most people in sub-Saharan Africa, but these research outputs are practical and locally exploitable only if they reach the right audience.

The African Journal of Rural Development (AFJRD), like many other development-oriented journals, contributes to facilitate dissemination of research outputs deemed to significantly promote changes in the society. In this third issue of the fourth volume, scientists sought to address specific questions along the agricultural and educational value chains and discussed how these findings can inform interventions in the agriculture and education sectors. Our goal in collating and sharing these findings is to catalyze understanding of the issues being addressed, promote research application and facilitate advancement in scientific research on the continent.

Highlights

Papers in this third issue highlights various topics that are relevant to the journal audience. In particular, the issue highlights among others, studies that have investigated aspects on (1) livestock productivity; (2) crop productivity and

marketing; and (3) interdisciplinary research capacity and scholarly publishing in African universities. In this editorial, we shed some light into the context and applicability of these findings.

Livestock productivity

In places where the lands are arid smallholder farmers make their living by keeping and raising livestock. In smallholder dairy farms, milk production is often intensified through genetics, ecological and socioeconomic interventions, but viability of the interventions may be an impediment towards sustainability. Agutu *et al.* (2019) studied the relationships between herd productivity indicators and intensification interventions within smallholder dairy farms to inform management interventions for sustainable dairy farming in Kenya. Using a cross-sectional survey, these authors showed that socioeconomic interventions (concentrate use and milk sales) had the greatest contribution to both milk yield and margins earned while both genetic (insemination cost) and ecological (manure recycling) interventions had little influence. Thus, the use of dairy inputs

especially concentrates will enable farmers attain profitable returns and assure economic sustainability of dairy farming. However, the authors recognized the importance of an enabling environment for supporting intensification of dairy production because unreliable milk markets can impede commercialization and discourage intensification process.

Beyond dairy farming, piggy production is common as income generating activity among smallholder farmers in East Africa. However, as a result of poor market linkages, pig farmers, particularly in Uganda, are taken advantage of by middlemen who pay low prices, renege the weight of pigs and default on payments. Building on the potential of farmer innovation, Mugonya *et al.* (2019) examined the influence of socio-economic factors on the phases of innovation behaviour among pig farmers in Northern Uganda. They found that personal selling affects all phases of innovation behavior, while access to extension and credit services boosts farmers' adaptation and modification of technology, thus ensuring competitive and sustainable. They suggested that interventions

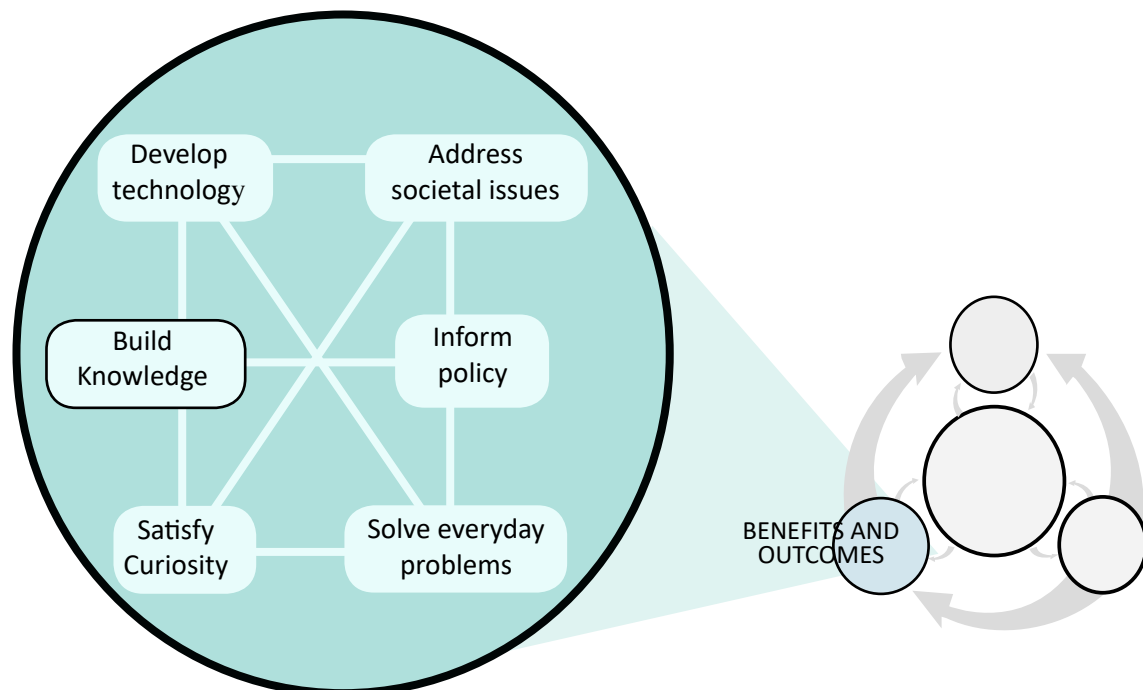


Figure 1. The benefits of science. https://undsci.berkeley.edu/article/0_0_0howscience works 18

for improvement of the pig value chain should encourage farmers to actively involve themselves in marketing their pigs so as to earn better prices (Mugonya *et al.*, 2019). This is more valid for pig farmers operating in poorly developed value chains. They further argue for the need to entrench farmer financial inclusion and the use of well-trained agricultural extension agents to offer agricultural educational programs and trainings to pig farmers for better farmer innovation and gains.

The third paper that addressed livestock productivity in this issue was presented by Ogolla *et al.* (2019), with a specific focus on coccidiosis control in rabbit farming. Coccidiosis is known as the most common and devastating disease, with in huge economic losses (Bhat *et al.*, 1996). In Kenya, most farmers rely on poultry-based synthetic chemical anticoccidials for both prevention and treatment rabbit coccidiosis in Kenya. As such, they use unreliable poultry dosages with little or no knowledge of their safety and efficacy against rabbit coccidian parasites. Ogolla *et al.* (2019) studied the efficacy of three most commonly used off label (poultry based) anticoccidials in treatment of rabbit coccidiosis by smallholder rabbit farmers in Kenya. They recommend prudent use of available efficacious anticoccidial drugs in the country to prevent development of resistance.

Crop productivity and marketing

With the current demographic explosion, agriculture remains the most significant pillar to achieve food security, economic growth and development. Whereas, gross domestic product (GDP) in Sub-Saharan Africa increased slightly from 2000 to 2014, aggregate agricultural productivity growth has remained low, and poverty reduction discouragingly slow. Ramping up agricultural productivity will be critical to reducing malnutrition, increasing farmers' income and lifting rural households out of poverty. In this issue, two papers addressed crop productivity and marketing (Kimani *et al.*,

2019; Nyakundi *et al.*, 2019).

Nyakundi *et al.* (2019) research focused on ways to eliminate crops pathogens to increase productivity. The work investigated the transmission of maize lethal necrosis disease causing viruses focusing crop debris and soil. They built their study on assumption that plant debris and contaminated soil play an important role in the epidemiology and management of the disease. From a greenhouse experiment, Nyakundi *et al.* (2019) found that infected soil and debris are crucial in the survival and spread of the viruses causing maize lethal necrosis disease. They argued for the need to put measures in place to ensure maize debris are appropriately managed, and to encourage farmers to carry out crop rotation to reduce the chances of picking the viruses from the infected soil. Nyakundi *et al.* (2019) study thus shed light into the importance of managing infected soil and debris to address the spread and control of plant pathogens.

A review paper by Kimani *et al.* (2019) in this issue highlights market-oriented approaches for legume breeding in eastern Africa. The authors presented a brief review of the evolution of market-oriented legume breeding from 1970 to 2000, and provided evidence of progress made to date. Kimani *et al.* (2019) argue that demand-led approach is business oriented, and based on six cardinal principles: client preferences, value chain analysis, market research, market trends and drivers, integration of public and private sector expertise, and a multidisciplinary approach in variety design and solution development. They suggest that application of this approach requires breeders to learn new skills, working with non-traditional partners and understanding market dynamics.

Interdisciplinary research capacity and scholarly publishing in African universities.

Two papers in this issue fall under this sub-section (Awaah and Munkaila 2019; Ekepu and

Egeru 2019). These papers address different aspects of research and publication in higher education institutions. For instance, Awaah and Munkaila (2019)'s study particularly dealt with scholarly publishing, with focus on students' misconduct in Sub-Saharan African higher education institutions. The authors found that the most prevalent form of student related academic corruption is plagiarism (75.6%) with the least being 'falsification of entry results' (45.1%). They recommend appropriate measures to curb the menace.

Interdisciplinary research is being widely accepted as suitable approach for addressing complex global development challenges. Nevertheless, its applicability within the African research context is still at its embryonic stage (Ekepu and Egeru 2019). Building from a cross-sectional survey, Ekepu and Egeru (2019) provides some insights into an assessment of research capacity of African universities. The authors found that African universities are engaged in international networks, conduct collaborative research, and take a strategic approach to management, reward faculty for publications, participating in conferences and professional organizations. They recommend strengthening research support, supervision and mentorship structures and stress the need for universities to evaluate their existing capacities and map out strategic areas of development as key ingredients for fostering interdisciplinary in African universities.

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STATEMENT OF NO-CONFLICT OF INTEREST

The authors declare that there have been no involvements that might raise the question of bias in the work reported or in the conclusions, implications, or opinions stated.

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