



Editorial

Exploring livelihood opportunities in the Himalaya Mountains and case studies on enhancing Africa agrifood systems productivity

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ABSTRACT

This Issue of African Journal of Rural Development (AFJRD), Vol 10 (Issue 1), presents six papers that address three themes: Livelihood opportunities in Uttarakhand Region of Himalaya, a mountainous region in Asia; enhancing productivity of Japanese Quails in Malawi and small-scale Dairy in Eritrea; and enhancing productivity of agri-food systems through improved land use management and crop improvement. The Asian case study provides useful insights and indeed similar experiences to those of mountainous communities in several African countries that in fact call for adaptative management practices in light of climate change challenges. Livelihood opportunities highlighted include integrated agriculture and livestock farming, tourism services and other businesses. The Eritrean study examined profitability of small-scale Dairy farming and identified that feed including concentrates, labour and herd size were the key determinants of profitability. On the other hand, the study in Malawi showed that cassava could be used as substitute to maize meal in Quail feeds, up to 30% inclusion level. The Kenya study brings out the critical issue of water and soil management in especially semi-arid regions. Application of Farmyard manure in combination with fertilizer (Calcium Ammonia Nitrate) and tied ridges increased maize (study crop) yields significantly. The other two papers explored use of breeding to improve maize and cowpea productivity, two key food crops in Africa. The issues explored in the six papers are relevant to several farming communities across Africa and some of the recommendations could be explored further for enhancing productivity of agri-food systems in Africa.

Keywords: Africa, agri-food systems, cowpeas, dairy feed, early maturing maize, Flower bud thrips, Eritrea, semi-arid regions, tied-ridges, Uttarakhand Himalaya, Quails

RESUME

L'étude de cas asiatique, portant sur les communautés de l'Uttarakhand, met en évidence des stratégies comparables à celles mises en œuvre par certaines populations de régions montagneuses africaines, où les effets du changement climatique imposent d'adapter les pratiques de gestion. Parmi les opportunités de subsistance identifiées figurent l'agriculture intégrée (associant la production végétale et l'élevage), l'exploitation touristique et des activités commerciales diverses. Dans l'étude menée en Érythrée, l'analyse de la rentabilité des exploitations laitières à petite échelle montre que les facteurs déterminants incluent le recours à des aliments concentrés, la main-d'œuvre et la taille du troupeau. Parallèlement, l'enquête conduite au Malawi révèle qu'il est possible de substituer la farine de manioc à la farine de maïs dans l'alimentation de la caille japonaise (jusqu'à 30 % d'incorporation) sans compromettre les performances de croissance. Au Kenya, la problématique de la gestion de l'eau et du sol dans les zones semi-arides apparaît cruciale. L'application de fumier de ferme combinée à un engrais minéral (nitrate d'ammonium calcique) et à la réalisation de billons retenus (tied-ridges) a entraîné une hausse significative du rendement en maïs. Les deux derniers articles abordent, quant à eux, l'amélioration génétique du maïs et du niébé (cowpea) : deux cultures alimentaires essentielles en Afrique. Les pistes abordées dans ces travaux (développement de variétés précoces et résistance accrue aux ravageurs) pourraient être appliquées plus largement pour renforcer la productivité des systèmes agroalimentaires africains.

Mots-clés : Afrique, systèmes agroalimentaires, niébé, alimentation laitière, maïs à maturation précoce, thrips des boutons floraux, Érythrée, régions semi-arides, billons retenus, Uttarakhand Himalaya, cailles

The African Journal of Rural Development (AFJRD) was founded in 2015 to provide a platform for African researchers and others to share their research findings and experiences in fostering development process in Africa primarily but also welcoming insights from other parts of the world. Hence AFJRD Vol 10 (Issue 1) has five papers from Africa and one from Asia. Indeed, the paper by Vishwambhar (2025) provides insights on livelihood opportunities for mountainous people of Uttarakhand Himalaya in Asia who engage in various agriculture and livestock production systems but like in Africa need to adapt to the increasing challenges posed by climate change and associated issues. The communities are also now exploring other economic activities especially eco-tourism just like is being down in Kilimanjaro Mountain agroecology in Tanzania and similar regions across Africa. The critical issues are to ensure sustainability of the ecosystems and inbuilding in coping strategies that enhance biodiversity conservation and environment health (Altieri, 1999).

Two papers deal with livestock related issues. The Paper by Onakuse *et al.* (2025) examines profitability of dairy farming system under smallholder agriculture in Eritrea. A number of challenges face the smallholder farmers including limited herds sizes, limited capital, limited access to extension advisory services and poor feed quality that is often depended on forages. Hence the study recommends policy support to expand size of the dairy herds and with the necessary advisory services support, something that is generally weak in several African countries. A related study is presented elsewhere by Adare *et al.* (2016). The second paper by Mzembe and Safaloah (2025) examined feed formulation for Japanese quail (*Coturnix japonica*), an increasingly important poultry in Malawi. Their findings indicated that a cassava flour inclusion of up to 30% can replace use of maize flour in Quail feed. This needs to be examined further and possibly included in Quail and other poultry and indeed livestock feed formulations. Feed is a major cost in poultry and livestock feeds.

Apart from the challenge posed by declining soil fertility as a result of unsustainable land-use management practices, semi-arid regions face the additional challenges of limited and often unreliable rainfall resulting in very low land productivity. This is a typical case in the semi-arid regions of Kenya where 80% of the land is

classified as under arid and semi-arid lands. Moreover, soils in these areas often have inherently low nutrient status (Kwena *et al.*, 2017) resulting in very low crop productivity. As such, Alwang'a *et al.* (2025) examined water-use efficiency (WUE), and Nutrient-use efficiency (NUE) involving use and non-use of tied-ridges and Farmyard manure in combination with and without Calcium Ammonia Nitrate Fertilizer (CAN). Their results indicated that maize productivity (the test crop) could be enhanced through a combined use of tied-ridges, farmyard manure and CAN. This could be exploited in semi-arid agroecologies.

The remaining two papers explored use of crop improvement (plant breeding) for enhancing crop productivity. The study of Mushaija *et al.* (2025) done in Uganda identified early maturing and high yielding maize hybrids that can be used as baseline populations in maize breeding programs. The other paper by Gitonga Wairimu *et al.* (2025) provides a review on cowpea germplasm resistance to Flower Bud Thrips (*Megalurothrips sjostedti*), a devastating pest of many grain legume species. Progress has been made to identify resistant lines but more still need to be done.

A number of issues emerge from the above papers. Overall, there is need for continuous work including policy interventions to strengthen livelihoods and increase incomes of smallholder farming households especially those living in vulnerable ecosystems. Second, policy interventions are needed to economically empower smallholder farmers including providing targeted financial support systems and enhancing delivery of extension support systems. Third, continued investment in research is needed to identify more agro-ecologically sustainable practices that enhance productivity while ensuring environment health. And importantly, Africa needs to invest more to strengthen its human resource and science capacity.

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