

The role of cell phone-based apps on cattle farming in Africa: review

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Introduction

- Inefficiency and improving the productivity of animals are the primary challenges of the livestock sectors in Africa.
- Utilizing ICT (Information Communication Technology) tools is one way to improve efficiency
- Through ICT use, cattle nutrition, performance and health can be enhanced and monitored.
- Despite its significant contribution, ICT for livestock production in Africa is at its early stage of growth.
- In Africa, there are various cellphone based apps designed for livestock farming
- There has been little studies conducted dealing on the variation in distribution and status of these apps in Africa
- **Goal:** briefly present:
 - the status of cellphone-based ICT tool use in the livestock sector,
 - provide baseline information for further research, and support the digitization efforts of the livestock sector in Africa by pointing out research gaps.

Material and Methods

- A comprehensive, systematic literature search was conducted
- Key words and phrases to search: ICT, decision-support tools, cattle, Ethiopia, Africa, mobile, advisory, farm, cellphone, apps or applications and livestock.
- The search resulted in a total of 180 articles, books, book sections, and reports.



Results and Discussion

- Mobile penetration and growth in Africa are the highest, which makes mobile-based ICT tools used in agriculture more feasible.
- Despite their increasing popularity in supporting farm decision-making, few studies have been performed on their adoption, acceptance and determinant factors.
- There are six main categories of such applications available in Africa:
 - supply chain management
 - information generation
 - market access
 - livestock farming
 - micro-farming intelligence
 - financial insurance
- In Africa, there are approximately 60 mobile-based applications designed for livestock farming.
- In order of distribution, Kenya is ranked first, followed by Tanzania, Uganda, and Nigeria.

Table 1: Distribution of cellphone based application use in Africa

App Name	Country/region	Purpose
Esoko	Used in 15 countries in West & East Africa	Pasture and waterholes finding app for pastoralist
AFRI-scout	Kenya, Tanzania & Ethiopia	Used for marketing information and forage maps
myAnga	Kenya	forage and weather forage condition forecasting app
Farmable	Ghana	Raising funds to purchase dairy cattle breeds
iCOW	Kenya, Ethiopia, & Tanzania	market information sharing app
Cowtribe	Ghana	Animal health tracking app
Fodjan	Kenya	Formulation of rations

- The Market Oriented Dairy Ration Formulation Tool (MOD-RAFT) developed by the University of Florida, USA, and used in Uganda, and Fodjan, developed by the University of Hohenheim, Germany, is used in Kenya.
- Formulation of rations and the levels of energy fed to cows daily (energy fed per cow per day) are crucial for milk production in dairy herds, as feed represents the central portion of costs in milk production (80 %)

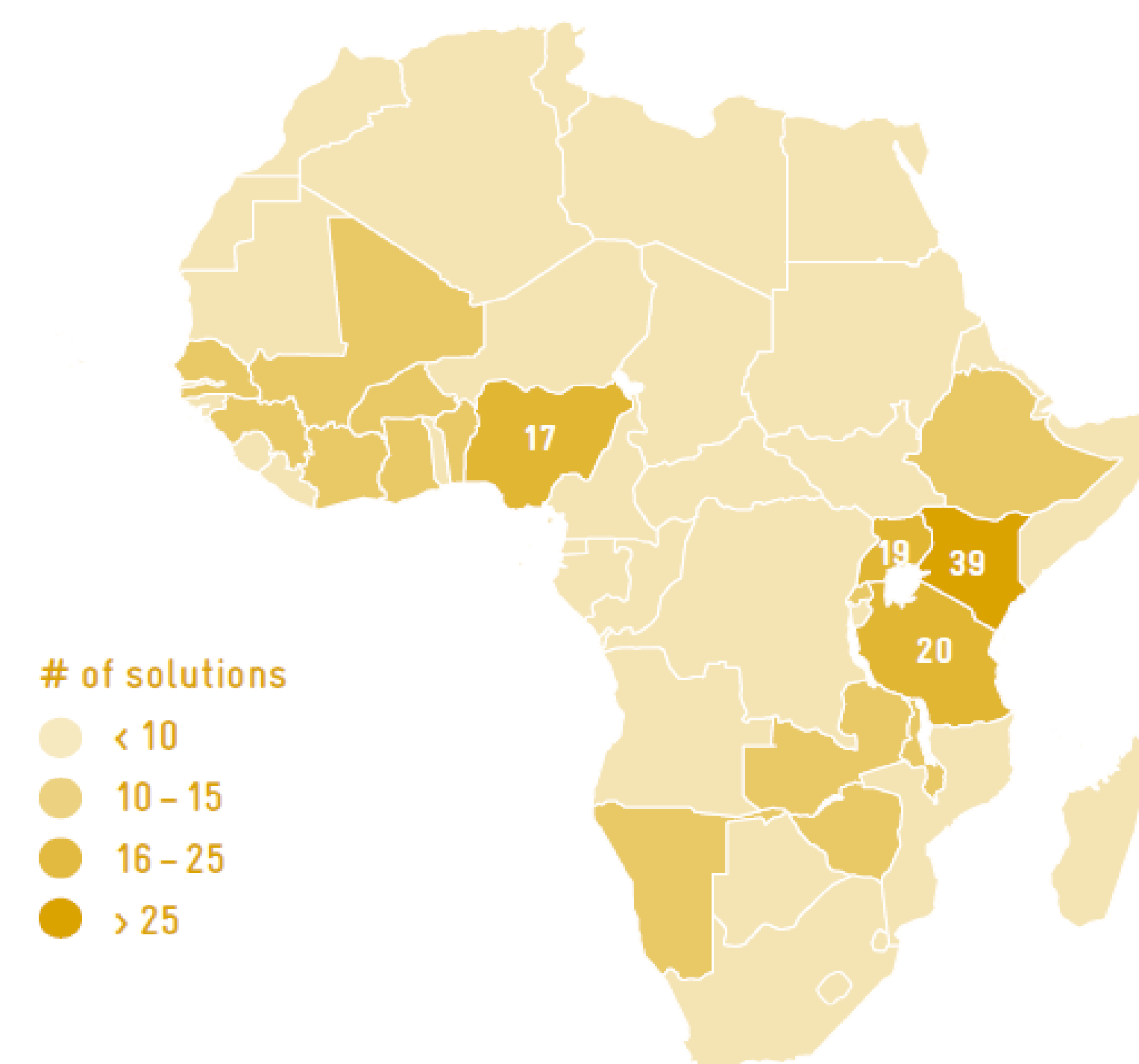


Figure 1: Mobile applications availability across Africa for cattle management

Source: GIZ 2021



Figure 2: Distribution of ICT innovations for livestock farming in Africa

Source: <https://agricultureandfoodsecurity.biomedcentral.com>.

Conclusion

- Technological barriers are slowly being removed for livestock farmers in Africa, though it will take until full access.
- There is wider variation in the use of cell phone based application for cattle farming in Africa
- Much has to be done to enhance wider use of the cellphone based applications as decision support tool for cattle farming in Africa

