BURKINA FASO

Agrifood System Change and PARI Research on Innovations

INTRODUCTION

Lately, government expenditure on agriculture in Burkina Faso has been consistently high. For the past decade, Burkina Faso has allocated an average of 17% of its national annual budget on agriculture, exceeding the expected 10% threshold of the 2014 Malabo Declaration. However, the trend of the agriculture value added growth rate shows more volatility with significant negative dips in 2009 and 2021. The growth rate of the value added of the agriculture sector averages at around 1.3% only in the past 5 years. This reflects that improving the performance of the agriculture sector in Burkina Faso requires more than financing, as the sector is more prone to other shocks (e.g., global pandemic in 2021, weather shocks, etc.). As such, innovative initiatives are key. While the country developed various innovative pathways to sustainable food systems transformation (see Table 1), there is need to translate these plans into action to boost resilience and subsequently improve agricultural growth and development. It is important to revisit these and other current initiatives to draw lessons, as provided in this brief based on studies done under PARI, to guide future strategies.

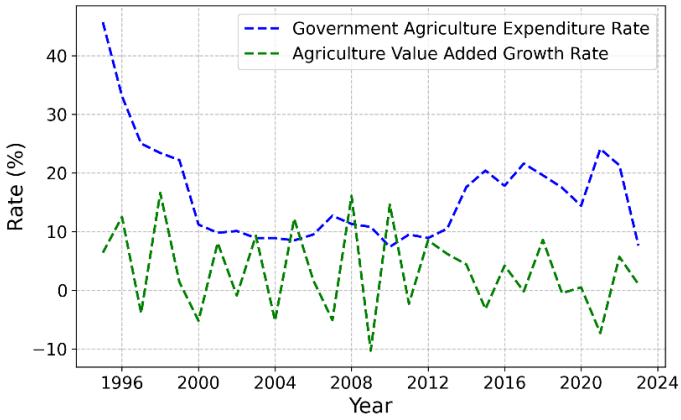

Figure 1: Trend of government agriculture expenditure and value added growth rate in Burkina Faso[1]

Table 1. Summary of innovative pathways to sustainable food systems transformation for Burkina Faso[2]

Category	Key Innovations	Implementation objectives/Strategies
Institution and policy frameworks	▪ Increase budget allocation for nutrition and agro-sylvo-pastoral, halieutic, and faunal.	▪ Support implementation of activities to boost productivity and improve dietary diversity and food access.
	▪ Governance for school canteens	▪ Empower local stakeholders for better food supply management. ▪ Develop digital platforms for monitoring food quality and canteen operations.
	▪ Social protection expansion	▪ Extend social safety nets to ensure access to healthy food for vulnerable populations.
	▪ Public-Private partnerships	▪ Foster partnerships between producers and processors to improve market visibility and bargaining power. ▪ Support contract farming and farmer unions to enhance supply chains.

[1] Source: Authors' illustration using data from https://www.resakss.org/node/3, accessed on 26 May 2025

[2] Source: https://www.unfoodsystemshub.org/docs/unfoodsystemslibraries/national-pathways/burkina-faso/2021-10-06-fr-voie-nationale-du-burkina-faso_v5.pdf?sfvrsn=139c3345_1, accessed on 11 March 2025

Technological innovations	▪ Early warning systems (Digitalization of food systems)	▪ Strengthen information and early warning systems for rapid response to food crises.
	▪ Insurance systems	▪ Develop insurance systems for small producers and informal agricultural workers to enhance resilience to hazards.
	▪ Processing technologies	▪ Ensure food quality and reduce post-harvest losses.
	▪ Irrigation systems	▪ Increase irrigation areas to enhance climate resilient and improve productivity
	▪ Biotechnology	▪ Develop high yielding, pest resistant and nutrient dense crop varieties using biotechnology to improve productivity and nutritional quality.

PARI CONTRIBUTIONS

The PARI research in Burkina Faso relates to priorities as indicated by PARI Partners, and took note of initiatives of the Green Innovation Centers.

Innovations in value chains

Barriers related to productivity, institutions and trade are the main constraints to expanding rice and sesame production in Burkina Faso (INERA et al., 2017). Rice producers face high production costs, stagnant rice prices, low investment in the sector and a lack of equipment. Additionally, they compete with subsidized imported rice, which dominates the market. In the sesame value chain, yields are impacted by climate change, while commercialization is hindered by institutional challenges such as unstructured markets, contract violations and limited access to credit (ZEF, FARA, and INERA, 2017). Both value chains also face significant challenges in processing due to inadequate capacity and infrastructure.

Agricultural innovations in Burkina Faso have improved yields through better soil management, seed quality and market access (INERA et al., 2017). To restore soil fertility and rehabilitate dry lands, farmers have adopted the Zaï Pit technique, which collects and retains water to reduce water stress in areas with low or erratic rainfall. This low-cost method is easy to implement and evidence from Niger shows it can double yields. Another climate-related innovation is weather index drought insurance, which has been linked to increased yields and savings. In the cotton sector, the introduction of genetically modified Bacillus thuringiensis (Bt) cotton boosted production by up to 57.5%. While this variety increased profits through higher yields, its poor quality led to lower international prices, prompting Burkina Faso to discontinue Bt cotton in 2016. Other innovations include contract farming, farmer unions and counters to improve market visibility, information exchange and bargaining power among cotton farmers. While these approaches are well-received, their impacts remain unassessed.

The involvement of multiple stakeholders is essential for the adoption and dissemination of agricultural innovations in Burkina Faso (INERA et al., 2017). A prime example is the scaling-up of the System of Rice Intensification (SRI). Starting as a small trial in 2006, SRI is now widely adopted among rice producers with support from local and international organizations (e.g., FAO, World Bank, CODEGAZ, USAID), the government and research institutes. SRI has the potential to double average rice yields. Similarly, a multi-stakeholder project to improve sesame yields focused on soil fertility, better seeds and farmer training. Modest fertilizer use increased yields by 75%, while improved seeds more than tripled initial investments. Farmer schools proved effective in teaching seed breeding and fertilizer application. In the milk value chain, a multi-stakeholder platform helped establish collection systems to supply minidairies. Although milk production remains suboptimal due to low quality and lack of fodder, the platform has the potential to address these issues. Proposed solutions include providing feed concentrates, training producers to grow high-nutrition forage and teaching farmers to preserve and

convert crop residues into feed (Ouédraogo et al., 2019a).

Mechanization

High costs, small farm sizes and limited access to spare parts and repair services hinder the adoption of mechanized agriculture in Burkina Faso (Ouédraogo et al., 2019b). Despite government interest in modernizing agriculture, mechanization rates remain low. In the Béréba and Koumbia regions, farmers primarily use tractors for ginning, threshing, transportation and ploughing due to their efficiency. However, the high cost of renting tractors forces many to rely on animal draught power, especially for ploughing, while other tasks like weeding, sowing and harvesting are done manually or with animal power. Low demand for mechanized services is also driven by field conditions that limit tractor efficiency. Additionally, the unavailability of spare parts is a major issue. Mechanics often modify incompatible parts from other brands, shortening tractor lifespans, or travel to Ghana to source parts, causing lengthy delays. Investments in specialized training and better access to spare parts could help increase demand for mechanized services and improve adoption rates.

Climate change adaptation

Irrigation innovations are essential for boosting Burkina Faso's agricultural productivity and climate change adaptation (Sylla et al., 2021). Key technologies include drip irrigation, which reduces water and fertilizer use and rainwater harvesting, which mitigates water stress through systems like impluviums, ponds, sand dams and underground tanks. These technologies are especially vital for drought-affected crops like sorghum, a major staple for 80% of Burkina Faso's rural population. Even a 1mm increase in rainfall could raise cereal yields by 385 tonnes in the long term and 252 tonnes in the short term (Igue and Sossou, 2021). However, these innovations remain in their early stages and require more research and funding to reach their potential. Complementary strategies, such as improved seeds, smart agriculture practices and large-scale irrigation infrastructure, are also needed to reduce vulnerability to climate shocks.

KEY TAKE AWAYS FROM PARI RESEARCH IN BURKINA FASO

Challenges in value chains: Rice and sesame production face high costs, low yields and unstructured markets in Burkina Faso, with rice struggling against subsidized imports.

Climate-resilient innovations: Practices like Zaï Pits and weather index insurance improve yields and climate adaptation but need broader assessment and support.

Mechanization gaps: High costs, small farms and lack of spare parts hinder mechanization, with most farmers relying on animal power and manual labour.

Irrigation needs: Drip irrigation and rainwater harvesting can boost productivity but require more funding, research and complementary strategies.

REFERENCES

INERA, FARA, ZEF, 2017. Country Dossier: Innovation for Sustainable Agricultural Growth in Burkina Faso, Program of Accompanying Research for Agricultural Innovation. Center for Development Research, Forum for Agricultural Research in Africa and Institute of Environment and Agricultural Research of Burkina Faso, Bonn, Accra, and Ouagadougou.

Ouédraogo, S., Ouédraogo, H.A., Yarga, H.P., Vognan, G., Ouattara, B., Traore, I., Kagambega, Y., 2019a. SocioEconomic Impact of the Multi-Stakeholder Milk Innovation Platform on Actors in Banfora: Status and Prospects (FARA Research Report No. 4(8)). Forum for Agricultural Research in Africa, Accra.

Ouédraogo, S., Traore, I., Kagambega, Y., Ouattara, B., Adama Ouedraogo, H., Paul Yarga, H., Vognan, G., Ouedraogo, A., 2019b. Study of Mechanized Agricultural Services Needs in the Rural Communities of Béréba and Koumbia in the Cotton-Growing Region of Western Burkina Faso (FARA Research Report No. 4(7)).

Forum for Agricultural Research in Africa, Accra.Sylla, M.B., Dimobe, K., Sanfo, S., 2021. Burkina Faso – Land, climate, energy, agriculture and development (ZEF Working paper No. 197). Center for Development Research, University of Bonn, Bonn.

All studies are are available at www.r4ai.org.

PARI implementing partners: ZEF/University of Bonn, University of Hohenheim, the Forum for Agricultural Research in Africa FARA) and its national partners, the African Growth and Development Policy Modeling Consortium (AGRODEP) facilitated by AKADEMIYA2063, and research collaborators in India.

PARI is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

Brief prepared by: Heike Baumüller, Friederike Schilling, Emmanuel Tolani, and Joachim von Braun

Layout: Yesim Pacal (PR)

IMPRINT

Center for Development Research (ZEF)

Genscherallee 3 | 53113 Bonn | Germany

E-Mail: presse.zef@uni-bonn.de

Phone: +49-(0)228 - 73 18 46

zef
Center for Development Research
University of Bonn