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Strengthening Food Systems from the Ground Up: Lessons from the Maize Value Chain in Ghana



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Introduction



In recent years, the global conversation on food security has shifted beyond just increasing yields to strengthening food systems—making them more resilient, inclusive, sustainable, and responsive to shocks. In Ghana, maize remains a key staple, and efforts to improve its production offer critical insights into how interventions at the grassroots can reshape the broader food system.

A recent field study in Northern region assessed how an agricultural extension program influenced farmers' practices along the maize value chain, from land preparation to pest control, seed use, fertilizer application, and storage. The findings offer valuable lessons for food systems strengthening across sub-Saharan Africa.

Key Findings at a Glance



63.9% of farmers now use mechanized tillage.



Dibbling (line planting) increased by 36.7%, improving spacing and input use.



Adoption of crop rotation rose by 31.6%, while mono-cropping declined by 30.3%.



Chemical pest control under extension guidance increased by 16.6%.



Radio emerged as a reliable source of agricultural knowledge.



Use of certified seeds remains low due to cost constraints.



Gender dynamics show women are more likely to adopt intercropping and sustainable practices



Implications for Food Systems Strengthening



1. Improved Productivity through Knowledge Transfer

The increase in mechanized tillage, correct fertilizer application, and proper planting methods directly supports agricultural productivity, a cornerstone of food system resilience. With more farmers planting on time, applying the right inputs, and following better land preparation techniques, yield potentials can be maximized even under climatic stress.



Food Security Impact: Higher yields translate to improved household food availability and surplus for local markets.

2. Sustainability through Crop Rotation & Soil Health

The significant shift from mono-cropping to crop rotation indicates greater understanding of sustainable practices. Crop rotation not only improves soil fertility but also breaks pest and disease cycles, reducing reliance on synthetic chemicals.



Environmental Impact: Healthier soils and reduced land degradation contribute to long-term sustainability of farming systems.

3. Bridging Input Gaps through Access and Education

Despite gains, only 41.7% of farmers use improved maize seed varieties. However, more farmers now source seeds from input dealers (24.6%), suggesting growing trust in formal input systems.



Policy Implication: There's a need for input subsidies, improved supply chain linkages, and targeted awareness campaigns to promote the value of improved seeds and inputs.





4. Strengthening the Extension System via Media

With over 15% of farmers citing radio as their main extension source, the study underscores the transformative role of mass media in agricultural knowledge dissemination. Compared to traditional extension methods, radio offers low-cost, high-reach support.



System-Level Insight: Integrating radio with SMS platforms, mobile apps, or community listening groups can build a hybrid extension model that reaches underserved farming populations.

5. Gender-Responsive Food Systems

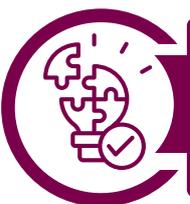
Women emerged as early adopters of sustainable practices such as inter-cropping and mulching, despite often having limited access to land and finance. This highlights their critical role in agroecological transitions and food system resilience.



Equity Lens: Strengthening food systems must include gender-responsive policies that recognize women as active agents of change and provide tailored support (e.g., access to inputs, land tenure security, and women-led extension).

6. Resilient Pest and Post-Harvest Management

While chemical usage improved under AEA (Agricultural Extension Agent) recommendations, other pest control methods remain underutilized, such as avoiding peak pest periods or physical and mechanical control. Adoption of hermetic storage technologies is also modest but improving.



Resilience Angle: A resilient food system requires diverse pest and storage solutions. These need to be promoted alongside synthetic controls to reduce post-harvest losses and maintain food quality.

7. Building Trust in Input and Knowledge Networks

The study found a greater reliance on family, input dealers, and aggregators for extension and production support. However, trust in these sources varies, with 68.3% of farmers finding their sources very reliable.



Systemic Recommendation: Strengthen multi-stakeholder platforms (including farmer groups, local dealers, AEAs, media) to co-deliver inputs, knowledge, and services in an integrated way.

CONCLUSION: MICRO-LEVEL CHANGES, MACRO-LEVEL IMPACT

The findings of the maize value chain assessment demonstrate that targeted, localized interventions can generate ripple effects across the food system. By empowering farmers with timely, relevant knowledge and building trust in support structures, we lay the groundwork for:



Improved food security

Reduced environmental degradation



Stronger market linkages

More inclusive systems for women and youth



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