

Towards Resilient Seed Systems: Gaps and Challenges in Integrating Formal and Farmers' Seed Systems

Case of Armenia

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Experience, Challenges and Future Directions"**

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AGRICULTURAL CONTEXT OF ARMENIA

- Armenia is one of the world's oldest agricultural centers, with long farming traditions and rich crop diversity shaped by mountain agroecosystems and local farming communities,
- Diverse climatic and altitudinal conditions contribute to high agrobiodiversity,
- Agricultural sector includes both smallholder family farms and larger market-oriented agricultural enterprises with differing seed needs and production models,
- Rural households continue to play an important role in maintaining local varieties and traditional agricultural knowledge.



COEXISTENCE OF FORMAL AND FARMERS' SEED SYSTEMS

Formal Seed System

- Registered and commercial varieties
- Seed certification and regulation
- Market-oriented production
- Greater use of imported seed
- Focus on uniformity and productivity
- Supported by formal institutions

Farmers' Seed System

- Farm-saved and local varieties
- Informal exchange
- Household and local-level production
- Focus on adaptation, resilience and nutritional aspect
- Based on traditional knowledge and farmer practices

Key messages:

- The balance between formal and farmers' systems differs across crops, regions, and farm types
- Both systems continue to coexist in Armenia, but interactions and complementarities between them remain limited.

KEY CHARACTERISTICS OF FARMERS' SEED SYSTEMS



Seed production and conservation

- Seeds are saved, selected, multiplied, and reused directly by farmers
- They are not subject to formal certification procedures

Seed distribution mechanisms

- Exchange among farmers through informal networks (neighbours, relatives, communities)
- Local seed sharing and selling at markets and within villages



Main advantages

- High accessibility and low-cost access to seed material
- Independence from external or commercial seed suppliers
- Maintenance of crop diversity under marginal farming conditions

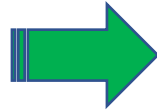


Key message: Farmers' seed systems function as a decentralized and adaptive system that complements formal seed supply structures.

HISTORICAL TRANSFORMATION OF SEED SYSTEMS

Soviet period

- Centralized breeding, seed production, and distribution systems
- Expansion of collective and state farms
- Standardization of varieties and agricultural practices
- Gradual erosion of local crop diversity and traditional varieties



Transition Period

- Collapse of centralized agricultural institutions
- Weakening of formal seed supply systems
- Economic crisis and large-scale rural migration
- Declining organizational capacity of small farmers



Current situation

- Coexistence of formal and farmer-managed seed systems
- Continued importance of farm-saved seed, especially for smallholders and remote rural communities
- Increasing dependence on imported commercial varieties in some crops
- Growing interest in agrobiodiversity, local food systems, and climate-resilient crops
- UPOV membership

Key message: Armenia's accession to International Union for the Protection of New Varieties of Plants in 2024 is expected to influence future seed governance, variety protection, and relations between formal and farmers' seed systems.

ROLE OF FARMERS' SEED SYSTEMS IN RURAL LIVELIHOODS



Economic and livelihood importance

- Farmers' seed systems play a key role in supporting rural livelihoods in Armenia
- They reduce dependence on costly commercial seed markets

Accessibility and resilience

- Commercial certified seeds are often financially less accessible for small-scale farmers
- Farmer-saved and exchanged seeds help farmers continue production when they have little money.

Quality

- Farmers' seeds: locally adapted, heterogeneous, of relatively low quality

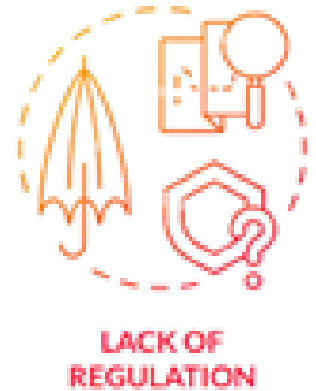


Key Message: Farmers' seed systems remain essential for the economic viability and resilience of smallholder farming systems, particularly in marginal and resource-limited areas.

CHALLENGES IN INTEGRATING FORMAL AND FARMERS' SEED SYSTEMS

Regulatory and institutional gaps

- Seed legislation focuses on certification, registration, and trade of registered varieties
- Only registered varieties and certified seeds are legally allowed for commercial circulation
- Farmers' seed systems have limited legal recognition
- Informal seed exchange not clearly regulated or formally supported
- No clear legal definition or specific status for “farmers' seeds”



CHALLENGES IN INTEGRATING FORMAL AND FARMERS' SEED SYSTEMS

Knowledge and innovation gaps

- Limited collaboration between formal breeding systems and farmers
- Underutilization of local varieties in formal breeding programs
- Weak participatory plant breeding approaches



Institutional and coordination challenges

- Fragmented roles between public sector, research institutions, and farmers
- Limited platforms for dialogue and joint decision-making



Key message: The main challenge is not the existence of two systems, but the lack of effective mechanisms to connect and align them.

PATHWAYS TOWARD INTEGRATED AND RESILIENT SEED SYSTEMS

1. Policy recognition

- Recognize farmers' seed systems in national seed policies
- Develop clearer legal space for farmer-managed seed practices

2. Support for local seed systems

- Strengthen community seed initiatives and local seed networks
- Support on-farm conservation of local varieties
- Improve access to resources for smallholder seed production

3. Linking formal and informal systems

- Promote participatory plant breeding
- Encourage collaboration between farmers, researchers, and breeders

4. Regional cooperation

- Exchange experiences across Central Asia and Eastern Europe
- Build regional platforms for seed system dialogue
- Share practices on agrobiodiversity and climate adaptation

CONCLUSIONS

Strengthening seed system resilience in Armenia is not about replacing farmers' seed systems with formal ones, but about recognizing their value and building functional links between the two. A more inclusive seed governance approach can enhance biodiversity conservation, climate resilience, and rural livelihoods at the same time.

