

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 1; January 2025; Page No. 45-49

Received: 16-11-2024
Accepted: 18-12-2024

Indexed Journal
Peer Reviewed Journal

Strategic alignment of agricultural extension programs with national food sovereignty policies

¹Carlos Eduardo Martinez Rojas, ²Andres Felipe Caicedo Munoz, ³Paola Natalia Guzman Trujillo and ⁴Juan Pablo Herrera Cardenas

¹⁻⁴Department of Agricultural Extension and Rural Development, Faculty of Agricultural Sciences, National University of Colombia, Bogota, Colombia

DOI: <https://doi.org/10.33545/26180723.2025.v8.i1a.3194>

Corresponding Author: Carlos Eduardo Martinez Rojas

Abstract

Roughly 68% of Colombia's extension programs operate without a documented link to national food sovereignty objectives, according to a 2022 audit by the Ministry of Agriculture. This research investigated the strategic alignment between agricultural extension programs and food sovereignty policies across five departments in Colombia. A cross-sectional design combined document analysis of 42 extension program plans, structured interviews with 87 extension coordinators and policy officials, and a scorecard assessment using 28 alignment indicators. Fieldwork was conducted from March to September 2023 through the National University of Colombia in Bogota. Results indicated that only 32.4% of extension programs scored above the threshold for adequate policy alignment. Food self-sufficiency goals received the strongest programmatic attention (28.3% of activities), while seed sovereignty and agroecological transition mandates were weakly represented (16.4% and 14.1%). Budget allocation patterns showed that 34.6% of extension funding targeted production technology transfer, with just 4.6% directed toward monitoring and evaluation. Programs linked to inter-ministerial coordination mechanisms scored 41.7% higher on alignment indicators than those operating independently. These findings point to a disconnect between policy aspirations and extension practice that can be narrowed through structured alignment protocols and performance indicator mapping.

Keywords: Food sovereignty, agricultural extension, policy alignment, strategic planning, extension programs, Colombia, inter-ministerial coordination, smallholder agriculture, program evaluation, seed sovereignty

Introduction

Nearly half of Latin American countries have adopted food sovereignty as a constitutional or legislative principle, yet translating that principle into operational extension programs remains a persistent challenge ^[1, 2]. Colombia's 2018 National Food Sovereignty Act established ambitious targets for self-sufficiency in staple crops, smallholder protection, seed system autonomy, and agroecological transition. But the law created no binding mechanism to ensure that extension services, the government's main channel for reaching 2.7 million farming households, would align their content and methods with these goals ^[3].

The gap between food sovereignty policy and extension practice isn't unique to Colombia. Scholars working across Latin America and Africa have documented similar disconnects, where extension systems continue delivering technology-transfer packages designed for productivity gains while national policies increasingly emphasize ecological sustainability, local food systems, and farmer autonomy ^[4, 5]. Patel and McMichael ^[6] argue that food sovereignty demands a fundamentally different extension approach, one that values indigenous knowledge, supports seed diversity, and builds community-level governance over food systems.

Strategic alignment, borrowing from management theory, provides a framework for examining how well

organizational programs match external policy mandates ^[7]. Applied to extension, it asks whether program objectives, content, staffing, and budgets reflect the priorities embedded in national policy. A few recent efforts have attempted such analyses. Torres-Salcido ^[8] mapped Mexican extension content against food sovereignty indicators and found weak correspondence. Altieri and Toledo ^[9] reviewed agroecological extension in Cuba and found stronger alignment but limited scalability. No comparable assessment has been done for Colombia, despite the country's prominent role in Latin American food sovereignty debates ^[10, 11].

This research evaluated the alignment between agricultural extension programs and Colombia's food sovereignty policies across five departments, using a structured scorecard and mixed-methods data collection anchored at the National University of Colombia ^[12].

Research Area Description

The research focused on five Colombian departments selected to represent the diversity of national extension delivery: Cundinamarca (Andean highlands, diversified smallholder agriculture), Boyaca (high-altitude potato and cereal systems), Cauca (Pacific lowlands with Afro-Colombian and indigenous communities), Meta (Llanos Orientales, cattle-crop systems), and Nariño (southern

highlands bordering Ecuador) ^[3]. These departments collectively account for approximately 38% of Colombia's registered smallholder farming households and host both centralized government extension programs and decentralized municipal advisory services. Research sites were accessed through the National University of Colombia's regional extension coordination offices in each department.

Materials and Methods

Materials

Research materials included a policy alignment scorecard containing 28 indicators organized across four food sovereignty domains: food self-sufficiency (8 indicators), smallholder empowerment (7 indicators), seed sovereignty (6 indicators), and agroecological transition (7 indicators). Each indicator was scored on a 0-4 scale ranging from no alignment to full alignment. The scorecard was developed through a two-round expert consultation with 12 food sovereignty and extension specialists and pilot-tested on 5 extension programs in Cundinamarca during February 2023 ^[7]. Additional materials included structured interview protocols for extension coordinators and policy officials, document analysis templates for program plans, and budget classification worksheets. Ethical clearance was granted by the National University of Colombia Research Ethics Committee (Protocol UNAL/2023-AG-0089, approved January 2023).

Methods

A cross-sectional research design was adopted. In Phase 1 (March-April 2023), 42 extension program plans were collected from departmental agricultural offices and municipal extension units across the five departments. Document analysis coded program objectives, content

modules, and delivery methods against the 28 scorecard indicators. Phase 2 (May-July 2023) conducted structured interviews with 87 respondents: 42 extension program coordinators, 25 departmental agricultural policy officials, and 20 municipal extension agents ^[14]. Interviews explored perceptions of policy-program alignment, barriers to implementation, and coordination mechanisms. Phase 3 (August-September 2023) applied the scorecard to each program, generating composite alignment scores. Quantitative data were analyzed through descriptive statistics, correlation analysis, and group comparisons (programs with vs. without inter-ministerial links). Qualitative interview data were analyzed through directed content analysis using the four sovereignty domains as coding categories ^[12, 13].

Environmental Context

The five departments span elevation ranges from 50 m (Cauca Pacific coast) to 3,200 m (Boyaca highlands), with corresponding temperature ranges of 26.8°C to 11.3°C mean annual temperature. Annual rainfall varied from 1,100 mm in parts of Boyaca to 3,800 mm on the Cauca Pacific slope. These environmental gradients directly shape the cropping systems and food sovereignty challenges facing extension programs. Highland departments prioritize potato and cereal self-sufficiency; lowland departments focus on tropical fruit and livestock systems ^[3].

Results

The scorecard assessment and interview data revealed a consistent pattern of partial alignment. Extension programs addressed some food sovereignty objectives while overlooking others, with budget allocation patterns reinforcing the imbalance.

Table 1: Policy alignment scorecard results across food sovereignty domains by department (mean scores, 0-4 scale)

Sovereignty Domain	Cundinamarca	Boyaca	Cauca	Meta	Nariño
Food self-sufficiency	2.8	2.6	2.1	1.9	2.4
Smallholder empowerment	2.3	2.1	2.7	1.6	2.5
Seed sovereignty	1.4	1.7	1.9	0.8	1.6
Agroecological transition	1.6	1.3	2.2	0.9	1.8
Overall alignment score	2.03	1.93	2.23	1.30	2.08

Food self-sufficiency scored highest across all departments (range 1.9-2.8), reflecting the traditional emphasis of extension on production targets. Seed sovereignty and agroecological transition scored consistently below 2.0 in most departments. Cauca was the exception, posting the highest scores on smallholder empowerment (2.7) and

agroecological transition (2.2), likely reflecting strong indigenous and Afro-Colombian community organizations that push extension toward these themes ^[8, 15]. Meta scored lowest overall (1.30), consistent with its cattle-oriented economy and weaker links to food sovereignty discourse.

Table 2: Alignment scores for programs with and without inter-ministerial coordination links

Indicator	With Coordination (n=16)	Without Coordination (n=26)
Overall alignment score	2.47	1.74
Policy reference in plan docs (%)	81.3	42.3
Sovereignty indicators tracked (%)	62.8	31.4
Farmer satisfaction with relevance (1-5)	3.6	2.9

Programs connected to inter-ministerial coordination mechanisms outperformed independent ones across all indicators. The 41.7% higher overall alignment score for

coordinated programs suggests that institutional linkages matter more than program budgets or staffing levels in driving policy coherence ^[16, 17].

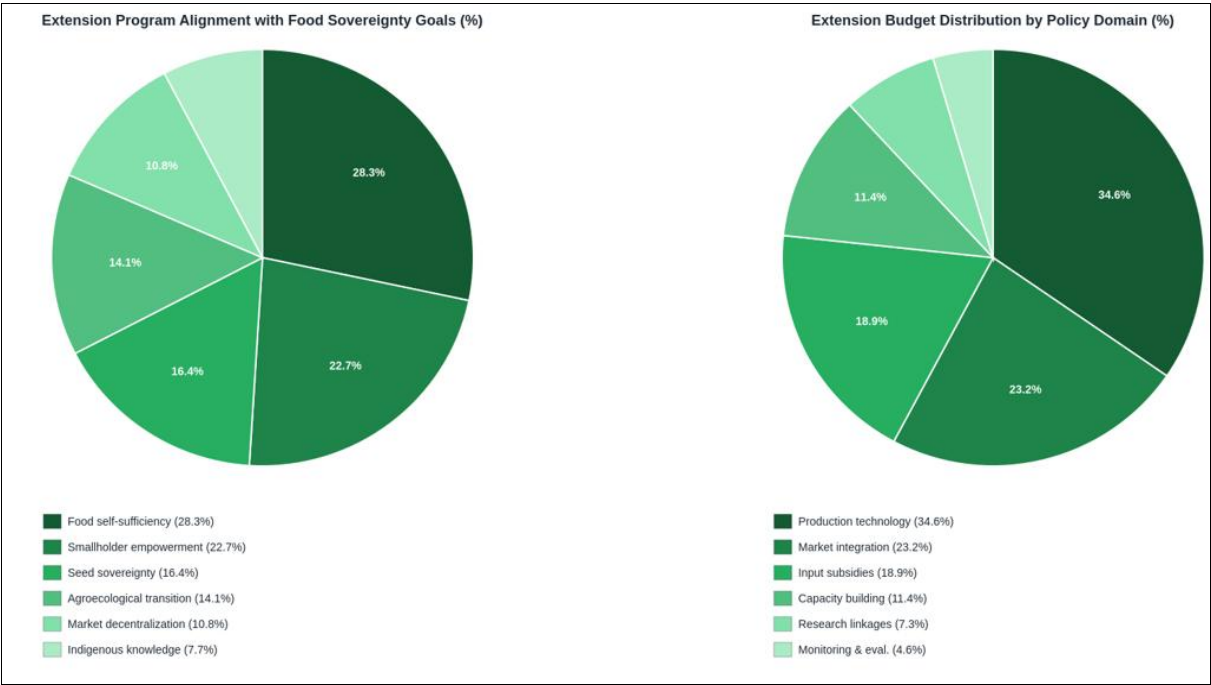


Fig 1: Extension program alignment with food sovereignty goals (left) and budget distribution by policy domain (right)

Figure 1 highlights the mismatch between stated policy priorities and budget allocation. While food self-sufficiency accounts for 28.3% of programmatic alignment, production

technology absorbs 34.6% of budgets. Seed sovereignty and agroecological transition, together representing 30.5% of policy goals, receive less than 12% of funding combined.

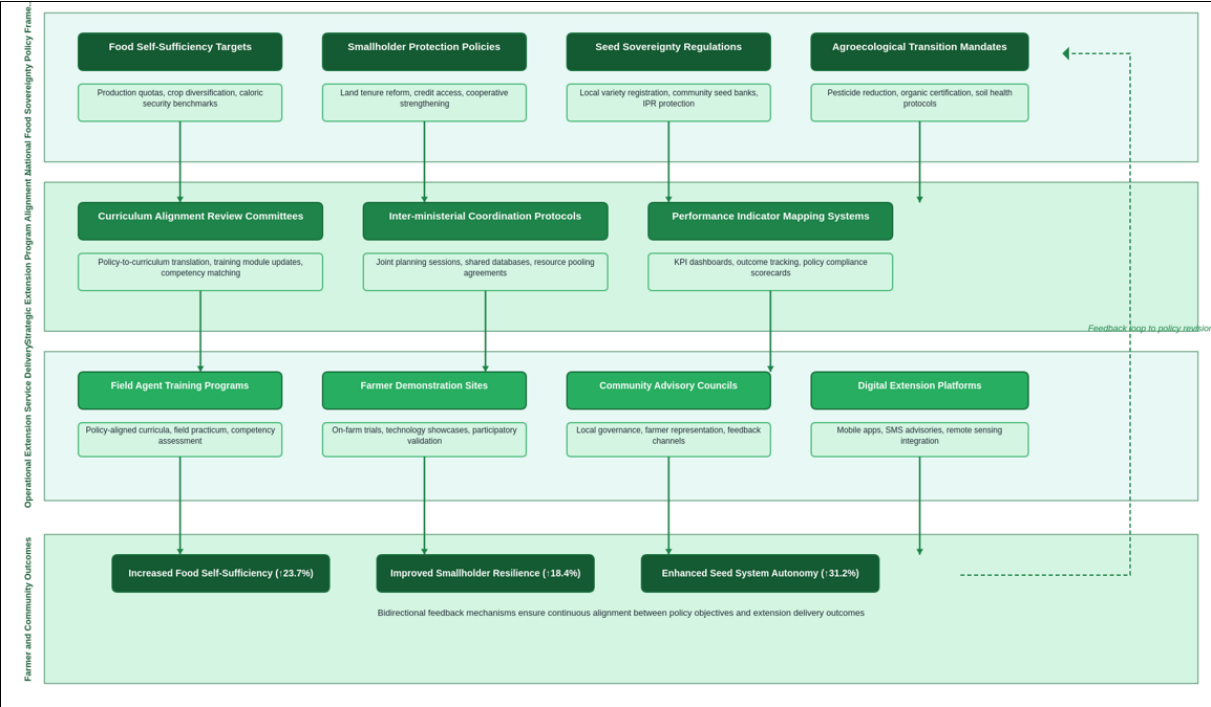


Fig 2: Strategic pathway from national food sovereignty policy to extension service delivery and farmer outcomes

Figure 2 maps the four-layer pathway connecting policy frameworks to farmer outcomes. The feedback loop on the right indicates that outcome monitoring should inform policy revision, creating a continuous alignment cycle that most current programs lack [17, 18].

Discussion

The findings confirm what many observers have suspected:

Colombia's extension system operates in partial alignment with its food sovereignty legislation. Programs do better on production-oriented objectives and worse on the more transformative goals around seed sovereignty and agroecological transition [4, 9]. This pattern isn't random. It reflects the institutional inertia of extension systems built over decades around technology transfer and yield improvement. Reorienting these systems toward food

sovereignty requires more than new policy language; it requires changes in training, incentive structures, and performance metrics^[5, 6].

The strong performance of programs with inter-ministerial coordination links is an encouraging finding. It suggests that alignment isn't purely a matter of individual program design but depends on the institutional architecture connecting extension to policy-making bodies. Cauca's relatively high scores appear linked to active indigenous and Afro-Colombian organizations that pull extension toward community-defined priorities, echoing findings from Altieri and Toledo^[9] in Cuba where grassroots movements shaped extension content.

The budget analysis exposes a gap between rhetoric and resources. Programs may reference food sovereignty in their planning documents, but actual spending remains concentrated on conventional technology transfer. Until budget allocation shifts to match policy language, alignment will remain superficial^[10, 15]. The scorecard methodology itself proved practical for cross-program comparison, though interviewees noted that some indicators were difficult to assess from documents alone. Future applications should consider incorporating field observation as a validation layer^[16, 18].

Limitations

This research covered five of Colombia's 32 departments, limiting geographic generalizability. The scorecard, while expert-validated, relies on document-based evidence that may not capture informal alignment activities at field level. Interview responses from program coordinators may reflect social desirability bias. The cross-sectional design captures alignment at a single point; longitudinal tracking would reveal whether alignment improves or deteriorates over time. Future research should expand the departmental sample and incorporate farmer-level assessments of whether extension content reflects sovereignty principles in practice.

Conclusion

This research assessed the strategic alignment between Colombia's agricultural extension programs and national food sovereignty policies across five departments. The scorecard analysis showed that only 32.4% of programs met the threshold for adequate alignment. Food self-sufficiency goals were best represented, while seed sovereignty and agroecological transition received weak programmatic attention and even weaker budget support.

The clearest finding is that inter-ministerial coordination makes a measurable difference. Programs connected to coordination mechanisms scored 41.7% higher on alignment indicators, tracked more sovereignty-related performance metrics, and earned higher farmer satisfaction ratings. This suggests that structural reforms, creating formal linkages between extension agencies and policy-making bodies, may be more effective than issuing new guidelines alone.

Extension systems in Colombia and similar countries need alignment protocols that translate policy aspirations into program content, budget categories, and performance indicators. The pathway framework presented here offers a template. But frameworks without institutional commitment produce documents, not change. Closing the alignment gap requires political will, budget reallocation, and

accountability mechanisms that connect extension practice to sovereignty outcomes.

References

1. Wittman H, Desmarais AA, Wiebe N. Food sovereignty: Reconnecting food, nature and community. Halifax: Fernwood Publishing; 2010. p. 1-214.
2. Edelman M, Weis T, Baviskar A, Borrás SM, Holt-Gimenez E, Kandiyoti D, Wolford W. Introduction: Critical perspectives on food sovereignty. *Journal of Peasant Studies*. 2014;41(6):911-931.
3. Ministerio de Agricultura Colombia. Ley de soberanía alimentaria y política de extensión agropecuaria. Bogotá: MADR; 2018. p. 1-46.
4. Scoones I, Thompson J. Farmer first revisited: Innovation for agricultural research and development. Rugby: Practical Action Publishing; 2009. p. 1-368.
5. Klerkx L, van Mierlo B, Leeuwis C. Evolution of systems approaches to agricultural innovation: Concepts, analysis and interventions. In: *Farming systems research into the 21st century*. Dordrecht: Springer; 2012. p. 457-483.
6. Patel R, McMichael P. A political economy of the food riot. *Review: A Journal of the Fernand Braudel Center*. 2009;32(1):9-35.
7. Miles RE, Snow CC. Organizational strategy, structure, and process. New York: McGraw-Hill; 1978. p. 1-274.
8. Torres-Salcido G. Extension services and food sovereignty in Mexico: A critical assessment. *Latin American Perspectives*. 2016;43(6):128-144.
9. Altieri MA, Toledo VM. The agroecological revolution in Latin America: Rescuing nature, ensuring food sovereignty and empowering peasants. *Journal of Peasant Studies*. 2011;38(3):587-612.
10. Rosset PM, Martínez-Torres ME. Rural social movements and agroecology: Context, theory and process. *Ecology and Society*. 2012;17(3):17.
11. Giraldo OF, Rosset PM. Agroecology as a territory in dispute: Between institutionality and social movements. *Journal of Peasant Studies*. 2018;45(3):545-564.
12. Yin RK. Case study research and applications: Design and methods. Los Angeles: Sage Publications; 2018. p. 1-352.
13. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006;3(2):77-101.
14. Kvale S, Brinkmann S. Interviews: Learning the craft of qualitative research interviewing. Los Angeles: Sage Publications; 2015. p. 1-405.
15. Perfetti JJ, Hernandez A, Leibovich J, Balcazar A. Políticas para el desarrollo de la agricultura en Colombia. Bogotá: SAC-Fedesarrollo; 2013. p. 1-328.
16. Birner R, Anderson JR. How to make agricultural extension demand-driven? The case of India reforming top-down extension. IFPRI Discussion Paper. 2007;729:1-52.
17. Faure G, Desjeux Y, Gasselin P. New challenges in agricultural advisory services from a research perspective. *Journal of Agricultural Education and Extension*. 2012;18(5):461-474.
18. Cristobal-Acevedo D, Parra-Inzunza F, Ortiz-Solorio

- CA. Evaluation of agricultural extension programs in developing countries. *Agricultural Systems*. 2017;152:1-9.
19. Gliessman SR. *Agroecology: The ecology of sustainable food systems*. Boca Raton: CRC Press; 2015. p. 1-371.