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ENHANCING FARMER-CENTERED ADVISORY SERVICES: BRIDGING TRAINING GAPS AND PROMOTING ADAPTIVE EXTENSION IN ALBANIA

Ylli BIÇOKU[1]* and Medin ZEQIRI[2]

[1]Department of Animal Science, Agricultural University of Tirana, Pajsi Vodica street, 1025, Koder Kamëz, Tirana, Albania.

[2]Department of Food Sciences and Biotechnology, University for Business and Technology, Kalabria nn, 10000 Pristina, Kosovo.

*Corresponding Author

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ABSTRACT

Agricultural extension in Albania plays a pivotal role in supporting farmers' adoption of improved practices. Based on a survey of 66 extensionists, this study identifies critical training gaps, preferred advisory modalities, and misalignments between extension supply and farmer demand. Findings reveal that on-farm visits (92.4%) and demonstrations (69.7%) remain the dominant approaches, yet farmers increasingly value personalized consultations (98.5% preference) and group discussions (84.8%). Extensionists, on the other hand, continue to emphasize demonstrations and field visits as central tools. This divergence highlights the need for adaptive, farmer-centered strategies that balance traditional methods with modern, participatory, and digital advisory approaches. The study contributes original survey-based evidence from Albania, filling a gap in extension literature from Southeast Europe, and offers practical policy recommendations for strengthening advisory systems.

Keywords: Agricultural extension, farmer-centered advisory, participatory extension, adaptive advisory systems, digital tools.

1. INTRODUCTION

Agricultural extension and advisory services (EAS) are central to improving productivity, ensuring food security, and promoting sustainable rural development. By linking research institutions with farming communities, EAS facilitate knowledge dissemination, innovation transfer, and capacity

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building [11, 53]. Extension agents serve as intermediaries, supporting technology adoption and informed decision-making [3]. Their effectiveness depends on participatory approaches and demand-driven training that respond to both professional development needs and farmers' priorities [43].

Effective agricultural extension requires a balance between technical knowledge and professional competencies, including communication, management, and teaching skills. Early literature emphasized that extension agents should not only master technical content but also design, implement, and evaluate educational programs while engaging farmers through participatory approaches [14, 41, 37]. Recent empirical evidence supports this integrative requirement: that soft skills and communication are ranked among the highest priorities by extension professionals [48]. Similarly, [20] identify clear gaps in both technical and human-relation competencies among agroforestry extension workers globally. Moreover, [36] demonstrate that ICT-based extension's impact depends heavily on professionals' skill in communication, context adaptation, and facilitating learning, not merely on technology. Finally, comparative studies highlight that curricula for extension professionals frequently overlook critical competencies in facilitation, communication, and farmer engagement—gaps that substantially constrain advisory effectiveness and remain evident across diverse geographic contexts [60].

Historically, many developing countries have emphasized technical training over soft skills, limiting extension impact [38]. Collaborative knowledge production between farmers and advisors enhances relevance and adoption, as co-produced knowledge integrates scientific evidence with experiential and local insights [2013].

Motivating and educating farmers remains a central task for extension agents [28]. Extension services can significantly influence sustainable production and rural development, particularly when technology adoption is paired with effective education. Yet, a shortage of well-trained personnel remains a critical barrier in many developing countries [38]. According to [5] was found that many extension professionals enter the field without having the appropriate functional competencies. The core competencies required by early career farm advisors have been identified in broad groupings around interpersonal communications skills and program management as well as technical expertise for production, farm business management, and environmental conservation [26].

Training gaps are exacerbated by limited data on actual staff needs, and advisors' responsibilities extend well beyond farm visits—they play an active role in enhancing management practices and farm productivity [2, 63].

Global transformations—including climate change, rapid digitalization, and market liberalization—demand extension systems equipped with highly competent professionals capable

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of addressing increasingly complex challenges [6, 58, 62]. Effective capacity-building must therefore move beyond narrow technical training to encompass advanced communication skills, participatory methodologies, and digital literacy, enabling extension agents to function as facilitators of innovation rather than mere transmitters of information [44, 45, 53]. A robust body of empirical evidence confirms that experiential learning approaches—such as on-farm demonstrations and farmer field schools—consistently generate greater farmer adoption and behavioral change compared to conventional classroom instruction [23, 19].

In Albania, agriculture contributes approximately 16% to GDP and employs around 36% of the population [50], yet advisory services remain limited in scope, coverage[1], and alignment with farmer priorities [49]. Persistent mismatches exist between farmers' needs for managerial competencies and advisers' focus on digital tools and sustainability, a pattern also observed in international literature [29].

Addressing these gaps requires a shift toward farmer-centered, participatory, and adaptive advisory systems, where extension agents not only provide technical guidance but also facilitate learning, co-production of knowledge, and context-specific decision support. Such approaches enhance adoption of innovations, strengthen farm-level management, and promote sustainable agricultural practices.

Against this background, this study generates original evidence from Albania on how training gaps and advisory approaches influence farmer engagement. Findings inform pathways for designing inclusive, adaptive, and demand-responsive extension services that align adviser competencies with farmers' evolving priorities.

This study addresses three key questions:

What are Albanian extension agents' priority training areas?

Which methods do agents prefer for farmer training?

How well do these priorities align with farmers' perceived needs?

Hypotheses:

H1: Blended training (classroom + field) enhances perceived advisory effectiveness.

H2: Demonstration-based learning strengthens technology transfer confidence.

[1] Only 26.5% of farmers are contacted directly by the extensionists. Source: Ministry of Agriculture and Rural Development (MARD), unpublished report.

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H3: Alignment between training and delivery methods indirectly improves farmer adoption through strengthened advisory capacity.

2. MATERIALS AND METHODS

2.1 Study Design

A descriptive-analytical approach combining quantitative and qualitative methods was employed. A structured questionnaire, adapted from [43 and 11], captured advisors' training needs and preferred learning methods; as well agricultural extension agents' perceptions of training priorities and effective farmer learning methods in Albania.

2.2 Study Area and Participants

Research was conducted in Tirana and Korça regions. Sixty-six public-sector advisors (41 males, 25 females), representing ~90% of active extensionists in these regions, participated. Purposive sampling ensured representation across diverse agro-ecological zones.

2.3 Data Collection

The questionnaire included:

Demographics and professional profile.

Training needs assessment (technical, communication, business) rated on a Likert scale.

Preferred farmer training methods: lectures, farm visits, demonstrations, group discussions, and combinations.

Data were collected via email survey (May 2020, C-19 period) and face-to-face interviews (June 2022).

Open- and closed-ended questions were included. A Likert-type scale [31] facilitated statistical analysis and is commonly applied in agricultural research [9]. Pre-testing with six extensionists ensured clarity and reliability.

2.4 Data Analysis

Descriptive statistics (frequencies, percentages) and weighted ranking analyses were used to identify training priorities and method preferences. Qualitative responses underwent thematic analysis to enrich understanding of advisor-farmer interactions.

2.5 Analytical Flow and Conceptual Model

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Training priorities shape the selection of delivery methods, with practical approaches such as farm visits and demonstrations enhancing perceived effectiveness. Extensionists characteristics (experience, education) may strengthen or moderate these relationships.

Figure 1 illustrates the conceptual framework linking training approaches, extension agent competencies, and advisory service effectiveness."

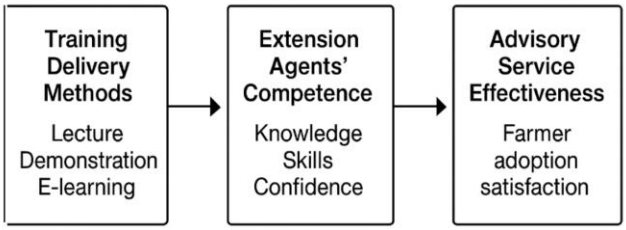

Figure 1: Hypothesized links among training approaches, agent competencies, and advisory service effectiveness.

The conceptual model is grounded directly in empirical patterns observed in the survey data. The analysis demonstrates that extensionists' training priorities—dominated by technical agronomic topics and limited exposure to livestock and communication skills—shape their preference for delivery methods such as demonstrations and on-farm visits. These practical approaches are perceived as most effective because they compensate for gaps in advisory facilitation and interactive communication skills identified in the training needs assessment. At the same time, the strong farmer preference for individual consultations and group discussions, as reported by extensionists, suggests that advisory effectiveness depends on competencies that are underdeveloped in current training provision. These findings support the hypothesized links in the model: training inputs influence advisory methods, while advisor characteristics (experience, background, and tenure) moderate the extent to which these methods translate into effective farmer engagement. Misalignments between training content and farmer-preferred learning channels observed in the results further validate the model's expectation that advisory capacity—and ultimately farmer adoption—is shaped by the interaction between competencies, selected training approaches, and delivery modalities. Thus, the model closely reflects the empirical relationships emerging from the data and provides a structured lens for interpreting the dynamics of Albania's extension system.

3. RESULTS & DISCUSSION

3.1. Gender and Professional Imbalances

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The survey of 66 extensionists revealed a persistent gender imbalance, with men comprising 62% of respondents and women only 38% (Table 1). This disproportion remains striking given that women perform a substantial share of agricultural labour in Albania. Professionally, agronomists dominate the extension workforce (62.1%), while livestock specialists are underrepresented (22.7%), despite the livestock sector contributing over 45% of agricultural output [35]. Such structural asymmetries weaken advisory coverage in livestock production systems and reinforce long-standing biases in extension priorities.

These findings align with wider international patterns, where advisory systems continue to be male-dominated despite women's substantial contribution to agriculture [16]. Policies promoting gender-responsive recruitment and training are essential to improve both inclusiveness and service effectiveness [61]. Similarly, the stronger representation of agronomists compared to livestock specialists poses challenges in a country where livestock production is a major contributor to agricultural GDP. Limited expertise in animal husbandry has been shown internationally to restrict the diffusion of productivity-enhancing innovations [21].

Table 1: Main sample socio-demographic

RAEE	Extensionists					
	Total	Gender		Age (years)	Experience (years)	
		M	F		Total	Extension
Tiranë	27	17	10	53,6	26,5	11,7
Korçë	39	24	15	51,7	20,7	11,0
Total	**66**	**41**	**25**	**52,5**	**23,1**	**11,3**

This table provides socio-demographic characteristics of extensionists, including gender, age, and experience differences across regions.

3.2 Extensionists' Experience and Staff Turnover

Although respondents reported relatively long careers in agriculture (average 23 years), their direct experience in advisory roles was considerably shorter, averaging 11.3 years (Table 1). This discrepancy reflects high turnover rates, frequent restructuring of institutions, and discontinuity in advisory provision.

Frequent staff replacements and short advisory tenures weaken institutional memory and disrupt trust between farmers and extension workers, undermining the adoption of new practices [53, 10, 1]. Frequent restructuring of advisory agencies further erodes institutional continuity and credibility, highlighting deeper structural challenges in governance and resource allocation [55,

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62, 51]. In Albania, these dynamics underscore the need for strategic interventions to strengthen institutional continuity and farmer trust.

3.3 Training Participation and Content Gaps

Most extensionists (90.9%) participated in training programs within the last five years. Between 2017 and 2022, training on extension-related topics (28 topics covering communication and advisory methods) reached only 0–50% of extensionists.

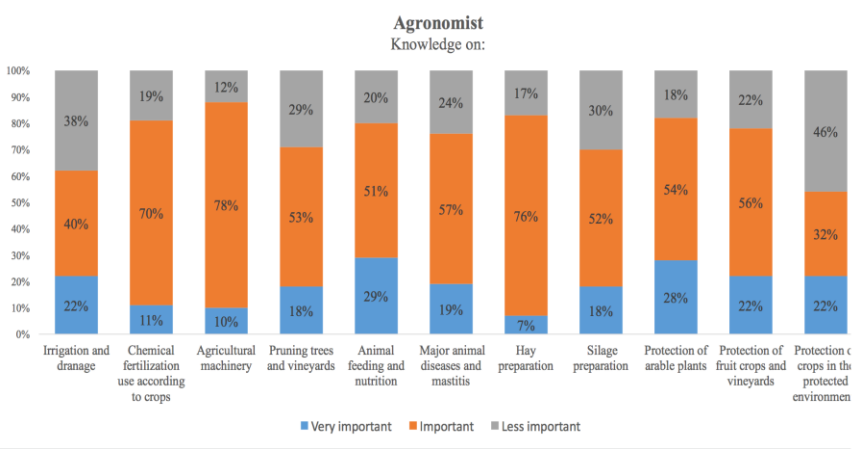
Participation in technical trainings related to agricultural and animal production ranged from 26% to 58%, with livestock-focused topics attracting lower engagement than crop production, reflecting that 71.2% of extensionists have agronomy backgrounds.

Table 2: Educational background of extensionists

RAEE	Extensionists						
	Total	Education					
		Agronomy	Livestock	Plant Protection	Horticulture	Economist	Agro-environment
Tiranë	27	16	7	1	1	1	1
Korçë	39	25	8	3	1	1	1
Total	**66**	**41**	**15**	**4**	**2**	**2**	**2**

This table details the educational backgrounds of extensionists, illustrating the dominance of agronomy and underrepresentation of livestock-related fields.

Essential competencies—including survey techniques, record-keeping, data analysis, and results presentation—were largely absent from curricula.



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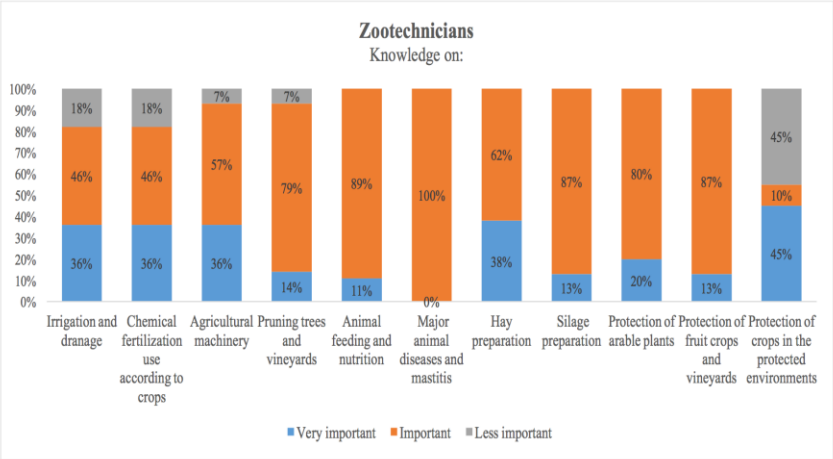

Figure 2: Training needs by professional background: agronomists vs. zootechnicians."

This figure compares training needs by professional background, highlighting differences between agronomists and livestock specialists.

Perceptions of training needs differed by professional background: agronomists prioritized crop-focused technical content, whereas veterinarians and animal science experts emphasized livestock management and animal health (Figure 2). Early-career advisors tended to focus on fundamental agronomic practices, while senior staff emphasized livestock-related training and cross-cutting competencies (Figure 3). Both groups valued communication and facilitation skills, although senior extensionists slightly more.

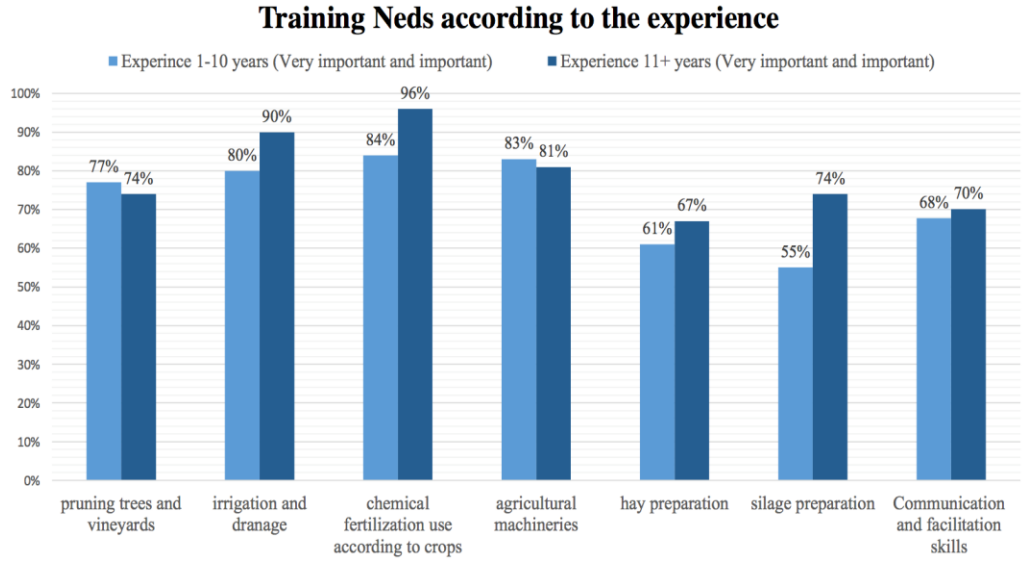

Figure 3: Differences in training needs between junior and senior extensionists.

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This figure illustrates differences in training needs between junior and senior extensionists, showing how experience shapes competency priorities.

This imbalance in training mirrors international evidence showing that programs overly focused on crop production and neglecting livestock and cross-cutting skills limit advisory effectiveness [15, 47, 52, 39].

Consistent with [12] and the findings from our survey in Albania, early-career advisors tend to focus predominantly on technical aspects of farming, whereas senior advisors engage more with organizational and cross-cutting issues. Moreover, training needs were perceived differently across professional backgrounds: agronomists prioritized crop-focused technical content, whereas veterinarians and animal science experts emphasized livestock management and animal health. This pattern underscores that advisory effectiveness relies not only on technical expertise but also on the capacity to facilitate learning, manage farm-level organization, and address cross-disciplinary challenges.

Integrating communication, participatory methods, and technical training for both early-career and senior advisors strengthens advisory systems, supports technology adoption, and enhances farmer-centred learning [33, 56, 24, 2517]. In the Western Balkans [13] highlights opportunities for advisors to receive training on the latest technologies, fostering sustainable agricultural development.

Overall, the evidence emphasizes the need for a balanced advisory approach, combining technical guidance with participatory, communication, and organizational skills. Such a comprehensive strategy strengthens extension systems, fosters innovation, and supports the sustainable development of agriculture in the region.

3.4 Farmer Engagement and Outreach Modalities

Extension work in Albania is predominantly organized around on-farm visits (92.4%) and crop demonstrations (69.7%), considered the most effective means of engaging farmers. However, farmer participation remains modest, reflecting high advisor-to-farmer ratios and a growing interest in interactive or personalized approaches. This divergence signals a misalignment between advisory supply and farmer preferences, with potential consequences for adoption and long-term impact. Similar patterns are also observed internationally, where on-farm demonstrations are valued as social learning environments that enhance credibility and accelerate adoption [54, 7, 27].

The best way of acquiring new knowledge for extensionists

Extensionists identified “Trainings combined with on-farm visits” (18.9%) and “Open field days” (14.9%) as preferred ways to acquire new knowledge, whereas videos and brochures were less favoured (Table 3). According to extensionists opinion for farmers, the most appropriate activities

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included demonstrations (92.4%) and on-farm trainings (87.9%) (Table 4), while information channels favoured by farmers were individual discussions (98.5%) and leaflets (87.9%) (Table 5).

The best form of acquiring new knowledge for farmers and implementing extension plans

These results are consistent with international evidence that experiential, participatory, and interactive methods—such as demonstrations, field days, and peer-to-peer exchanges—enhance adoption and learning [22, 40, 54, 4, 32].

Table 3: Most appropriate way to get new knowledge for extensionists

Activities	Percentage
Trainings combined with on-farm visits	18.9
Open field days	14.9
Demonstrations	14.3
Trainings abroad	14.3
In-country trainings	14.0
Study tours	11.2
Brochures/leaflets	9.9
Videos	2.5
Total	**100**

This table summarizes extensionists' preferred ways to acquire new knowledge, emphasizing the importance of experiential and field-based learning.

Table 4: The most appropriate activities to implement the extension program for farmers

Activities	Percentage
Demonstrations	92.4
Trainings combined with on-farm visits	87.9
Trainings	69.7
Brochures/Leaflets	66.7
Study tours	63.6
Open field days	63.6
Videos	16.7
Trainings abroad	1.5
Visits to fruit and vegetable markets	1.5

This table outlines the most appropriate activities for implementing extension programs for farmers, reflecting strong preference for demonstrations and on-farm training.

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Table 5: Information channels liked by farmers according to extensionists' opinion

Activities	Percentage
Individual discussions (extensionists–farmer)	98.5
Leaflets	87.9
Group discussions	84.8
Demonstrations	53.0
Open field days	45.5
TV	25.8
Internet	24.2
Radio	1.5

This table presents information channels favored by farmers, showing the high value placed on individual discussions and printed materials.

Integrating digital tools can complement traditional approaches but cannot replace personalized engagement [42, 46, 8]. In Albania, initiatives like the DART[2] programme have begun to engage farmers and institutions digitally, but infrastructure and resource limitations continue to restrict outreach [18, 59]. Adaptive, farmer-centred extension combining traditional and digital methods is critical to align supply with farmer needs and improve adoption.

3.5. Seasonal Preferences and Motivations for Training

Extensionists identified spring as the most appropriate season for training, followed by autumn, reflecting the agricultural calendar and immediate applicability in the field. Their main motivations were acquiring new technologies (74%), updating technical expertise (68%), and improving communication with farmers (59%).

These findings underscore the importance of aligning training schedules with farming cycles, consistent with international observations that seasonally aligned programs enhance knowledge retention and practical application [34, 57]. Motivational factors such as perceived usefulness, institutional support, and access to training opportunities are key for adoption of both knowledge and digital tools by extension staff.

3.6 Study Limitations

While this study provides valuable empirical evidence on training needs and advisory practices among extension agents in Albania, several limitations should be acknowledged. First, the sample size, although representing approximately 90% of active extensionists in Tirana and Korça, does

[2] Digital Agriculture and Rural Transformation (DART) programme (2024-2027). Retrived from: https://www.ilo.org/projects-and-partnerships/projects/digital-agriculture-and-rural-transformation-albania-dart

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not fully capture regional diversity across Albania. Extension systems in mountainous, coastal, and remote regions may exhibit different training gaps or advisory practices that were not reflected in this dataset. Second, the study relies primarily on self-reported perceptions, which may be subject to social desirability bias, especially regarding competencies, preferred advisory methods, or views of farmers' needs. Third, farmers' perspectives were not collected directly; their preferences were assessed indirectly through extensionists' interpretations, which may not fully reflect farmers' motivations, constraints, or expectations. Fourth, due to limited availability of digital infrastructure in some advisory offices, the study could not fully explore the role of emerging ICT and AI-based tools in advisory delivery. Finally, because data were collected over a period spanning the COVID-19 pandemic, differences in institutional functioning during that period may have influenced responses related to training participation, delivery methods, and staff turnover.

Despite these limitations, the findings offer an important empirical basis for designing more adaptive, farmer-centred training programs and contribute to the limited body of literature on extension systems in Southeast Europe.

4. CONCLUSIONS

This study highlights persistent structural and functional challenges in Albania's agricultural extension system, with significant implications for strengthening advisory services and enhancing their contribution to sustainable and technology-enabled agricultural development.

Gender and Professional Imbalances – Extension services remain male-dominated and heavily agronomist-oriented, despite women's substantial role in farming and the strategic importance of livestock. Addressing these imbalances is essential for inclusive and effective advisory delivery.

High Turnover and Limited Advisory Experience – Many extensionists have relatively short advisory tenures despite long agricultural careers, undermining institutional memory, continuity, and farmer trust.

Training Gaps and Experience-Based Divergence – Training has been heavily crop-focused, leaving livestock competencies and advisory communication underdeveloped. Less experienced extensionists prioritize foundational agronomic skills, whereas senior advisors emphasize livestock and advanced facilitation, highlighting the need for tiered, adaptive training programs.

Weak Farmer Engagement and Limited Outreach – High advisor-to-farmer ratios and reliance on demonstrations limit engagement. Participatory, farmer-centered, and individualized approaches remain underutilized, constraining adoption and impact.

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Timing and Motivation for Training – Training is most effective when aligned with spring and autumn farming cycles, and motivation is primarily linked to acquiring new technologies and updating knowledge.

Policy and Practice Recommendations

- Develop tiered, adaptive training programs that address experience-specific needs, combining foundational agronomy for junior staff with advanced livestock management, participatory facilitation, and digital advisory modules for senior advisors.
- Institutionalize gender-sensitive and sector-balanced recruitment to close gaps in livestock expertise and enhance women's participation in extension services.
- Provide systematic, ongoing training in communication, facilitation, data management, and digital advisory tools for all staff to ensure demand-driven, farmer-centered services.
- Subsidize operational costs and institutionalize transparent recruitment and retention strategies to improve staff motivation, stability, and institutional memory.
- Align training calendars with agro-ecological cycles and operational priorities to maximize knowledge uptake and field application.
- Encourage adaptive and participatory outreach approaches, integrating ICT-enabled advisory methods to expand farmer engagement and responsiveness to local needs.
- Staff stability is critical for trust, institutional memory, and effective knowledge transfer—frequent turnover undermines advisory impact and innovation adoption.

Stability of extension personnel and organizational structures is not merely an administrative concern but a strategic prerequisite for effective knowledge transfer. Frequent staff turnover and leadership reshuffles undermine institutional memory, weaken farmer–advisor trust, and ultimately compromise the long-term credibility of advisory systems. Policymakers must therefore prioritize institutional continuity and human resource stability as core elements of extension reform to secure sustainable adoption of innovations and resilience of the advisory system.

Recommendations for Future Research

Future research should address the perspectives and experiences of farmers directly, allowing for a more complete assessment of alignment or mismatch between advisory supply and demand. Comparative regional studies within Albania would help determine whether training needs and advisory gaps differ significantly across agro-ecological zones, especially in livestock-dominant regions. Further investigation is also needed into the institutional drivers of high staff turnover, including organizational restructuring, limited career progression, and financial constraints. Longitudinal studies tracking changes in advisor competencies over time would help assess the effectiveness of proposed training reforms. Additionally, experimental or quasi-experimental

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designs could evaluate the impact of different training modalities—such as blended learning, on-farm demonstrations, and digital advisory tools—on both advisor performance and farmer adoption outcomes. Finally, given the global trend toward digitalization of extension, research should explore the readiness of Albanian extensionists to adopt ICT, mobile platforms, and AI-based advisory systems, as well as the infrastructural requirements for scaling such tools in rural contexts.

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