



Research Article

The Suitability of the Approach Adopted by the Agricultural Extension Organization and its Meeting the Requirements for the Quality of Extension Services in Iraq

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Abstract | This study conducted an assessment of the curriculum designed by Iraq's Agricultural Extension and Training Directorate to determine its congruence with quality benchmarks critical for successful advisory services. The analysis scrutinized pivotal administrative dimensions, encompassing the extension program's primary objectives, its structural organization, the profile of its intended farmer beneficiaries, the composition of its personnel, the degree of collaboration with other agencies, the distribution of resources, and the competencies of its staff. The scope of the investigation was confined to Baghdad Province, with data collected from the central Directorate office and its two affiliated training and advisory centers in Abu Ghraib and Rashidiya. This research evaluated the efficacy of an advisory curriculum through a comprehensive 69-question survey completed by 159 agricultural advisors. Subsequent data analysis via SPSS revealed that the existing curriculum fails to meet the quality standards requisite for effective service delivery. The principal shortcomings identified include a substantial disconnect between the curricular content and the practical tasks advisors perform, as well as a misalignment with the organization's strategic goals. **Diagnosis of Challenges:** The study identifies a critical misalignment between the present organizational architecture and the core tasks mandated by the government's agricultural advisory program. This structural deficiency, coupled with a curriculum that insufficiently promotes collaborative engagement, results in weak coordination and information silos between the extension service and its vital stakeholder organizations. Consequently, the service is poorly positioned to meet the evolving demands of the farming community. **Conclusion & Recommendations:** In response to these findings, the study culminates in a series of pragmatic recommendations. These solutions are formulated to overhaul operational effectiveness, ensuring extension services are more closely attuned to prevailing industry standards and are fully equipped to support the agricultural sector's future development.

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Introduction

The agricultural sector is a cornerstone of development in both advanced and developing economies. Its significance is undeniable, as sustainable and inclusive growth cannot be realized without a thriving agricultural foundation. Agriculture influences all aspects of economic progress, making it indispensable for national development. Globally, this sector plays a pivotal role in strengthening economies, especially in emerging nations, where continuous improvements and innovations are pursued to address societal needs and demands. As a result, agricultural development remains a key priority for economists worldwide (Khamis *et al.*, 2023).

Agricultural extension plays a pivotal role in driving successful agricultural development, serving as a key mechanism for transforming farming practices. It acts as a catalyst for behavioral change among farmers and other stakeholders, facilitating not only increased productivity but also broader economic, social, and cultural progress within rural communities. By integrating scientific research into practical applications, agricultural extension helps build a prosperous and innovation-driven farming sector (Saleh *et al.*, 2023).

According to Zahran (2013), the success of agricultural extension largely depends on its ability to adapt and adjust its functional strategies to meet the requirements of new environmental realities and challenges. Current circumstances indicate various pressures facing agricultural extension services, particularly in developing countries. These challenges include declining performance, inefficiency, inadequate updating, bureaucratic dominance in administrative work, unsuitability of agricultural innovations to farming conditions, limited financial and human resources, and lack of inclusivity in providing extension services to all members of local communities (Asmaa and Emile, 2014). In response, many countries worldwide have adopted different approaches or methodologies in agricultural extension services to develop and improve their operational effectiveness amidst economic, social, and political changes (Qashata, 2013).

To better comprehend these approaches or guidance methodologies, scholars and organizations have offered diverse interpretations. According to the

German Technical Cooperation Agency (GTZ), the guidance approach serves as a strategic instrument that outlines political requirements based on defined visions and objectives, while also specifying the methods for addressing various challenges (Saleh *et al.*, 2023). Al-Shafei (2010) describes it as the overarching framework governing the implementation of agricultural advisory services. Similarly, Ahmed (2012) characterizes it as an integrated system of strategies and appropriate techniques designed to enhance the effectiveness of advisory initiatives within a particular region. Abdulmumini *et al.* (2022) considers the extension methodology a structured mechanism for achieving goals, functioning as an organized pathway through which extension programs and activities are executed. For agricultural extension efforts to succeed and meet their intended outcomes, the methodologies employed must incorporate essential components, benefits, and sufficient material and human resources. These elements should be utilized in a way that aligns with the extension organization's objectives (Al-Hafidh and Lafta, 2024).

According to Masso (2021), agricultural extension methodologies generally aim to fulfill the needs of targeted farmers at minimal costs with higher productivity, improving agricultural practices and performance, developing local communities, and achieving inclusive non-formal education for all rural household members. Before implementing any agricultural extension methodology, thorough analytical and detailed studies should be conducted to assess its suitability for application within a specific framework and environment. This evaluation should also consider the methodology's adaptability to changes and developments, as well as evaluating its impacts resulting from application (Alidu *et al.*, 2022).

Agricultural extension methodologies must consist of organizational structures, leadership and management, human and material resources, clear objectives, targeted individuals and organizations, and a set of criteria and constants for distinguishing between extension approaches (governmental or private), management nature (top-down, participatory, bottom-up), funding nature (free, cost-contributory, fully covered), goals to be achieved, centrality of the approach, method of developing extension programs, and problems addressed by the extension methodology (Al-Hafidh and Lafta, 2023).

In Iraq, the Agricultural Extension and Training Department relies on the governmental extension methodology, also known as the general extension approach. This approach is the most common and widely used globally (Khamis *et al.*, 2025) mention that the extension approach has been used in Britain since 1889 and has been disseminated to most countries worldwide. It aims to assist farmers in increasing their agricultural production and improving their livelihoods.

According to Muslim, the government-led extension approach offers several benefits as well as limitations. Key advantages include its effectiveness in communicating government policies and objectives to rural communities, providing nationwide coverage, maintaining the continuity of agricultural advisory initiatives, facilitating centralized control and management of extension programs, and enabling efficient communication between ministries and rural populations. However, this approach also has notable drawbacks, such as inefficiencies in relaying farmers' concerns and needs to policymakers through existing extension channels, a lack of localized adaptation in advisory content, limited engagement between extension agents and affluent farmers, high operational costs due to the need for a large workforce, and insufficient encouragement of innovation and creativity among extension personnel (Asmaa and Emile, 2014). Notably, this model has been implemented by the Iraqi Ministry of Agriculture since the 1950s and continues to operate today. In light of these observations, the present study seeks to explore the following question:

To what extent is the government-led extension approach, as practiced by the Agricultural Extension and Training Department, effective in fulfilling the demands of modern agricultural extension services?

Objectives

The current research aims to assess the suitability of the methodology, adopted by the Agricultural Guidance and Training Department, in Iraq and its fulfillment of the requirements of quality agricultural advisory services. This will be achieved by highlighting its importance and evaluating its compatibility with administrative standards across the following domains: Primary objectives of agricultural guidance, Organizational structure, Targeted agricultural sectors, Personnel involved

in advisory services, Coordination and integration with relevant organizations, Utilization of available resources, Material and human capabilities.

Significance of the research

The significance of this investigation is fourfold:

- **Evaluation of Current Practices:** To perform a scientific and practical assessment of the Iraqi Agricultural Extension Department's methodology, evaluating its alignment with modern agricultural technologies and changing conditions.
- **Identifying Barriers to Reform:** To contribute directly to extension system reform by diagnosing critical weaknesses, operational problems, and obstacles that hinder effective progress.
- **Addressing a Research Gap:** To provide one of the first comprehensive evaluations of extension curricula and methodologies within the unique context of Iraq, an area with limited existing research.
- **Foundational Research:** To supply future researchers and practitioners with reliable data and analysis to inform further studies and initiatives in agricultural development.

Materials and Methods

Methodological framework

The research was conducted using a descriptive-analytical framework. This methodology supports the dual focus of this study: first, to provide a precise description of the dimensions of the governmental extension methodology used by Iraq's Agricultural Extension and Training Directorate based on agents' perspectives, and second, to identify and analyze the connections between relevant variables. Through the interpretation of accurate data, this framework allows for the prediction of relationships and the development of well-founded conclusions (Khamis, *et al.*, 2025).

Research area

The selection of Baghdad Governorate's Agricultural Extension and Training Directorate and its centers as the research site was driven by two key factors. Firstly, this directorate is the principal architect of agricultural extension programs in the region. Secondly, it hosts a large concentration of the target demographic, providing a sufficient population from which to draw a reliable sample for this investigation.

Research population and sampling methodology

The target population for this research was defined as all agricultural extension agents within the organizational structure of the Agricultural Extension and Training Directorate, including its affiliated extension centers. A census-based sampling approach was employed, meaning data was collected from every member of the population (N=159) rather than a subset. The participants were distributed across three administrative units: the central Directorate (n=126), the Abu Ghraib Training and Extension Center (n=19), and the Rashidiya Training and Extension Center (n=14).

Research plan preparation

To create the research plan, we first drafted an initial version by consulting existing research on extension methodologies and conducting interviews with senior agricultural extension managers in Iraq. From this work, we developed an evaluation scale with 72 items. These items are grouped into seven areas that measure the suitability of the extension methodology, including the organization's goals, structure, target farmers, staff, coordination with other groups, use of resources, and available infrastructure.

To establish its face and content validity, the initial plan was distributed via a questionnaire to a panel of agricultural extension specialists from educational, research, and extension institutions. These experts rated their agreement with each proposed area and item on a three-point scale (agree, agree with modification, disagree), which was assigned numerical values of 2, 1, and 0, respectively. The resulting approval scores, calculated as averages, ranged from 83% to 89%. Consequently, three items were removed, while the remaining components of the plan were retained.

This study employed a structured questionnaire comprising 69 items to evaluate the appropriateness of the prevailing extension methodology. The instrument was organized into seven thematic domains critical to extension service delivery:

- Organizational goals (9 items)
- Organizational structure (11 items)
- Characteristics of targeted farmers (11 items)
- Extension employees (11 items)
- Inter-entity coordination and cooperation (11 items)
- Resource utilization (9 items)

- Physical and human infrastructure (7 items)
- Respondents rated each item using two distinct four-point Likert-type scales. The "suitability" scale (weights: 3, 2, 1, 0) gauged the perceived fit of each element, while the "importance" scale (same weights) captured its perceived criticality. Consequently, the potential aggregate scores for both suitability and importance spanned from 0 to 207.

The reliability of the survey instrument was evaluated through a pilot study involving 18 randomly chosen participants. The internal consistency, measured by Cronbach's alpha, was found to be 0.88, indicating a high degree of reliability. Upon ensuring the questionnaire's content validity and overall reliability, the research proceeded to the data collection phase. This involved surveying a population of 159 agricultural extension agents during May 2024. The gathered data were then processed and subjected to statistical analysis using SPSS.

*Research hypothesis**This study is guided by the following hypotheses*

Null Hypothesis (H_0): There is no significant alignment between the current governmental extension methodology employed by the Agricultural Extension and Training Directorate in Iraq and the contemporary requirements of the agricultural sector.

Alternative Hypothesis (H_a): A significant alignment exists between the current governmental extension methodology and contemporary requirements. The adoption of innovative extension methodologies is necessary to enhance the efficiency and effectiveness of agricultural service delivery to the farming community.

Results and Discussion

First: This study assesses the suitability of the methods employed by Iraq's Agricultural Extension and Training Directorate in delivering quality extension services.

Data presented in Table 1 show that agricultural extension agents' perceptions of the current government-led model yielded an average score of 89.23 points on a 207-point suitability scale (with individual scores ranging from 22 to 180). The findings demonstrate that the prevailing approach is largely perceived as insufficient; a majority of respondents (over 50%) considered it unsuitable

for contemporary extension work. This perceived inadequacy is potentially attributed to the method's obsolete framework and a lack of modernization to align with rapid progress in agricultural technology dissemination. A minority of agents (41%) rated the method's suitability as moderate, and only 9% believed it was fully effective. In stark contrast to these low suitability scores, respondents emphasized the critical importance of the criteria for an effective extension method, giving it a high average rating of 206.53 points. This disparity highlights a recognized need to adopt methods that incorporate comprehensive administrative and technical standards to ensure effective service delivery to farmers (Alidu *et al.*, 2022).

Table 1: Survey responses on the appropriateness of the extension organization's strategy in Iraq

No.	Suitability level	Num-ber	Percent-age (%)	Average suit-ability level
1.	Low (22-73 points)	79	50	38.2
2.	Medium (44-125 points)	66	41	85.6
3.	High (126 points and above)	14	9	144.5
	Total	159	100%	Overall aver- age: 89.23

Second: Evaluating the relevance and effectiveness of the extension organization's approach in Iraq based on key criteria

As detailed in Table 2, agricultural extension agents perceive their extension methodology as highly important for achieving the sector's core objectives,

awarding it an average importance rating of 27 points. However, a significant disparity exists between this perceived importance and their view of its current application. The method's appropriateness and effectiveness in meeting these objectives received a notably lower average score of 16.1 points. This indicates that while the method itself is valued, its implementation by the organization is seen as only moderately effective. A majority of agents (over 60%) acknowledge that the existing approach contributes to sustainable agricultural development, boosts productivity and quality, and provides diverse, well-rounded activities that serve various aspects of rural household life. Despite these strengths, a critical shortcoming is noted: more than half of the respondents report that extension goals are misaligned with farmers' genuine needs, the challenges they face, and their financial realities, making these goals impractical.

Critics argue that the current system is inadequate for cultivating a technically proficient farming community capable of leveraging advanced technologies. It is also seen as ineffective at operationalizing government policies into actionable steps for rural communities. This divergence in agent perspectives likely originates from ambiguously defined or poorly communicated organizational goals, inconsistent execution on the ground, and a lack of structured programs for planning and implementing extension initiatives (Khamis *et al.*, 2023). Furthermore, the potential conflation of different extension methodologies may contribute to the problem, as the organization might be applying multiple approaches without a clear understanding of their distinct underlying principles and applications.

Table 2: Frequency and percentage of respondents' perceptions on the extension method's appropriateness in Iraq

No.	The adopted extension approach should achieve the following	Average importance	Average suitability	Percent-age weight	Rank
1.	Effective contribution to achieving sustainable agricultural development	3	2.28	76	1
2.	Striving to increase production, and improve its quality and type	3	2.03	67.6	2
3.	Developing and adapting agricultural innovations according to the agricultural environment	3	1.74	58	6
4.	Achieving economic and social welfare for rural community members	3	1.95	65	3
5.	Ability to translate government policies, and objectives to rural people	3	1.24	41.3	8
6.	Striving to create a technical farming community that relies on technology	3	1.62	54	7
7.	Providing diverse, and comprehensive extension activities (livestock production, field crops, orchards, capacity building for rural women)	3	1.86	62	4
8.	Creating a community capable of dealing with problems, and finding solutions	3	1.80	60	5

Organizational structure

It is widely recognized that for any extension approach to be effective, an organization must establish an administrative structure that aligns with, and supports its objectives. According to a study involving agricultural extension agents, respondents highly emphasized the importance of organizational structure standards, within the extension methodology, with an average importance rating of 32.53 points. However, the perceived suitability of the current structure was relatively low, scoring only 17.54 points on average. This suggests that the existing framework fails to incorporate many essential organizational standards. Despite these shortcomings, over 80% of respondents indicated that the current extension approach complies, with the organization's regulations and provides clear job descriptions, effectively outlining the roles of extension agents. However, the Table 3 shows approximately 60% reported issues such as overlapping authority, limited decision-making flexibility, and an organizational hierarchy that restricts active participation in decision-making. These findings highlight a significant contradiction with the principles of the government-led extension model in use (Chawan and Tahir, 2023). The observed discrepancies may stem from the outdated nature of the governmental approach, frequent restructuring of the extension organization's departments, and rapid

shifts in management practices (Al-Hafidh and Lafta, 2024).

Targeted farmers

Table 4 reveals a pronounced disparity between the extension methods currently in use and the expectations of farmers, with the method's appropriateness receiving a notably low average score of 13.66. In contrast, extension agents express strong agreement on the key criteria for enhancing farmer capabilities, which received a much higher average of 33 points. The data show that over 40% of respondents believe the approach disregards farmer feedback and the scale of their agricultural enterprises when designing and executing programs. A majority of participants (over 65%) also identified a significant gap in farmers' comprehension of the government's extension strategy. Consequently, the current system is ineffective in meeting local needs, excludes certain rural communities, and offers incomplete geographical coverage. Al-Hafidh and Lafta (2023) attribute these shortcomings to a lack of a clear, participatory strategy, where programs are designed with centrally-defined objectives that overlook on-the-ground realities. Additional contributing factors include limited resources, insufficient technical and administrative capacity, and frequent leadership changes that often install managers lacking relevant extension experience.

Table 3: *Evaluation of the extension organization's methodology in alignment with the agricultural extension and training directorate's structure*

No.	The adopted extension approach should include the following criteria	Average importance	Average suitability	Relative weight	Rank
1.	Provides job descriptions that define the roles of agricultural extension agents	3	2.41	80.3	2
2.	Adopts the principle of administrative decentralization in the planning and implementation of extension activities	2.94	1.54	51.3	5
3.	The adopted extension approach aligns significantly, with the organizational structure of the extension organization	2.97	1.38	46	8
4.	Allows mutual communication between superiors and subordinates	3	1.43	47.6	7
5.	The scope of supervision for the number of agricultural extension agents is appropriate	3	1.57	52.3	4
6.	Provides administrative flexibility allowing the agricultural extension agent to make decisions	2.92	1.15	38.3	10
7.	The extension approach does not conflict with the regulations, and laws of the extension organization	3	2.52	84	1
8.	Allows participation in the decision-making process	2.90	1.33	44.3	9
9.	Stability of the organizational structure without significant changes	2.82	1.49	49.6	6
10.	Communication within the organization is fast and effective	2.98	1.64	54.6	3
11.	No conflict of authority within the department	3	1.08	36	11

Table 4: *Effectiveness and suitability of extension strategies for intended farmers*

No.	The adopted extension approach should consider the following criteria	Average importance	Average suitability	Relative weight	Rank
1.	The economic and social level of farmers	3	1.36	45.3	4
2.	The ability to convey farmers' problems, needs, and interests to higher authorities	3	1.17	39	7
3.	The problems and needs they suffer from	3	0.92	30.6	10
4.	The size of agricultural and animal holdings	3	1.75	58.3	2
5.	Inclusion of all categories of rural population	3	1.04	34.6	9
6.	The level of trust and satisfaction of farmers with the extension services provided	3	1.28	42.6	5
7.	Farmers' response to agricultural extension activities	3	1.77	59	1
8.	Adapting extension messages to suit different regions	3	1.20	40	6
9.	Coverage of extension activities for all agricultural areas and the largest number of farmers	3	1.11	37	8
10.	Farmers' awareness of the characteristics, and features of the extension approach	3	0.69	23	11
11.	Farmers' participation in various extension activities	3	1.37	45.6	3

Table 5: *Significance and applicability of the curriculum implemented by the advisory organization for agricultural extension advisors*

No.	The adopted extension approach should consider the following criteria	Average importance	Average suitability	Relative weight	Rank
1.	Provides agricultural extension agents, and skills to perform extension tasks	3	1.22	40.6	3
2.	Allows agricultural extension agents to participate in formulating extension objectives	3	1.06	35.3	8
3.	Ensures that the number of agricultural extension agents is sufficient to cover all extension activities	3	0.85	28.3	10
4.	Diagnoses farmers' problems, and needs and translates them into scientific solutions	3	1.18	39.3	5
5.	Emphasizes the responsibility of agricultural extension agents, towards the rural population in their working area	3	1.13	37.6	7
6.	Contributes to the planning, implementation, and evaluation of extension programs	3	1.19	39.6	4
7.	Encourages creativity, and innovation among the staff of the extension system	3	1.55	51.6	1
8.	Facilitates the understanding of agricultural extension agents about their job tasks, and enhances their performance	3	1.48	49.3	2
9.	Provides training, and promotion opportunities within the extension approach	3	0.95	31.6	9
10.	Ensures broad delegation of authority	3	0.83	27.6	11
11.	Creates an environment within the organization that promotes diligent work	3	1.16	38.7	6

Workers in the advisory service

A successful organizational advisory framework must fundamentally focus on advancing the competencies and skills of its personnel. Research indicates that agricultural advisors strongly endorse the standards a modern advisory curriculum should include, assigning them a high average importance score of 33 degrees. Despite this, the current curriculum's alignment with

these expected standards is significantly lacking, achieving a markedly lower average relevance score of just 12.6 degrees (as presented in Table 5). This substantial gap demonstrates that the existing curriculum is inadequate for properly developing the capabilities of staff within the agricultural advisory service.

Table 6: Significance and applicability of the advisory organization's curriculum based on coordination, integration, and collaboration with stakeholders

No.	The Adopted Extension Approach Should Consider the Following Criteria	Average importance	Average suitability	Relative weight	Rank
1.	Effectiveness of coordination, integration, and cooperation with agricultural research organizations and other entities	3	1.08	36	2
2.	Ensures consistency and alignment in tasks and functions within related organizations	3	0.97	32.3	5
3.	Joint planning of work programs, between agricultural extension and related organizations	3	0.70	23.3	9
4.	Understanding of integration in setting goals, and work projects with other organizations	3	1.02	34	4
5.	Clear communication lines with related organizations	3	1.18	39.3	1
6.	Established and approved rules within the extension organization for coordination with other organizations	3	0.74	24.6	8
7.	Existence of permanent, and temporary independent committees for coordinating work with related organizations	3	0.81	27	6
8.	Reliance on information technology for coordination with other organizations	3	0.78	26	7
9.	Sufficient financial budget to cover coordination activities with other organizations	3	0.56	18.7	11
10.	Joint research teams to coordinate, with related organizations to diagnose problems, in the agricultural sector and propose solutions	3	1.06	35.3	3
11.	Existing regulations, and legislation governing the relationship with other organizations	3	0.61	20.3	10

Opinion among advisors is divided. Nearly half of the respondents feel the curriculum fosters creativity and innovation, aids in comprehending job responsibilities, and ultimately improves their performance. In contrast, a significant majority—approximately 70%—report several critical deficiencies. These include a lack of broad delegation of authority, an insufficient number of advisors to cover all required activities, and a failure to provide adequate training and promotion opportunities. Furthermore, most advisors are excluded from participating in the formulation of advisory objectives. This disconnect may be attributed to several factors. The advisory organization appears to prioritize media-based outreach over field advisory work, and its modern administrative leadership may lack necessary expertise. There also seems to be a fundamental misunderstanding of the standards underpinning the government-mandated curriculum. Finally, the curriculum itself is likely outdated, failing to incorporate contemporary systems that could significantly enhance the effectiveness and impact of advisory work (Al-Shafei, 2010).

Coordination, integration, and cooperation with relevant entities

As illustrated in Table 6, respondents strongly

affirm the importance of coordination between advisory organizations and related entities, with data showing a high average importance rating of 33 degrees. Despite this recognized value, a significant contradiction emerges in practice. A majority of respondents perceive the advisory organization's curriculum as failing to adequately incorporate coordination with educational, research, and supply institutions, a perception underscored by a notably low average relevance score of 9.51 degrees. This indicates minimal substantive engagement with these key stakeholders.

The data further reveals several operational deficiencies: over 60% of respondents cite unclear communication channels with relevant organizations, insufficient collaboration with agricultural research bodies, and a complete absence of joint research initiatives. These deficiencies obstruct coordinated efforts to identify and address critical agricultural challenges. Compounding these issues, more than 75% of respondents report a lack of joint planning for work programs between agricultural advisory services and other organizations. This is exacerbated by an absence of formal regulations or legislation governing these relationships and a shortage of budget allocated

Table 7: Significance and applicability of the advisory organization's curriculum based on optimal resource utilization

No.	The adopted extension approach should consider achieving the following	Average importance	Average suitability	Relative weight	Rank
1.	Attracting highly skilled agricultural extension agents	3	1.75	58.3	2
2.	Optimal utilization of available human resources	3	1.27	42.3	6
3.	Agricultural extension agents undergoing rigorous testing	3	1.16	38.7	7
4.	The extension organization relies on modern technology to accomplish its tasks	3	1.79	59.6	1
5.	Having a modern communication network to connect all departments, within the extension organization	3	1.52	50.7	4
6.	Employees in the extension organization possessing advanced technology skills	3	1.47	49	5
7.	The extension organization spending significant funds for training, and skill development of employees	3	0.97	32.3	9
8.	Flexibility and speed in completing extension tasks	3	1.68	56	3
9.	The employees in the organization	3	1.05	32	8

specifically for coordination activities. This widespread neglect and weak institutional relationship may be fundamentally attributed to the absence of common program objectives, with each organization operating independently (Bakari *et al.*, 2023). This lack of integrated focus likely stems from previous advisory curricula that failed to emphasize the critical need for coordination and integration with research, educational, health, and other pertinent institutions (Abdulmumini *et al.*, 2022).

Utilization of available resources

As detailed in Table 7, respondents strongly endorse the integration of specific standards for the effective use of capabilities and resources into the advisory curriculum, a position underscored by its high average importance score of 27. However, they perceive the current curriculum as inadequate in applying these standards, evidenced by a significantly lower average relevance rating of 12.66. This indicates that while the existing curriculum offers some foundation for optimizing resource use within advisory organizations, substantial deficiencies are present. Further criticism emerged regarding the curriculum's practical application. Between 40% and 50% of respondents reported a lack of flexibility and efficiency in completing advisory tasks, as well as a failure to attract highly skilled agricultural advisors. Respondents also indicated that advisory organizations are not adequately utilizing modern technology to enhance their operational effectiveness.

Moreover, a majority of 60% to 70% of agricultural advisors believe their organization allocates insufficient

funding for staff training and development. They also noted that developmental training programs are not offered on a continuous basis to improve staff performance and that advisors are not subject to rigorous competency testing. Collectively, these findings provide clear evidence that the currently adopted curriculum fails to meet the developmental and capacity-building requirements of agricultural advisors. Consequently, it does not facilitate the optimal investment of an organization's financial and human resources (Khemis *et al.*, 2025).

Material and human resources

The success of any organization is fundamentally dependent on its access to adequate human, material, and infrastructural resources. As detailed in Table 8, survey respondents unanimously affirmed that sufficient personnel and physical assets are critical for an effective advisory curriculum, awarding this factor a high average importance score of 21. However, they reported a significant deficit in the actual availability of these essential resources, which received a markedly lower average relevance score of just 7.16. This stark disparity highlights a critical misalignment between the advisory curriculum's requirements and the organization's current resource capacity.

A majority of respondents indicated a belief that there is a shortage of advisory staff possessing the necessary experience and qualifications to perform their duties effectively. Furthermore, they reported that the existing infrastructure is inadequate to support the efficient execution of advisory work. This includes a pronounced lack of sufficient

Table 8: *The value and feasibility of the advisory organization's curriculum considering material and human resources*

No.	For the extension approach to achieve its goals, the following must be provided	Average importance	Average suitability	Relative weight	Rank
1.	Adequate numbers of agricultural extension agents to cover extension activities at all levels	3	0.94	31.3	5
2.	Sufficient financial and material resources to ensure the continuity of extension work	3	0.85	28.3	6
3.	Suitable transportation means to ensure continuous follow-up of extension activities	3	1.07	35.7	3
4.	Adequate numbers of extension aids and devices necessary to implement extension activities	3	1.02	34	4
5.	Adequate infrastructure to ensure the efficient and effective conduct of extension work	3	1.14	38	2
6.	Extension staff with sufficient expertise and qualifications to perform extension tasks	3	1.33	44.3	1
7.	Suitable halls and buildings to implement extension tasks optimally	3	0.81	27	7
Total amount		21	7.16	238.6	-

and appropriate transportation, which hinders the continuous monitoring of advisory activities. Compounding these issues, over 70% of agricultural advisors reported a shortage of suitable facilities, such as halls and buildings, for the optimal performance of their tasks, and noted that financial and material resources are insufficient to ensure proper operations. This widespread resource scarcity stands in direct contrast to the demands of the government-mandated advisory curriculum. As noted by [Al-Ta'iy et al. \(2020\)](#), this curriculum necessitates a large contingent of agricultural advisors, a reliable transportation fleet, and substantial financial backing to comprehensively cover advisory activities throughout Iraq. The current situation, therefore, represents a significant operational challenge.

Conclusions

The analysis yielded the following conclusions

- The existing advisory curriculum utilized by Iraqi agricultural extension bodies, such as the Directorate of Agricultural Extension and Training, is deficient in both quality and relevance. It is inadequate for delivering effective advisory services and fails to adapt to the evolving demands of the field, particularly in integrating technological progress for agricultural enhancement.
- Perceptions from agricultural advisors indicate a misalignment between the current curriculum and the strategic goals of the extension organization. Furthermore, the institution's organizational structure is incompatible with the duties outlined

in the government curriculum. This structural deficiency manifests as internal authority conflicts, a lack of procedural flexibility that prevents advisors from contributing to decisions, and severely weakened vertical communication channels.

- Curriculum and Staffing Shortcomings: The existing agricultural curriculum fails to align with the core challenges and aspirations of the farmers it intends to serve. Advisory programs reach only a small fraction of the target population and neglect the holistic needs of rural families. Furthermore, the system stifles innovation among staff, suffers from a critical shortage of advisors, and offers limited opportunities for training, advancement, or delegation of authority.
- Systemic Coordination Failures: Weak communication and poor coordination with partner organizations, exacerbated by the current curriculum, hinder effectiveness. There is a significant underutilization of available human and material resources. Compounding this issue, the existing infrastructure and resources within the Directorate of Agricultural Extension and Training are incompatible with the demands of the advisory program. This combination of factors severely impedes the planning, execution, and ultimate success of extension activities.

Recommendations

In light of the conclusions, the study recommends the following:

- Adoption of Integrated Advisory Frameworks:

Iraqi advisory organizations should systematically integrate a suite of modern methodologies—including digital extension (e-extension), participatory action research, and commodity-focused systems—while phasing out or significantly overhauling outdated models. To ensure successful implementation, a mandatory awareness and training program must be established for all employees to clarify the purpose and operational mechanisms of each approach.

- **Organizational Restructuring:** To fully leverage these new methodologies, the organizational architecture of advisory bodies must be redesigned. This restructuring should ensure structural harmony with the chosen approaches, define precise roles and responsibilities for each advisor, and foster an environment that encourages staff participation in institutional decision-making.
- The design of agricultural advisory initiatives should be predicated on a deep understanding of farmers' needs. Raising awareness of the curricula's structure and objectives is a critical first step. Furthermore, these programs and their delivery mechanisms must be customized to be relevant and accessible across the diverse spectrum of agricultural systems and rural populations.
- Given their pivotal role as agents of change, agricultural advisors require continuous professional development. Advisory curricula must therefore prioritize enhancing advisors' capabilities and knowledge. This is achieved by involving them in strategic planning, delegating decision-making authority, providing training and career advancement paths, and actively encouraging innovative practices.
- **Foster Strategic Partnerships:** Develop a formal framework of regulations and protocols to guide collaboration with organizations that share common objectives. This includes establishing joint planning committees for agricultural programs, aligning on integrated goals and projects, and securing dedicated funding to ensure these cooperative efforts are sustainable.
- **Invest in Advisory Capacity:** Strengthen the agricultural extension service by recruiting highly skilled advisors and maximizing the use of existing resources through modern technology. This requires providing adequate numbers of trained personnel, supported by the necessary infrastructure, funding, and tools to perform their duties effectively.

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Novelty Statement

This work offers a novel contribution as the first systematic analysis of the Iraqi agricultural extension curriculum. The investigation employs a unique tripartite framework—encompassing administrative, organizational, and human capital dimensions—to evaluate pedagogical efficacy. Principal outcomes indicate a substantial divergence between the curriculum's strategic goals and the empirical realities of agricultural advisory services, highlighting deficits in stakeholder engagement. Consequently, this study proposes a roadmap for systemic curriculum reform to strengthen extension support for Iraq's farming sector.

Authors Contributions

Jasim Mohammed Saleh: The manuscript was written.

Najwa S. Ali: It was checked the data and Analyzed.

Sadam A. Haskah: Proofreading of the manuscript.

Adnan Ibrahim Khamis: Research Methodology and Questionnaire Design.

Alzubair M Sagheer: Journal formatting.

Generative AI and AI-assisted technology statement

The authors declare that no generative AI and AI assisted technology was used in the creation of this manuscript.

Conflict of interest

Authors declare that there is no conflict of interest. The research was carried out by the efforts of the researchers only, without support from any

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