August 2024 Thematic Report

Agriculture and Livestock in Northern Syria Amidst Conflict

ACU ASSISTANCE COORDINATION UNIT
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Quotation:
This report can be referenced when quoting the following image: "Agriculture and Livestock in Northern Syria Amidst Conflict" ACU/IMU.

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1- Executive Summary

Northern Syria's agricultural and livestock sectors, vital for food security and economic stability, face severe challenges due to ongoing conflict and instability. A survey by the Information Management Unit (IMU) at the Assistance Coordination Unit (ACU) in June 2024 highlighted critical issues and provided actionable recommendations for revitalizing these sectors. The survey, conducted over five days, included 1,516 key informants with a 95% confidence level and a 3% margin of error. Participants comprised 1,386 males and 130 females. Additionally, surveys covered 374 agricultural engineers (352 males, 22 females) and 237 veterinarians (227 males, ten females).

Key Findings

- The agricultural sector is predominantly male since 91% of male respondents participated in this study, with limited participation from women (9%).
- The survey indicates that 56% of people with disabilities do not participate in agricultural or marketing activities, while 44% are involved to varying extents.
- The main crops include wheat (24%), barley (22%), and vegetables (18%), while the primary trees planted are olive trees (32%) and grapes (19%).
- Adoption of sustainable practices like crop rotation is low (38%).
- Harmful pesticide use and outdated methods are prevalent, with limited adoption of biogas and compost practices due to barriers such as limited livestock, high raw material costs, and lack of skills.
- The age distribution of agricultural workers is 26% under 18, 64% between 19 and 60, and 10% over 60.
- The conflict has damaged infrastructure, limited market access, and displaced communities.
- Armed factions and local authorities exert varying levels of influence over agricultural practices.
- Water shortages critically affect crop yields, exacerbated by high fuel prices and inefficient water management.
- Environmental pollution, including soil, water, and air, significantly hinders agricultural growth.
- Gaps in environmental awareness (62% unaware) and compliance with guidelines (55% non-compliance)
- 85% of some types of crops, such as olives, wheat, and legumes, are exported to neighboring markets.
- Trade restrictions lead to market access difficulties and reduce economic growth.
- 76% lack recent training in soil management and crop rotation.
- The agricultural sector urgently needs modern irrigation systems and soil analysis laboratories.
- Livestock is crucial for job opportunities, income, and food security but faces challenges such as high production costs, inadequate funding, and climate impacts.
- Insufficient support from international and local organizations; for example, only 48% receive limited financial support, and 30% receive nothing.
- Private-sector interventions are crucial for growth.

A comprehensive set of recommendations has been proposed to address the numerous challenges facing Northern Syria's agricultural and livestock sectors. Key among these is the need to increase investment in sustainable water management and market infrastructure, which will help reduce spoilage and improve access. Providing scientific training in soil management and crop rotation is essential to promote sustainable agricultural practices. Additionally, boosting funding for agriculture and livestock and equipping farmers with modern technology, such as irrigation systems and soil analysis laboratories, will significantly enhance productivity. Developing supportive agricultural policies and adjusting trade policies to improve international market access is crucial for economic growth. Improving livestock management through better breeding, feed quality, and healthcare practices, alongside establishing infrastructure for livestock health and processing, will ensure the sector's sustainability.

Furthermore, increasing women's participation in agriculture through targeted outreach and support programs is essential for fostering gender equality and enhancing economic contributions. Addressing child labor by promoting education and safe working conditions is crucial for protecting children's rights and prospects. Additionally, ensuring people with disabilities are included in agricultural activities through dedicated inclusion programs will help leverage their potential and improve their livelihoods. Finally, strengthening agricultural extension units to provide farmers with ongoing support, training, and resources is vital for maintaining the region's long-term agricultural development and resilience. Implementing these recommendations will collectively enhance food security and economic stability in Northern Syria.

2- Background, Objectives & Methodology

Background and Objectives:

Northern Syria has experienced significant upheaval over the past decade due to ongoing conflict and political instability. Historically known for its fertile agricultural lands and robust livestock production, the region has faced numerous challenges that have severely impacted its agricultural sector. Infrastructure damage, displacement of farming communities, and disrupted supply chains have compounded the difficulties local farmers and livestock producers face. Despite these challenges, agriculture remains a crucial component of food security and economic stability in Northern Syria. Understanding the current state of this sector is vital for informing policy decisions and intervention strategies aimed at revitalizing the region's agricultural productivity and sustainability.

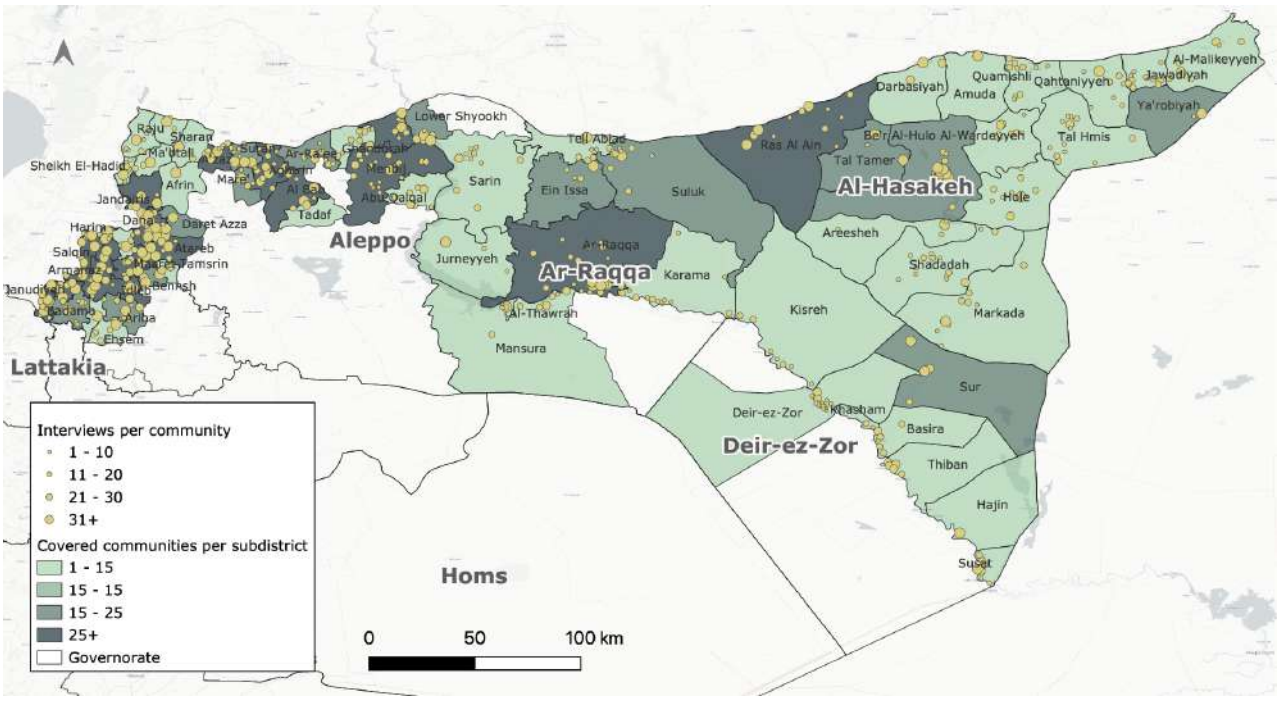
This survey, conducted by the Information Management Unit (IMU) at the Assistance Coordination Unit (ACU), aimed to assess the key factors and components of the agriculture and livestock sectors that contribute to food security and economic development in Northern Syria. It focused on evaluating the availability and accessibility of resources, identifying strengths and weaknesses within the sectors, and understanding the significant challenges farmers and livestock producers face.

Methodology:

The study conducted face-to-face key informant interviews and surveys with agricultural engineers and veterinarians to gather comprehensive data on the agricultural and livestock sectors in Northern Syria in June 2024. A sample of 1,516 key informants were interviewed, ensuring a 95% confidence level and a margin of error of 3%. Over five working days, the interviews included 1,386 male and 130 female participants. Additional KII surveys were conducted and included 352 male and 22 female agricultural engineers and 227 male and ten female veterinarians, totaling 374 and 237, respectively. Enumerators used smartphones to submit information through the ONA application, with team leaders and network coordinators monitoring daily progress and providing solutions to obstacles. The information management team oversaw submissions to ensure data quality and storage.

Location	Key Informant Interviews		Agricultural Engineer Surveys		Veterinarian Surveys	
	Male	Female	Male	Female	Male	Female
Aleppo	389	38	101	4	58	2
Idleb	586	33	140	6	86	3
Al-Hasakeh	219	41	58	7	38	3
Ar-Raqqa	119	6	37	2	25	1
Deir-ez-Zor	73	12	16	3	20	1
Total	**1386**	**130**	**352**	**22**	**227**	**10**

Map 1: Distribuation of Study Participants & Covered Communities.

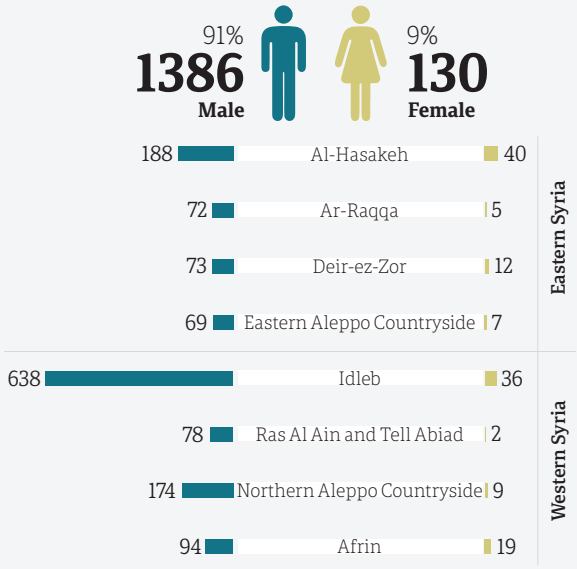


3- Demography

Gender of Participants

The survey revealed a significant gender imbalance among participants, with males constituting 91% and females 9% of the total respondents. This distribution highlights the predominance of male involvement in the agricultural sector within the region.

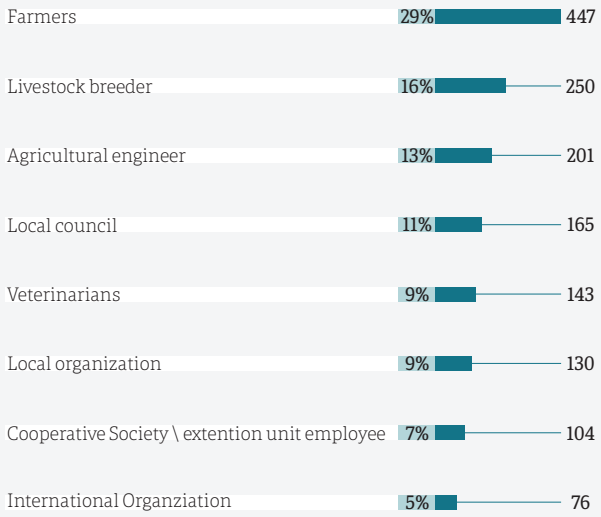
Figure 1: Gender Distribution



Information Source

The information was collected from various stakeholders, including farmers, agricultural engineers, local councils, NGOs, and farmer cooperative societies.

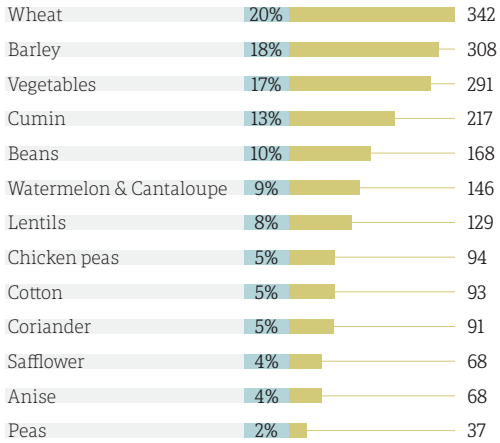
Figure 2: Information Source



4- Agriculture

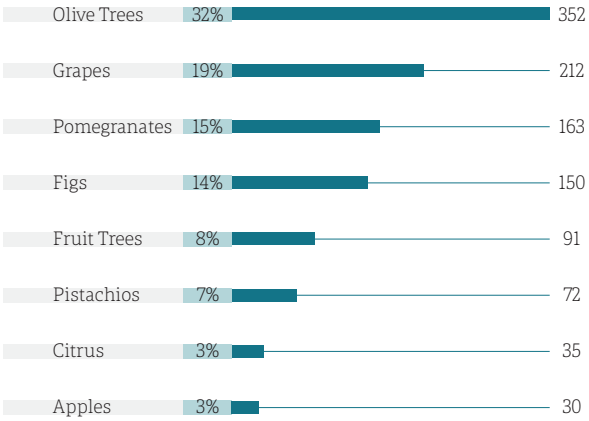
Agricultural Engineer Survey: Main Crops Grown

Figure 3: Primary Local Crop Varieties



Agricultural Engineer Survey: Main Trees Planted

Figure 4: Dominant Local Tree Species



Veterinarian Survey: Agricultural Areas for Forage Crops and Types of Forage Crops

Figure 5: Availability of Forage Crop Areas Locally

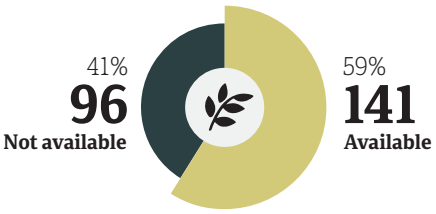
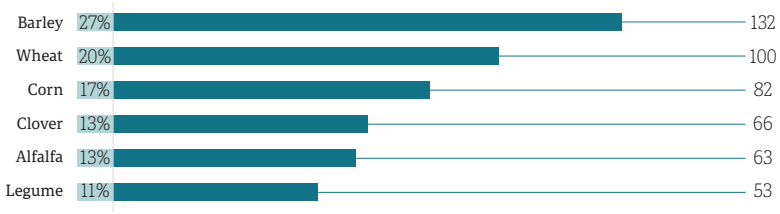


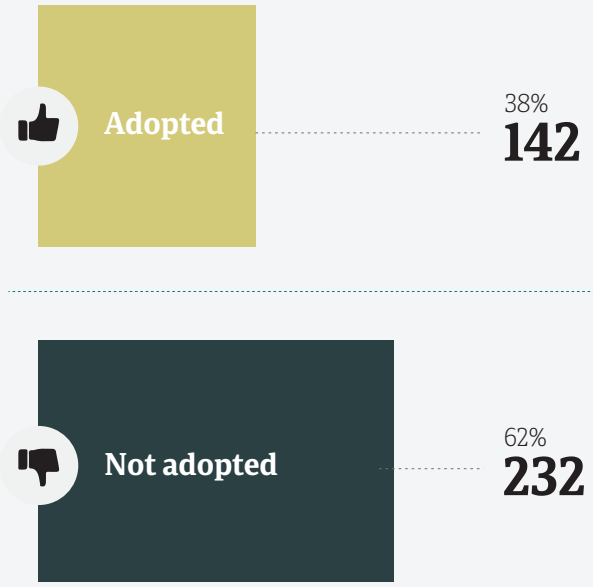
Figure 6: Local Varieties of Forage Crops



Agricultural Engineer Survey: Adoption of Crop Rotation Practices

The farmers' adoption of crop rotation and soil management practices in North Syria presents a mixed landscape. While a significant number of farmers have embraced these sustainable agricultural techniques, a larger group remains hesitant or unable to implement them. This divergence suggests potential barriers such as lack of resources, training, or awareness.

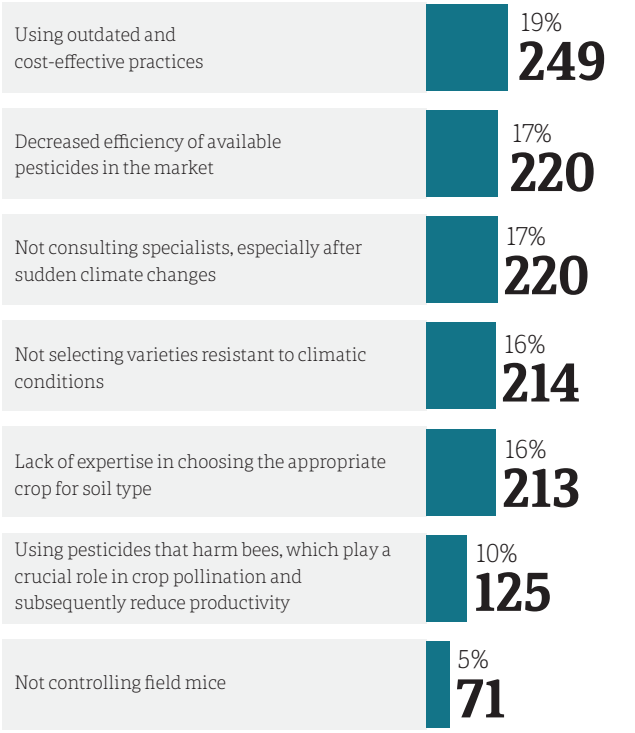
Figure 7: Adoption of Crop Rotation Practices by Farmers



Agricultural Engineer Survey: Practices Affecting Crop Health and Productivity

In Northern Syria, outdated agricultural practices and harmful pesticide use are reducing crop health and productivity. Key issues include inadequate pest control, lack of expertise in crop selection, and reliance on inefficient methods.

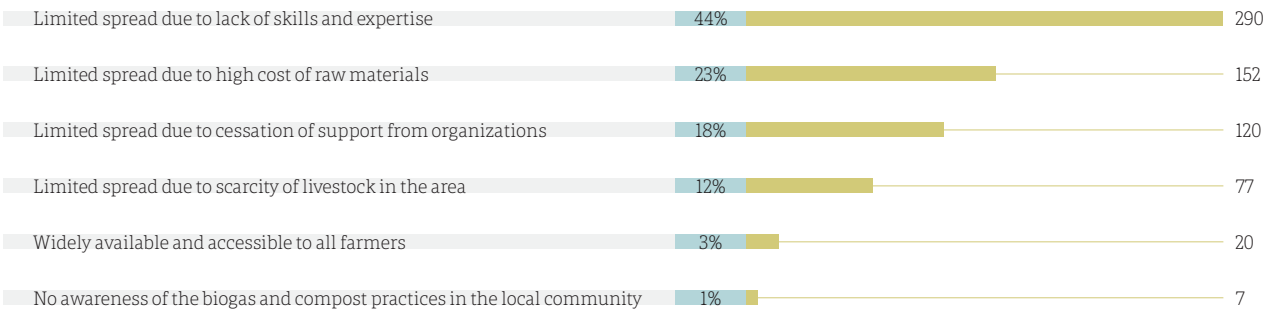
Figure 8: Impact of Agricultural Practices on Crop Health and Productivity



Agricultural Engineer Survey: Spread and Reliance on Biogas, Organic Fertilizers, and Sustainable Agricultural Practices

In Northern Syria, the adoption of biogas and compost practices is hindered by several factors, including limited livestock availability, the cessation of organizational support, high raw material costs, and a significant lack of skills and expertise. Despite the potential benefits, these barriers reveal a critical need for targeted educational programs, financial support mechanisms, and resource accessibility to foster widespread implementation of sustainable agricultural practices in the region.

Figure 9: Adoption of Biogas and Compost Practices Locally

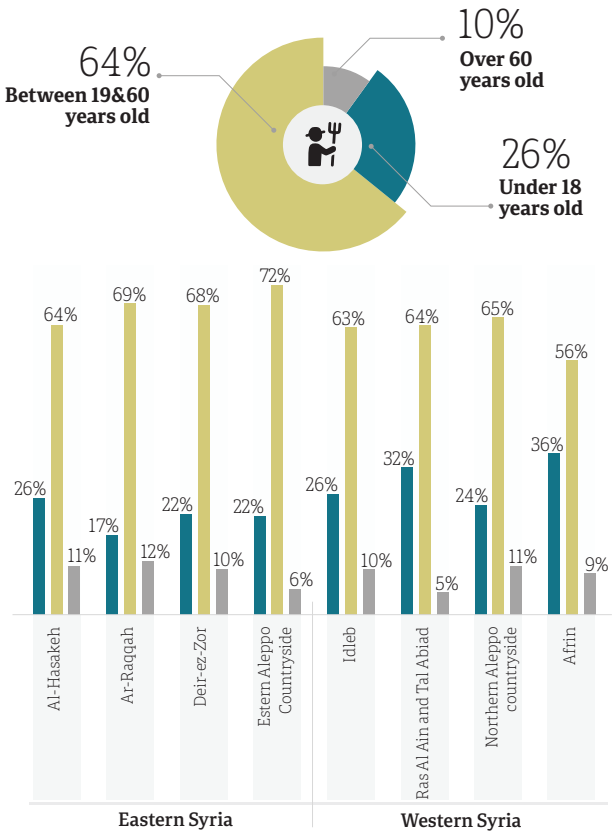


5- Workers in the Agricultural Sector

Percentage of Workers in Agriculture by Age

The agricultural workforce in Northern Syria is predominantly composed of individuals between 19 and 60 years old, indicating a strong backbone of working-age labor driving the sector. However, the notable involvement of those under 18 and over 60 underscores a reliance on the very young and elderly. The significant presence of under-18s highlights the troubling issue of child labor, reflecting economic hardships and the urgent need for intervention.

Figure 10: Percentage of Workers in Agriculture by Age



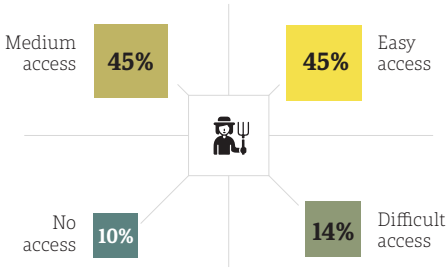
Women's Participation in Agriculture

Women's participation in agriculture remains limited, and there is a need for awareness and support programs to enhance their role. The study revealed that 36% of participants indicated that the percentage of women's participation ranges between 60-79%, while 25% believed it falls between 40-59%, and 22% estimated it to be between 20-39%. The highest estimates (80-100%) came from 10% of the participants, while 7% stated that women's participation is below 20%.

Figure 11: Women's Participation in Agriculture

The Impact of Women's Participation on Market Access

Figure 12: The impact of women's participation on market access and agricultural product marketing



People with Disabilities Engagement in Agriculture

The survey reveals that 56% of people with disabilities do not participate in agricultural or marketing activities, while 44% are involved to varying degrees. This highlights a need for targeted inclusion programs in the agricultural sector.

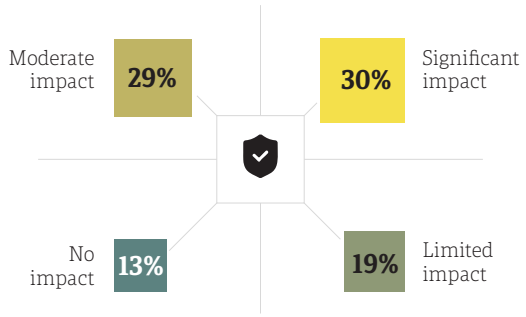
Figure 13: People with Disabilities Engagement in Agriculture

6- Conflict Impact on the Agricultural Sector

Impact of the Security Situation on Agricultural Growth

The ongoing conflict has severely impacted agricultural growth by damaging infrastructure, limiting market access, and displacing farming communities.

Figure 14: Impact of the Security Situation on Agricultural Growth



Intervention Levels of Armed Factions and Local Authorities

Armed factions and local authorities influence the availability of fuel, marketing, infrastructure, and technical support, and their impact varies significantly. These influences impact the effectiveness and sustainability of agricultural practices.

Figure 15: The intervention of armed factions on the growth of the agricultural sector

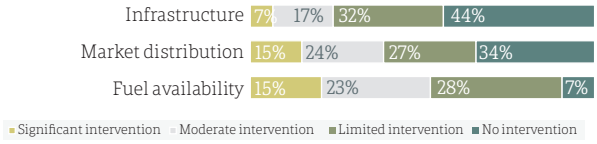
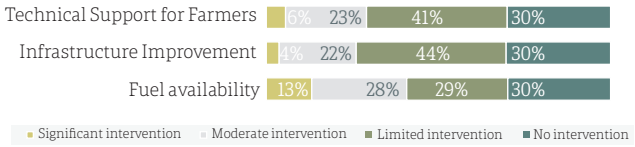
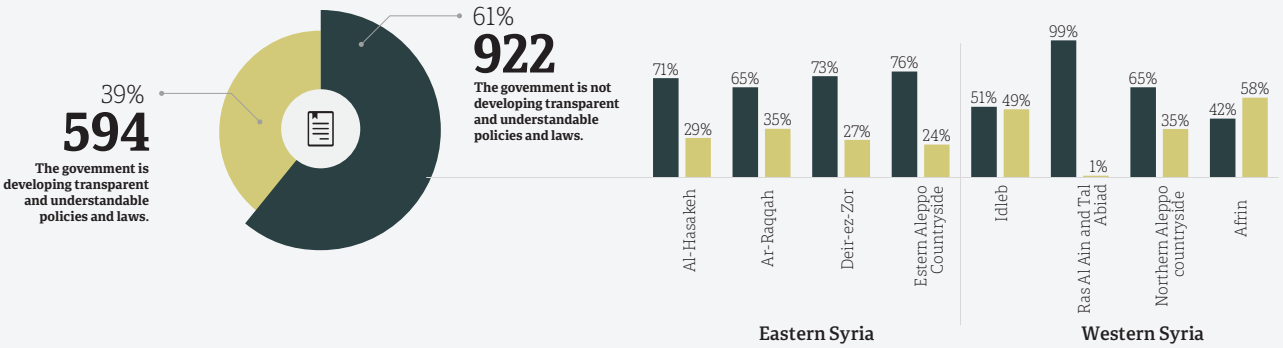


Figure 16: The intervention of local authorities on the growth of the agricultural sector



Impact of Government Policies and Laws on Sustainable Agricultural Growth

Figure 17: Government Efforts in Promoting Sustainable Agricultural Policies



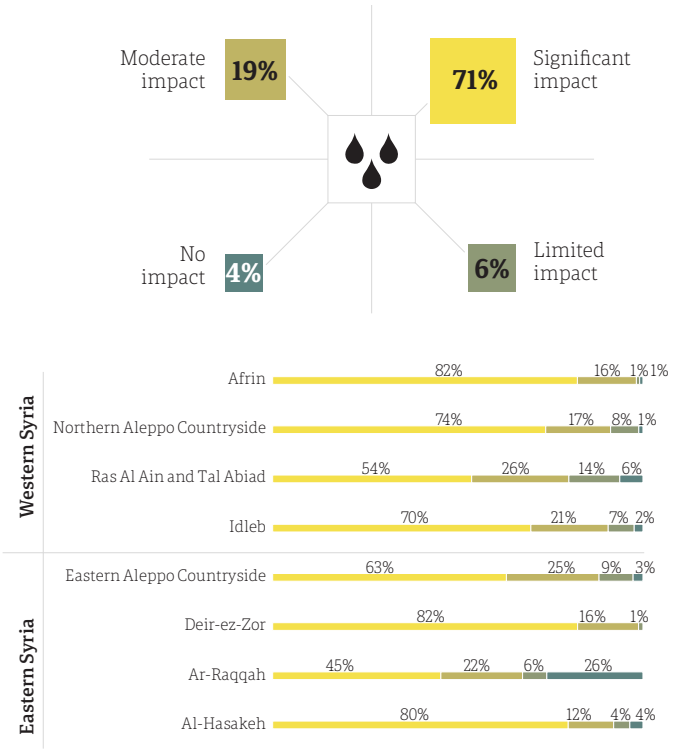
Reuters/Abdalghne Karoof

7- Water Resource Shortages

Impact of Water Shortages on Agriculture

Water shortages are a significant challenge, impacting crop yields. Efficient water management practices are critical for sustaining agricultural productivity.

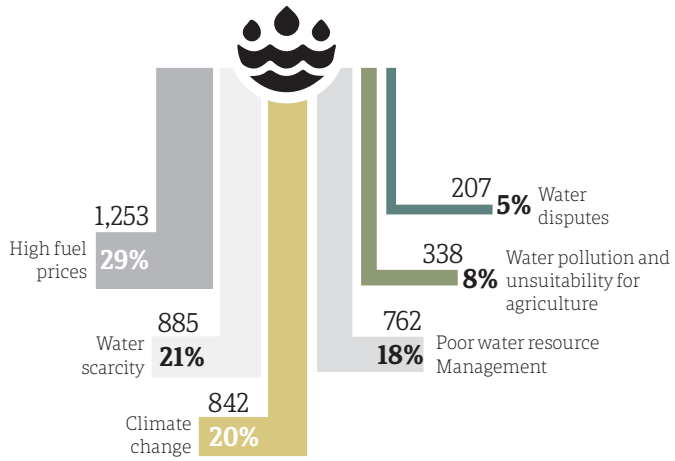
Figure 18: Impact of Water Shortages on Agriculture



Main Challenges Related to Water Resources, Needs, and

The agricultural sector in Northern Syria faces significant challenges related to water resources. High fuel prices make it difficult to pump and transport water, exacerbating the already critical issue of water scarcity. Compounding these challenges are the impacts of climate change, which disrupt traditional rainfall patterns and reduce water availability, as well as inefficient water management practices that fail to optimize the limited water resources. Addressing these issues requires a multi-faceted approach that includes investment in sustainable water management technologies, policies to stabilize fuel costs, and strategies to mitigate the impacts of climate change.

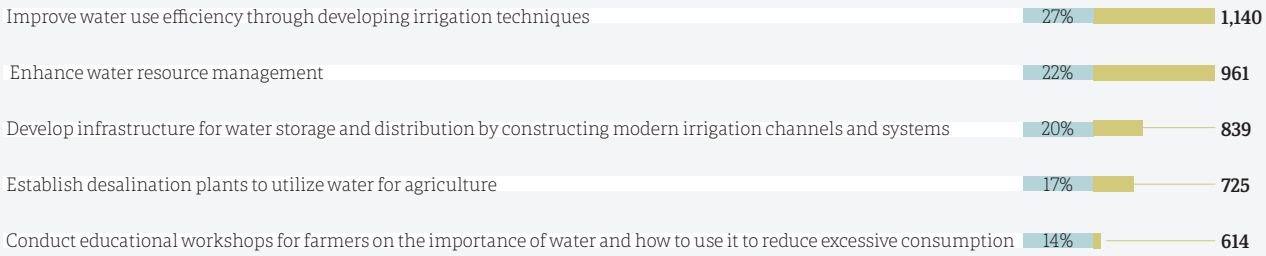
Figure 19: Main Challenges in Water Resources



Needs and Recommendations for Water Resources

Due to the ongoing conflict and instability, Northern Syria's pressing need to combat water scarcity through education, innovation, and infrastructure improvements remains largely unmet. Implementing sustainable farming practices and improving water management are crucial steps for ensuring food security and economic stability.

Figure 20: Needs and Recommendations for Water Resources

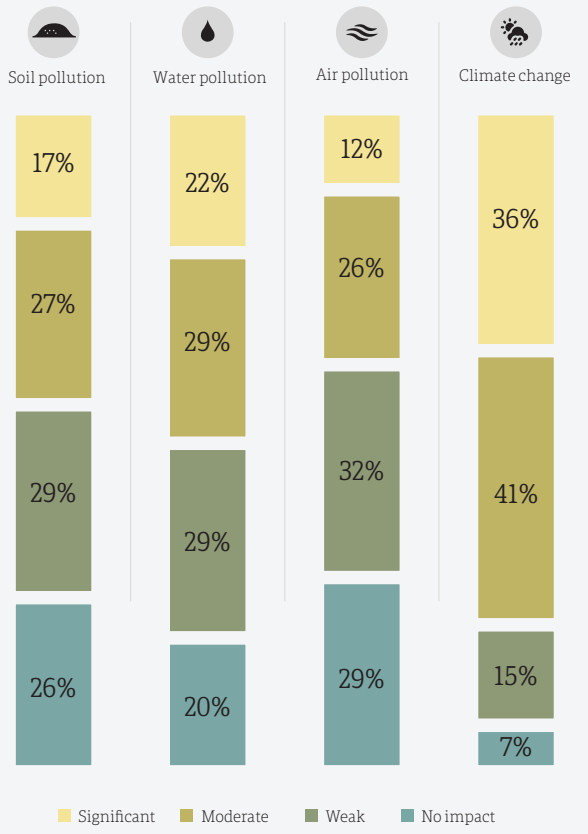


8- Environmental Pollution

Impact of Environmental Pollution on Agriculture

Environmental pollution significantly hinders agricultural growth in Northern Syria, with climate change and water pollution being the most impactful.

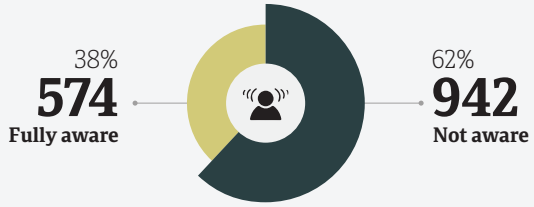
Figure 21: Environmental Pollution Effect on Agricultural Growth



Awareness and Compliance with Agricultural Guidelines

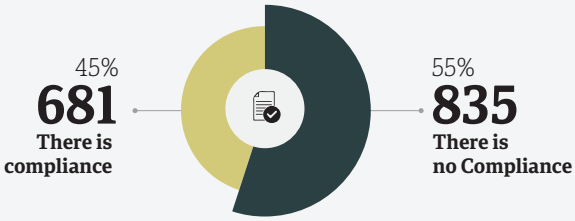
In Northern Syria, the data reveals a concerning gap in awareness, with 38% of respondents unaware of the environmental impacts on agriculture. This lack of awareness presents a critical barrier to implementing effective mitigation strategies against external factors such as climate change, water scarcity, and soil degradation.

Figure 22: Awareness of Environmental Impacts on Agricultural Growth



Moreover, the data indicates a concerning 45% non-compliance rate with agricultural guidelines, posing significant risks to crop protection and sustainability. This lack of adherence to best practices exacerbates vulnerabilities to external factors such as pests, diseases, and climate change, underscoring the urgent need for improved education and enforcement of agricultural standards.

Figure 23: Compliance with Agricultural Protection Guidelines



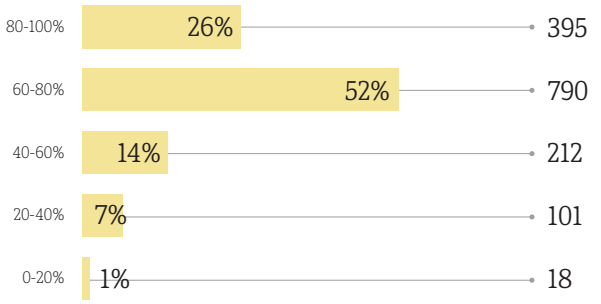
Author: Wim Zwijnenburg

9- Trade Restrictions and Market Access

Marketing of Agricultural Crops in Local and Export Markets

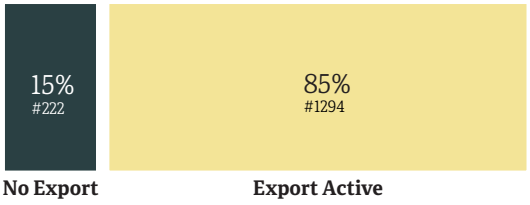
The majority of study participants believe that marketing is carried out on a large scale, with 52% of participants indicating that the marketing percentage ranges between 60% and 80%, while 26% estimated it to be between 80% and 100%. These figures reflect that agricultural crops efficiently find their way to local markets, with a significant concentration in the higher marketing categories, highlighting the importance of local markets as a key destination for agricultural products.

Figure 24: Percentage of marketing agricultural crops in local markets



Despite the ongoing conflict, local farmers have managed to overcome numerous obstacles to maintain an export presence of some local agricultural varieties, such as olives, wheat, and legumes, to Türkiye, regime-controlled areas, and Iraq. This resilience suggests untapped potential for further expanding and enhancing agricultural exports if the sector receives adequate support and investment. Addressing the logistical and infrastructural challenges could exponentially increase Northern Syria's role in neighboring and international markets.

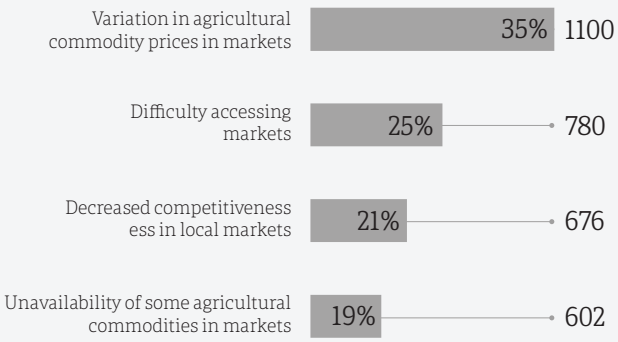
Figure 25: Export Status of Some Agricultural Crops



Effects of Trade Internal and External Restrictions

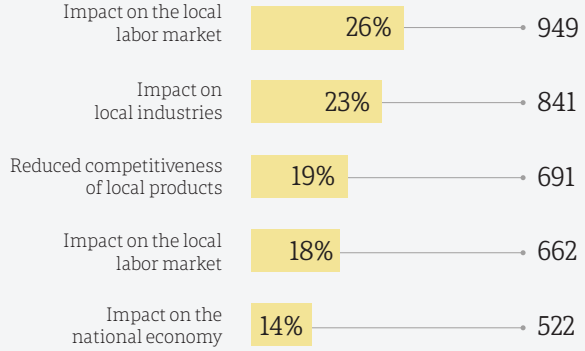
Internal trade restrictions between different control areas in Northern Syria lead to significant price variations of agricultural materials, difficulty accessing markets, decreased competitiveness in local markets, and lack of availability of some agricultural materials. These factors collectively hinder the growth and stability of the agricultural sector.

Figure 26: Impact of Internal Trade Restrictions Between Control Areas on Agricultural Growth



External trade restrictions in Northern Syria have several adverse effects, including significant impacts on the local labor market and industries. These restrictions reduce the competitiveness of local products, affect exports and imports, and ultimately impact the national economy.

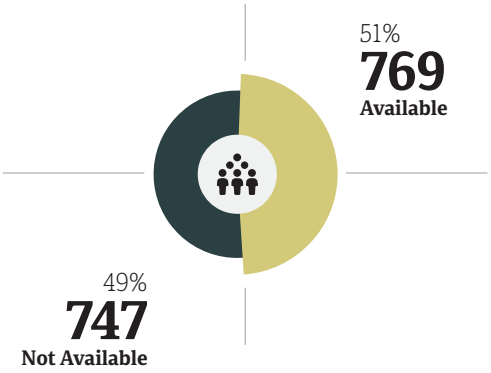
Figure 27: Effects of External Trade Restrictions on Local Product Stagnation



10- Lack of Training and Technology

Availability of Agricultural Cooperative Society and Extension Units

Figure 28: Availability of Agricultural Cooperative Society and Extension Units



Agricultural Engineer Survey: Availability of Scientific Training on Soil Management and Crop Rotation

A considerable gap remains in agricultural education, with 76% of respondents lacking access to recent scientific training in soil management and agricultural rotation. This significant shortfall underscores the urgent need to extend these essential educational resources to promote sustainable practices and ensure long-term soil health throughout the region.

Figure 29: Scientific Training in Soil Management and Crop Rotation Over the Past Two Years

Technological Needs and Challenges

In Northern Syria, the agricultural sector urgently needs modern irrigation systems and soil analysis laboratories to optimize fertilizer use. The most critical challenges include a lack of funding and investment, climate change impacts, and water scarcity. Overcoming these key barriers is essential to enhance productivity and ensure the sector's sustainability.

Figure 30: Key Technologies Required

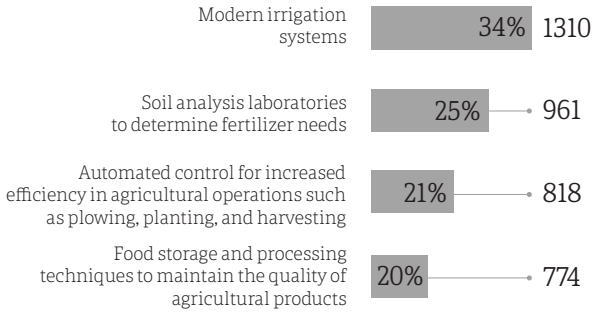
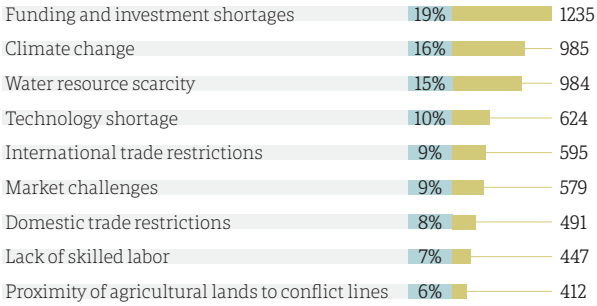


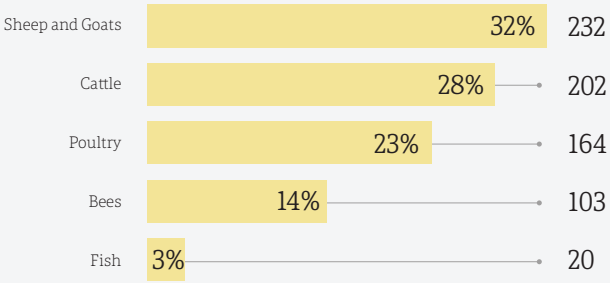
Figure 31: Key Barriers to Agricultural Sector Growth



11- Livestock

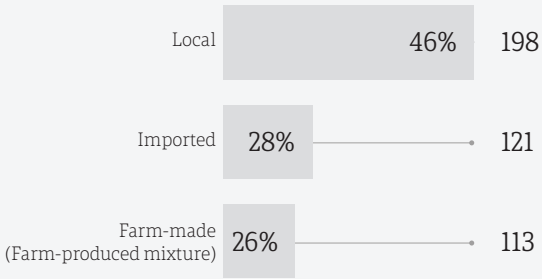
Veterinarian Survey: Types of Livestock Raised

Figure 32: Local Livestock Varieties



Veterinarian Survey: Types of Forages Used

Figure 33: Common Forages Used for Livestock Feeding Locally



Importance of Livestock to the Local Economy and Food Security

Livestock is vital in Northern Syria, providing job opportunities, generating income, and enhancing food security. It supplies essential animal protein, supports rural communities, and improves self-sufficiency in meat, dairy, and eggs, reducing import dependency.

Figure 34: Livestock's Role in Local Economic Development

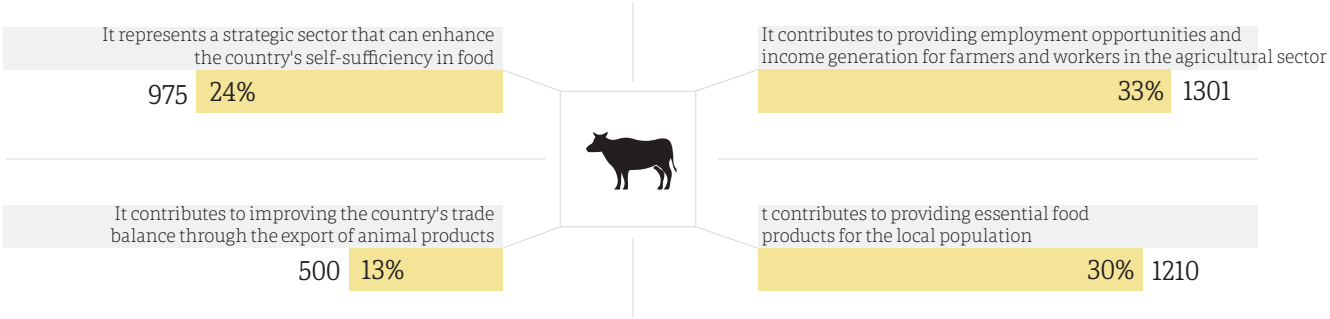
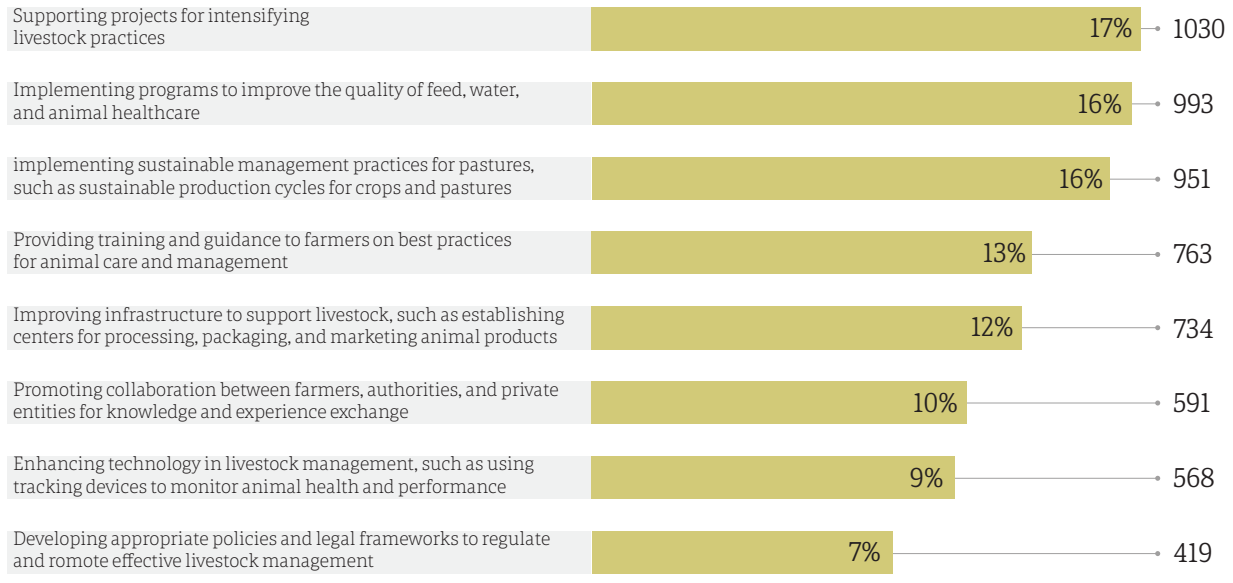


Figure 35: Role of Livestock in Enhancing Food Security

Recommendations for Improving Livestock Management

In Northern Syria, optimizing livestock management through enhanced breeding projects, better feed and healthcare, and sustainable practices is critical amidst the region's environmental and economic challenges. Addressing infrastructure gaps, fostering cooperation, and leveraging technology can significantly bolster the agricultural sector's resilience and productivity.

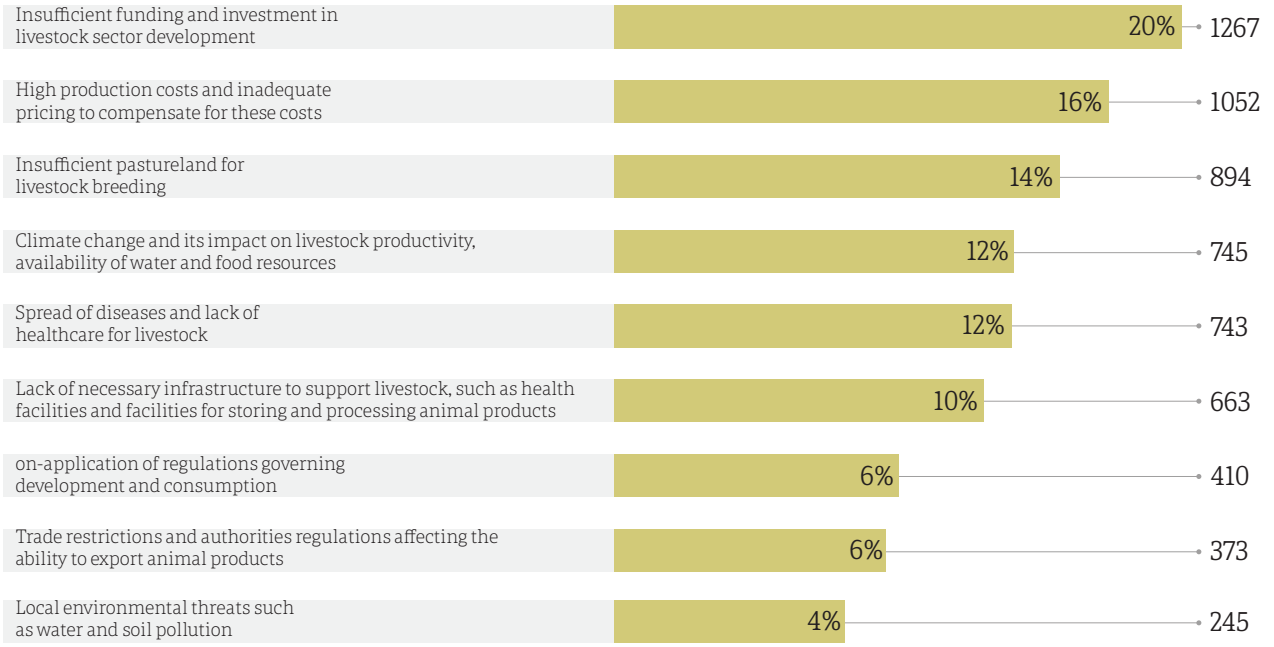
Figure 36: Optimizing Livestock Management for Maximum Benefits



Challenges Facing the Livestock Sector

In Northern Syria, the livestock sector is a linchpin for economic stability and food security, yet it grapples with profound challenges. The sector's struggle with inadequate funding, high production costs, and climate impacts signals an urgent need for innovative solutions.

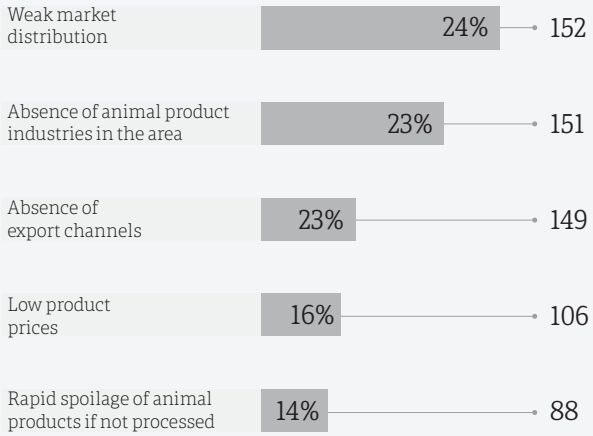
Figure 37: Key Challenges in the Local Livestock Sector



Veterinarian Survey: Difficulties in Marketing Livestock Products

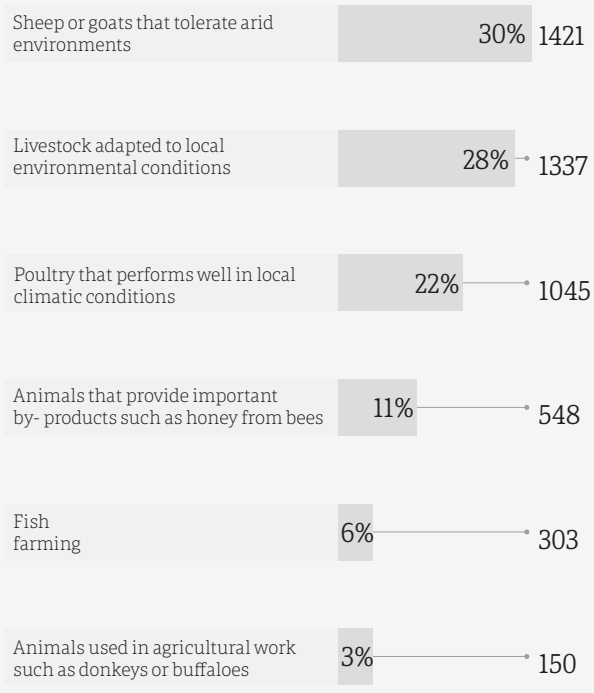
In Northern Syria, the livestock sector's distribution challenges highlight a broader systemic issue: a fractured supply chain that stifles economic potential. The rapid spoilage of animal products and low prices reveal a critical gap in processing and preservation technology. The absence of export channels and local industries suggests untapped regional and global market integration opportunities.

Figure 38: Obstacles in Local Livestock Product Marketing



Types of Beneficial Livestock in Local Environments

Figure 39: Optimal Livestock and Animals for Local Ecosystems

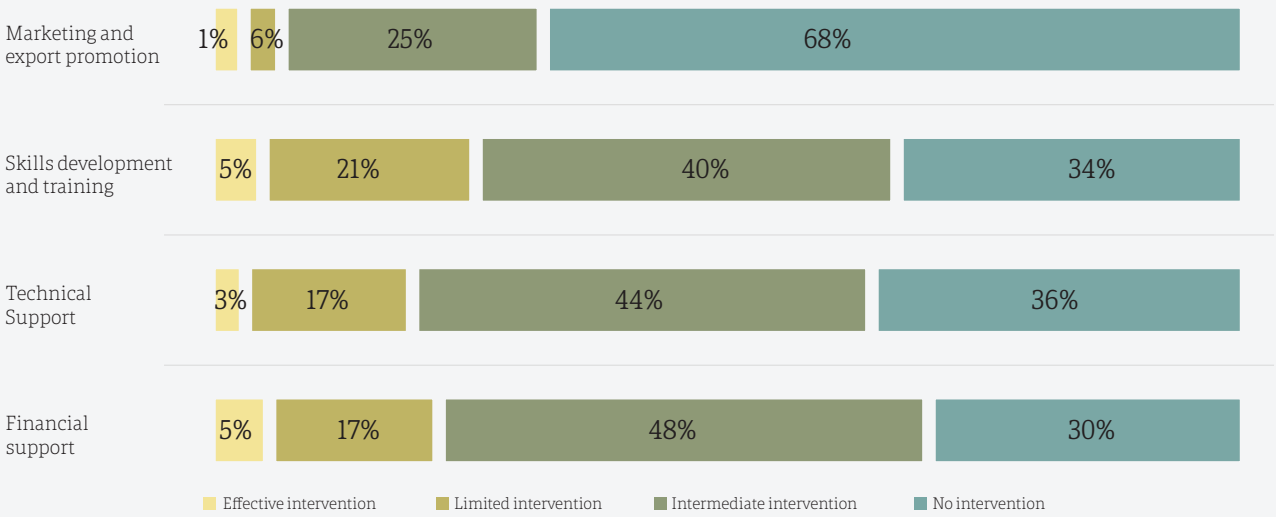


12- Lack of Support and Investments

Interventions by International and Local Organizations

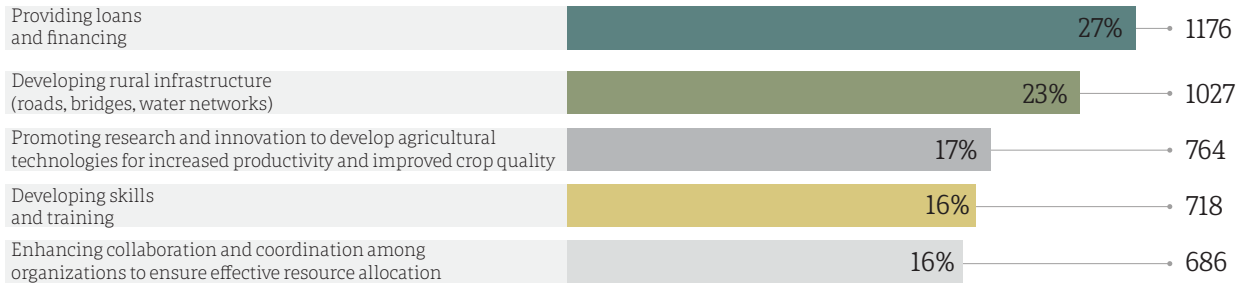
Despite some efforts, the support from international and local organizations for Northern Syria's agricultural sector is largely insufficient, with most areas receiving limited or no intervention. Substantial gaps in financial aid, technical assistance, training, and market access need urgent attention to ensure the sector's growth and stability.

Figure 40: Interventions by International and Local Organizations



Main Gaps in Interventions

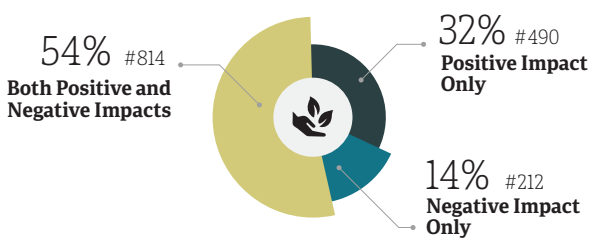
Figure 41: Main Gaps in Interventions



Impact of Importing Agricultural Products within Humanitarian Aid

The mixed impact of importing agricultural products through humanitarian aid in Northern Syria reflects a delicate balance between immediate relief and long-term self-sufficiency. This highlights the importance of tailored solutions considering the positive and negative repercussions on the agricultural sector.

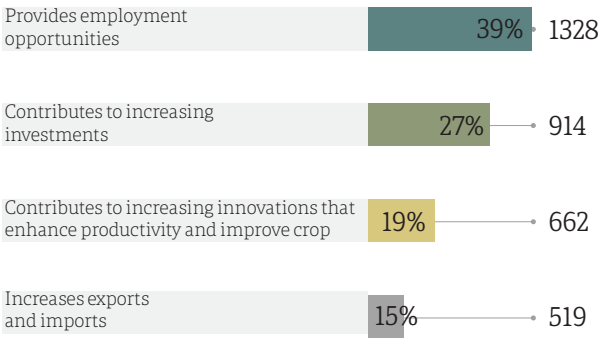
Figure 42: Impact of Imported Agricultural Products with Humanitarian Aid on Agricultural Growth



Private Sector Interventions

Private-sector interventions in Northern Syria's agricultural sector are pivotal, driving job creation and investments, fostering innovation for productivity, and boosting trade. These efforts are essential for revitalizing the region's economy and ensuring sustainable growth amidst ongoing challenges.

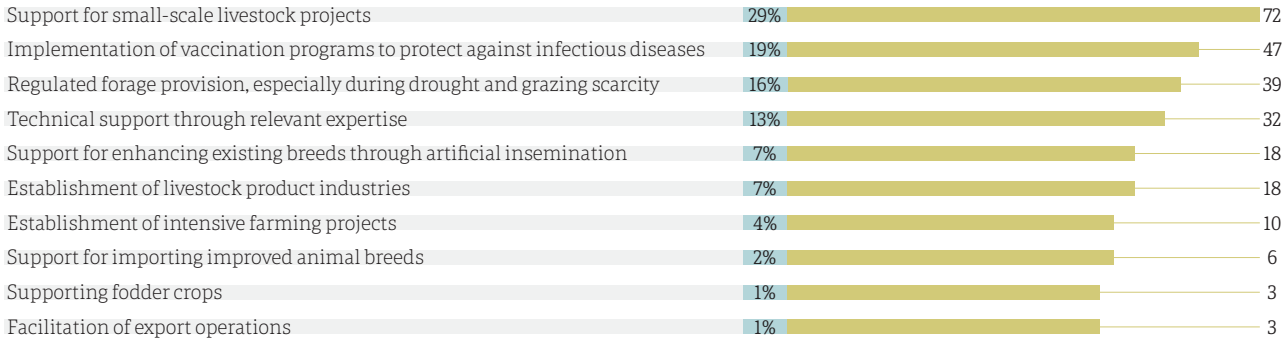
Figure 43: Role of Private Interventios on the Agricultrual Growth



Veterinarian Survey: Support Provided by Organizations to Livestock Breeders

In Northern Syria, support for livestock breeders is crucial, with a focus on small-scale projects and disease prevention programs. These regulated forage provision and technical expertise efforts are vital for sustaining livestock health and productivity amidst the region's challenging conditions.

Figure 44: Support for Livestock Breeders by Organizations



13- Recommendations

- **Increase investment in modern agricultural and livestock technologies**, such as precision agriculture, smart irrigation, artificial intelligence, and laboratories, to improve production efficiency, reduce costs, and increase productivity.
- **Support agricultural research and development by strengthening the links between universities and the agricultural sector** and establishing reference laboratories to elevate the level of scientific research and develop new solutions that serve the sector.
- **Enhance agricultural infrastructure:** Focus on rehabilitating roads and warehouses, which helps reduce waste and enhance the agricultural sector's logistical efficiency.
- **Encourage agricultural and livestock entrepreneurship:** supporting start-ups in the agricultural field to develop innovative technologies and products that contribute to the sector's growth and achieving sustainable economic returns.
- **Localize agricultural supply chains:** reducing reliance on external chains to ensure the sustainability of the agricultural sector in the face of global crises and challenges, thus strengthening the sector's economic independence.
- **Increase investment in sustainable water management and market infrastructure:** investing in water management technologies and developing agricultural market infrastructure to improve access to water and reduce waste.

- **Provide scientific training in soil management and crop rotation:** offering scientific training programs aimed at improving soil management practices and promoting the use of crop rotation techniques to ensure sustainable productivity.

- **Enhance funding for agriculture and livestock and provide farmers with modern technology:** Provide sustainable financial support to farmers and livestock breeders and equip them with the latest tools and technologies to boost productivity.

- **Develop supportive agricultural policies and adjust trade policies to improve access to international markets.** These policies should facilitate expansion into international markets and enhance the competitiveness of local agricultural products globally.

- **Strengthen livestock management through improved breeding practices, feed quality, and healthcare.** Also, invest in training farmers on best practices for animal welfare and sustainable livestock management to further enhance productivity and ensure long-term sustainability.

- **Increase women's participation in agriculture through targeted awareness and support programs:** This can be achieved by implementing specialized training sessions that focus on enhancing women's skills in agricultural practices and leadership roles. Additionally, offering financial incentives and support networks will help empower women to take on more active roles in the agricultural sector.

- **Address the issue of child labor by promoting education and safe working conditions.** Implement programs to protect children from illegal agricultural labor while enhancing educational opportunities and creating safe and healthy work environments.

- **Ensure the inclusion of people with disabilities in agricultural activities through comprehensive programs:** Create opportunities where people with disabilities are not just participants but valued contributors in agriculture. This could involve designing accessible tools and equipment, offering specialized training tailored to their unique needs, and fostering an inclusive environment that encourages collaboration.

- **Strengthen agricultural extension units to provide farmers with continuous support, training, and resources:** These extension units act as the bridge between modern agricultural advancements and local farmers, providing hands-on training, sharing valuable insights, and offering the resources needed to adapt to challenges.

Agriculture and Livestock in Northern Syria Amidst Conflict

August 2024

Thematic Report

A report by the Information Management Unit (IMU)
at Assistance Coordination Unit (ACU)