FACTSHEET

Mid-Season State of Wheat and Barley Production in Northeast Syria

June 2024 | Syria

Key Messages

- The majority of interviewed wheat and barley farmers planted their crops on time, reported that more than half of their seeds germinated, and that their crops were healthy at the time of the interview.
- Respondents in Deir-ez-Zor and Aleppo governorates reported somewhat worse germination rates and crop health. The primary cause cited in Deir-ez-Zor was low rainfall, while respondents in Aleppo reported poor soil fertility, diseases or pests, and weeds.
- Yield expectations compared to the 2022/23 season were balanced between expectations of increased and decreased yields.
- High prices reportedly limited access to inputs, particularly fertilisers.
- Most farmers expected their revenues would cover their costs. However, this was prior to the announcement of wheat purchasing prices, which are reported to be only three-quarters of 2023 prices.

Context & Rational

Northeast Syria (NES) is a major wheat and barley growing area, the production of which contributes to food security and livelihoods.[1,2] However, crop health and yields in the past years suffered from low rainfall and a lack of water and energy for irrigation.[3] Hostilities at the onset of the 2023/24 agricultural season severely damaged energy infrastructure, potentially limiting access to fuel and electricity and leading to oil pollution.[4] The Syrian Pound (SYP) lost almost half of its value against the US Dollar (USD) between April 2023 and April 2024,[5] which is expected to lead to higher production costs. This is likely made worse by pre-existing difficulties in accessing high-quality agricultural inputs, such as seeds,[6] fertilisers, and pesticides.[7]

The aim of this factsheet is to provide preliminary insights into the state of wheat and barley production in the 2023/24 agricultural season. This offers an early insight into any expected production shortfalls and economic losses of farmers, highlighting geographic areas of particular need.

Assessment Overview

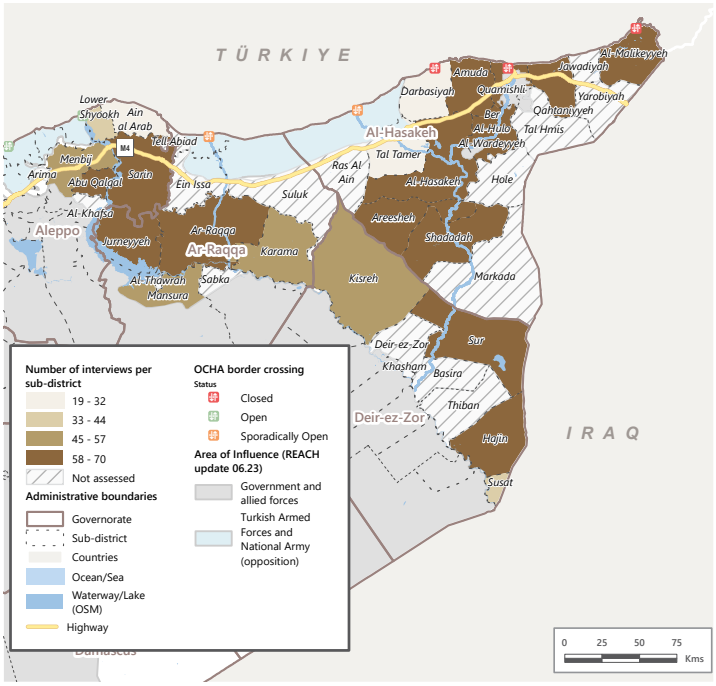
REACH, in collaboration with the Food Security and Livelihoods (FSL) Working Group, interviewed wheat and barley farmers between 24 April and 5 May 2024. Interviews aimed to identify challenges in wheat and barley production and inform prioritisation of assistance to farmers.

Methodology:

1,220 farmers in 24 sub-districts were interviewed for this assessment (see map 1). Sub-districts were selected in consultation with the NES FSL Working Group, Agricultural sub-Working Group (AWG), and data collection partners. In these sub-districts, wheat and barley farmers with at least 10 donums of land were purposively selected for interviews. **Due to this sampling approach, the data are indicative of the situation of wheat and barley farmers in assessed sub-district, but are not representative of all farmers.**

Data collection took place in person through REACH and AWG partners. REACH processed and analysed the resulting data.

Map 1: Number of interviews by sub-district



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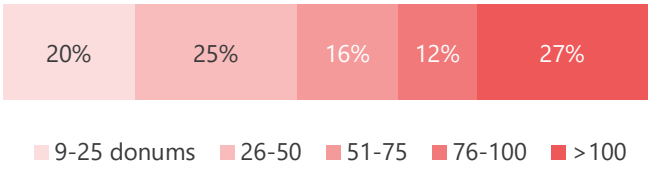
Farmer Profiles

Farm Sizes of Respondents in Donums

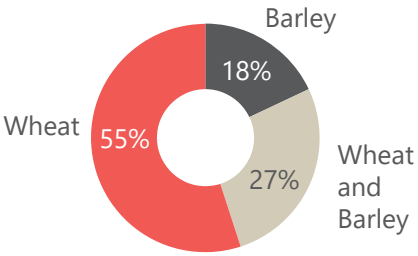


60 donums
size of the median farm

Respondents in this assessment were selected in order to achieve a balance between medium-sized (9-50 donums) and large (50+ donums) farms. The median land area was 60 donums.

A fifth (20%) of the respondents were members of farmer associations, most commonly in Ar-Raqqa, and 9% were contracted by the General Organisation of Seed Multiplication.

Crop Types Grown by Respondents

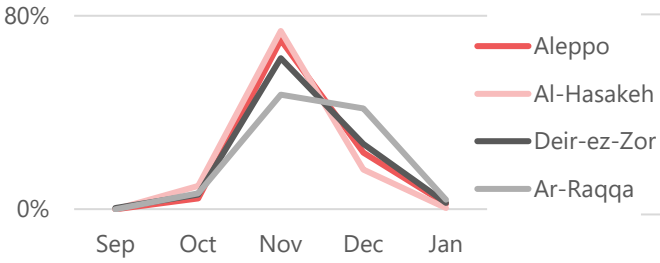


Barley was primarily rainfed
62% of respondents who grew barley reported it was completely rainfed

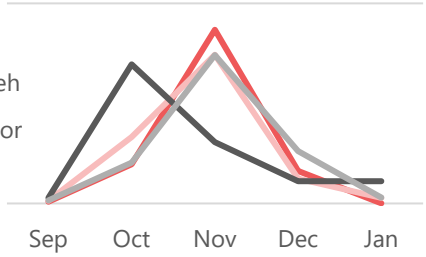
Wheat was primarily irrigated
51% of respondents who grew wheat reported it was completely irrigated, and 11% that it was mostly irrigated

Sowing and Seed Germination

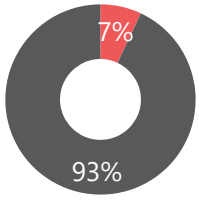
Month of Wheat Planting by Respondents



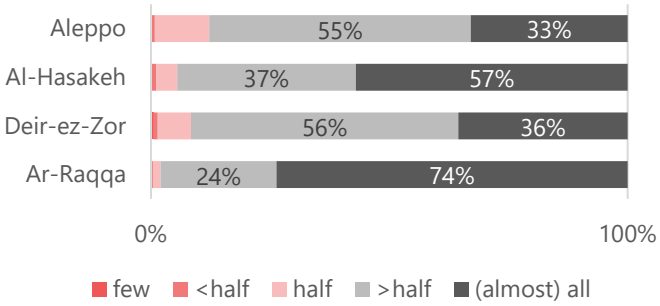
Month of Barley Planting by Respondents



93% of respondents planted on time



Proportion of Seeds that Germinated
as percent of respondents



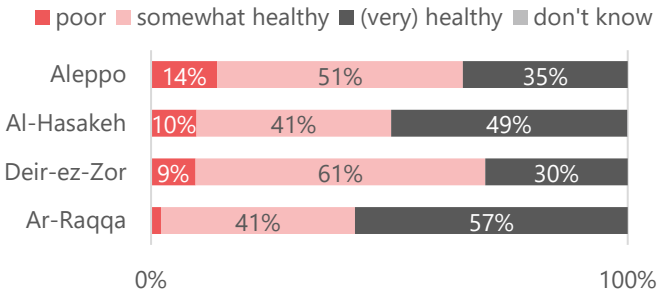
NES experienced close to average precipitation in late 2023, with above average rainfall in November.[8] This may have contributed to 93% of respondents reporting that they planted their wheat and barley on time. Of those that were delayed, this was most commonly due to lack of access to seeds (24 respondents) and lack of machinery or equipment (20).

Of respondents, 93% reported that more than half of their seeds germinated. Those that did not most commonly reported low rainfall (31), poor soil health or fertility (21), and weeds (21) as the reasons.

Crop Health

Estimated Health of the Crops

as percent of respondents



Causes for Sub-Optimal Health

as percent of respondents who reported somewhat healthy or poor health of their crops

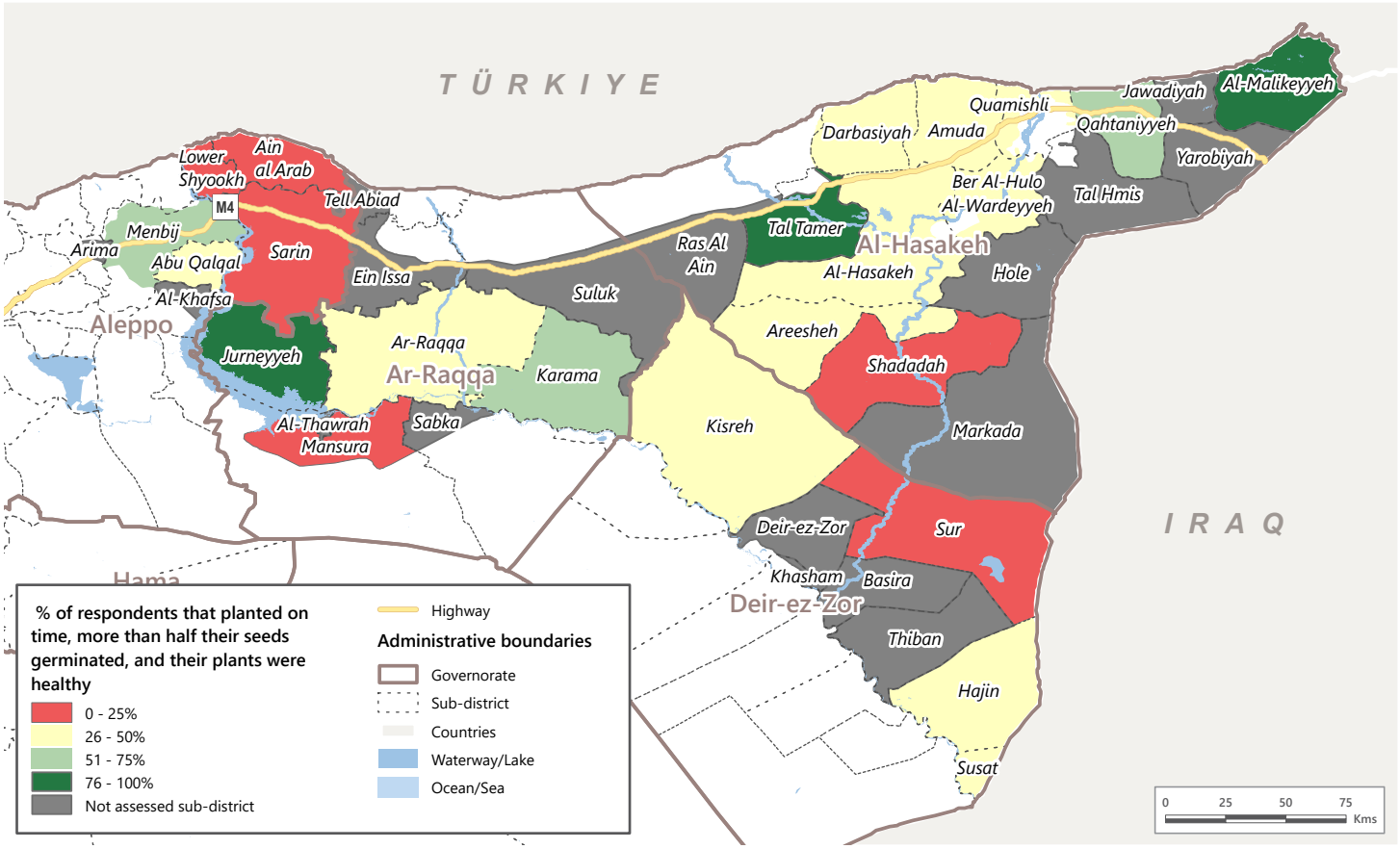
	Low Rainfall	Disease or Fungi	Weeds	Soil Health/ Fertility
Aleppo	5%	48%	46%	54%
Al-Hasakeh	44%	32%	29%	23%
Deir-ez-Zor	50%	27%	20%	30%
Ar-Raqqa	41%	37%	34%	15%

Overall, 45% of respondents reported that their crops were (very) healthy and 46% that they were somewhat healthy (sub-optimal appearance but growing). Conditions were somewhat more favourable in Ar-Raqqa and Al-Hasakeh and somewhat less favourable in Deir-ez-Zor and Aleppo.

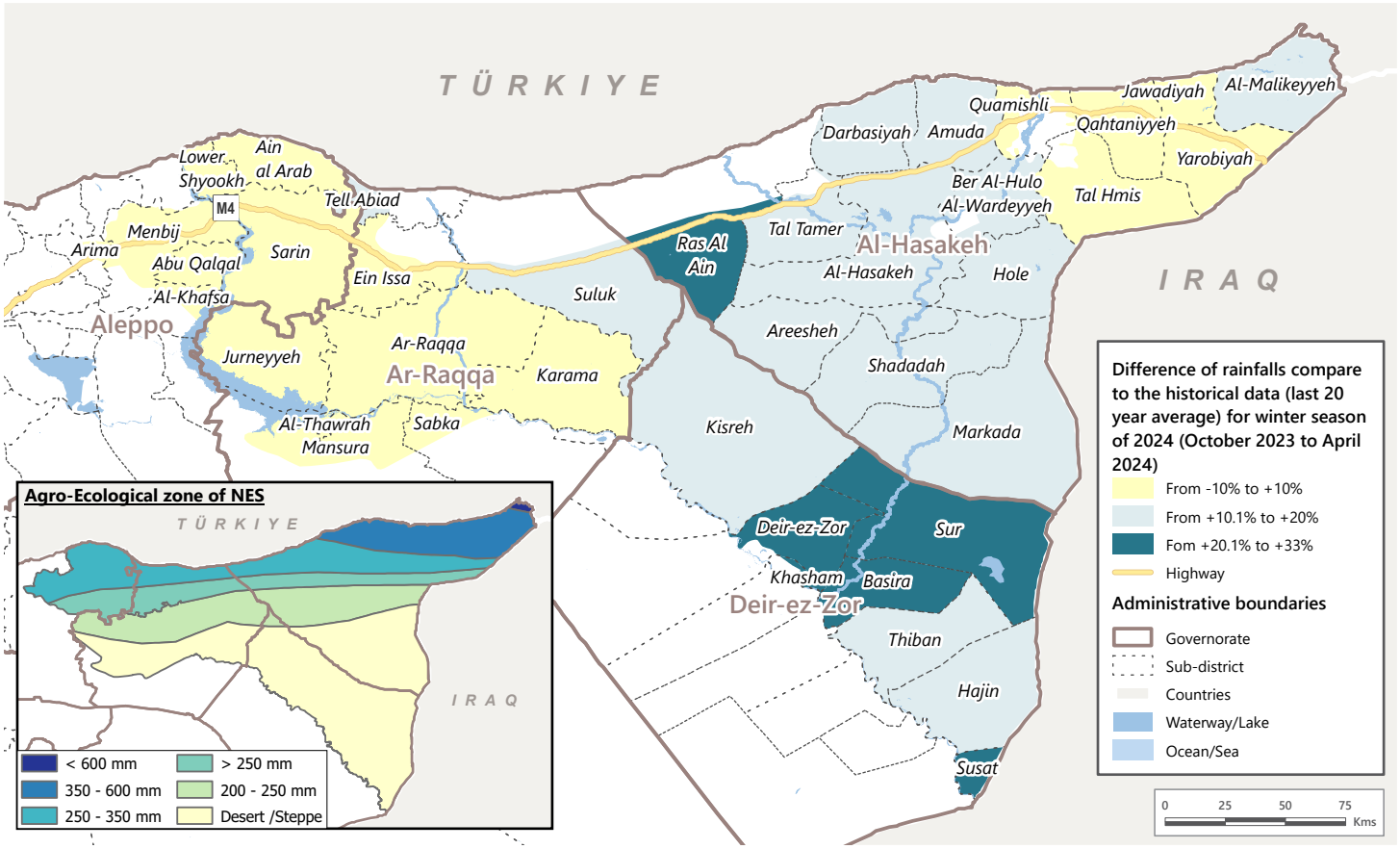
In Deir-ez-Zor, the most commonly reported reason was low rainfall. This is despite remote sensing data indicating average or higher rainfall levels between Nov-23 and Apr-24 compared to the previous 20 years (see map 3), though with elevated temperatures.[8]

In Aleppo, the most commonly reported reasons were poor soil health or fertility, diseases or fungi, and weeds.

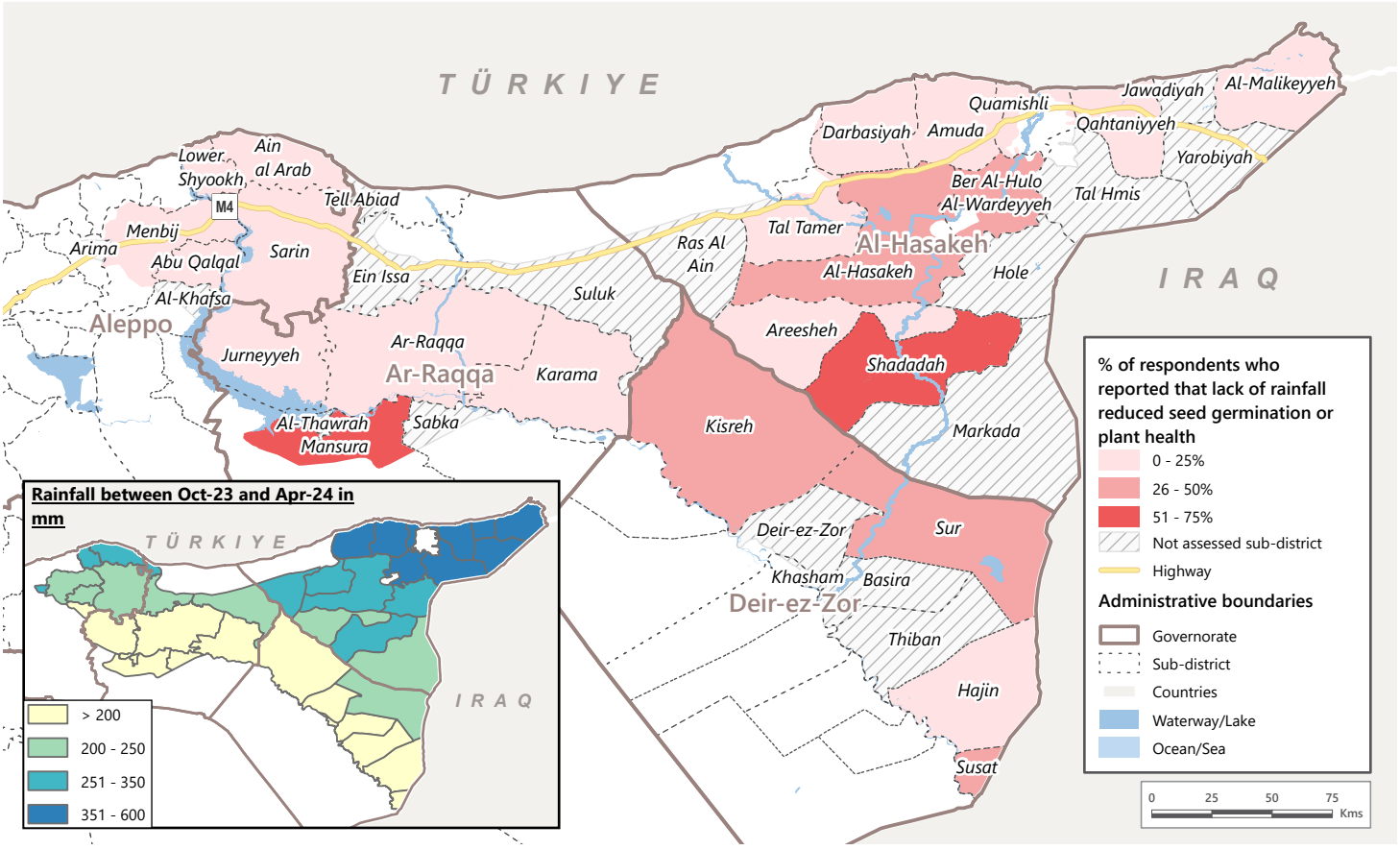
Map 2: Proportion of respondents who reported that they planted on time, more than half of their seeds germinated, and their crops were (very) healthy



Map 3: Difference in rainfall between October 2023 and April 2024 compared to the long-term average rainfall

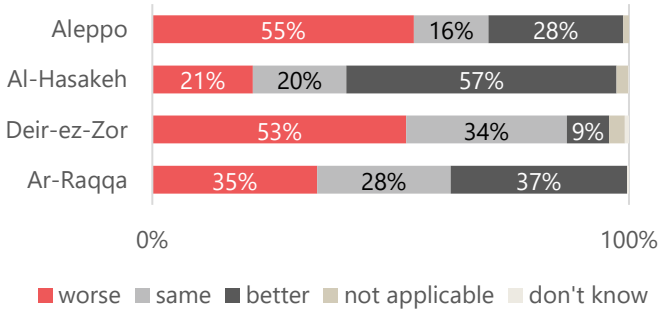


Map 4: Proportion of farmers who reported lack of rainfall as a cause of reduced seed germination or plant health

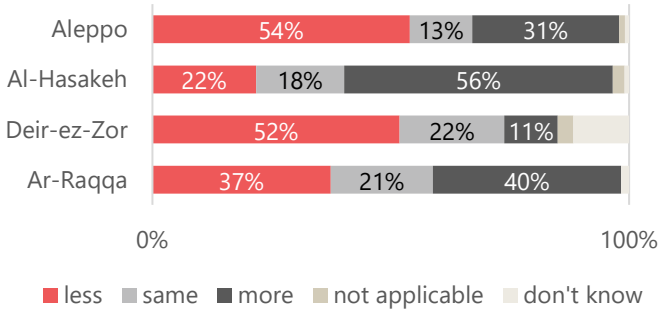


Comparative Crop Health and Expected Yields

Crop Health Compared to 2022/23 Agricultural Season
as percent of respondents



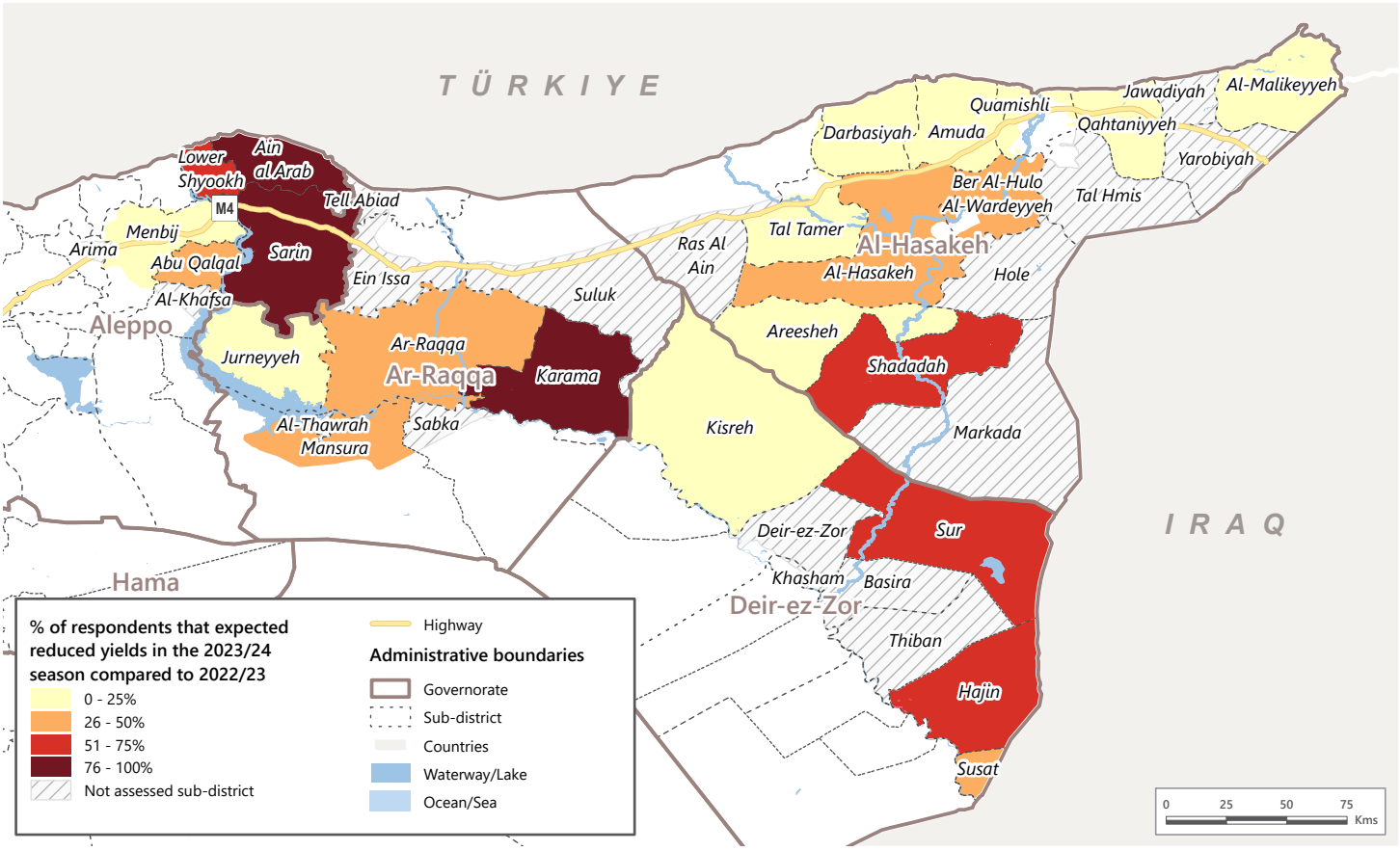
Expected Yields Compared to 2022/23 Agricultural Season
as percent of respondents



Respondents in 40% of cases perceived that crop health had improved, and 36% that it had decreased compared to the 2022/23 agricultural season. This strongly correlated with yield expectations compared to previous season.

Strong geographic differences are present. Half of respondents in Deir-ez-Zor reported worse crop health and lower yield expectations, compared to only 9% who reported improvements. Al-Hasakeh by contrast saw over half of respondents reporting improved crop health and increased yield expectations. These differences emerged in remote sensing data, with a lower Vegetation Health Index* (VHI) in the agricultural season up to Apr-24 in Deir-ez-Zor and small areas in southern Al-Hasakeh, and higher values in the majority of Al-Hasakeh and Ar-Raqqa.[9]

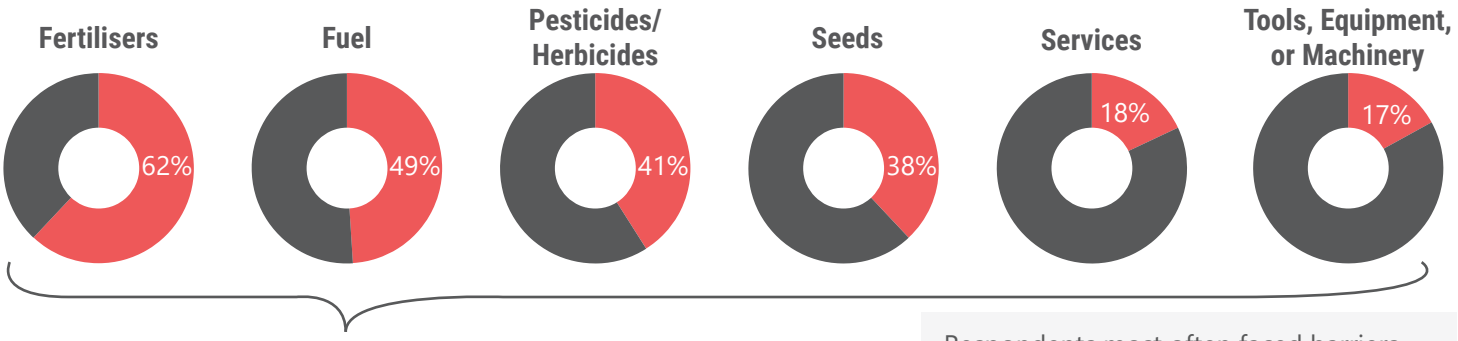
Map 5: Proportion of respondents who expected reduced yields compared to the 2022/23 agricultural season



* The VHI is made up of two indices. The Vegetation Condition Index, which measures differences in greenness of land (NDVI) between the observed time period and previous years, and so provides a rough indication of crop health. The second is the Thermal Condition Index, which measures possible heat stress due to unusually high temperatures. As such, the VHI provides an indication of the health of vegetation.

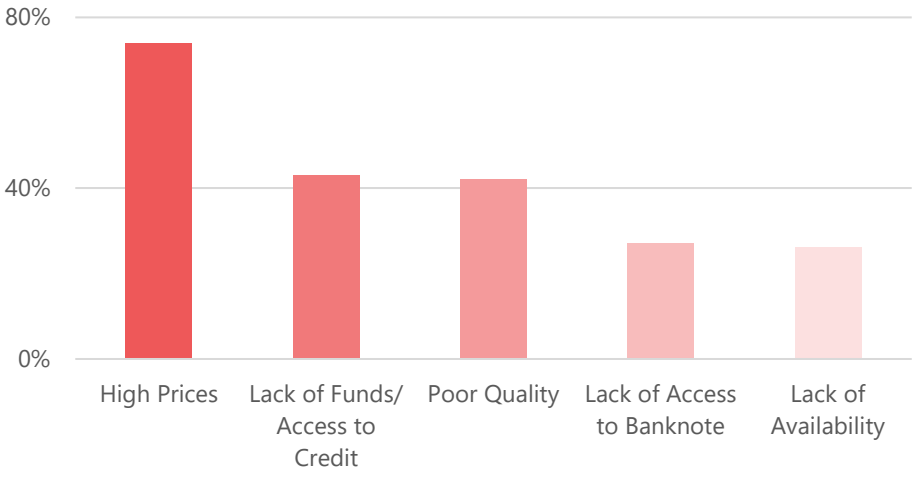
Agricultural Inputs

Proportion of Respondents Who Experienced Market or Financial Barriers to Accessing the Following Inputs



Market and Financial Barriers to Accessing Inputs

as percent of respondents



Respondents most often faced barriers to accessing fertilisers and fuel. This was primarily due to high costs, and, for fuel in particular, its poor quality. Key issues noted by respondents who experienced poor crop health included impacts of fungi, weeds, and lack of fuel or electricity for irrigation. Note that NES experienced extensive damage to energy infrastructure in late 2023[4] which may have led to unusually constrained access to fuel and electricity.

Barriers to accessing seeds were reported by over a third of farmers. Seed multiplication systems in Syria have degraded due to conflict, reducing access to quality seeds needed for resilient crops.[6,10,11]

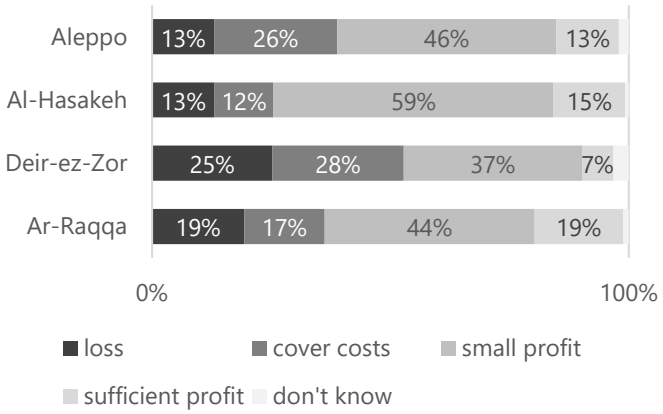
Expenditures and Profits

Median and Mean Reported Expenditures Per Donum of Farm Land Between October 2023 and April 2024, in US Dollars

	Seeds	Fertiliser	Services	Fuel	Pesticide	Labour	Productive Assets	Rent	Fees/ Taxes	Electricity	Other	Total
Median	8.3	4.3	3.2	2.3	1.1	0.7	0	0	0	0	0	26.8
Mean	11.2	9.5	5.0	7.3	2.1	3.3	2.3	1.0	0.2	0	0	40.6

Expected Profits

as percent of respondents

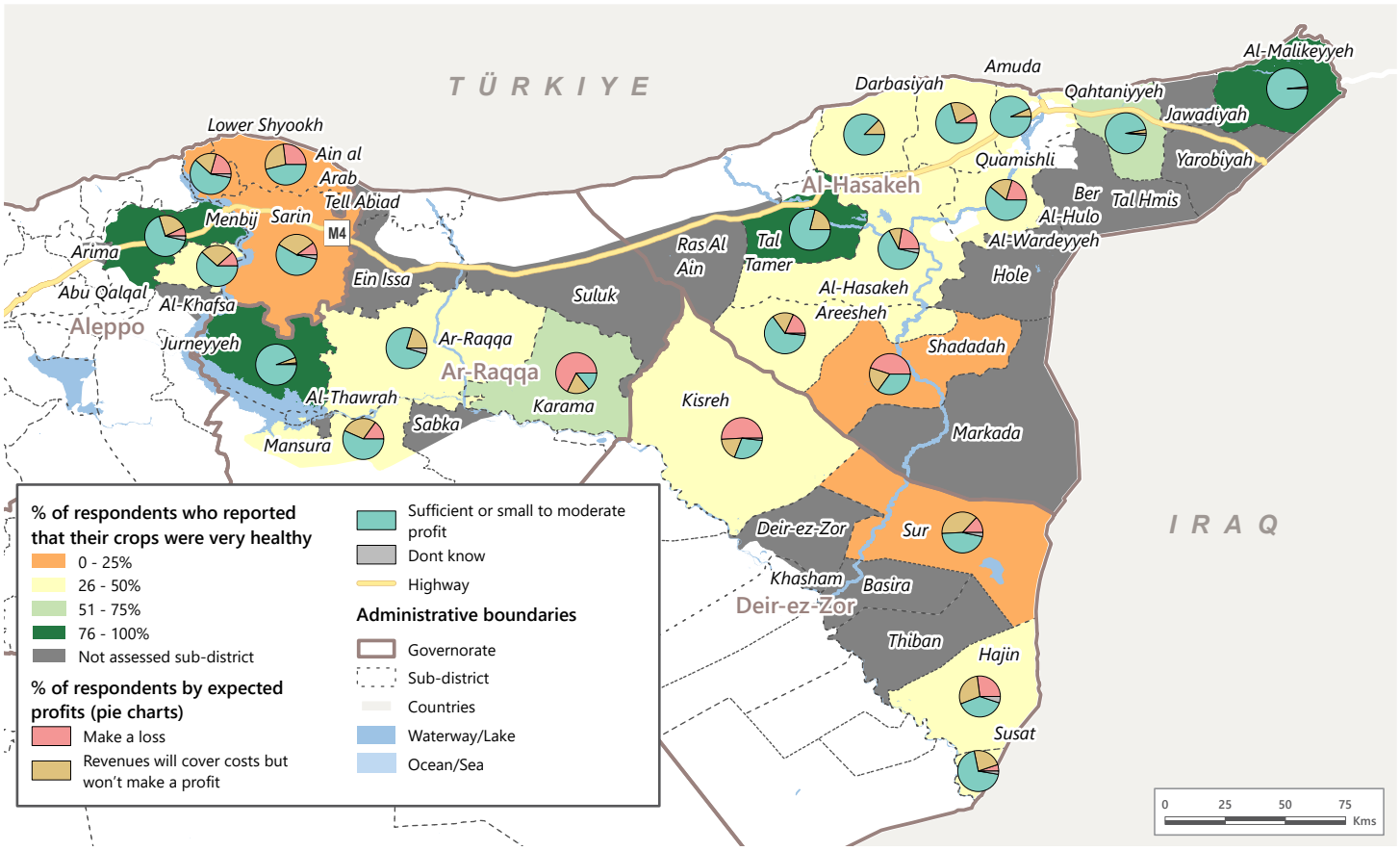


Please note that costs of land, productive assets, and other substantial expenditures incurred outside of the current agricultural season are not included. Costs are reported in USD per donum of farmland; however, farmers reportedly left some of their land uncultivated so that the resulting values will be lower than the costs per donum of cultivated land.

The vast majority of respondents (82%) expected to be able to cover their production costs, and most expected to make small profits. However, this was prior to local authorities announcing wheat purchasing prices on May 26. The price of wheat will reportedly decrease in USD terms by a quarter compared to the 2023 purchasing price, from 0.43 USD to 0.31 USD.[12] Farmers who were not able to anticipate this change may have overestimated their expected profits.

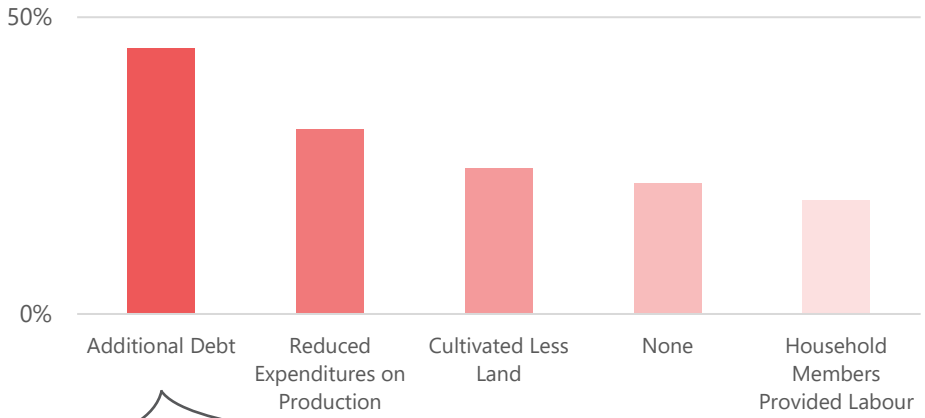
Respondents in Deir-ez-Zor were notably more likely to expect losses or low profits, in line with lower perceived crop health.

Map 6: Respondents' expectations of their profits, and reported health of their crops

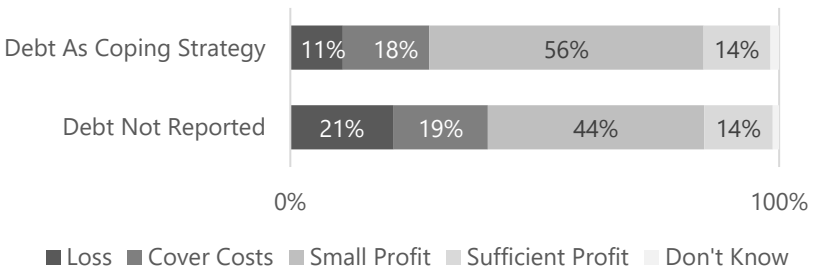


Coping Strategies

Agricultural Coping Strategies
as percent of respondents



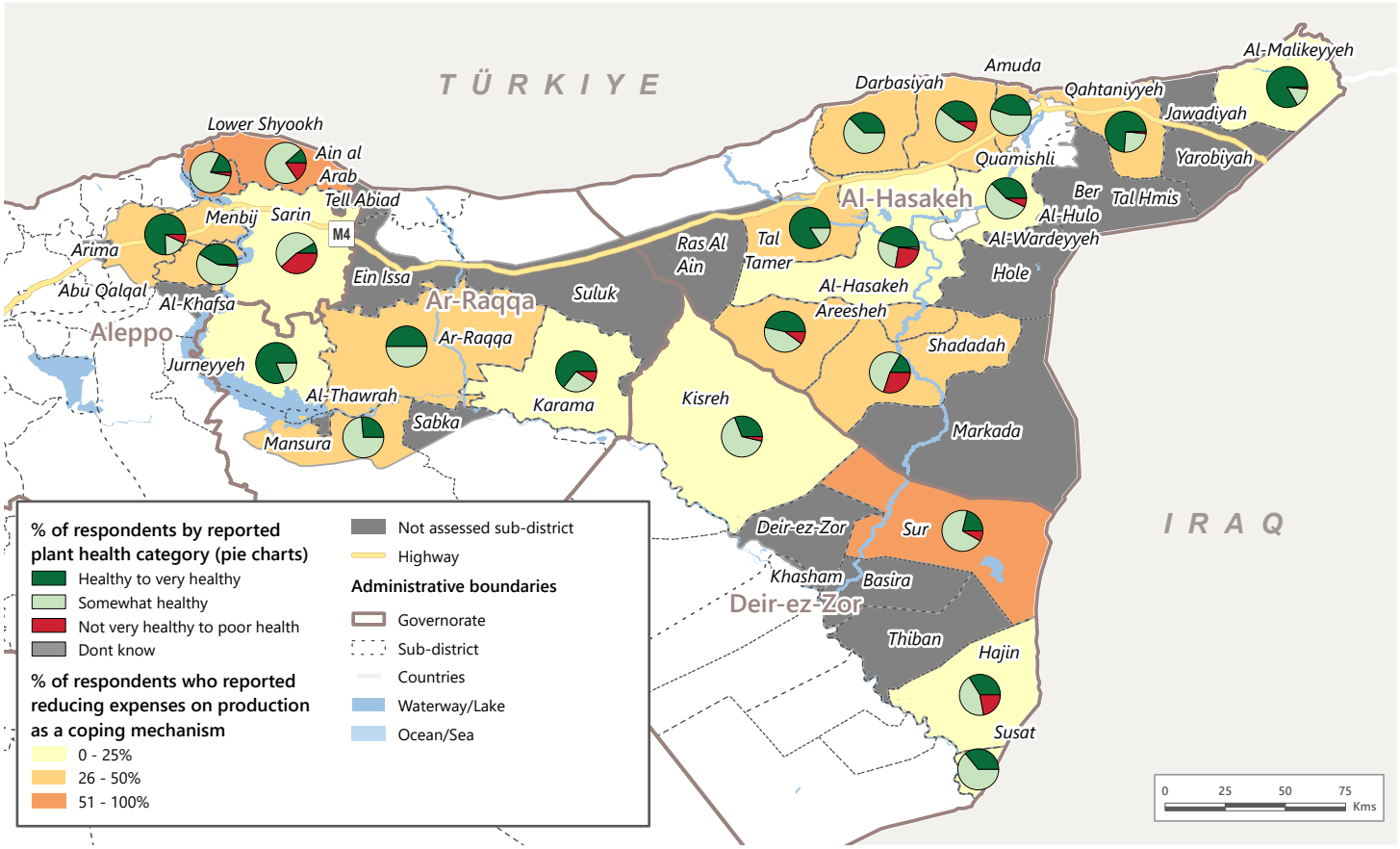
Expected Profits by Use of Debt as a Coping Strategy
as percent of respondents



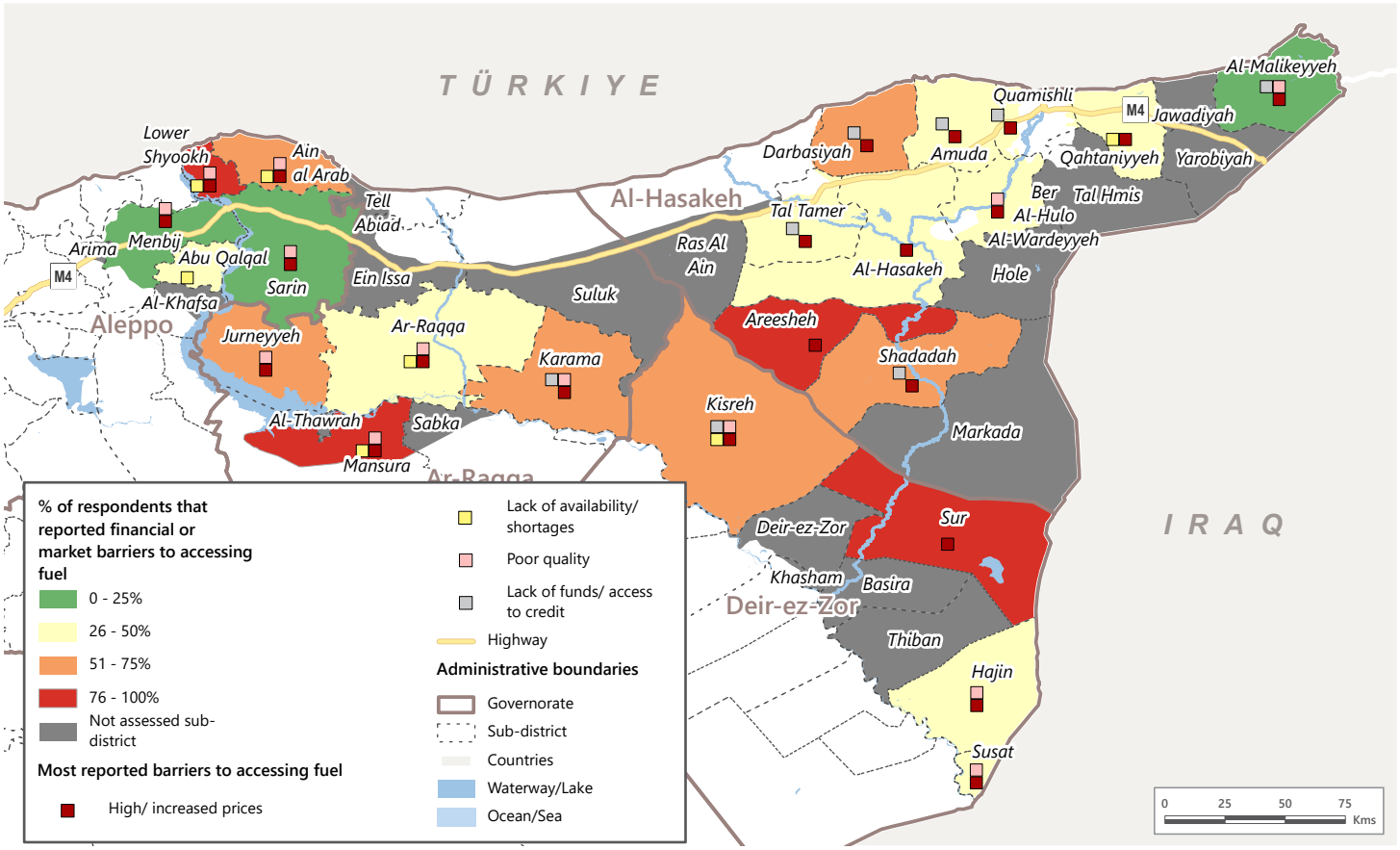
The most common way respondents reported coping with agricultural challenges was taking on additional debt. Note however that respondents who reported this were somewhat more likely to report that they expected to make profits. Access to credit is often essential to farmers, who make major investments into their land months before receiving benefits. To the extent that taking debt signals better access to financing, this may be a positive indicator, assuming credits are appropriately designed to meet the needs of farmers.[13,14]

The second most common strategy was reducing expenditures on agricultural production. This was associated with lower crop health, with 33% of respondents who used this strategy reporting crops as being (very) healthy, compared to 50% of those who did not.

Map 7: Proportion of respondents who reported reducing expenditures on agriculture as a coping strategy, and reported crop health



Map 8: Proportion of respondents who reported problems in accssing fuel (subdistrict colours), and the primary barriers to accessing fuel (squares)



Assistance Priorities

4% received assistance from NGOs

6% received assistance from farmer associations

Cash and in-kind inputs were the most commonly reported top three priority needs, reported by 75% and 71% of respondents respectively. Cash assistance was more often prioritised by respondents who took debt as a livelihoods coping strategy (48% compared to 36%), while respondents who expected lower profits were more likely to prioritise in-kind inputs and productive assets.

Priority Types of Assistance - as percent of respondents

First Priority		Second Priority		Third Priority	
Cash	32%	In-Kind Inputs	30%	Grants for Productive Assets	23%
In-Kind Inputs	25%	Cash	28%	In-Kind Inputs	16%
Grants for Productive Assets	17%	In-Kind Productive Assets	18%	In-Kind Productive Assets	15%

ABOUT REACH

REACH Initiative facilitates the development of information tools and products that enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery and development contexts. The methodologies used by REACH include primary data collection and in-depth analysis, and all activities are conducted through inter-agency aid coordination mechanisms. REACH is a joint initiative of IMPACT Initiatives, ACTED and the United Nations Institute for Training and Research - Operational Satellite Applications Programme (UNITAR-UNOSAT).

Endnotes

[1] Al Shami, I. (February 2022). Facing Syria's Food Crisis. The Washington Institute for Near East Policy. https://www.washingtoninstitute.org/policy-analysis/facing-syrias-food-crisis

[2] Humanitarian Needs Assessment Programme (Summer 2022). Socio-Economic Conditions | Syrian Arab Republic - Summer 2022 Report Series.

[3] REACH (July 2023). Current Situation of the Water Crisis in Northeast Syria and its Humanitarian Impacts. https://repository.impact-initiatives.org/document/reach/b60e832f/REACH-SYR_Water-Crisis-in-NES_July2023.pdf

[4] NES Forum (January 2024). Situation Report #3, January 26th, 2024: Escalation of Hostilities Targeting Critical Civilian Infrastructures in Northeast Syria. https://reliefweb.int/report/syrian-arab-republic/situation-report-3-january-26th-2024-escalation-hostilities-targeting-critical-civilian-infrastructures-northeast-syria

[5] REACH (May 2024). Joint Market Monitoring Initiative in Northeast Syria - April 2024. https://repository.impact-initiatives.org/document/reach/673d7e0f/CWG_SYR_Dataset_JMMI_Northeast-Syria_April_2024.xlsx

[6] Mauvais, L., Amin, S.M. (October 2022). Seeds of Syria: How a birthplace of agriculture lost troves of its native crops, and why we should all worry. Syria Direct. https://syriadirect.org/seeds-of-syria-how-a-birthplace-of-agriculture-lost-troves-of-its-native-crops-and-why-we-should-all-worry/

[7] iMMAP (October 2023). Crop Monitoring and Food Security Situation Report. https://immap.org/wp-content/uploads/2016/12/Crop-Monitoring-and-Food-Security-Situation-Report-northeast-syria.pdf

[8] UNOSAT (n.d.). Syria Land and Water Monitoring. https://syria-land-water-monitoring.org/

[9] FAO (n.d.). Earth Observation - Syrian Arab Republic - Weighted Mean Vegetation Health Index. https://www.fao.org/giews/earthobservation/country/index.jsp?lang=en&code=SYR#

[10] IRC (October 2023). Seed Security in Fragile and Climate Vulnerable States: System Disruptions and Solutions for Niger, Pakistan, South Sudan and Syria. https://www.rescue.org/report/seedsecurity

[11] Morgan, H. (January 2024). Climate-resilient seeds offer farmers in Syria a path to food security. Devex. https://www.devex.com/news/climate-resilient-seeds-offer-farmers-in-syria-a-path-to-food-security-106634

[12] Enab Baladi (May 2024). AANES sets wheat purchase price, Farmers object. https://english.enabbaladi.net/archives/2024/05/aanes-sets-wheat-purchase-price-farmers-object/

[13] Savoy, C.M. (December 2022). Access to Finance for Smallholder Farmers. Center for Strategic & International Studies. https://www.csis.org/analysis/access-finance-smallholder-farmers

[14] Thurow, R. (January 2014). Smallholder Financing: Meeting Demand Between Harvests. CGAP. https://www.cgap.org/blog/smallholder-financing-meeting-demand-between-harvests