

# **Supporting Emergency Needs, Early Recovery and Longer-term Resilience in Syria's Agriculture Sector**

Baseline Report of the DFID-funded FAO Programme  
in Syria

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**18 April 2019**

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## LIST OF ABBREVIATIONS

ACLED	Armed Conflict Location and Event Data
DEWS	Drought Early Warning System
DFID	Department for International Development
FAO	Food and Agriculture Organization of the United Nations
FAOSY	Food and Agriculture Organization in Syria
FCS	Food Consumption Score
HDDS	Household Dietary Diversity Score
HHH	Household Head
IDPs	Internally Displaced Persons
ISDC	International Security and Development Center
M&E	Monitoring and Evaluation
MAAR	Ministry of Agriculture and Agrarian Reform
NFI	Non-Food Items
RCSI	Reduced Coping Strategy Index
WFP	World Food Programme

# EXECUTIVE SUMMARY

## *Introduction*

Funded by DFID, FAO Syria is implementing the “Supporting emergency needs, early recovery and longer-term resilience in Syria’s agriculture sector” programme, which delivers “emergency” and “recovery” support to rural households across Syria. The programme has two principal stages: a “baseline stage” taking place in 2018/2019 and a “midline and endline stage” taking place in 2019/2020. ISDC advises and supports FAO in both stages with knowledge building and learning activities.

FAO Syria has successfully implemented a detailed, large-N baseline household survey with nearly the full set of villages across Syria that had been sampled. This is a truly impressive achievement and reflects the strong statistical and managerial capacity of FAO Syria. In combination with the large-scale emergency and recovery intervention and the adoption of a quasi-experimental study design, based on observations of beneficiaries and non-beneficiaries before and after implementation, the database provides a unique and powerful opportunity for learning in an acutely conflict-affected setting.

The setup enables critically important new insights into household livelihoods and welfare in rural Syria, the conditions these households face and how they experience them, the magnitude and channels of the causal impacts of the FAO intervention, and how these impacts vary across different types of households and conditions.

In this baseline report, we describe the adopted study design for analysing the impact of the FAO intervention, review the approach to household survey data collection, and present statistical analyses of the baseline survey data that had been collected before the implementation of the FAO intervention. The investigated indicators include socio-economic household characteristics, food security outcomes, adoption of harmful livelihood strategies, as well as negative shocks experienced by the household. We also explore whether key baseline indicators vary meaningfully by the gender of the household head.

## *Study design for impact evaluation*

As planned, ISDC has worked closely with FAO to support the design and implementation of the impact analysis. To analyse the causal impact of the programme, the study will use a quasi-experimental design that compares villages and households that received the programme intervention (the “treatment group”) with villages and households that did not receive the intervention (the “control group”). The underlying assumption for the impact analysis is that the treatment and control samples are “comparable” before the intervention takes place, meaning

that their average characteristics are similar. Both treatment and control households were surveyed before the intervention allowing to test the comparability assumption and, if need be, “correct” for any existing imbalances statistically. The same households will again be surveyed after the intervention is completed. This setup allows us to infer the causal impacts of receiving (any) programme activity and the separate impacts of the emergency and recovery modalities.

### *Baseline data collection*

ISDC also advised FAO on the sampling strategy for the baseline survey. The adopted sampling strategy categorizes households in terms of the type of activities received (emergency and recovery activities), whilst keeping the proportional representation across specific activities that will be implemented. The strategy involved sampling at three levels (sub-district, village, and household) and resulted in a total sample size of 1,010 surveyed households, including 524 prospective beneficiaries and 486 prospective non-beneficiaries.

ISDC also supported FAO with developing the questionnaire for the baseline survey. ISDC and FAO conducted the enumerator training at the end of October 2018. Data collection in both intervention and control villages then took place in November 2018. The trained enumerators conducted the household interviews using paper-based questionnaires.

### *Baseline data analysis*

ISDC has cleaned the resulting baseline survey data and conducted detailed statistical analyses. Initial data inspection suggests that overall the sampled treatment and control households do not differ systematically at baseline, as intended by the study design. This “balance” of the treatment and control samples includes a range of dimensions including location, characteristics of the household head, other demographic indicators, displacement status, food security, and harmful livelihood coping strategies.

In the full sample, the initial results suggest, at first sight, that, for many households, the amount and diversity of food consumed is not at alarming levels any more, based on the Food Consumption Score (FCS) and the Household Dietary Diversity Score (HDDS) indicators. Yet, many households are still employing both adverse food-related coping strategies, based on Reduced Coping Strategy Index (RCSI) assessments, and harmful livelihood coping strategies to deal with food shortages. The RCSI results suggest that the usage of harmful food-related coping strategies is “high”, and in terms of livelihood strategies, 81% of surveyed households took out loans recently to buy food, among those who had access to taking out loans. There is suggestive evidence that many households achieve acceptable food consumption scores by deploying coping strategies that are potentially very harmful in the longer-term and/or for other

dimension of welfare. More generally, these preliminary results emphasize that many people in Syria remain very vulnerable to food insecurity, thereby underscoring the critical importance of the programme.

The heterogeneity analysis suggests that female-headed households are more vulnerable than male-headed household, at baseline. Female-headed households are significantly worse off in many dimensions, including socio-economic status, food security indicators, and the extent to which they have to rely on harmful livelihood coping strategies. It will be interesting to understand how the impacts of the intervention vary by gender of the household head.

## 1. INTRODUCTION

The “Supporting emergency needs, early recovery and longer-term resilience in Syria’s agriculture sector” project is a 32-month FAO programme in Syria, funded by DFID. FAO Syria implements the programme between October 2017 and March 2020 in various locations across Syria, using multiple approaches and mechanisms.

The programme has three keys objectives:

1. To increase food availability for vulnerable households through improved smallholder production;
2. To build sustainable access to productive assets, income and food supply; and
3. To foster enabling environments for resilience building and recovery of the agricultural sector.

The programme has two principal stages: a “baseline stage” taking place in 2018/2019 (“Stage 1”), and a “midline and endline stage” taking place in 2019/2020 (“Stage 2”). ISDC advises and supports FAO in both stages with knowledge building and learning activities.

In this baseline report, we discuss completed activities and findings related to the baseline stage and we preview next steps. This version of the report builds on a previous draft provided to FAO in December 2018, and on the comments received from FAO staff at the joint workshop in Beirut on 26 February 2019.

The report is structured as follows. Section 2 presents an overview of the FAO programme activities, the design adopted to study the impact of the programme, the sampling strategy, and the baseline survey, including questionnaire development and enumerator training. Section 3 provides information on data cleaning as well as the descriptive and heterogeneity baseline results. Section 4 concludes and previews next steps.



## 2. PROGRAMME ACTIVITIES AND STUDY DESIGN

In this section we discuss the specific programme activities, the design of the impact evaluation study, the sampling strategy for the baseline survey, the questionnaire development and the enumerator training.

### 2.1 Programme activities

The programme activities undertaken by FAO under the DFID-funded programme fall into both the “emergency” or “resilience and early recovery” categories. Emergency activities include the distribution of vegetable and irrigation kits as well as poultry packages. Resilience and early recovery activities include the rehabilitation of damaged irrigation systems and beekeeping, as an alternative income-generating source. In this report we focus on programme activities to be delivered in 2019 (“Year 2” of the programme).

The programme targets vulnerable rural farmers with one or more of the following characteristics:

1. Households headed by women and/or disabled;
2. Unemployed young men susceptible to the appeal of armed groups;
3. Small-scale farmers and herders who lost their productive assets and/or lack access to inputs;
4. IDPs and IDP host families.

Table 1 below lists the key activities and the targeting criteria, the number of beneficiaries and the target governorates per activity.

Table 1: Programme activities and beneficiaries in Year 2

Category	Key Activity	Brief Description	Beneficiaries	Target Governorates
<b>Emergency</b>	Poultry package	20 laying hens with 200 kg of chicken feed will be distributed mainly to female-headed households as egg production packages in order to support them recover/increase their income and allow them to make a good use of their food waste as feed.	1450 households	Aleppo, As-Sweida, Dar'a, Deir-Ez-Zor, Quneitra, Hama
	Vegetable package	To support family farming which will help to improve the nutrition status of the targeted vulnerable households with special focus on women and children. The surplus resulted from	2350 households	Aleppo, Al-Hasakah, As-Sweida, Deir-Ez-Zor, Hama, Quneitra

		vegetable production could generate an extra income. The vegetable kit is designed in a way that fulfils the nutrition needs for the targeted family during the winter and summer seasons. The drip irrigation kit, covers 400 to 600-meter square, could be used for many years as productive assets.		
<b>Resilience and Early Recovery</b>	Rehabilitation of damaged irrigation systems	To increase the irrigated lands and enhance water use efficiency for small farmers. This includes repairing water pumps, rehabilitation of irrigation infrastructure (e.g. desalting and cleaning of canals), regulating water flow gates, rehabilitation existing wells and providing solar-powered water pumps.	550 households	Al-Hasakah, Deir-Ez-Zor, Rural Damascus
	Beekeeping as an income-generating activity (IGAs)	To support crisis-affected people (priority to those lost their productive assets) in rural areas with the knowledge, skills, tools and equipment in order to strengthen their food security and livelihoods. Women-headed households will be largely targeted. Local Beekeeping association for each 10 to 20 beneficiaries will be established for collective honey extraction, marketing as well as pasturing and wintering.	500 households	As-Sweida, Hama, Homs, Rural Damascus

## 2.2 Study design

To analyse the impact of the programme, the study uses a quasi-experimental design that compares villages and households that received/were to receive the intervention (the “treatment group”) with villages and households that did not/were not to receive the intervention (the “control group”). Treatment villages and households will, thus, have received at least one programme activity, while control group villages and households will not have received any. Both treatment and control households surveyed before the intervention (in the baseline survey) will also be interviewed again and the after programme (in the midline and endline surveys).

This quasi-experimental setup allows us to infer the *causal* impacts of receiving (any) programme activity, and to distinguish the impacts of the “emergency” and “resilience and early recovery” modalities as presented in Table 1 above. By having control group observations, we can ensure that any changes we observe among beneficiaries from baseline to midline/endline are really the result of receiving programme activities. Specifically, it allows us to rule out that any observed changes in outcomes among beneficiaries are the result of other systematic

differences between baseline and midline/endline, such as seasonality, or events that might have taken place during the implementation period, such as a drought.

In order to make this comparison valid, it is key that the control group is not systematically different from the treatment group, in terms of location and socio-economic characteristics (before the intervention). This means that we need to ensure that we survey a control group that is *on average* “structurally” similar to the beneficiary group. This structural similarities should hold at

- a) the village level (such as same governorates, comparable accessibility of villages, similar exposure to conflict and agro-climatic conditions) and
- b) the household level (such as similar household demographics and land holdings).

Baseline data is collected (and analysed) from two household samples: a) households that live in “intervention villages” and were direct beneficiaries of the programme and b) households that live in “control villages” that are similar to “intervention villages”, but no household received programme activities. This ensures analytically that in the control groups we do not pick up “spillover effects”, i.e. that control observations were “indirect beneficiaries” who benefited (in some way) from programme activities taking place in their village. In addition, observed households in the control villages were selected based on the same eligibility criteria as beneficiaries in intervention villages.<sup>1</sup>

A critical component of this research design is that in the midline and endline surveys exactly the same treatment and control households are interviewed as in the baseline survey (“panel study”). In other words, a fixed set of households is tracked over time in the baseline, midline, and endline surveys, in both control and treatment groups. Such a design requires more time and effort than some other approaches, such as observing different cross-sections in the three waves, but the benefits significantly outweigh the costs, especially in the long-run. As noted above, following up with the same households is the only way to guarantee that the changes induced by the programme are accurately captured and not confused with other changes among households and villages during the implementation period. In addition, repeated interviews with the same households over time builds trust by households in the team of enumerators, improves data quality and increases the ease of data collection in the midline and endline survey (and any long-run follow-up surveys that may be conducted in the future).

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<sup>1</sup> For ethical reasons and to maintain continuity in data collection across all three waves, all participants from the control villages receive a token present from FAO at endline, acknowledging and thanking them for their time spent on answering questions.

## 2.3 Sampling in theory and practice

Sample size is a key challenge in the evaluation of multi-arm programmes with multiple activities. To achieve the statistical “power” to isolate the causal effect of each separate activity it would be necessary to collect data from a huge sample of beneficiaries (and equally from non-beneficiaries) for each activity, given the large number of activities that will be implemented by FAO in this programme. In order to overcome the issue, we group households in terms of activities received (“emergency” and “resilience and early recovery” beneficiary status), and draw the sample from the beneficiary group in a way that reflects the total number of recipients across activities.

*Sampling strategy.* The sampling strategy included five steps, which were developed jointly with FAO. These steps were explained to the enumerators in detail during the training workshops. The enumerators were then trained extensively on the tasks that would require their input. The five steps are as follows:

1. We identified the number of potential beneficiaries per sub-district and per activity. We conducted this process in close coordination with FAO staff, especially with the Programme Officer.
2. We drew samples from these sub-districts for the baseline study, with the sample size proportional to the number of beneficiaries per each activity. This ensures that samples at the sub-district level are balanced.
3. Together with the FAO Programme Officer, we identified and randomly selected a set of villages within each targeted sub-district.
4. In sampled beneficiary villages, the enumeration team was provided with a list of designated beneficiaries and randomly selected households from this list for interviews. Whenever beneficiaries had not been identified yet, we requested that the team identify respondent households based on the eligibility criteria identified by FAO for their target groups and randomly select a sample for interviews.
5. Control villages were determined in the field. Enumerators were trained to select a number of non-beneficiary villages proportional to population in its governorate to ensure speedy yet effective data collection. The enumerators were informed about the selection process, and it was communicated clearly that they need to select the non-beneficiary interviewees from villages based on the same eligibility criteria for the selection of beneficiaries in the intervention villages.

Tables 2 provides an overview of the sampling strategy and eventual sample sizes in intervention and control villages. The aim was to get observations from 968 households from treatment and control groups for the analysis. To account for possible attrition at midline and endline, we target a slightly larger sample size (1,010).

Although we had set out to include an equal number of intervention and control villages (85), there were some minor deviations on the ground. In the end, the sample now includes 86 beneficiary villages and 82 control villages. Similarly, the treatment villages fall in to 40 different sub-districts, and control villages into 43, both slightly lower than the 45 we aimed to cover in both samples.

We also could not take into account the possibility of a household being selected to multiple treatments. As some of the support received is delivered at the community level (for example, the rehabilitation of irrigation systems), it would be difficult to select households who might only benefit from household-level support without the added value of the community support. In certain instances where the same households might receive both poultry and vegetable kits, the respective selection criteria will be slightly revised during implementation to ensure that as few beneficiaries as possible will receive more than one support, which ensures also a maximum coverage of the number of beneficiaries.

Given that only a small fraction of beneficiary households might receive multiple types of household-level support, we will not have large statistical power to determine the impact of multiple treatments. The design of the study did not take into account a priori the possibility of multi-arm treatments, as discussions with FAO's implementation team revealed that each household will receive only one type of support. We concluded that integrating the multi-arm treatment into the analysis will not yield meaningful statistical evidence, and hence will be dropped.

Table 2. Study design and baseline sampling strategy

<p><b>169 (planned: 170) Villages in 44 (48) Sub-district in 9 Governorates</b></p> <ul style="list-style-type: none"> <li>● No overlap in the selection of villages between control and treatment (to mitigate within village spillover effects)</li> <li>● Planned balance of villages at sub-district level between control and treatment to ensure balance in agro-climatic conditions, accessibility, and conflict exposure.</li> </ul>	
↓	↓
<p><b>Treatment Group</b></p> <p>86 (85) Beneficiary villages in 40 (45) sub-districts in 9 governorates</p>	<p><b>Control Group</b></p> <p>82 (85) Non-beneficiary villages in 43 (45) sub-districts in 9 governorates</p>
↓	↓
<p><b>Baseline data to be collected from 524 ( 484) households</b></p> <ul style="list-style-type: none"> <li>- 337 (335) Vegetable kits**</li> <li>- 105 (70) Poultry kits</li> <li>- 59 (49) Beekeeping</li> <li>- 23 (30) Rehabilitation of irrigation systems</li> </ul>	<p><b>Baseline data to be collected from 486 (484) non-beneficiary households</b></p> <p>Selected with the same eligibility criteria as households in the treatment villages</p>
<p>* Planned figures are in parenthesis.  **15 households who will receive rehabilitation of irrigation systems will also receive other types support (10 will receive vegetable kits and 4 will receive poultry). 22 households who will receive poultry, and 14 households who will receive beekeeping are also receiving kits.</p>	

## 2.4 Baseline survey

The baseline survey has two objectives. First, it provides detailed information on households' characteristics and the condition they face before the intervention. Second, it provides detailed information on key project indicators, which will serve as the basis to understand the magnitude of programme impacts. Programme impacts will be primarily assessed based on the following set of outcomes:

*A. Food Production:* Since the target beneficiary households of the project comprise farmers and other households whose livelihoods largely depend on crop production (as producers, laborers, value chain actors), the quantities of crops grown are a key determinant of the availability and access to food, as stocks, market supply or income to buy food.<sup>2</sup>

*B. Food Consumption and Security:* Expenditure on food, the food consumption score (FCS) and the household dietary diversity score (HDDS) will also be assessed as direct or indirect/proxy measures of food access, availability, and security.

*C. Coping strategies:* The Reduced Coping Strategy Index (RCSI) and the use of harmful livelihood coping strategies will be used in assessing how households employ strategies for consumption-smoothing, asset-preservation (insurance), or asset-stripping (distress) during situations of potential or actual food shortages.

*Questionnaire.* The baseline questionnaire was developed in close cooperation with FAOSY's M&E unit. The objective was to ensure that the questionnaire yields sufficient data to achieve the goals of this study, whilst taking any practical limitations into account. The final baseline questionnaire administered in the field included detailed information on: location, household profile and characteristics, agricultural holding, access and activities (including handling, processing, and value chains), as well as information on input markets and livestock. For the measurement of food security and resilience, the following modules were included: household food supply and consumption (including dietary diversity), coping strategies, assets, exposure to shocks, access to basic services, and access to Drought Early Warning Systems (DEWS). In the Appendix, we provide further information on the baseline questionnaire.

*Enumerator training.* ISDC and FAO staff jointly conducted a two-day training workshop for enumerators at the end of October 2018. Workshop participants were identified and selected in close coordination with FAO Syria. The first day of the training introduced and explained the survey and the full questionnaire in great depth. Participants had the chance to give immediate feedback to clarify any questions and the phrasing of all questions was finalized. On the second day of the training, an internal pilot test of the questionnaire was conducted in the form of mock interviews, in which participants were randomly assigned to interviewer and interviewee roles, in order to practice conducting the interview and provide the enumerators with different perspectives.

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<sup>2</sup> In this baseline report we did not cover food production as the data is there are lots of inconsistencies with the data, and the variables capturing food production should be revisited at midline and endline to ensure better data quality.

*Enumerator teams.* ISDC and FAO's M&E unit then formed the data collection team as follows. Each team of enumerators covered one governorate, with the team members coming from that governorate. The team size was determined based on the sample size for each governorate. For each team, we selected a team leader who was responsible for overseeing the data collection process and for providing support to enumerators in their team. The team leaders were also trained in selecting the villages and the households based on the study design. Moreover, in each governorate, FAO's Local Focal Expert was in contact with the team leader throughout the process, directing the team and coordinating the team's work with the FAO office in Damascus. Data collection in both intervention and control villages took place in November 2018. The trained enumerators conducted the household interviews based on paper-based questionnaires.



## 3. BASELINE ANALYSIS AND FINDINGS

### 3.1 Data processing

Data entry was conducted at the FAO offices in Syria, under guidance provided by ISDC staff. FAO staff entered the information from the questionnaire sheets into computers using Microsoft Access software. Upon receiving the raw data file shared on 26 November 2018, ISDC staff cleaned the data and calculated the basic summary statistics using R software.

### 3.2 Descriptive baseline analysis

In this section we present the findings from baseline analysis. The results focus on the overall descriptive statistics as well as tests for baseline balance between the treatment and control groups. First, we show the results on the socio-economic and household characteristics of our sample including income, education, household size, and assets. Second, we focus the main analysis on food security outcomes and the use of coping strategies, as well as on shocks experienced by the households.

#### 3.2.1 Household characteristics

*Geographic spread.* Table 3a provides information on where households in the baseline sample reside. Column 1 presents the spread across governorates for the full study sample, while columns 2 and 3 present the distribution for the intervention and control group sub-samples separately. Column 4 indicates for each governorate if the share of households residing in this governorate is statistically different between the interventions and control group sub-samples. We denote statistically significant differences by stars, ranging from no star, meaning no significant difference, up to three stars (\*\*\*), meaning a highly significant difference.<sup>3</sup>

One of the objectives of the study design was that the spread of household location across governorates is similar for the control and treatment sub-samples. Table 3a suggests that this objective has been achieved. The only two governorates with a strongly significant difference in concentration of households are Deir-ez-Zor, in which about 14% of the surveyed intervention households but only 8% of surveyed control group households reside, and As-Sweida with 11% and 7%.

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<sup>3</sup> The same notation will be used in all tables throughout the report.

Table 3a. Geographic location of sampled households

	Overall (n=1,010)	Intervention (n=524)	Control (n= 486)	Significance
Al-Hasakeh	17%	16%	18%	
Aleppo	18%	15%	21%	**
As-Sweida	13%	15%	10%	**
Dar'a	4%	4%	5%	
Deir Ez-Zor	15%	19%	12%	***
Hama	18%	18%	18%	
Homs	2%	2%	2%	
Quneitra	9%	10%	9%	
Rural Damascus	4%	2%	5%	**

*Characteristics of the household head.* Table 3b provides detailed information characteristics of the head of the surveyed households. Another key objective of the study design was that the characteristics of the household head do not differ systematically between intervention and control households. Our results suggest that this objective has been achieved, too, and that the households are similar on average across the two sub-samples.

The most notable difference across the sub-samples is the gender of the household head. About 84% of households in the control sample are headed by a man, but only 73% of intervention households. The main reason for this difference may be that the programme actively targets female-headed households. While the criteria for control households to be surveyed were set to be as close as possible to the programme eligibility criteria, the figures seem to suggest that in practice enumerators did not manage to target a sufficiently high number of female-headed households in the control group that matches the number in the intervention sample. Yet, the magnitude of the difference about 10 percentage points is still quite modest.

In terms of other characteristics, we do not observe notable differences between the intervention and control samples. The average household head is about 49 years old, about 70% of them are married, while 13% of heads are widowed. About 53% of household heads in the full sample have completed primary education, and only about 21% have not received any formal education. We observe only slight differences between the two groups, where the control household heads have more secondary education than their counterparts in the case group.

Table 3b. Characteristics of the household head

	Overall (n=1,010)	Intervention (n=524)	Control (n= 486)	Significance
HH Head Gender (%Male)	78.3%	73.2%	83.8%	***
HH Head Gender (%Female)	21.7%	26.8%	16.2%	***
HH Head Age (mean)	49.49	49.39	49.60	
HH Head Marital Status				
... Single	3%	3%	2%	
... Divorced	2%	2%	1%	
... Married	70%	73%	66%	**
... Widowed	13%	14%	12%	
... Not Specified	13%	8%	19%	***
HH Head Completed Education Level				
... None	21%	22%	21%	
... Primary	53%	52%	54%	
... Secondary	9%	10%	8%	
... Tertiary	6%	7%	6%	

*Other socio-economic characteristics of the household.* We do not find systematic differences between intervention and control households in characteristics of income sources, household composition and displacement status (Table 3c). As displayed in the bottom panel, 85% of the households in the overall sample are residents, 13.7% are returnees and only 1.2% report that they are currently displaced. About 55% of the income generated by the average household is through crop farming, about 13% from herding and 17% from other labour work. Just about 1% of the income generated in the average household is from beekeeping.

Table 3c. Other socio-economic household characteristics

	Overall (n=1,010)	Intervention (n=524)	Control (n= 486)	Significance
Occupation as % Share of HH Income				
... Crop Farmer	54.7%	53.8%	55.6%	*
... Herder	12.9%	11.7%	14.1%	
... Beekeeper	1.0%	1.2%	0.7%	
... Labourer	16.7%	16.9 %	16.5%	**
... Other	14.6%	16.4%	12.7 %	
Household Composition				
... HH Size (mean)	10.24	9.38	10.90	
... Num Females (mean)	5.20	4.84	5.53	
... Num Males (mean)	5.06	4.79	5.29	
Household Composition Breakdown by Age Group				
... Num Men (above 65)	0.97	0.96	0.97	
... Num Women (above 65)	1.01	1.03	1.00	
... Num Men	1.82	1.86	1.77	
... Num Women	1.88	1.94	1.82	
... Num Boys	2.34	2.27	2.42	
... Num Girls	2.48	2.48	2.49	
Residential Status				*
... Displaced	1.2%	1.8%	0.6%	
... Resident	85.0%	82.7%	87.5%	
... Returnee	13.7%	15.5%	11.8%	

### 3.2.2 Food security

Table 4a presents detailed baseline statistics on the three measures of food security we study: the Food Consumption Score (FCS), the Household Dietary Diversity Score (HDDS) and the Reduced Coping Strategy Index (RCSI). Overall, there are two headline observations. First, based on the FCS, our primary measure, the food security of the majority of households in the full sample (74%) is now considered as “acceptable”. Second, we observe no systematic differences between intervention and control households in food security status at baseline, as intended by the study design. We discuss results for each of the three indicators in turn below.

Table 4a. Food security indicators at baseline

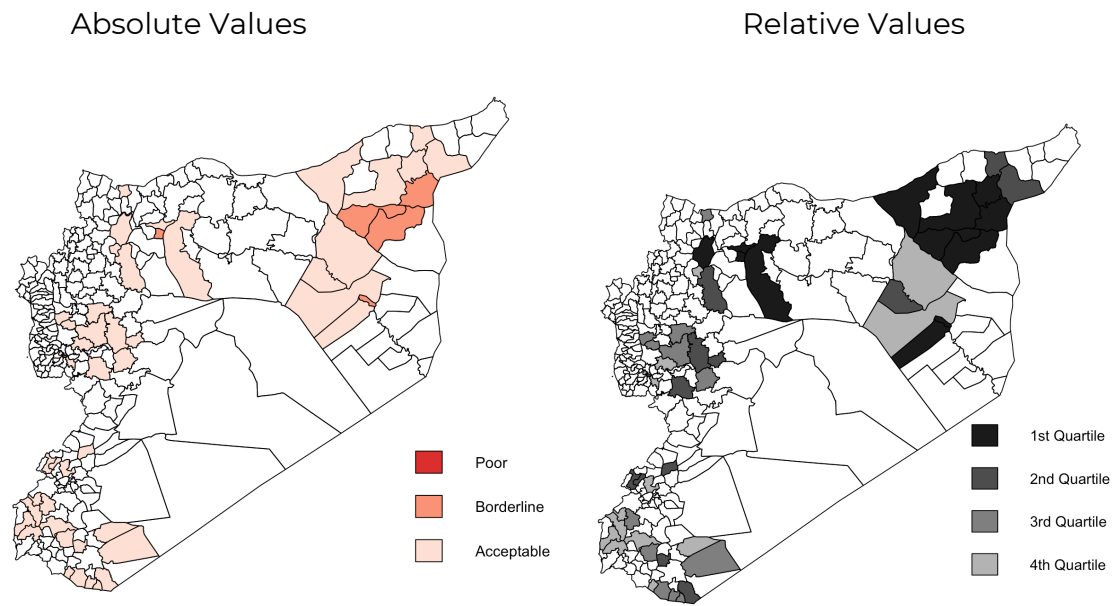
	Overall (n=1,010)	Intervention (n=524)	Control (n= 486)	Significance
FCS (mean)	55.34	55.52	55.15	
FCS (%)				
... Acceptable	74.2%	72.7%	75.7%	
... Borderline	21.9%	23.5%	20.2%	
... Poor	4.0%	3.8%	4.1%	
HDDS (mean)	8.12	8.17	8.07	
RCSI (mean)	10.73	10.72	10.74	
RCSI (%)				
... High	42.6%	42.4%	42.8%	
... Medium	46.6%	47.7%	45.5%	
... Low	10.8%	9.9%	11.7%	

*FCS.* The FCS is based on the number of days the household consumed certain food items in the seven days before the survey (as reported by the household). A household's food security status is considered "poor" if the FCS value is 28 or lower; "borderline" if the FCS value is larger than 28 but less than 42, and "acceptable" if the FCS value is 42 or above. The average FCS value in the full sample is about 55, which is considered "acceptable". We find that about 22% of the households have a "borderline" FCS status, and the FCS status of about 4% is considered "poor".

At the regional level, we find that most regions have acceptable levels of food security, based on the FCS. To explore how food security varies across regions, Figure 1 plots absolute FCS outcomes at the sub-district level. The darker the colour of the sub-district, the more alarming is the average FCS status. Areas, for which no data is available, are left white.

To produce the figure on the left we calculated the mean FCS value at the sub-district level, and then categorized the mean levels into three classifications based on the WFP/FAO thresholds for Syria. A sub-district is considered "poor", if the mean FCS value is 28 or lower; "borderline" if the mean FCS value is larger than 28 but less than 42, and "acceptable" if the mean FCS value is 42 or above. The map illustrates that many sub-districts in Syria can now be classified as having an acceptable level of food security (on average), with the exception of some sub-districts in Al-Hasakah that are classified as "borderline". Here it is important to note that the sample in our study is not representative of the population at the sub-district level and hence these figures cannot be generalized to the general population.

Figure 1. Food Consumption Score (FCS) across sub-districts in Syria



The map on the right compares sub-districts based on its position in full distribution of the sub-districts FCS scores in our sample. In other words, this is a *relative* comparison between sub-districts. To do so we split the full distribution of sub-district FCS scores into four “quartiles”, where each quartile contains the same number of sub-districts. For example, if a sub-district is part of the bottom or 1st quartile, this means that 75% of the sub-districts in the sample have a higher mean FCS value than this sub-district. On the other hand, belonging to the top of 4th quartile means that 75% of the sub-districts in the sample have a *lower* mean FCS value.

The survey asks the number of days on which a household consumed eggs, fish, or meat/poultry over the past seven days as separate categories. Usually, in other surveys there is only one questions that captures the number of days any of these high-protein foodstuffs were consumed. Hence, our calculations produce the indicator as follows: we take the number of days for the three protein-rich categories and then select the maximum number days out of those. For example, if one households consumed eggs on 4 of the past 7 days, fish on 0 days, meat on 2 days, and poultry on 1 day, the indicator equals 4 days. The advantage of this approach is that it is uses accurate information about actual intake of all three items in the past seven days and produces a single indicator, as opposed to bundling all these high-protein food items into one question, which likely leads to less accurate single indicators. A limitation of this approach, however, is that we are giving the same weight to the consumption of each of these three protein-rich foodstuffs. In the case of Syria, the consumption of meat and poultry is very common, and culturally more ingrained and valued than the consumption of eggs. If we base the

FCS on meat/poultry consumption only, the number of households falling into the “acceptable” category decreases by about 15%.

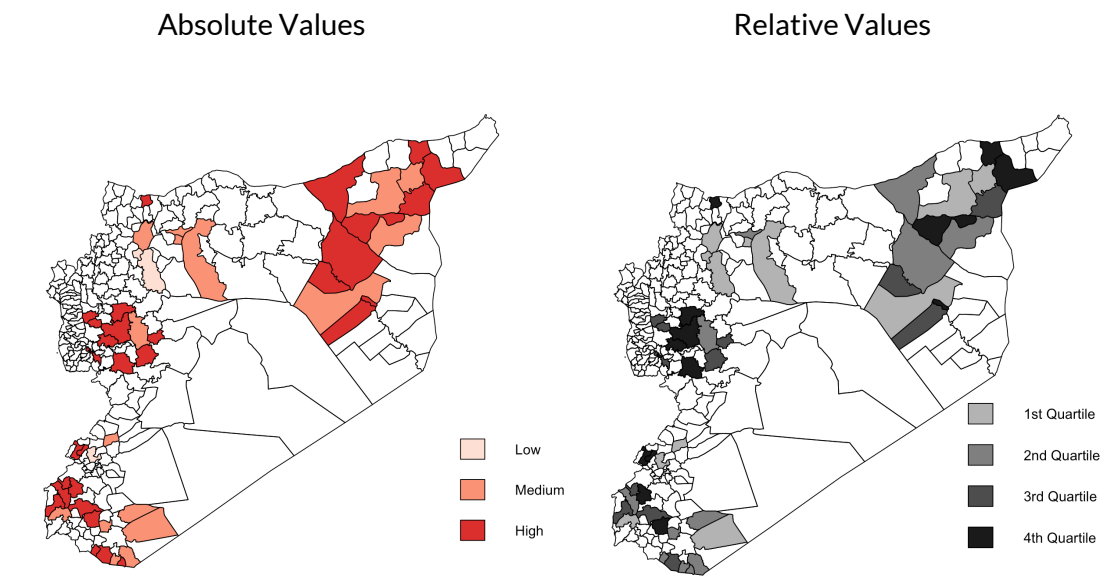
*RCSI.* The FCS only provides one aspect of the food security situation, as it can only inform us about the number of food categories consumed, and not the amount or quality. The Reduced Coping Strategy Index (RCSI) is another equally important measure of food security. It is a weighted score based on the frequency and severity of behaviours that households use when they do not have enough food or enough money to buy food. The higher the RCSI, the worse off a household is. The index is based on 5 questions asking about the coping strategies households used in the past 7 days to deal with shortage of food: limiting portion size, reducing the number of meals, borrowing food, and restricting consumption by adults for small children to eat.

In contrast to the positive findings from the FCS, our RCSI results suggest that many households still employ severe coping strategies to deal with food shortages. The average RCSI score in the full sample is 10.7, which is classified as “high” use of these adverse strategies (Table 4a).

To explore how the RCSI varies across regions, Figure 2 plots the distribution of the RCSI at the sub-district level. The darker the colour of the sub-district, the more tend households in the sub-district to report to severe coping strategies to deal with food shortages. Areas, for which no data is available, are left white. As for the FCS, we present the absolute classification of the RCSI in a sub-district as well as a relative comparison of RCSI levels across sub-districts. Thus, the map on the left focuses on the actual mean levels, categorized into three groups: “low”, “median” and “high” RCSI level. The map on the right compares sub-districts based on its position in full distribution of the sub-districts RCSI scores in our sample.

Reflecting the findings at the household level, the maps show two things. First, also at the aggregate level in many sub-districts employing severe coping strategies to deal with food shortages is still quite common. Second, these areas with high RCSI values are scattered across the country. The most affected areas are in Al-Hasakah, Homs, Hama, and Quneitra.

Figure 2. Reduced Coping Strategy Index (RCSI) across sub-districts in Syria



*The relationship between the FCS and RCSI.* The analyses of the FCS and RCSI indicators suggest a striking picture: while the FCS of many households in the sample across Syria are not classified as “poor” anymore, the use of severe coping strategies to deal with food shortages, as captured by the RCSI, is still quite high. Comparing Figures 1 and 2, suggests that there is also substantial overlap of sub-districts where we observe high FCS levels with sub-districts with high RCSI levels.

This raises the question if many household achieve borderline or acceptable food consumption scores at the expense of deploying highly adverse strategies, which can be very harmful to their welfare, even when they help to boost food consumption as captured by the FCS. We will probe into this hypothesis deeper in the next version of this report.

*HDDS.* In the next version of the report, we will add a detailed analysis of food diversity, measured by the HDDS. The HDDS is based on the number of food categories consumed in the last 24 hours. Overall, the average household consumed about 8 out of 12 food categories (Table 4a) in both the intervention and control samples. This adds evidence that the two samples have relatively similar characteristics before the intervention and are thus comparable and the causal impact of the programme can be measured at endline.

### 3.2.3 Harmful livelihood coping strategies

*Harmful livelihood coping strategies.* Table 4b displays results on the use of harmful livelihood coping strategies. It is important to note that the figures presented are the shares of households



that used a strategy *among households* who had access to using such that strategy. In other words, household who do not have such strategies available at the moment are not considered here.

Table 4b. Use of harmful livelihood coping strategies

	Overall	Intervention	Control	Significance
Sale HH Asset	24%	23%	25%	
Sale Productive Asset	29%	24%	33%	**
Food on Credit	81%	79%	84%	*
Reduce Food Exp	82%	80%	84%	
Reduce Asset Exp	69%	69%	68%	
Take Risky Work	17%	16%	19%	
Sale of Food Aid	16%	9%	23%	***
Sale of NFI	7%	4%	12%	***
Child Work	22%	22%	23%	
Child Marriage	14%	10%	19%	***

Overall, the extent to which a strategy has been used is fairly similar across the intervention and control samples for most strategies. Many households take out loans to get food (81% in the full sample) and reduce both food and asset expenditures (82% and 69%, respectively, in the full sample). We also observe that of 24% of all surveyed household had to sell household assets, and 29% had to sell productive assets. Moreover, 22% of households report that they sent their children to work to deal with lack of food or money to buy food and 14% resorted to marrying their daughters.

We observe statistically significant differences for only two of the strategies: selling productive assets and child marriage. Yet, none of the two is strongly statistically significant . While striking, it is not immediately clear what drives this difference, but we will explore this issue in more detail in the next iterations of this report.

### 3.2.4 Household shocks

Next, we examine the external shocks households experienced in the past 12 months that had a negative impact on the households. We consider a variety of common shocks including personal shocks (e.g., illness and death of household members), climatic shocks (e.g., drought), economic

shocks (e.g., price of agricultural output), agricultural shocks (e.g., crop pests and livestock diseases), and other shocks (e.g., insecurity and theft).

Table 5 provides an overview of all shocks covered in the baseline and presents for each shocks the proportion of household that were negatively impacted by such a shock for the full sample (column 1), and the intervention (column 2) and control sample (column 3) separately. Column 4 indicates if the difference in the proportions is different across the interventions and control samples.

Overall, we find that surveyed household report a variety of negative shocks they experienced and some affected large numbers of households. The two most common shocks experienced were high prices of agricultural inputs (60% of the households in the full sample) and droughts (62%). Other frequently experienced shocks include household food shortage (45%), crop pests (44%), and low market prices for agricultural output (34%), which are also direct threats to food security. In addition, 31% of households reported adverse impacts of security circumstances. Broadly speaking, we do not find systematic and large differences across the intervention and control samples in the experiences of these shocks, further boosting confidence in the comparability of the two samples.

Table 5. Household shocks

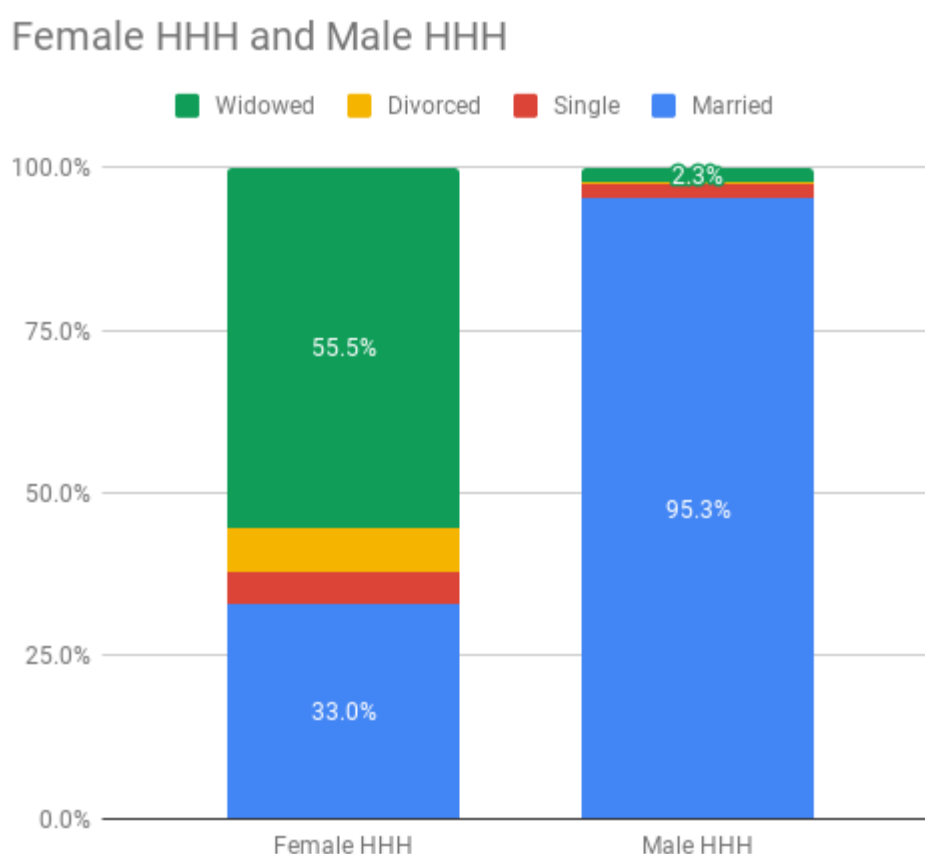
	Overall (n=1,010)	Intervention (n=524)	Control (n= 486)	Significance
Drought	62%	56%	68%	***
Floods	6%	7%	5%	*
Crop Pests	44%	46%	43%	
Livestock Disease	12%	12%	13%	
High Cost Input	60%	54%	65%	***
Low Price Output	34%	30%	39%	***
Illness Income Earner	9%	9%	10%	
Illness HH Member	11%	9%	13%	*
Death HH Member	7%	7%	7%	
Theft Assets	13%	16%	11%	*
Theft Agri Assets	17%	18%	15%	
Security Circumstances	31%	32%	31%	
Food Shortage	45%	45%	44%	
Fire	5%	4%	6%	*

### 3.3 Heterogeneity baseline analysis

In this section, we explore whether key baseline indicators vary meaningfully by the gender of the household head. We focus here only on the main household characteristics, food security indicators, and the use of harmful livelihood coping strategies.

*Gender and marital status.* To learn more about the characteristics of female headed households, we start by analysing if the marital status of the household head depends on their gender. The results displayed in Figure 3 suggest that while 95% of male household heads and only 2% are widowed, just 33% of female household heads are married, but 56% are widowed. We presume that many husbands of married female household heads may not live the household, but we do not have information on this question. If some of them have lost their lives, this would suggest that 56% of widowed female-headed households may be a lower bound.

Figure 3. Status of female-headed households at baseline



*Gender and food security.* Female headed-households are also worse off than male-headed households in terms of food security (Table 6a). In terms of FCS, 68% of female-headed households have acceptable levels, as opposed to 76% among male-headed households.

Similarly, female-headed households have to rely more on highly adverse strategies to cope with food shortages. The difference in the RCSI is substantial between male- and female-headed households. About 56% of female-headed households use strategies at a “high” extent, compared to only 39% among male-headed households. On the other hand, just about 6% of female-headed households can afford a “low” usage of these strategies, which further emphasizes the vulnerability of female-headed households.

*Gender and harmful livelihood coping strategies.* Table 6b displays differences for specific harmful livelihood coping strategies used in the past 12 month between male- and female-headed households. As before, these figures only include households who reported that they were *able* to use each of these strategies.

Table 6a. Food security indicators by gender of the household head

	Overall (n=1,010)	Female HHH (n=218)	Male HHH (n= 787)	Significance
FCS (mean)	55.34	54.76	55.53	
FCS (%)				*
... Acceptable	74.2%	68.3%	75.9%	
... Borderline	21.9%	26.1%	20.6%	
... Poor	4.0%	5.5%	3.6%	
HDDS (mean)	8.12	8.10	8.13	
RCSI (mean)	10.73	13.27	10.05	***
RCSI (%)				***
... High	42.6%	55.5%	39.1%	
... Medium	46.6%	39.0%	48.5%	
... Low	10.8%	5.5%	12.3%	

We find that there are significant differences in a series of harmful strategies. Specifically, female-headed household have to rely more on strategies to boost their economic endowments, including taking up credit for buying food (88% versus 79%), and reducing food-related expenditures (88% versus 80%). We also see pronounced differences in resorting to child marriage as a coping strategy (20% versus 13%). Yet, for several other coping strategies we find no gendered differences, such as for taking risky work, sending children to work, or the sales of food and non-food items. Nonetheless, the results suggest that overall female-headed households have to rely more on economic coping strategies, and the differences are sizable.

Table 6b. Use of harmful coping strategies by gender of the household head

	Overall	Female HHH	Male HHH	Significance
Sale HH Asset	24%	27%	23%	
Sale Productive Asset	29%	26%	30%	
Food on Credit	81%	88%	79%	***
Reduce Food Exp	82%	88%	80%	**
Reduce Asset Exp	69%	74%	67%	
Take Risky Work	17%	19%	17%	
Sale of Food Aid	16%	20%	15%	
Sale of NFI	7%	9%	7%	
Child Work	22%	27%	20%	
Child Marriage	14%	20%	13%	*

## 4. CONCLUSION

ISDC supports FAO Syria in building knowledge, learning and capacity, by designing a rigorous evaluation of the impact of its emergency and recovery intervention, advising on data collection in theory and practice, and conducting statistical analyses. In this baseline report, we review the adopted study design for analysing the impact of the FAO intervention, describe the approach to and implementation of data collection in the baseline survey before the implementation of the FAO intervention, and present statistics on the baseline data.

The statistical analysis suggests three main conclusions.

First, the sampled treatment and control households do not differ systematically at baseline, as intended by the study design. This “balance” of the treatment and control samples includes a range of dimensions including location, characteristics of the household head, other demographic indicators, displacement status, food security, and harmful livelihood coping strategies. This is a necessary (though not sufficient) condition for being able to quantify the causal impact of the programme once we have collected the endline data.

Second, the amount and diversity of food consumed is not at alarming levels anymore for many households, but many households continue to rely on both adverse food-related coping strategies and harmful livelihood coping strategies to achieve this seeming food security. There is suggestive evidence that many households achieve acceptable food consumption scores by deploying coping strategies that are potentially very harmful in the longer-term and/or for other dimension of welfare. These preliminary results emphasize that many people in Syria remain very vulnerable to food insecurity, thereby underscoring the critical importance of the programme.

Third, certain types of households are more vulnerable than others in terms of food security and welfare more generally. We focused on female-headed households and it will be interesting to understand how the impacts of the intervention differ for these households and for other vulnerable groups.

This baseline report completes Work Package 1. Looking ahead, we will conduct a short-term impact analysis of the recently implemented intervention between April 2019 and December 2019 (Work Package 2), and a long-term impact analysis of the intervention between January 2020 and March 2020 (Work Package 3). In Work Packages 2 and 3, we will build on this baseline report to develop the midline report (upon completion of Work Package 2) and the endline report (upon completion of Work Package 3).