



دراسة بعض مؤشرات الأمن الغذائي للأسر الريفية في محافظة درعا / سورية

A Study of Some Food Security Indicators of Rural Families in Daraa Governorate/ Syria

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المُلخَص

تم إجراء البحث في المناطق الريفية من محافظة درعا (سورية) سنة 2017 عن طريق العينة العشوائية لـ 151 أسرة ريفية من 6 قرى تقع في منطقتي ازرع والصنمين، بهدف دراسة بعض مؤشرات الأمن الغذائي، وهي مؤشر الاستهلاك الغذائي، ومؤشر التنوع الغذائي للأسر المعيشية، ومؤشر الإنفاق على المواد الغذائية للأسر الريفية في محافظة درعا. بيّنت نتائج البحث أن 41 % من الأسر تعيلها نساء، وتراوح متوسط حجم الأسرة بين 5 و6 أفراد معظمهم دون 18 عاماً، واعتمد المستهدفون في معيشتهم على الزراعة (67.6 %) وتربية الحيوانات، ولكن بحيازات صغيرة، ووفقاً لمؤشر الاستهلاك الغذائي فإن 15.6 %، و55.9 %، و28.5 % من الأسر الريفية كانت فقيرة، وهشة، ومقبولة، على التوالي. كما أظهر مؤشر التنوع الغذائي أن 20 %، و61 %، و19 % من الأسر المستهدفة كان مستواهم منخفضاً، ومتوسطاً، وجيداً، على التوالي، وتنفق أغلبية الأسر المعيشية (60.3 %) أكثر من 75 % من دخلها على المواد الغذائية. ويمكن استنتاج أن معظم الأسر كانت فقيرة، بصرف النظر عن عدد أفرادها أو عمر رب الأسرة، أو جنسه، وبالتالي فهي بحاجة إلى المساعدة في مجال الأمن الغذائي.

الكلمات المفتاحية: الأمن الغذائي، مؤشر الاستهلاك الغذائي، التنوع الغذائي للأسر المعيشية.

Abstract

The research conducted in the rural areas of Daraa governorate (Syria) in 2017 by random selection of 151 rural families from 6 villages located in two districts (Ezraa and Sanamain). The research aims, generally, to study some food security indicators i.e. Food Consumption Score (FCS), Household Dietary Diversity (HDDS) and Spending on Foodstuff for the rural families in Daraa governorate. The research finding revealed that, 41% of families were headed by women, the average family size was between 5-6 members and most of them below 18 years.

Respondents depend on farming (67.6%) and animals' production with small size of holding. According to FCS indicator 15.6%, 55.9% and 28.5% of rural families had poor, borderline and acceptable FCS, respectively. Low, medium and good level of HDDS were found in 20%, 61% and 19% of families, respectively. Majority of household (60.3%) spend more than 75% of their income on foodstuff. It could be concluded that most of the families were poor irrespective of their age, gender or family size and need assistant in term of food security.

Keywords: Food security, Food consumption, Household dietary diversity.

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Introduction

Reducing poverty, hunger and food insecurity are essential part of UN MDGs (United Nation Millennium Development Gales) and are pre-requisites for economic development. Food security and economic growth mutually interact and reinforce each other in the development process (Timmer, 2004). A country unable to produce the needed food and has no resources or afford to buy food from the international market to meet demand-supply gap, is not food sovereign state (Pinstrup -Andersen, 2009). Food security is thus fundamental to national security, which is generally ignored (Fullbrook, 2010).

World Food Summit in 1996 redefine the term, as "food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life". This definition encompasses five fundamental aspects: availability, access, stability, nutritional status and preferences of food. All of these components are influenced by physical, economic, political and other conditions within communities and even within households, and are often destabilised by shocks such as natural disasters and conflicts (FAO, 2006).

In Syria due to the crises, which started in 2011 the economy is suffering a great deal with limited alternative livelihoods and income opportunities available for the population. The effects of the previous droughts and low precipitation since late last year has also significantly impacted agriculture, livestock production, and water sources, increasing the rate and impact of vulnerabilities on the affected population. (UNOCHA, 2014).

Despite an improvement in 2015 due to favourable rainfalls, food production is still 40% below pre-crisis levels. (UNOCHA, 2016). The production of wheat crop the main food stuff in Syria decreased from 3083000 ton in 2010 to 2024000 ton in 2014(MAAR, 2016). The proportion of households with a poor food consumption score has increased from 10% during the fourth quarter of 2014, to 16% in early 2015. Households headed by women are most severely affected; About 60 percent more female-headed households are food-insecure and vulnerable than male-headed households (WFP, 2015)

The livestock sector in Syria has also suffered substantially since 2011. Herd and flock numbers of cattle and sheep have decreased by 30% and 40% respectively up to 2015. Poultry flocks, once the most affordable and available source of animal protein, have shrunk by 50%. (UNOCHA, 2016).

The results of Whole of Syria Food Security Sector Outcome Monitoring Initiative Report (2017) revealed that, 37 percent of surveyed households had poor or borderline levels of food consumption, and are thus at risk of food insecurity. Moreover, 47 percent of surveyed households had low or medium dietary diversity, indicating limited capacity to access nutrition rich food items.

As a result of the war standard inflation rate sharply increased and production of food stuff decreased so that the food security of people in the country affected especially in rural areas of the already drought affected areas like Daraa governorate, However the lack of food security studies in Syria, which investigate the food diversity scores and Dietary Diversity scores at household level still leads for more research, that show the real food security situation in rural areas in the country.

Objectives of research

- To study some socio - economic characteristics of household in the selected areas.
- To study some food security indicators i.e Food Security Score (FCS), Household Dietary Diversity (HDDS) and Spending on Foodstuff of the household.

Materials and methods

The research conducted In Daraa governorate by selecting tow districts i.e. Sanamain and Ezraa. Three villages from each district and around 26 rural families from each village were randomly selected, hence the total size of the sample was 155 rural families.

The data was collected by specially designed questionnaire. The selected respondents were interviewed by extension workers in the targeted areas during April- May 2017. Preliminary training on survey has been delivered to ensure the proper and accurate data collection.

The respondents feedback was evaluated. Some questionnaires were discarded due to lack of information. The final number of respondents included reached to 151 rural families.

1- Variables of research:

a- Independent variables:

The socio economic characteristic of the respondents i.e. gender, age, family size, main source of income, size of land holding, size of animals holding considered as independent variable in this research and were studied in descriptive and quantitative methods.

b- Dependent variables:

The following food security indicators were studied as dependent variables.

Food Consumption Score (FCS)

The Food Consumption Score (FCS) is a specific type of dietary diversity index used primarily by the World Food Program.

The food consumption score is widely used as a proxy measure of the dietary quality and caloric intake of households. It is a composite score, which is based in the dietary diversity, food frequency and relative nutritional importance of the different food groups consumed. Dietary diversity refers to the number of different food groups consumed by the household over a reference period. Food frequency is the number of times that a particular food group is eaten at the household during that same reference period (WFP, 2009). Food consumption score calculated by using the methodology of Word Food Program (Table 1).

The frequency weighted diet diversity score is a score calculated using the frequency of consumption of different food groups consumed by a household during the 7 days before the survey

For Calculation FCS the following formula was used:

$$Y = \sum_{i=1}^{i=9} f_i s_i$$

Y= FCS , f= number of days (1-7 days) of consumption for each i group (i = 1-9 groups). s= weight of food group (Table 1).

The food consumption score recoded from a continuous variable to a categorical variable using the appropriate thresholds. Accordingly, the household were grouped it to three categories: Poor (< 42 scores), Borderline (42-58 scores) and Acceptable (>58 scores).

Household Dietary Diversity Scale (HDDS)

The Household Dietary Diversity Score (HDDS) provides an estimation of the quality of a household's diet. It can also be seen as a proxy measure of a household's access to food, widely promoted by the UN Food and Agriculture Organization and USAID (FANTA, 2006).

Dietary diversity represents the number of different foods or food groups consumed over a given reference period (Hoddinott and Yisehac, 2002).

Similar to the FCS, but usually with a 24-hour recall period without frequency information or weighted categorical cut-offs. It is a proxy measure for HH food access has been widely promoted by the UN Food and Agriculture Organization and USAID (FANTA, 2006, FAO, 2010).

The result is a score that represents the diversity of intake, but not necessarily the quantity, though such scores have been shown to be significantly correlated with caloric adequacy measures (IFPRI, 2006; Coates *et al.*, 2007). IFPRI proposes to use the following thresholds: High dietary diversity (>6 scores), Medium dietary diversity (4.5 – 6 scores) and Low dietary diversity (<4.5 scores).

Table 1. Food groups and its weights in FCS and HDDS.

Sr.No	Food groups/items	Score of HDDS	Score of FCS
1	Cereals, grains	1	2
2	White roots and tubers	1	
3	Pulses / legumes / nuts	1	3
4	Milk and other dairy products	1	4
5	Meat / poultry:	1	4
6	Fish/shellfish:	1	
7	Eggs	1	
8	Vegetables and leaves	1	1
9	Fruits	1	1
10	Oil / fat / butter	1	0.5
11	Sugar, or sweet	1	0.5
12	Miscellaneous: Condiments / Spices: tea, coffee / cocoa, salt, garlic, spices,	1	0

Source: WFP VAM, 2008.

Spending on food

Spending on food given the propensity of people closer to the edge of poverty to spend a greater and greater proportion of their income on food, estimating the proportion of expenditure on food has become an important measure (Smith *et al.*, 2006). More share of income on food items means poorer situation of the family.

Respondents were asked to mention the percentage of their income they spent on purchasing of food stuff. Respondents were grouped to 3 categories (from 25-50% , between 50-75% and over 75%).

Results and discussion

1- Socio- economic characteristics of respondents

1- 1 Age and gender of head of the family

The results of research show that, most of selected families (58.3%) were headed by men and 41.7% of them headed by women. The average age of head of household (HH) was about.49 years. Data in Table 2 show that about 39.7% of HH were less than 40 years old and 38.4% were between 41 - 60 years and the remaining (21.9%) were more than 60 years old.

Table 2. Distribution of respondents by their age.

Age categories	Frequency	(%) Percentage
< 20	2	1.3
40 - 20	58	38.4
60 - 41	58	38.4
60 <	33	21.9
Total	151	100

Source: Data of the sample (2017).

1- 2 Family size

The average family size was between 5-6 members. Data in Figure 1 show that majority of respondents (75.5 %) have small family size (less than 6 members). Big families (more than 8 members) were observed with 10% of respondent.

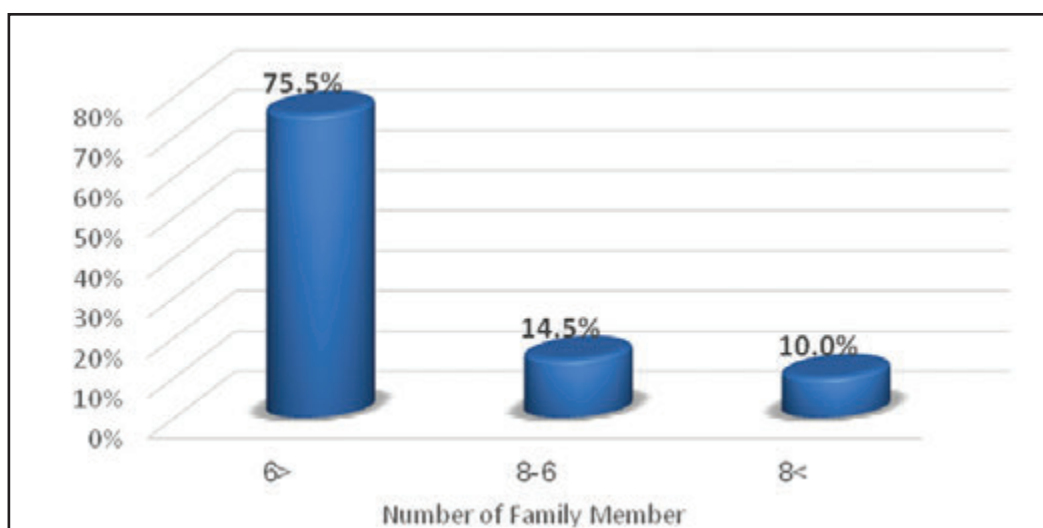


Fig 1. Distribution of respondents by the number of their family members.

1- 3 Age of family members

Family members were classified according to their age to 5 categories, data in Table 3 show that about half of families (48.3%) have school age children (6- 18 years) which means more care and expenditures are required. Children below 5 years and infants were found in 34.4% of the selected families, in this age special food is required for those children, especially infants. Old aged members (more than 60 years) were found in 21.5% of the sample.

Table 3. Distribution of family members according to their age.

Age categories	Frequency	(%) Percentage
Less than 6 months	24	15.9
From 6 months- 5 years	40	26.5
From 6 - 18 years	73	48.3
From 19- 60 years	145	96.0
More than 60 years	33	21.9

Source: Data of the sample (2017).

1- 4 Major source of income

The results of the study revealed that majority (67.6%) of respondents in Daraa depend on farming as the main source of income in their livelihood (Table 4). Animals' husbandry was major source of income for 32% only.

The average annual income of respondent attained from agricultural and animals' production was 387400 and 273500 Syrian pound (SYP), respectively.

Table 4. Distribution of respondents by their major source of income.

Major Sources of income	Average Annual income (SYP)	Frequency	Percentage (%)
Farming	387400	102	67.6
Animals production	273500	49	32.4
Total	352450	151	100.0

Source: Data of the sample (2017).

1- 5 Size of animals holding

The data in Table 5 show that sheep is the main animal which 30.5 % of respondents depend on for their lively hood followed by cattle (cows) 10%, however the herd size is very small, as the mean was around 12 heads per family for sheep and less than 2 heads of livestock only. However, majority of respondents (58.0 %) had poultry in average of 7 birds per family.

It could be concluded that respondents are poor and their economic situation is very tuff due to the current situation in Syria.

Table 5. Distribution of HHs according to size of their animals holding

Animals holding	Average number	Frequency	(%) Percentage
Sheep	14	46	30.5
Cow	>2	16	10.6
Poultry	7	88	58.3

Source: Data of the sample (2017).

1- 6 Land holding

Respondents in this research were investigated about size of their land. It was observed that, large majority of Households (HHs) (90%) had rain fed land in average of 2 hectares (Table 6). Most of these areas planted by wheat (wheat crop was cultivated by 67.6% of HHs) in average of 1.2 hectares, followed by barley which was cultivated by 14.7% of selected HHs in average of 0.9 hectares. The survey declared that, the average size of holding for irrigated land was 0.92 hectares, which was owned by 36.4% farmers, all this area was irrigated by wells and most of it cultivated by vegetables (28.5% of HHs).

Table 6. Distribution of HHs according to land holding and crops planted.

Land holding	Average area /hectare	Frequency	Percentage (%)
Rain fed land	2	136	90.0
Irrigated Land	0.92	55	36.4
Crops planted			
Wheat	1.2	102	67.6
Barley	0.9	22	14.7
Vegetables	0.48	43	28.5

Source: Data of the sample (2017).

2 - Food security indicators

a- Food consumption scores

Respondents were asked to mention their consumption of foodstuff within the last seven days. Data of Food Consumption Scores (FCS) was calculated and results were presented in Table 7.

Data in Table 7 show that 15.9 % of the selected families had poor FCS and 55.9 % had borderline FCS. Acceptable FCS was found in 28.5% of families only. It was noted that 71.5% of rural families poor or borderline of food security, which means assistance in term of food consumption is required for those two categories.

Table 7. Distribution of HHs according to their Food Consumption Score (FCS).

Food consumption categories	Frequency	Percentage (%)
Poor	24	15.9
Borderline	84	55.6
Acceptable	43	28.5
Total	151	100

Source: Data of the sample (2017).

b- Household Dietary Diversity Scores

The Household Dietary Diversity Score (HDDS) provides an estimation of the quality of a household's diet. It can also be seen as a proxy measure of a household's access to food.

Households are categorized according to whether they have low, medium or high dietary diversity based on predefined thresholds. Figure 2 shows that most of the selected HHs (61%) had medium level of HDDS and the rest had low level and good level. It can be concluded that majority of HHs consume less than 5 food items in a day.

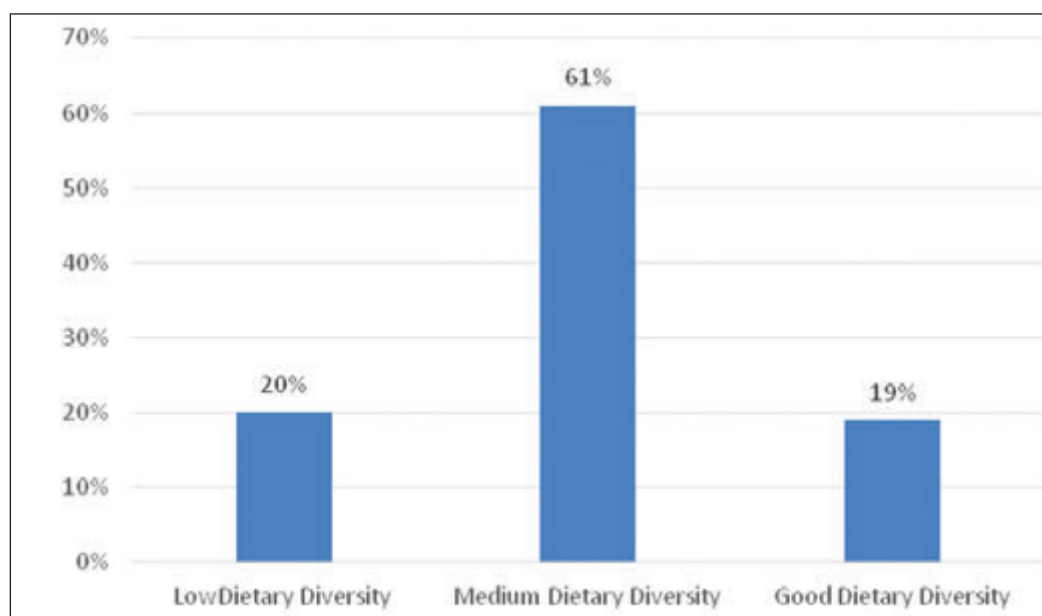


Fig 2. Distribution of respondent according to HDDS.

2 - 3 Spending on food

The percentage of total income that spent on purchasing of foodstuff was calculated and divided into 3 categories. Data in Table 8 shows that majority (60.3%) of HHs spend more than 75% of their income to buy food items to their families. Those families considered poor in the international standard, because still many expenditures are required for health, sanitation, education....etc.

Table 8. Distribution of HHs according to their spending on foodstuff.

Spending on food	25 - 50% of income	50 - 75% of income	Over 75% of income	Total
Count	23	37	91	151
%	15.2	24.5	60.3	100

Source: Data of the sample (2017).

3- Relationship between dependent and independent variables.

The relationship between independent variable i.e. the socioeconomic characteristics of the rural families (gender, age, family size, annual income, size of land holding, size of animals holding) and dependent variable i.e. the food security indicators (FCS, HDDS and spending on food) were studied by using Pearson's correlation coefficient and the following results were declared (Table 9).

Table 9. Pearson's correlation coefficient of the research variables.

Sr. No.	Characteristics	Pearson's correlation coefficient (FCS)	Pearson's correlation coefficient (HDDS)	Pearson's correlation coefficient (Spending on Food)
1	Age of respondent	-0.186	0.20	-0.186
2	Gender of respondent	0.23	0.01	0.23
3	Family size	0.06	0.03	0.31*
4	Size of animals holding	0.52*	0.41*	0.2
5	Annual income	0.78**	0.81**	-0.42**
6	Size of land holding	0.47*	0.32*	0.15

** Significant at 1 per cent level. * Significant at 5 per cent level Source: Data of the sample (2017).

- Positive relationship at 5% level of significance was observed between each of size of animal holding and land holding and FCS and HDDS. That means the FCS and HDDs indicators increases by increasing the number of animals and the size of the land owned by the family, as more quantity and varieties of dairy product and food crops (vegetables, legume...etc) will be produced if the HH has larger area or more animals, which lead to more consumption of these products by the family.
- Positive and strong relationship at 1% level of significance was observed between annual income and FCS and HDDs indicators. More variety and quality of food will be consumed by the increase of the annual income.
- Negative relationship at 1% level of significance was observed between annual income and spending on food. By the increase of annual income the share of spending on food of this income will decrease.
- Positive relationship at 5% level of significance was observed between size of the family and spending on food. By increasing the size of family, the share of annual income on foodstuff increases.
- Age and gender of respondents do not show significant relationship with dependent variables, that means the food security situation does not affect by age or gender of respondents.

Conclusions:

From the research results, we can conclude the following:

- Most of the respondents were middle aged, had small family size and children below 18 years.
- Rain fed agriculture and animals production were the main source of income for respondents with small size of land and animals holding and very low annual income.
- The food security indicators collected during this research indicate the worsening situation for proportion of households with low and medium dietary diversity.
- Most of the families were poor irrespective of their age, gender or family size.

Recommendations:

- There is a need for partners (government, NGOs, Arab League and UN agencies) to develop projects that ensure access to a diverse and nutritious food items to those people.
- Where possible, increased support to the livelihood of families can be considered as a priority, such as creation of income generation activities and providing production inputs to farmers and herders.
- Further food security research should be start in other places in Syria to describe the real situation in the country.

Reference

- Coates, J., L. Beatrice, P. Rogers, M. Daniel, H. Robert and C. McDonald. 2007. "Diet Diversity Study." Final report to the World Food Programme. Medford, MA: Friedman School of Nutrition Science and Policy, Tufts University.
- FANTA (Food and Nutritional Technical Assistance). 2006. Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide VERSION 2.
- FAO (Food and Agriculture Organization). 2006. Food security, Policy brief, No 2 Jun, Rom.
- FAO (Food and Agriculture Organization). 2010. "Guidelines for measuring Household and Individual Dietary Diversity." (Reprint 2013). Rome.
- Fullbrook, D. 2010. Food as Security. Food Security 2: 5-20.
- Hoddinott, J. and Y. Yisehac. 2002. Dietary Diversity as a Household Food Security Indicator. Food and Nutrition Technical Assistance Project, Academy for Educational Development, Washington, D.C.
- IFPRI (International Food Policy Research Institute). 2006. "Review and Validation of Dietary Diversity, Food Frequency and Other Proxy Indicators of Household Food Security." Rome.
- MAAR (Ministry of Agriculture and Agrarian Reform). 2016. Agricultural Stoical Group.
- Pinstrip-Andersen, Per. 2009. Food Security: Definition and Measurement. Food Security No. 1: 5-7.
- Smith, L., A. Harold and D. Aduayom. 2006. Food insecurity in Sub-Saharan Africa: New estimates from household expenditure surveys. Research Report 146. Washington DC.
- Timmer, C. P. 2004. Food Security and Economic Growth: Asian Perspective. Asian Pacific Economic Literature, November.
- UNOCHA (United Nations Office for the Coordination of Humanitarian Affairs). 2014. The monthly Dashboard Bulletin, October.
- UNOCHA, (United Nations Office for the Coordination of Humanitarian Affairs). 2016. Humanitarian Bulletin.
- WFP (World Food Program). 2008. Calculation and use of the food consumption score in food security analysis. Prepared by VAM unit HQ Rome.
- WFP (World Food Program). 2009. Emergency Food Security Assessment Manual. Rome.
- WFP (World Food Program). 2015. Syria Food Security Assessment Report, October.
- Whole of Syria Food Security Sector Outcome Monitoring Initiative. 2017. Pilot Phase Report, April.

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