

Review Article

The food of Near East, North West and Western African regions*

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Among the countries that can be classified as Near East Africa, North West Africa, and Western Africa, there is a great diversity of foods and dietary patterns. Prevalence of undernourishment as defined by FAO using dietary energy supply data, varies dramatically among these countries, with Tunisia in the lowest prevalence category (<2.5%), and Sierra Leone in the highest prevalence category (>35%). Throughout the 1960's, the dietary energy supply of North West African and Western African countries was similar. However, since the 1970s a great and consistent improvement has been seen in North and North West African countries. Both the proportion and number of undernourished in North Africa is now very similar to that of North America. Oil use, energy from fat, and protein from plant versus animal sources account for a large part of the food pattern differences between countries in these regions. Using Tunisia and Sierra Leone as examples again, dietary diversity as measured by the percentage of energy from foods other than starchy staples, is about 50% in the former, while in the latter, it is only 36%. Fatty fruits such as olives, cocoa and palm fruit have a special role in both the diet and the economies of the region.

Keywords: food, fatty fruit, palm fruit, food supply, energy intake, diet, Africa

Introduction

The Food and Agriculture Organization of the United Nations (FAO), as part of its mandate, compiles information on various aspects of food from all its member countries. FAO operates the secretariat for INFOODS, the International Network of Food Data Systems¹, assisting countries in acquiring, compiling and using food composition data. AFROFOODS is one of the INFOODS Regional Data Centres with subregional groups for northern and western Africa. One global use of food composition data is in the larger FAO Statistical Databases (FAOSTAT). All the data are analysed and interpreted to support FAO's programmes and activities and, in accordance with the basic functions of the Organization, and they are widely disseminated as CD-ROMs² and via the Internet.³

The FAOSTAT data of direct relevance to nutrition include dietary energy supply (DES) (kcal/person/day), dietary protein supply (g/person/day) and dietary fat supply (g/person/day), as well as food supply (kg/person/year), in a time series from 1961 to the present period of data acquisition and validation (there is a two year lag period; e.g. the 2000 data are released in 2002).

These data are widely used, most commonly to analyse a population's food availability and eating habits.⁴⁻⁶ However, they have been used in a variety of ways including prediction of famine,⁷ estimations of nutrient losses from irradiation,⁸ and exposure assessments for lead.⁹ Much of the elucidation of the "Mediterranean Diet" came from analysis of data from FAOSTAT,^{10,11} as have earlier analyses of the relationship between dietary patterns and cancer.¹²

Per caput supply figures shown in the commodity balances of FAOSTAT represent the average supply

available for the population as a whole and do not indicate what is actually consumed. Notwithstanding certain well-documented weaknesses in the statistical data sets,¹³ they are used as proxies for per caput consumption. Overestimation is likely to be a problem; it is linked to perishable foods, food-chain losses, household waste, and other factors. Vegetable and fruit data are prone to overestimation; starchy staples are less prone. Underestimation is linked to home/community gardens, gathered foods, and some other foods outside formal economic systems.

Methods

FAOSTAT data sets provide time series food supply information from 1961-2000, for 130 food commodities or aggregations of commodities, and 363 countries and aggregations of countries.

Country aggregations

The groupings of countries in this paper, based on FAO definitions, are as follows: Near East Africa includes Egypt, Libya and the Sudan; North West Africa includes Algeria, Morocco and Tunisia; Western Africa includes

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Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Commodities

All data are expressed as the primary commodity equivalents. FAOSTAT accommodates the fact that commodities are often not consumed in the primary form - cereals enter the household mainly in processed form such as flour, meal, bread, husked or milled rice - by applying the appropriate food composition factors to the quantities of the processed commodities. These factors were recently reviewed and updated.¹⁴ Export and non-food uses are accounted for and are excluded from the calculations. Data are presented as food availability in kg/cap/yr, dietary energy supply (DES) in kcal/cap/day, dietary protein supply (DPS) in g/cap/day, dietary fat supply (DFS) in g/cap/day. Other macro- and micro-nutrient data sets are available within FAO, but are not available for external use at this time.

Dietary Energy Supply

One of the fundamental measurements made yearly by FAO is that of the Dietary Energy Supply (DES). This is food available for human consumption, expressed in kilocalories per person per day. At country level, it is calculated as the food remaining for human use after deduction of all non-food consumption (exports, animal feed, industrial use, seed and waste), calculated as energy and divided by the number of people in the country.

Definition of undernourishment

Starting with national DES, undernourishment takes into consideration the average minimum energy requirement for the population, adjusted for different age and sex groups and the proportion of the population represented by each group. The minimum requirement for each group is based on the lowest acceptable weight for the typical height of the group in a given country and the light activity norm of energy expenditure.

Results and Discussion

Worldwide, the latest FAO estimates¹⁵ show that 840 million people were undernourished during the 1998-2000 period. This figure includes 11 million in the industrialized countries, 30 million in countries in transition and 799 million in the developing world. Of the 800 million under-nourished, 40 million, or 5 percent, are from the countries of the regions under consideration in this paper. The countries in these regions with greater than 35% prevalence of undernourishment are Niger, Liberia and Sierra Leone. There has been a modest improvement in Niger over the last decade, however, there has been no improvement in Liberia or Sierra Leone during this same time period. Conflict, past, present or both, and serious natural disasters account for much of the problem in these countries.¹⁵

A comparison of the trends in DES shows that North West Africa has improved steadily since the early 1960s to the present time, with a DES of around 3000 kcal/cap/day in recent years. Western Africa showed no

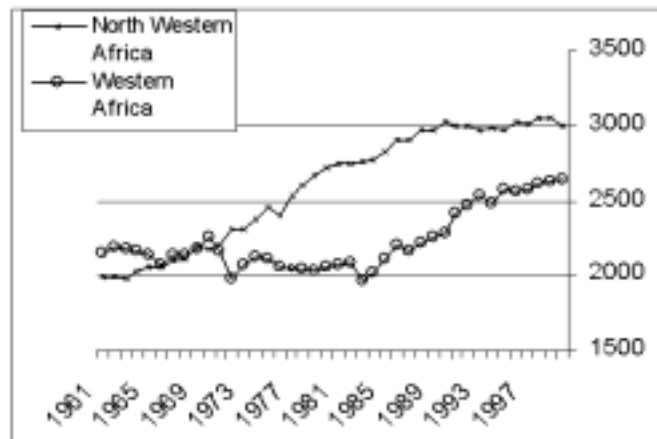


Figure 1. Trends in dietary energy supply (kcal/cap/day), North West Africa and West Africa, 1961-2000

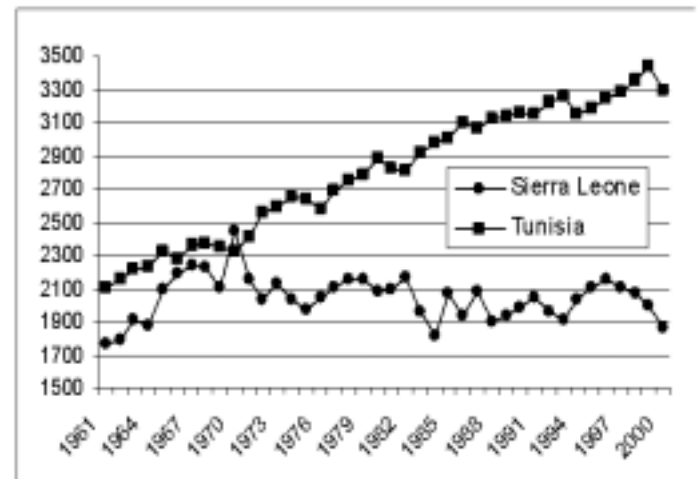


Figure 2. Trends in dietary energy supply (kcal/cap/day) in Sierra Leone and Tunisia, 1960 - 2001.

improvement from 1961 through the late 1980s, but has shown steady improvement across the region throughout the decade of the 1990s, with a recent regional DES averaging more than 2600 kcal/cap/day (Fig. 1). Although the energy gap in inter-regional averages is not so great, the extremes of individual countries show a different picture. Tunisia has the highest DES in the region, with between 3300 and 3500 kcal/cap/day in the recent three-year period. Sierra Leone, at the other extreme, has had a DES around 1900 kcal/cap/day for the recent period (Fig. 2). This, coupled with under-nourishment prevalence increasing over the decade of the 1990's and representing nearly 45 percent of the population in the 1998-2000 period, shows part of the grim nutrition picture for this Western African country.

Some of the energy differences are reflected in the percentages of energy from plant and animal food sources. Some of the countries with the lowest DES also have the lowest percentage of energy from animal foods. Sierra Leone, Liberia, Togo and Guinea, have less than 4 percent of the DES from foods of animal origin. In countries such as Tunisia, Libya, Mauritania, the Sudan and Cape Verde, 10-20% of the DES is represented by foods of animal origin.

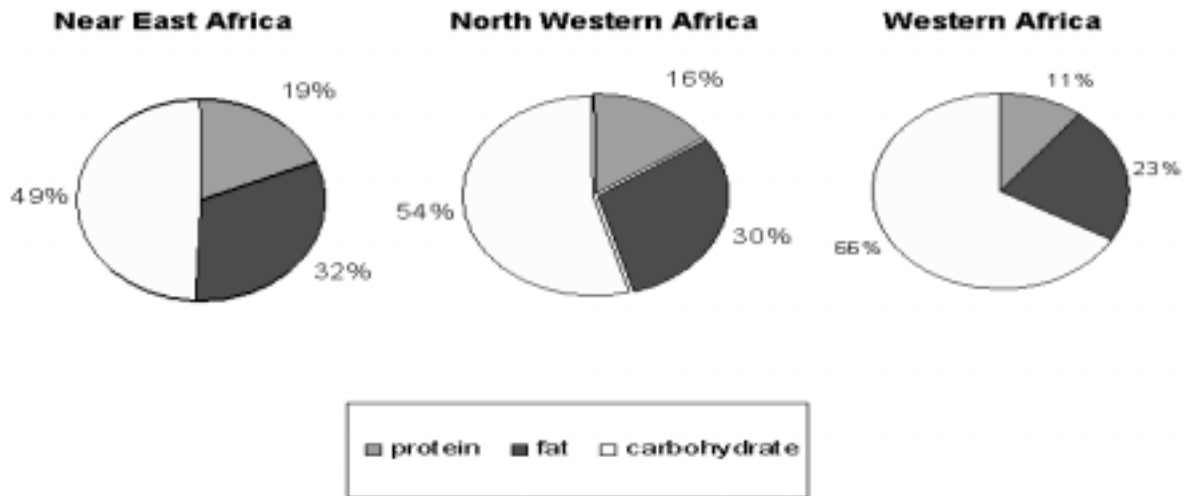


Figure 3. Percentage of energy from energy-yielding components

The percentage of energy from energy-yielding components of the diets shows fairly similar patterns for Near East and North-West Africa, with 49-54% of energy from carbohydrates, 30-32% of energy from fat and 16-19% of energy from protein. The pattern in Western Africa is quite different, with a disproportionately high amount of energy from carbohydrates (66%), and correspondingly low amounts from fat (23%) and protein (11%) (Fig. 3).

A further breakdown of energy by principal food groups provides a crude indication of dietary adequacy. Taking the countries at the extremes of DES, Tunisia and Sierra Leone, the most striking difference is the reliance on starchy staples (cereals and starchy root crops). While approximately 54% of the DES in Tunisia can be attributed to starchy staples, in Sierra Leone, it is about 73% (Fig. 4). A high percentage of energy from the starchy staples food grouping has been shown to be inversely proportional to dietary diversity and associated with micronutrient deficiencies.¹⁶

The regional grouping of Near East Africa, North-West Africa and West African, show high rates of the so-called double burden of malnutrition – high prevalence of underweight and a high prevalence of overweight and obesity. From a variety of data sources, it appears that in Egypt, Mauritania, Morocco and several other countries in these regions, rates for overweight and obesity for adult women far exceed the rates for underweight. Across the entire spectrum of body masses, there also exists a high prevalence of micronutrient deficiencies for all countries.¹⁷

Fatty fruits such as the palm fruit, olive and cocoa play important roles in these regions, for their contribution to the diet and to the economies of the countries. Other fatty plant foods also play important roles; these include coconut, sheanut/karité, jojoba, moringa and others.

Palm oil production is particularly high in Western Africa, averaging more than 1.4 million metric tons (Mt) per year in recent years. Until the late 1990's, production was largely used locally. Since the mid -1990's the palm oil production has not been meeting the domestic food supply needs of the region, and at least 10% of the palm oil available domestically comes from imports.

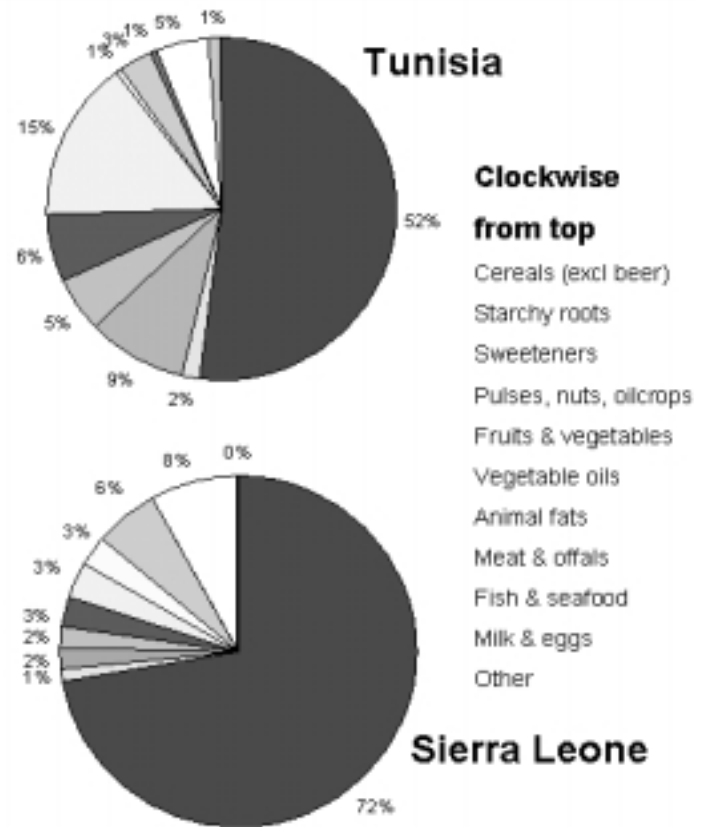


Figure 4. Percentage of dietary energy supply provided by principal food groups

Olive production in these regions is significant and is almost entirely used domestically. In some countries of North West Africa, olive oil contributes significantly to the fat available for domestic consumption. The average for the recent three year period for Libya is 16 g/cap/day and for Tunisia it is 20 g/cap/day.

In Tunisia, the dietary fat supply from soybean oil is even higher, exceeding 32 g/cap/day, the entire supply of which is imported. Cocoa production has steadily increased in Western Africa over the past 40 years. In 1961 production was about 700,000 Mt, increasing to nearly 1,800,000 Mt by 2001. Most of the production is exported, and as such, cocoa provides almost no food energy to the domestic food supply, whereas in countries such as Denmark and the Netherlands with no production, cocoa provides around 50 kcal/cap/day. Cocoa production is a major source of foreign exchange for countries in Western Africa.

Conclusions

Food composition data, together with the FAO Statistical Databases, provide a tool to make useful assessments of dietary patterns at the national and supranational levels. Although other survey methodologies may give a sharper picture of nutrient intakes and dietary patterns at the community, household and individual levels, and at different time periods, FAOSTAT is a readily accessible resource for country-specific standardized assessments over a forty year period. These data show that the food supplies and dietary patterns in these regions are diverse and are changing markedly. In combination with other data sets, these data can be useful in monitoring changes in food supplies and dietary patterns, currently and retrospectively, against the changing morbidity and mortality from diseases of under- and overnutrition in the regions of Near East Africa, North West Africa and Western Africa.

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