

Press release

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Tunisia: a correlation between varied agricultural production and women's dietary diversity

A study by researchers from CIRAD, IRD and the Tunisian National Institute of Nutrition and Food Technology (INNTA) revealed systematic positive correlations between the diversity of farm products and that of the diets of women on 290 family farms in the governorate of Sidi Bouzid, Tunisia. The results, published in the journal *Plos One* on 8 February 2022, also highlight the role of the level of education and household incomes in diversifying diets.

Agricultural households achieve food security thanks on the one hand to what they produce, and on the other to the income drawn from product sales. Dietary diversity is one aspect of food security, and reflects the nutritional diversity available to local populations. In this study, the researchers set out to pinpoint what determines a diverse diet. They conducted a survey of 290 women aged between 20 and 50, living in agricultural households in central-eastern Tunisia.

"The Jasmine Revolution, which launched the so-called "Arab Spring", began in late 2010 in the rural region of Sidi Bouzid, where farmers were suffering marked inequalities in terms of access to land and to irrigation", says Cédric Gaillard, an economics researcher at CIRAD and the article's lead author. "The local population is highly dependent on agriculture, and was also facing a rise in the price of staple foods, which are not produced in sufficient quantities locally. As a result, food insecurity was rising rapidly."

The surveys were conducted between November 2014 and January 2016, and were intended to provide information on the food situation for the region's women, a vulnerable group whose social status is often precarious.

Agricultural production is not very diverse, but diet is

The agricultural activities of the family farms surveyed primarily focus on oil crops (olive trees) and livestock production. Despite that lack of production diversity, the researchers observed that women in agricultural households had a sufficiently diverse diet, suggesting that their food was primarily obtained at markets. *"We observed that markets in the governorate of Sidi Bouzid all offered a wide range of affordable foods", Eric Verger, a researcher specializing in nutrition at IRD and co-author of the study, points out.*

A positive correlation

The links between diverse production and diverse diets are tenuous, but the researchers did observe a systematic positive correlation. *"Above all, the originality of our study lies in the methodology, because we considered five production diversity indicators. Those indicators measured different aspects of diversity, such as direct access to a range of products by means of farming, or the diversity of sources*

of agricultural income", Cédric Gaillard adds. "Each indicator was positively correlated to women's dietary diversity. The link was faint, but systematic."

Dietary diversity for women is thus achieved by being able to buy what is available on markets and by consuming what is produced on their farms. For instance, it is women living on dairy farms who consume the most dairy products.

Diversifying farm production is therefore key to resilience, Cédric Gaillard explains: *"As in other world regions, agricultural diversification boosts the nutritional value of women farmers' diets, and at least partly protects them against food price volatility"*.

The importance of level of education and household wealth

Agricultural jobs for women are still highly precarious in the region (where women are only classed as "agricultural labourers"), and the study highlighted the importance of education, which allows women to access jobs outside the agricultural sector. In addition to the diversity of food production, the diversity and level of income of women in farming households is intrinsically linked to a more diverse, better diet.

A study conducted within the framework of the Medina project

The Medina project was funded by the Agence Nationale de la Recherche from 2013 to 2017, and proposed an innovative "farm to fork" approach to food systems in the Mediterranean. Its work covered Tunisia and southeastern France, with the aim of reconnecting food with agricultural production and the environment. Several of the project's results can be consulted on line here: <https://www6.inrae.fr/medina>

Reference

Cédric Gaillard, Eric O. Verger, Sandrine Dury, Marie Claude Dop, Jalila El Ati. 2022. [Farm production diversity and women's dietary diversity: Evidence from central Tunisia](#). *Plos One*.

About CIRAD

CIRAD is the French agricultural research and international cooperation organization working for the sustainable development of tropical and Mediterranean regions.

It works with its partners to build knowledge and solutions for resilient farming systems in a more sustainable, inclusive world. It mobilizes science, innovation and training in order to achieve the Sustainable Development Goals. Its expertise supports the entire range of stakeholders, from producers to public policymakers, to foster biodiversity protection, agroecological transitions, food system sustainability, health (of plants, animals and ecosystems), sustainable development of rural territories, and their resilience to climate change. CIRAD works in some fifty countries on every continent, thanks to the expertise of its 1650 staff members, including 1140 scientists, backed by a global network of some 200 partners. It also supports French scientific diplomacy operations. <https://www.cirad.fr/en>

About IRD

The French National Research Institute for Sustainable Development (IRD) is a key French player on the international development agenda. Its work is founded on an original model: equitable scientific partnership with developing countries, primarily those in the intertropical regions and the Mediterranean area.

IRD sets its priorities in line with the Sustainable Development Goals (SDGs) adopted by the United Nations in September 2015, to steer development policies. Combining critical analysis into the implementation of these goals, IRD seeks to tackle the challenges facing us today: global, environmental, economic, social and cultural changes that affect the whole planet.

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