


Sustainable farming and women health

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Short Communication

Sustainable agriculture is the type of agriculture where the 3 pillars of sustainability, social, environment and economic converge (Purvis et al. 2019) [1], and food is produced at low ecological cost. This means that sustainable production techniques aim to have less impact on soils, and the surrounding environment. Industrial agriculture, utilize many inputs (agrochemicals, water) and mainly monocultures are the dominant way of production, the use of agrochemicals such as Plant Protecting Products (PPP), generates footprints, which remain in soils for many years (ie. DDT in soils). Footprints of industrial agriculture are also accumulated and transferred along the terrestrial organisms, such as invertebrates, and vertebrates, those organisms tolerate and or are adapted to those agricultural conditions. Humans living in those areas or nearby are also vulnerable to those environmental conditions, ie. when soil is polluted, it is very certain that the surrounding water bodies are also polluted. Sustainable production means respecting the environment, with environmentally friendly practices, in such a way that the future of the next generations is not jeopardized. Therefore, the agricultural footprints in those farming systems, are smaller than in the industrial agriculture, in sustainable agriculture diversified crops are dominant, such as intercropping and socioeconomic rentability is present (Alcon et al. 2023) [2]. Examples of diversified cropping where different plants grow together, supporting each other and preventing pests from spreading among the crop, enhance soil diversity (Datta et al. 2016) [3] in diverse and/or agro-ecological systems the use of inputs is minimal (e.g. compost or organic fertilisers are used instead of mineral fertilisers, organic fertilisers provide into the soil nutrients gradually, and therefore there is less risk of lixiviation, and less possibility of water pollution). The ancestral objective of the agriculture remains, which is to feed a group of persons, family/community/society. In sustainable farming, the main objective is to produce with less inputs, searching for quality instead of quantity.

Therefore, sustainable farming is dynamic, combing the experience of the past with innovations of the present. That is likewise observed among the family members, parents and grandparents are involved in sustainable production, young and old are combining their forces for producing.

Why is Sustainable Farming Relevant for Women?

When women are involved in sustainable production (mainly smallholders), they literally think about sustaining the next generations by feeding them directly from their land, therefore they mainly do not encourage monocultures (e.g. in a banana plantation in Tabasco, the grandmother (owner) explained to me that her children and grandchildren do not only eat bananas and that is why she also had guanabana, papaya, chili, inside the banana plantation). The agricultural production in those sustainable farming systems, results for the good of the family, community or society; and when harvesting the whole family is mainly involved, which strengthens the family ties among the relatives involved in the agricultural production. Situation that is repeated in another occasions, therefore women in sustainable farming might have more support when producing, since they share all the production processes with their relatives, actions that are translated in less stress for those that are taking big decisions. While it is also true, that there is not a direct line between women's empowerment and sustainable production by women, women are involved in various decision-making processes (Haugh et al. 2021) [4]. In sustainable systems, greater equity among the relatives is expected, ensuring the family ties, translated in support and psychological goodness among the family members.

Healthy women and healthy families. The case of sustainable farming

There is a proportional relationship between a well-nourished body and a balanced mind, "a healthy mind in a healthy body". And healthy body is enhanced with healthy food And healthy body is

enhanced with healthy food (Hirt 2020, nutrients enhance less oxidative stress) [5], and the healthy food is provided in healthy soils (low fingerprints production). In sustainable farming, healthy soils are the goal when producing. When women are aware of the traces or fingerprint present along industrial production systems, they look for other sources of food production (Asefa et al. 2022), food with less pollutants, food that has been environmentally friendly produced. Women who are food conscious can choose the type of food that they eat, they learn to their offspring the same principles, food is also a way to prevent illnesses and strengthen the body.

Women's reproductive health in sustainable farming

Traces or fingerprints from industrial agriculture, such as pesticides or microplastics in soils, are transported through the air and thus accidentally ingested by farmers or people in the vicinity of agricultural areas. In this way, according to Fard and Mohammadi (2023) [6] microplastics affect the female reproductive system as they promote a decrease on ovarian capacity, and while plastic

particles such as nanoplastics can be transferred from the mother to the foetus there is a decrease in foetal growth (Amereh et al. 2022) [7]. In relation to In relation to PPPs, pesticides, depending on the type of pesticides and or the healthy condition of the women, it will be the impact or affectation, some pesticides might directly affect the fertility of women, increasing disorders such as impaired folliculogenesis, follicular atresia, implantation defects, and spontaneous abortions (Bhardawaj et al. 2018) [8]. In sustainable agriculture, which seeks the smallest number of environmental footprints, the use of pesticides is lower, or null compared to the number of pesticides used in industrial agriculture [9,10]. Reproductive health of women is less vulnerable than in industrial agriculture. Thus, by definition, sustainable agriculture sustains the healthy conditions of the people who live on the farm and its surroundings. By taking care of the environment, sustainable agriculture is by default taking care of the human being, as he or she is affected or influenced by what happens in the environment (Figure 1).



Figure 1: Healthy women in sustainable farming. Taken and modified from Alcon et al. 2024. Right above drawing taken and modified from Melissa Younger from Brassett and Spear 2016.

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