



Briefing note

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The Food and Agriculture Organization of the United Nations (FAO) is leading international efforts in the fight against hunger. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information. It helps developing countries and countries in transition to modernize and improve agriculture, forestry and fisheries practices to achieve good nutrition for all. FAO Lebanon Programme is aligned with FAO's global Strategic Objectives. Lebanon was among the first countries to benefit from a FAO Country Office to strengthen the Organization's programmes on the ground. Established in 1977, the Office seeks to promote harmonious and sustainable development of the agricultural sector along with the national agricultural policy, in consultation with relevant ministerial departments.

Pesticides contamination and exposure reduction

Sector context



Lebanon suffers from land erosion and soil degradation (e.g. alkalinity, salinity, and moisture deficit), with 39 percent of the Lebanese territory highly exposed to land degradation (UNCCD 2018). Soil nutrition and plant protection are mismanaged with Lebanon showing some of the highest per hectare use of fertilizers (331 kg/ha) and pesticides (7 kg/ha) in the world (FAOSTAT 2020; MoA 2020). Chemical pesticides control plant pests and therefore reduce yield losses; however, this comes at a heavy cost to the environment and to the animal and human health.

In Lebanon, The Phytopharmacy Department of the Ministry of Agriculture (MoA) has registered hundreds of chemical pesticides. All legally registered pesticides have labels that identify the Trade Name, active ingredient(s), formulation type, the intended use, and the application interval and frequency.

In spite of this, most farmers seldom abide by the recommended usage frequency and dosage, and often double the recommended rate thinking that they are "guaranteeing" the effectiveness of the pesticide as they say. Furthermore, in many instances, sales engineers actually advise farmers to spray more than one pesticide of the same class or possessing similar mode of action, leading to an ineffective overuse.



This has resulted in high concentration of pesticides in soil, water and air, and increased levels of residues in fruits and vegetables, posing serious public health concerns. On the other hand, the accumulation of obsolete pesticides generated from expired, legally imported and smuggled/banned pesticides creates additional risks to public health and the environment. The storage of those pesticides under inappropriate conditions can generate leakage into soil or vaporization into the surrounding atmosphere. Safeguarding those obsolete pesticide stocks requires substantial financial resources, specialized trained teams, and a specific procedure to collect, repack, ship and safely dispose-of those pesticides in specialized facilities found abroad.

Challenges in Lebanon



Cheaper pesticides smuggled into Lebanon, including those belonging to the Persistent Organic Pollutants (POPs) category, are becoming more attractive to farmers because of the severity of the current economic and financial crisis.

The devaluation of the Lebanese Pound does not allow farmers to purchase agricultural inputs in cash either at face value in USD or in LBP using unofficial exchange rate (MoA 2020).

The lack of knowledge from farmers about non-chemical alternatives used in Integrated Pest Management (IPM), drove them to rely completely on the use of chemical pesticides in the control of their crop pests. The excessive use of chemical pesticides exposes farmers to contamination, in the absence of good practices such as wearing personal protective equipment and the proper spraying of pesticides. In this context, pesticide residues in many commodities are above the authorized Maximum Residue Limits (MRLs), leading producers and consumers alike to high exposure to contaminants, adding to the health burden of the foodborne diseases. The absence of any surveillance system on food safety confirms the absence of proper data and information that could properly regulate excessive or improper use of pesticides. Furthermore, Lebanon does not possess the technical capacities to manage the safe collection, repacking and shipping of obsolete pesticides stocks, nor the facilities to dispose them safely.

Children illegally employed as farm workers to perform unskilled tasks such as fruit picking in fruit trees and harvest collection in field crops, are highly exposed, especially when they enter the orchards/fields immediately (or shortly) after the latter are sprayed with pesticides.

Many children, especially Syrian refugees, live in and around agricultural areas, therefore exposed to chemical pesticides, either while working as agriculture workers, or inhaling air-suspended pesticides particles. The UN considers exposure of children to pesticides as one of the worst forms of child labour, causing them physical, psychological and social harm.

These risk exposures to pesticides and hazardous substances, agents or processes, during mixing, applying, and loading, washing equipment, or working in fields during spraying, impact their short-term and long-term development physically, emotionally and mentally. These substances are hazardous and the banned ones are even more hazardous and some are carcinogens and affect children health, particularly girls, in a manner ranging from illness (e.g. respiratory disease, skin lesions and irritation) to disabilities (e.g. neurological problems, infertility).





With funding from the Government of Lebanon and from Norway, FAO, in collaboration with the MoA, is implementing two projects promoting Integrated Pest management and Integrated Crop Management (ICM) practices in the cazas of Baalbeck, Zahle and West Bekaa, to reduce agricultural pollution of surface and ground water, the Litani River and Quaraoun Lake by working with potato farmers. Those practices aim at reducing the use of chemical pesticides and fertilizers by farmers, at strengthening their informed decision-making capabilities to manage certain pests, and to understand the importance of their protection against harmful contaminants, and at promoting awareness in their communities. The projects also strengthen the capacities and capabilities of the extension services of the ministry of agriculture in IPM and ICM practices. The interventions made through the two projects have succeeded in convincing the farmers to reduce the number of pesticide sprays and thus pesticides quantities by up to 50 percent.

Upon request from MoA, FAO provided small funding through the Technical Cooperation Programme to collect and safeguard 33 tonnes of obsolete pesticides kept in different locations under different storage conditions, following safe

disposal procedures as per the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The project aims to build the capacities of MoA, the Customs Authorities and the State Security in safeguarding, handling, storage, transport and disposal of obsolete pesticides.

Because food safety represents a major concern for policy makers and consumers alike, FAO, with funding from its Technical Cooperation Programme, established a food contamination monitoring system (FCMS) within MoA. The FCMS contributes to strengthening MoA's role in the improvement of food safety, as mentioned in the National Agriculture Strategy 2020-2025 under Programme 2.4 – Improve the quality and safety of agricultural and food products. The system serves to monitor pesticide residues and other contaminants in all agricultural products by using science-based and structured-risk analysis to generate data, establish priorities and help in decision-making. The project developed MoA's capacity in terms of management, analysis, infrastructure, sample collection, as well as the staff skills and knowledge, in order to ensure a successful and sustainable implementation of the monitoring system.



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