Disease and Pest Control in Organic Farming Mode

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1. Introduction

- Organic farming is a system that rejects the use of pesticides and prefers to use safe alternatives to control pests and diseases.
- The control program in organic farming includes/is based on crop diversification through crop rotations, intercropping, the use of organic fertilization to encourage soil biological activity, and the use of natural extracts and safe modern techniques among the means of biological control.
- Proper organic farming means the presence of healthy plants in an active soil under balanced nutrition conditions that make plants more capable of tolerating and naturally resisting diseases and pests.

The philosophy of control in organic farming systems is based on the following:

1. A balanced nutrition system produces healthy plants with natural defensive resistance.
2. The organic farming system leads plants to use nitrogen in smaller quantities and from non-chemical sources; its low presence in cells reduces infestation by aphids and fungal diseases, because its increase, especially in the form of nitrates, increases infestation by these pests due to increased cell size and plant tenderness.
3. The organic farming system provides nutrients in a balanced manner during the season.
4. The organic farming system encourages the growth of complex communities of microbial groups that help control pests.
5. The organic farming system helps plants absorb important nutrients like phytoalexins that improve the plant's immune system and thus control the present pathogens, exposing crop seedlings.
6. Studies have shown that the use of good compost and compost tea reduces infestation by certain fungal diseases.
7. The use of microorganisms in biological control increases their numbers in the soil in organic farming, which reduces the number of pathogenic microbes.
8. The use of parasitoids and predators and their release in fields increases their numbers, which eliminates or reduces harmful pests.
9. The agricultural practices and operations followed in organic farming, such as crop rotation, crop succession, and the use of soil solarization, help maintain parasitoids and predators on their hosts and create optimal conditions for plant growth, thus increasing their ability to fully or partially resist infestations.

10. Cultivating a plant belt surrounding organic farms plays an important role in the availability of insects that attack pests (natural enemies).

Important Note:

- It should be noted that some believe that biological control includes only the direct use of parasitoids, predators, and microorganisms to control insect pests, as well as the use of antibiotics to control soil-borne pathogenic fungi for plants.
- However, it should be known that biological control succeeds after providing favorable environmental conditions for plant growth.

2. Materials used to control pests, diseases, and weeds according to the rules and conditions governing organic farming

Name of the substance	Specifications, components, conditions and circumstances of use
Firstly: Materials of plant or animal origin	
Animal preparations or animal oils	Used to control fungal, bacterial, viral diseases and certain insects and weeds
Nematicides of natural origin	Conditions of use must be followed via the inspection and certification body regarding certain plant or animal oils, as some are prohibited due to their impact on beneficial organisms and must come from organic farming products
Gelatin	Pyrethrum extracted from pyrethrum flowers without the adjuvant (piperonyl butoxide)
Secondly: Materials of mineral origin	
Clays (bentonite – perlite – vermiculite) **Calcium sulfur (calcium polysulfide)**	After approval and authorization from the inspection body

Name of the substance	Specifications, components, conditions and circumstances of use
Sulfur	
Thirdly: Biological control elements	
Fungal preparations	After approval and authorization from the inspection body
Fourthly: Other materials	
Copper salts	Sulfates – hydroxide – octanoate, with a maximum of 3.5 kg / hectare / year
Copper sulfate + lime (Bordeaux mixture) **Calcium hydroxide** **Carbon dioxide** **Ethylene** **Light mineral oils** **Potassium bicarbonate** **Potassium permanganate** **Sea salts and saline water** **Sodium bicarbonate** **Mild soap** **Sulfur dioxide**	After approval and authorization from the inspection body
Fifthly: Traps, barriers, and repellents	
Natural methods (light traps, mechanical) **Mechanical traps** **Nets**	After approval and authorization from the inspection body

Name of the substance	Specifications, components, conditions and circumstances of use
Soil cover Pheromones in "traps and containers" Pyrethroids in traps only	

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