Растителна защита
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семена, торове и земеделие
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Wheat varieties for top yields and quality

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New pesticides based on plant extracts (phytopesticides) with repellent and toxic effects against pests, due to the natural compounds contained in them, are already being introduced into plant protection technologies. The presented botanical and bioproducts are registered and authorised for use in organic vegetable production. Phytoinsecticides, products from the pyrethrin group and microbial products.

Phytoinsecticides

Products from the Indian neem tree (Azadirachta indica A. Juss:Meliaceae):

Neem Azal T/S®

Manufacturer: Trifolio-M

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Active substance: 1% azadirachtin A + 0.5% azadirachtin B, C, D, E and 2.5% neem substance.

Mode of action: Neem Azal T/S® forms a fine film on the sprayed parts of the plant, has strong penetrating activity through the leaves and is transported throughout the plant. The product has a stomach action and blocks the formation of the larval hormone ecdysone in the pest organism. The development of the larvae is halted, they become sluggish and stop feeding, thereby interrupting their harmful activity. They die after a few days.

Advantages of the product:

- It is not toxic to humans and warm-blooded animals.

- It is safe for bees and most entomophages.

- It has no pre-harvest interval.

- It is authorised for use in the production of organic products.

Registration: In Bulgaria, the product is registered at a concentration of 0.3% for the control of the two-spotted spider mite (Tetranichus urticae Koch.) in greenhouse vegetable crops.

Bionim Plus 1.5 EC®

Manufacturer: Aum Consultancy

Active substance: Azadirachtin A - 0.15% (1.5 g/l) Emulsifier (Polysorbate 20) - 5%, Oil from A. indica - 35%

Mode of action: Repellent; Antifeedant; Ovocidal action; Deterrent action – sterilisation and reduction of the activity of adults; Growth-regulating action – in larvae it stops growth and development through direct interference with hormonal secretion.

Advantages of the product:

- Does not induce resistance in pest populations;

- No phytotoxicity when used at the registered dose;

- Safe for warm-blooded animals and beneficial species;

- The product is compatible with most of the commonly used fungicides and insecticides;

- No pre-harvest interval is required.

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Registration: In Bulgaria, the product is registered for the control of two-spotted spider mite (Tetranychus urticae Koch.) on cucumbers at a concentration of 0.25%.

Products from the pyrethrin group

Pyrethrum FS EC®

Manufacturer: Andermatt Biocontrol

Active substance: Natural extract from Chrysanthemum cinerariefolium;

Product composition - 32% pyrethrum extract (25% pyrethrins) + 32% sesame oil + 36% adjuvants (soft potassium soaps)

Mode of action: Pyrethrum FS EC® is a biological insecticide with contact action and a very fast initial effect, expressed in paralysis of insects and blocking of sodium channels.

Advantages of the product:

- Harmless to humans and the environment;

- Degrades rapidly;

- Suitable for organic farming and integrated production.

Registration: In Bulgaria, the product is registered for the control of cotton aphid (Aphis gossypii Glov.) on vegetables, applied twice at 5–7-day intervals. Concentration - 0.05%.

Piros®

Manufacturer: Serbios

Active substance: 36.6% pyrethrum extract.

Mode of action: When entering the insect organism through food, by contact or through the tracheae, natural pyrethrins reach the nervous system. They inhibit the activity of acetylcholinesterase and disrupt the processes of sodium and potassium ion exchange. When used, it first causes paralysis and then death of the pests. It is characterised by an extremely rapid action and short residual effect – “knock-down effect”. Advantages of the product: - Extremely rapid action and short residual effect, which allows the application of beneficial species 24–36 hours after treatment; - No phytotoxicity; - Compatible with most fungicides and insecticides.

Registration: The product is registered in Bulgaria for the control of greenhouse whitefly on vegetables at a concentration of 0.08%.

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Microbial products

Products based on Bacillus thuringiensis var. kurstaki Registered products in Bulgaria: Bactecin 1 WP 2.5 kg/ha Dipel 2 X 0.1%.

They are used mainly against caterpillars of cabbage white butterflies, cabbage moth and diamondback moth. - They can be mixed with other pesticides. - Treatments are carried out at temperatures above 16 °C. Bacterial products are applied when the pests are in 1st–3rd instar. - If necessary, treatments can be repeated at 7–8-day intervals.

Preferal WG®

Bioinsecticide for the control of greenhouse whitefly (Trialeurodes vaporariorum Westw.) in greenhouses Manufacturer: Biobest Active substance: Paecilomyces fumosoroseus strain Apopka 97 Preferal is approved at a concentration of 0.1%. It is necessary to perform 3–4 treatments at 7–10-day intervals, maintaining air humidity above 80% for at least 12 hours per day. Mode of action:

1. The fungus infects all stages of the greenhouse whitefly.

2. The spores adhere, germinate and penetrate into the whitefly, which leads to the death of the insect.

3. The fungus develops inside the insect.

4. Preferal does not kill immediately, but gradually reduces the whitefly population over several weeks after its use.

Bio Act WG®

Manufacturer: Profita Active substance: spores and mycelium of the soil fungus Paecilomyces lilacinus, strain 251. Effective against: nematodes (Meloidogyne spp., Pratilenchus spp., Heterodera spp., Globodera rostochiensis, etc.) Advantages: - granulated bionematicide, convenient for application; - sparing to beneficial species; - allowing the combined use of other bioagents;

suitable for inclusion in organic and integrated plant protection systems. Dose and method of application:

1. Broadcast soil treatment 400 g/ha 14 days before transplanting and incorporation at a depth of 10–15 cm.

2. Treatment of seedlings by watering before transplanting, at 10 g/100 plants.

3. Treatment after transplanting – by watering the plants with a Bio Act solution at 0.2 g/plant with 200–250 ml of water (if necessary, treatment during the vegetation period may be repeated).

Required conditions: Very well prepared fine-structured soil, which allows uniform incorporation of the product.

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Registration: The product is registered in Bulgaria for the control of root-knot nematodes in greenhouse vegetable crops.