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VARIETY OF VIRUSES AFFECTING VEGETABLE CROPS IN THE FAR EAST

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Soil and climate conditions in the Southern part of the Far East are favorable for cultivation of vegetable crops. The cultivated plants of this area include cabbages, radishes, tomatoes, cucumbers, peppers, eggplants, carrots, beets, onions, garlic, green and legumes as well as pumpkin, watermelon, and zucchini. All these cultures are largely affected by viral diseases. Epidemiology of viruses depends on availability of vectors, natural and anthropogenic foci and climatic conditions.

Cucumber mosaic virus (*Bromoviridae*, *Cucumovirus*), tobacco mosaic virus (*Virgaviridae*, *Tobamovirus*) and tomato mosaic virus (*Virgaviridae*, *Tobamovirus*) dominate are the most dangerous agents for vegetable plants, especially for the *Solanaceae* and *Cucurbitaceae* crops. Virus infections provoke spotted leaves, deformation, mottle, necrosis of leaves and fruits, and frequent elimination of ovaries. Another member of *Tobamovirus* – green mottle mosaic virus – causes complex damage to pumpkin cultures. In Primorye Territory this virus contaminates cucumber plants in open soil plantings. Tomato aspermy virus (*Bromoviridae*, *Cucumovirus*) causes considerable damage to vegetable crops and seed production. Alpha mosaic virus (*Bromoviridae*, *Alphamovirus*) has a very wide range of host plants including vegetable crops. In Primorye Territory and Amur Region this virus was detected in peas and peppers.

Phytopathological monitoring in the Far East has revealed that cabbages are affected by cauliflower mosaic virus (*Caulimoviridae*, *Caulimovirus*), radish mosaic virus (*Comoviridae*, *Comovirus*), and turnip mosaic virus (*Potyviridae*, *Potyvirus*). Most often, these viruses are registered in the suburbs of Artem and Vladivostok cities as well as near the Ussuriisk urban district. Legumes in the Far East are affected by common and yellow bean mosaic viruses (*Potyviridae*, *Potyvirus*). Several new harmful strains of these pathogens have been identified. Yellow bean mosaic virus was first identified in pumpkins. The prevalence of watermelon mosaic virus (*Potyviridae*, *Potyvirus*) is registered in melons. In the Southern part of the Far East this virus has been first detected in marrows and in pumpkins. Tobacco etch virus (*Potyviridae*, *Potyvirus*) and tobacco ring-spot virus (*Picornavirales*, *Secoviridae*, *Nepovirus*) cause serious damage to pepper crop. In all regions of the Far East yellow onion dwarf virus (*Potyviridae*, *Potyvirus*) and garlic mosaic virus (*Tymovirales*, *Betaflexiviridae*, *Carlavirus*) are the most common being easily transmitted by insect vectors. Symptoms of the diseases are streaky chlorotic

mosaics and cracks on the leaves. We detected these viruses in samples of onion and garlic from Primorye and Khabarovsk Territories, Irkutsk and Novosibirsk Regions.

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