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DISEASES THAT OCCUR IN POTATO PLANTS GROWN IN HOUSEHOLDS

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Annotation
Diseases of potato plants grown in the homesteads of the population were studied. This study was conducted mainly in Denov district.

Keywords: Potato, "Aranu clipke", "Balatoni Rossa", "Demon", "Botant", "White", "09-688", "black leg" ("black leg"), fusarium wilt (fusarium wilt), verticillosis wilt (verticillosis wilt), phytophthora, alternaria disease.

Currently, about 377 million tons of potatoes are grown in 156 countries of the world. China, India, Russia, Ukraine, USA, Germany, Bangladesh, Poland, France and Netherlands are the leading producers. Uzbekistan is on the 23rd place in this list. In 2020, all categories of farms produced 2.9 million tons of potatoes, of which 1.5 million tons were contributed by farmers and agricultural enterprises. their size is growing faster than the population from year to year. As a result, in 2000-2020, the annual volume of potato production per capita increased from 29.5 kilograms to 91 kilograms, that is, it increased more than 3 times. 200-300 thousand tons of potatoes for consumption and 17 thousand tons for seeds are brought to our country from abroad. The Uzbek-Hungarian scientific center for potato growing has started work in the upper Chirchik district of the Tashkent region. According to the cooperation agreement concluded between the Hungarian University of Agriculture and Natural Sciences and the Ministry of Agriculture of the Republic of Uzbekistan, 6 varieties belonging to the selection of this country - "Aranu clipke", "Balatoni Rossa", "Demon", "Botant", "Aq", "09-688" variety samples were brought for the purpose of testing in the soil and climate conditions of our country, - says the director of the scientific research institute of vegetable and potato growing, Rustam Nizomov. Potato growing was carried out in the experimental fields of the Scientific Research Institute, as well as in the Bostonliq experimental plot, the Samarkand scientific experimental station and the joint enterprise "Bostonliq Potato Center". And watering and feeding were done automatically through them. As a result of innovative methods, it is planned to increase labor productivity by 30-50 percent in 2021-2023. It is planned to produce 21,000 tons of potato seeds by 2024, and in this regard, it is planned to completely replace imports. The Netherlands and Russia are the main suppliers of high-quality potato seeds to Uzbekistan. According to the Ministry of Agriculture, 131 varieties of potatoes recommended for planting in the territory of Uzbekistan are included in the

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state register, 19 of which were created by local scientific research institutes. effective, - says Rustam Nizomov, Director of the Scientific Research Institute of Vegetable Crops and Potatoes. In cooperation with the World Potato Center (CIP), the development of potato growing, the creation of new varieties is being carried out, great importance is attached to the cultivation of potatoes from botanical seeds. The project with a total cost of 195 thousand dollars will be implemented in 2021-2023 in cooperation with the Ministry of Agriculture and the Food and Agriculture Organization of the United Nations (FAO). Its main goal is to increase the potential of the potato industry, which is achieved by improving the registration and certification system of varieties, modernizing the direction of scientific research, developing the cultivation of high-quality potatoes, and improving the storage conditions of the finished product. in warehouses. Based on the above-mentioned decision, 40 districts were specialized in planting potatoes, 23 districts were specialized in seed potato cultivation, and 9 districts were specialized in growing high-quality potatoes. 8 potato growing clusters were established in these districts. In 2021, farmers and agricultural enterprises of our country planted potatoes on a total of 76,000 hectares, - said Fakhriddin Kyrgyzbayev, head of the department of the Ministry of Agriculture. — In early spring, 48,500 hectares of the main area, 6,400 hectares of gardens and vineyards, and 21,100 hectares of repeated grain were planted. 3.2 million tons in all categories of farms (1.5 million tons in farms and agricultural enterprises, 1.7 million tons in farms and settlements). potato cultivation is planned. Below we will get acquainted with several diseases that cause a decrease in the yield of potatoes. Soft bacterial rot disease of "black leg" ("black hip") and tubers of potato seedlings. Symptoms of the causative agent. The bacterium is rod-shaped, 1.0-5.0x0.5 1.0 μm in size, single, sometimes in short chains. Peritrichous, motile. Chemoorganotroph. Voges-Proskauer reaction is positive, produces sulfur dioxide, dilutes gelatin. Some strains produce gas from D-glucose. Absorbs L-arabinose and D-glucose, some strains absorb glycerol and maltose. Restores nitrates. Catalase negative. Does not need growth factors. Pectate and some strains break down casein. It can grow in a medium containing 5% sodium chloride. Hydrolyzes cottonseed oil. Colonies are yellow, blue or colorless; some strains are mucoid, slimy. Unlike Erwinia amylovora, it does not grow at a temperature of 36oC. If the soil is wet, if the field is watered frequently, the crop will be damaged throughout the growing season. Seedlings grown from diseased buds develop black leg - black, slimy spots appear in their root neck, above the soil level, which spread to the lower parts of the stem, the affected areas rot, the shoots lie down or become small. leaves turn yellow, bend upwards, dry, the plant withers. New fruits rot from the place where they are attached to the root. The disease reduces the yield. Tuganaks are infected with bacteria through insects and diseases, as well as injuries caused during transportation and storage, and round, sunken necrotic spots develop on them, especially in the eyes. Spots grow quickly; the crop has rotted in the field or during storage in the warehouse. During storage in the warehouse, the external appearance is healthy, but "wet rot" develops in lightly damaged tubers and quickly

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passes to healthy ones. Physiologically weak tubers are affected more strongly, usually these bacteria cause secondary damage to tubers affected by fungi and complete potato rot. Affected buds rot completely in 3.6 days, especially at a temperature of 150C-200C. Countermeasures. Creating and using resistant varieties, using dry, healthy, fungicide (bactericide) treated seeds for planting, not planting in wet soil; not to water the field more than necessary; introduction of crop rotation; when the sprouts grow and the crop blooms, remove the diseased ones from the field; in the process of collecting, transporting, placing and storing the harvest, it is necessary to avoid mechanical injury, to dry them, and then to store them in dry places, at a temperature of 2-40C and 90-95% RH. . Potato fusarium wilt (fusarium wilt)

The disease is caused by Fusarium oxysporum f. tuberosi and other hyphomycete fungi belonging to the Fusarium family. They are heat-loving fungi and are widespread all over the world, including Uzbekistan. Unlike verticillium wilt, fusarium wilt causes rapid potato wilt, which spreads from the top of the plant down. The lower leaves turn yellow, chlorotic spots appear on the upper ones, the top of the plant turns red, the roots and rhizomes rot, the conducting tissues are filled with mycelium and become clogged, fungal metabolites poisons the plant. Verticillium wilt of potatoes (verticillosis wilt) The disease is caused by fungi Verticillium alboatrum and V. dahliae. The disease has been reported in many countries, including Uzbekistan, but its spread in potatoes and its damage to the crop have not been studied. Wilting usually begins during the flowering period of plants or later, often with yellowing of one side of the lower leaves. If the lower part of the stem is cut obliquely, brown spots can be seen in the conducting tissues. Often, plants turn yellow without wilting, ripen prematurely and dry up. Light brown spots appear inside or in part of the tubules and conducting tissue, and pink or reddish spots appear in the eyes of the large tubules. Such buds rot during storage. With the help of mycelia and sclerotia, the fungus is preserved for many years in plant residues and soil, even in infected shoots until the next season. Control measures - crop rotation, treatment of seed roots with a fungicide before planting, no over- or under-watering of the field, spraying of one of the systemic fungicides is recommended. Phytophthora of potatoes. The disease begins during the flowering period of plants. Soot-like spots appear on the leaves, which after a few days turn brown or dark brown with a narrow yellow border. In wet weather, the spots on the underside of the leaves are covered with a soft, thin, flowing layer of light gray mold. The spots move to the leaf band, branch and stem, spread and develop quickly and can kill the plant in a few days. Fungal spores that fall into the soil by rain from leaves and other organs infect potato tubers, causing conspicuous gray-brown, then concave, dark brown necrotic spots. appears; if the root is cut, rust is visible in the tissues of its peripheral parts (edges). Such roots quickly completely rot under the influence of secondary microorganisms during storage in warehouses. . For the development of the disease, it is necessary to have frequent rain or dew, air temperature of 100C or higher, temperature of 20-250C is a favorable condition. The fungus overwinters in the soil only in Mexico, and elsewhere in plant debris above the

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soil. Damaged potato tubers are the main source of infection. The disease also spreads from potatoes and tomatoes in fields adjacent to the crop. There are different races of the causative fungus, and potato varieties are affected by them to different degrees. Up to 70% of the crop can be lost due to phytophthora, 30-40% in Uzbekistan. Damage to potatoes. If the fertilizer is used incorrectly, the tubers will burn, blacken, and the tubers will rot. Under the influence of herbicides, they do not swell, they develop chlorosis and necrosis, the buds are ugly, the crop lags behind in growth, and these injuries can be observed in the next year. If insecticides and fungicides are used incorrectly or excessively, the upper edges and between the bands will burn strongly. Deficiency in potatoes. Phosphorus

The growth of the top of the plant slows down, the height slows down, the branches and stems appear, sometimes it becomes brittle, it is noticeably bent inward, and the color is darker. Inside the tubers, round-shaped rust spots appear, similar to those caused by high temperature. Potassium. The leaves are dark-green, bluish-green, shiny, then bronze and covered with necrosis and dry. Non-dense, hardened, sometimes sunken spots appear on the roots. The plant and its buds become unbearable. Potassium deficiency often occurs in light, easily leached soils. In order to grow potatoes, the soil pH can be in the range of 5-7. In conclusion, large farmers' clusters of potatoes are being formed, but the different varieties grown in the households of the population provide the livelihood of the population in the domestic market. Later. The rains in the upcoming spring months bring a lot of fungi, viruses and bacteria to this crop. This affects the yield. The temperature difference and the normal level of humidity have created favorable conditions for the development of production. In addition, a lot of mineral fertilizers are applied to the plots of land, and the microstructure of the soil is getting stronger.

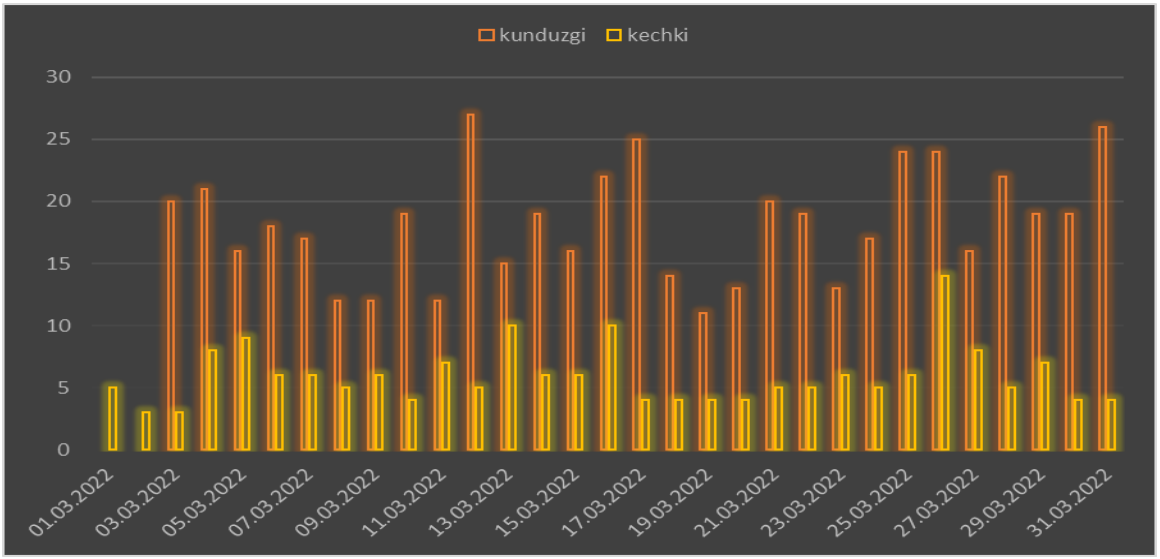

Table 1. Weather data for March building. (03.01.2022-03.31.2022)

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