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KALMARAZ DISEASE OF SEED-BEARING TREES AND ITS CONTROL MEASURES

Jo`rayev Safarboy - master student of Tashkent State Agrarian University,
Gulmurodov *Risqiboy Abdiyevich -* *professor of Tashkent State Agrarian University*

Abstract. Dozens of different infectious and non-infectious diseases spread in all plants grown in agriculture, causing great damage to their crops. Most of these diseases are caused by fungi. The article provides information on the spread of the apple rust (parsha) disease, which is widespread every year in the orchards of many countries, especially in our republic, and causes the loss of most of the crop, as well as the effective measures to combat it.
Key words: apple, infection, hypha, fungus, prediction, disease, calamari, fungicide.

Introduction. Today, more than 80 types of agricultural products grown in our republic are exported to 66 countries of the world. Currently, 7.5% of agricultural clusters specialize in fruit and vegetable growing, and according to calculations, it is possible to earn 7 times more from grapes, 6 times from cherries, and 5 times more from walnuts than raw cotton grown on one hectare. On December 11, 2019, the Decision of the President of the Republic of Uzbekistan PQ-4549 "On further development of the fruit and vegetable and viticulture industry, additional measures to create a value added chain in the field" was adopted in order to develop fruit and vegetable production.

One of the main conditions for further development of horticulture and viticulture in our republic, increasing the quantity and quality of fruit and grape harvest is protection of vines and fruit trees from harmful organisms, including diseases. Fruit trees with seeds and grains, vines, walnuts, pomegranates and figs have infectious diseases caused by several dozen fungi, bacteria, viruses, phytoplasmas and nematodes, which can kill most of the crop.

The climate of Uzbekistan, especially winter is relatively warm, and spring and early summer are warm and sunny, which creates very favorable conditions for disease-causing microorganisms to remain viable in winter, and for the spread and development of diseases during plant growth. In such conditions, the apple calamari disease develops especially well, and if measures are not taken to combat it, a large part of the crop will die.

Kalmaras disease caused by a fungus is widespread in apples in all countries of the world, including the countries of Central Asia and all regions of Uzbekistan. The disease damages the leaves, petals and fruits, leaf and fruit bunches of apple trees, and less often the stem and bud pods (bark). Brown, gray or olive-green spots develop on the underside of the leaves. From one to two to several hundred spots can appear on one leaf. Over time, they grow, merge, the cells under the spot die, as a result, the spots are also visible on the underside of the leaves.

Covered with spots, the leaves twist, take an ugly shape and fall to the ground. Spots similar to those on the leaves appear on young fruits, then they turn brown, become corky, shriveled, and the shape of the fruit is distorted. Damage to the leaves and fruit bands causes them to drop. In wet conditions, a thin, waxy, dark-olive mold layer develops on the spots on the leaves and fruits (photo). The disease does not spread to other fruits in storage. Infected branches develop small bumps, which later crack and the top of the branch becomes scaly in many places; as a result, the growth of the stem slows down, it often dries up.

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Picture 1. Kalmaraz disease in apple fruit

As a result of the disease, the quantity and quality of the fruit crop is directly reduced. Up to 70 percent or more of the crop can be lost when cool weather and high humidity occur in spring; the disease has important economic importance in Uzbekistan (and neighboring countries).

A favorable temperature for spore formation is 16-18 ° C. When the overwintered leaves are moistened in early spring, the sacs reach the tip of the pseudothecia, and ascospores are released from them under the influence of high osmotic pressure. They fall with the wind on the budding flowers and the first leaves on the trees.

Spores serve as the primary source of infection, which takes 5-9 weeks to form and spread. Ascospores that have fallen on leaves and flower buds grow only in the presence of droplet moisture (rain, dew), when the temperature is 1-27 ° C and relative humidity is higher than 95%, and they penetrate and damage plant tissues.

The occurrence of damage and the degree of damage depends on the air temperature and the duration of moisture retention. For damage to occur at a temperature of 1-2 ° C, droplet moisture must be present on leaves and flower buds for at least 48 hours; and at optimal temperature (16-24 ° C) 9 hours are enough for this. At a temperature above 26 ° C, tissues are practically not damaged.

Only young leaves are affected, leaves older than 25 days are not affected. Within the tissue, fungal hyphae develop between the epidermis and the cuticle and form stroma beneath the cuticle and conidia above. Conidia appear 8-21 days after primary infection (17-21 It appears after 8-9 days at ° C temperature. In the conditions of Uzbekistan, the fungus gives 9-10 generations in 1 season.

It is necessary to carry out high agrotechnical requirements in disease-resistant gardens, i.e., garden care, feeding, watering, fertilizing should be carried out correctly. In order to reduce the winter infection of the fungus, ensure that the apple trees are open and the wind flows well; pruning the base of the tree, cutting dry and overgrown branches in time; after harvesting in the fall, spraying the leaves with nitrogen fertilizer or fungicide; when the leaves of the trees fall, to collect and dispose of them and the fallen fruits, around the tree and between the rows 20- 30 см. 60 per hectare before fall plowing 70 кг. pure potassium and phosphorus, 1 per tree in summer 1,5 кг. Ammofos fertilizer should be given twice.

Chemical control measures should be started in early spring and then repeated every 10-14 days, depending on the weather forecast. In this case, before the spread of shoots , Bordeaux liquid, 3-4% solution (3- 100 л. copper sulphate 4 кгto water and 3- 4 кг. slaked lime), copper sulphate 20 l/ha. in moderation (until the tree is well soaked); - Copper oxychloride 90% n.cuk., 0.3-0.5% solution; Vektra 10% suspension, 0.03% suspension, 0.3 l/ha. in moderation. Before flowering of trees and after flowering : Bordeaux liquid, 1.0% solution, 10-20 l/ha on copper cup. at the rate, Vektra 10% sus.k., at the above rate, or Topsin-M 70% n.kuk., 0.1% suspension (.

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100 лto water 100 г.), 1.0 l/ha. sprayed in moderation. During the growing season : Bayleton 25% n.cuk. ., 0.1% emulsion, 1.0 l/ha. Or Kumir k.s. It is sprayed at the consumption rate of 5 l/ha . Planting varieties resistant to calamari and other diseases is very effective.

In Kibrai district of Tashkent region, in 2021, against the kalmaraz disease of apples, 91.2% of the Kumir fungicide of the new trial produced in Russia was used at a consumption rate of 5.0 l/ha, and 89.4% at a consumption rate of 20.0 l/ha of copper sulfate, which was used as a standard. showed efficiency.

Conclusion. From the above, we can conclude that early prediction of calamari and other diseases in orchards depending on the coming of the year, timely detection of diseases and implementation of timely coordinated measures against them guarantee the preservation of the crop.

References:

1. Vyangelyauskaite A. P., Juklene R. M., Juklis L. P., Piletskis S. A., Ryapshene D. K. Vrediteli i sloveni ovoshchnyx kultur // M.: "Agropromizdat", 1989, 464 p.
2. Zuparov M., Kholmurodov E., Hakimova N., Tursunov M. Measures to combat squid disease // Agricultural Journal of Uzbekistan, 2007, No. 8, 15 p.
3. Hasanov B.A. Ochilov R.O., Kholmurodov E.A. Gulmurodov R.A. Fruit and nut trees, citrus, berry bushes and vine diseases and their control // Study guide, Tashkent, 2010, B. 8-11.
4. List of chemical and biological protection agents, defoliants and plant growth regulators approved for use against plant pests, diseases and weeds in agriculture of the Republic of Uzbekistan // Tashkent, 2018. 383 p.