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ROOT ROTS, BUNT, POWDERY MILDEW AND RUST DISEASES OF WHEAT

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Abstract:

The article provides information about diseases of wheat plants, the genera of fungi that cause them, their distribution, the harm they cause, and the study of measures to combat them. This information is important for protecting wheat from diseases during the growing season and growing a high-quality crop from them

Keywords: Wheat, diseases, fungi, fungicide, root rot, wheat smut, powdery mildew, rust, mycelium, conidia, exoparasite, endoparasite.

Wheat is one of the most cultivated crops in the world, because it produces a large number of food products necessary for modern people. It is known that wheat was one of the first cereal crops to be domesticated, which means its cultivation technologies have a rich history.

The main task in any technology is to protect wheat from diseases, pests and weeds. Nutrition of the crop is also of great importance, because chemical protection of wheat cannot provide the plant with the necessary elements for development. Zerebro Agro preparations will help you grow a good harvest and preserve it in any climatic conditions.

Minimal development was observed in areas where fungicidal treatments were applied. Root rot manifested itself annually in almost all production fields of wheat to a weak and moderate degree; its development was of a focal nature or single plants were affected (as a rule, the lower tier). Stem and dwarf rusts, powdery mildew developed poorly during all years of research (5-10%).

The first stage necessary for growing a rich harvest is seed treatment. Since the crop is cultivated in different soil and climatic zones, it is impossible to select the ideal preparation for dressing. When choosing, it is important to consider several factors at once. The main selection criterion is the planned volume of wheat harvest. If farms that plan to collect about 25 c/ha will most likely need a conventional seed protectant, then those planning to harvest from 50 c/ha will require combined insecto-fungicides and bactericidal protectants with a wide spectrum of action.

When choosing preparations for seed treatment, it is also important to pay attention to the crop predecessors in the field and the results of phytosanitary examination.

The second stage is protecting wheat from weeds. Unfortunately, today there is no drug that can cope with all types of weeds. Therefore, we recommend selecting herbicides for wheat according to the type and volume of soil contamination, taking into account the phase of crop development.

Wheat is susceptible to contamination by perennial and annual dicotyledonous weeds, as well as perennial cereals. A system for protecting wheat from each type of weed, as well as in the case of mixed weeds, should be built only after a thorough analysis of the species composition.

The third stage is protecting the crop from diseases and pests. To cope with pests of seedlings, we recommend using insecticidal seed protectants. In later phases, foliar insecticidal treatments will help fight harmful insects.

The scheme for protecting wheat from diseases depends on the type of disease. To combat infections of fungal etiology, we recommend using fungicidal seed protectants. In the next phases of crop development, foliar treatments with fungicides will help cope with diseases.

They are ubiquitous on all grain crops. They are caused by several types of phytopathogenic fungi that live in the soil, on seeds and plant debris. The most common are fusarium, helminthosporium and rhizoctonia rots. Certain pathogens predominate in different zones of the region. Fusarium root rot predominates in the tillering phase of winter wheat. In later phases of crop development, complex rot complexes develop, depending on the zone of the region, predecessor, and weather conditions. Most often these are helminthosporium-fusarium or fusarium-helminthosporium, depending on weather conditions. In recent years, the proportion of rhizoctonia rots has been increasing. The source of infection for root rot is the mycelium and conidia of fungi in the affected plant debris and soil (up to 3 years in the absence of the host plant), and most importantly, the seeds.

The main ones are agrotechnical techniques aimed at improving the phytosanitary condition of soils, increasing the overall adaptability of plants and their immunity: compliance with crop rotation, timely plowing, the use of balanced fertilizer rates, and the use of certified seeds for sowing. A mandatory procedure is pre-sowing treatment of seeds with

chemical disinfectants according to the results of phytoexpertise, and in case of slight contamination - with microbiological preparations (Planriz, Pseudobacterin, etc.).

Against fusarium, cercosporella and rhizoctonia root rots, it is recommended to use fungicides during the tillering phase that are registered for these purposes in the "Catalogue of list of chemicals approved in Uzbekistan" for the current year.

First of all from this group, smut diseases are of great economic importance. They are widespread in the Tashkent region everywhere, cause a significant reduction in yield and deteriorate the quality of food and seed material (if winter wheat is heavily infected with hard smut, the harvested grain emits the smell of herring brine and is not suitable for any purpose). The harmfulness of all types of smut persists annually and largely depends on the level and quality of seed dressing.

Smut diseases are caused by highly specialized parasitic fungi. They are distinguished by their strong aggressiveness, which is facilitated by the very high sporulating ability of the fungus: one grain infected with smut contains over 20 million teliospores. Based on the time of infection of grain crops, smut diseases are conventionally divided into several groups. The first group includes species that are infected during seed germination: bunt of wheat, rye, barley, oats, dusty smut of oats, stem smut of wheat and rye, smut of millet. The second group includes smut diseases, the pathogens of which cause infection during flowering of plants. This is a dusty smut of wheat, rye, and barley.

Durum smut of wheat is the most common in our conditions. According to the results of the phytopathological examination of seeds carried out annually by the laboratory of the institution, the contamination of batches varies slightly from year to year and ranges from 60% to 100%. The indicator of seed contamination ranges from weak (15 spores per grain) to strong and very strong (over 1000 spores per grain, then these batches are excluded from seed collections).

It is mandatory to sow with healthy certified seeds. Seeds from fields where, according to testing results, plant damage exceeds 0.2-0.3% are not allowed to be sown. The main method is seed treatment using chemical disinfectants with strict adherence to drug consumption standards.

In addition to smut diseases, fusarium head blight can cause great harm to the quality and safety of the crop. The main danger of fusarium pathogens is their ability to accumulate mycotoxins in products that are dangerous to human and animal life. As a result, the grain becomes unsuitable for use for food and feed purposes. The most intense infection occurs during the flowering period during precipitation. Grain can also be affected in the field in windrows and on the threshing floor. Yield losses can reach 20-35% or more. If there is more than 40 mm of precipitation during the growing season during the flowering period, fungicidal treatments during the flowering phase are recommended. In the event of fusarium infections, timely harvesting and rapid drying of grain to a moisture content of 13-14%, control of the content of mycotoxins in the grain.

In addition, in years with heavy rainfall in the period from the end of flowering to the beginning of grain ripening, ear blackhead of various etiologies (pathogens are fungi from the genera Bipolaris, Alternaria, Cladosporium) are widespread. The surface of the ear is covered with a gray-black velvety coating. Mycelium of various colors appears on the seeds, depending on the type of pathogen. Leads to a decrease in germination as a result of the accumulation of fungal toxins. Severe damage by Alternaria promotes the manifestation of bacteriosis. Losses from ear blackhead can amount to 5-20% of the harvest. At the end of the period of waxy and full ripeness, the embryo turns black. This form of the disease is called "black germ". The degree of grain pigmentation is determined by the depth of the mycelium. The pathogenic properties of fungi are due to the toxins they secrete: helminthosporol, helminthosporal, victoxin, cytokinin. Based on the results obtained, we can draw conclusions about the significant impact of the complex of fungal diseases on the yield and quality of the winter wheat crop in the Tashkent region. There is no doubt that the parasitic effect of diseases on winter wheat is complementary to each other in different years and under different weather conditions. It is also obvious that fungal diseases of winter wheat have a sequence of manifestations, which requires mandatory monitoring and timely diagnosis.

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