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Hygienic Assessment Of The Impact Of Adverse Factors On The State Of Operating Greenhouse Farms

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ABSTRACT

Currently, along with the expansion of protected ground areas, the intensification of greenhouse crop production is carried out, providing for a higher organizational and technological level, providing effective ways to accelerate the growth and development of plants, as well as protect them from numerous pests and diseases. In solving the problems of supplying the country's population with fresh vegetables throughout the year, providing flower and ornamental plants, as well as carrying out year-round plant breeding, an important role should be played by greenhouse plant growing [5, 7, 11].

KEYWORDS

Greenhouse Farms, Agricultural, fertilizers and pesticides, Indoor

INTRODUCTION

Protected soil structures, depending on the design solutions and the adopted technology, are subdivided into greenhouses, insulated soil structures and greenhouses. The introduction of advanced agricultural techniques based on partial mechanization of production processes and their wide chemicalization led to the formation of an almost independent branch of agricultural production, characterized by peculiar hygienic working conditions [14].

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The sanitary and hygienic working conditions in greenhouses are characterized by a number of features. These include: peculiar microclimatic conditions, widespread use of mineral fertilizers and pesticides, in some cases, air pollution, insufficient mechanization of some operations. Agricultural workers in the process of production activities are exposed to a complex of adverse industrial hazards, which are risk factors for their health and life [7, 12].

The main harmful factors are unsatisfactory meteorological conditions, increased levels of noise and vibration, significant dustiness of the air and its pollution with exhaust gases of engines, pesticides and agrochemicals. Contact with fuels and lubricants, cause contamination of the working surfaces of greenhouses and vegetable products with bacterial microflora, as well as helminth eggs, is also characterized by excessive physical exertion and significant neuro-emotional stress [18].

Important is not only the concentration, but also the qualitative composition of air pollutants, which determine the structure of the morbidity of workers [6]. Unsatisfactory working conditions in greenhouse farms can be risk factors for the development of general and occupational diseases, which lead to temporary, and in some cases, permanent disability of workers [1].

Work on the formation of a bush and harvesting, especially with overgrown plants, is performed in a forced position of the body - from bent at an angle of 30 - 45 ° to raised with arms raised up, which leads to overstrain of the muscles of the shoulder girdle, back, abdomen and lower extremities. When harvesting, considerable effort is expended on carrying heavy loads. Work of workers, according to physiological studies, belongs to the category of hard and stressful. Indoor vegetable growing belongs to one of the labor-intensive and complex branches of agricultural production. The least labor-intensive is the hydroponic method of growing seedlings and vegetables, in which nutrient solutions are automatically supplied to containers for growing plants. From a hygienic point of view, the hydroponic method is the most progressive [8, 9,10,11].

The spectrum of occupational pathology of agricultural workers is formed by diseases of the peripheral nervous system and musculoskeletal system, vibration disease, infectious and parasitic diseases, allergic diseases and JIOP diseases [10,13].

The intensive development of vegetable growing in protected ground requires the mandatory and widespread use of chemicals as mineral fertilizers, pesticides, growth stimulants and disinfectants [13].

The use of pesticides with a wide spectrum of action, as well as the specific conditions of microclimatic conditions, is an aggravating circumstance. The growth of greenhouses has increased the number of people working in professional contact with pesticides. The specificity of growing vegetables is due to the repeated use of new generation pesticides during the growing season and the need for manual work. The use of pesticides in greenhouses can have a negative impact on the health of workers [1,3].

To combat pests and diseases of vegetables, greenhouses and hotbeds are disinfected, soil is sterilized, seeds are disinfected, and plants are treated with pesticides throughout the growing season [2, 6]. Treatment of plants is carried out from the moment the pests or

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diseases appear every 7-14 days, as a rule, with combined solutions of fungicides. The choice of drugs, as well as the processing time, are set on a case-by-case basis. As follows from the data obtained, the concentration of pesticide preparations fluctuates in wide ranges. So, at the time of application of pesticides, their content is 10-15 times higher than the established MPC [2, 4,].

The content of pesticides in the air of the working area in greenhouses often exceeds the maximum permissible concentration both during processing and in subsequent hours. At the same time, pesticide preparations pollute not only the air environment, but also plants, clothes, and, if used incorrectly, may fall on the open skin of workers. After treatment, the concentration of pesticides decreases to the maximum permissible concentration within 1-3 days, depending on the physicochemical properties of the preparations, methods of their application and microclimatic conditions. Due to the tightness of greenhouse structures, especially film structures, low air mobility in them, intensive evaporation in a heating microclimate, conditions are created for long-term retention of pesticides in the working area. We have found that a decrease in the concentration of pesticides in greenhouse structures to the MPC level occurs over a long time (24-72 hours), depending on many conditions (the nature of the preparations, the ventilation system, the design of greenhouses, weather conditions). Thus, in greenhouse vegetable growing, there is an increased risk of pesticide poisoning [9,10,]. The appearance of signs of pesticide intoxication is usually preceded by metabolic changes in the body that develop as a result of the accumulation of poisons [20,21].

Professional intoxication in clinically pronounced forms has a long course, a tendency to progression, due to the influence of a combination of adverse factors. The effect of a chemical agent on the body may not manifest itself for a long time, and only years later a person develops certain diseases. These can be chronic inflammatory diseases of the liver, kidneys, pancreas, endocrinopathies, oncological pathology, atopic diseases [22].

When studying the general morbidity among workers of greenhouse farms of the main group, high rates were revealed for the following nosological forms of the disease: respiratory system (40-54%), circulatory system (8-21%), nervous system and sensory organs (7-14%), metabolic and endocrine system disorders (10-14%), urinary tract (5-9%), musculoskeletal system (612%), skin and subcutaneous tissue (2-8%), digestive organs (6-9%) ... Standardized coefficients showed that the incidence of temporary TD in workers in greenhouse farms is due not so much to the difference in age, but to the length of service, and a more pronounced adverse effect on the state of the working complex of chemical and physical factors of the working environment [16].

The issues of improving occupational medicine in the conditions of urbanization, the organization of medical and preventive work with workers exposed to biological plant protection products are relevant and timely. The lack of sufficient hygienic data on the level of occupational risk and their impact on the state of workers at protected ground facilities does not allow targeted prevention of their health disorders [15].

It should be noted that many authors have studied the features of the influence of harmful

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and hazardous production factors, as well as the severity and intensity of the labor process on the general somatic and gynecological status of female workers, which makes it possible to more efficiently and effectively carry out treatment-and-prophylactic and dispensary work among workers, and also allows to improve conducting periodic medical examinations of greenhouse farms.

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