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Medical and Hygienic Characteristics of the Working Activity of Workers of Seed Processing Enterprises

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Abstract:
This article analyzes the medical and hygienic factors affecting the working activities of workers working in seed processing enterprises, harmful factors of the production environment and their impact on human health. Dust, chemical fumes, noise, vibration, adverse microclimate conditions and the risk of occupational diseases occurring in enterprises are covered. Also, preventive recommendations are given to improve occupational hygiene and maintain the health of workers.

Keywords: *seed processing, occupational hygiene, harmful production factors, occupational diseases, microclimate, dust, chemicals, labor protection.*

Introduction

Today, the cotton industry is one of the important sectors of the economy of Uzbekistan. The seeds obtained during the cotton processing process are used as an important raw material in the food, oil and grease and livestock industries. Technological processes at grain processing enterprises are multi-stage and require a high level of physical and mental labor from workers. The production environment at these enterprises has specific hygienic characteristics, which can negatively affect the health of workers [1-4].

From the point of view of occupational hygiene, it is important to identify harmful production factors at grain processing enterprises, assess their impact on the body, and develop preventive measures. Because harmful factors in the production process, when exposed for a long time, can lead to various occupational diseases and reduced work capacity [5].

Methodology

This study employed a descriptive and analytical research approach to investigate harmful production factors in grain processing enterprises. The research was based on a review of scientific literature, industrial hygiene reports, and materials related to technological processes in grain and cotton processing industries. In addition, production conditions were analyzed to assess the main occupational risk factors affecting workers' health. The study focused on key indicators such as dust exposure, chemical emissions, noise and vibration levels, and microclimatic conditions in the workplace. The collected information was analyzed to determine the relationship between production processes and occupational health risks [6].

Results

Technological characteristics of grain processing enterprises

In grain processing enterprises, the processes of receiving, storing, drying, crushing, pressing, oil extraction, and storing finished products are carried out. Each of these technological stages is characterized by its own harmful and dangerous factors [7].

Mechanical equipment, high-temperature processing devices, conveyor systems, and various chemicals are used in the production process. As a result, dust, air pollution with gases, high noise levels,

and an unfavorable microclimate occur in workplaces [8].

Main hygienic factors affecting the health of workers

Dust and air pollution

One of the most common harmful factors in grain processing enterprises is organic dust. During the crushing, transportation, and processing of grain, cotton fiber residues, dry organic particles, and various small dispersed substances are released into the air [9].

These dusts enter the body through the respiratory tract and can cause bronchitis, allergic reactions, chronic respiratory diseases, and impaired respiratory function. In particular, chronic cough, shortness of breath, and decreased lung function are observed in workers who work in dusty environments for a long time.

Exposure to chemicals

Some chemicals are also used in oil separation and technological processing processes in grain processing enterprises. In particular, solvents, oil vapors, fuel products, and disinfectants can be released into the air. In some cases, chemical vapors can cause eye, skin, and respiratory tract irritation [10].

Long-term exposure to chemicals can cause central nervous system dysfunction, allergic dermatitis, and signs of general intoxication. Therefore, it is important to organize effective ventilation systems in production rooms.

Noise and vibration

Pressing equipment, crushers, and mechanical vehicles used in enterprises generate high levels of noise. Excessive noise over a long period of time can lead to hearing loss, headaches, irritability, insomnia, and decreased productivity.

Vibration also negatively affects the musculoskeletal system, causing numbness in the hands and feet, impaired blood circulation, and occupational pathologies [11].

Microclimate conditions

High temperatures and humidity are common in grain processing plants. Especially in drying and pressing workshops, high temperatures overload the body's thermoregulatory system. This can cause rapid fatigue, dizziness, dehydration, and cardiovascular strain in workers [12].

An unfavorable microclimate reduces labor productivity and increases the risk of industrial accidents.

Risk of occupational diseases

Workers in grain processing plants are more likely to develop respiratory diseases, allergic conditions, hearing analyzer diseases, and pathologies associated with the musculoskeletal system. Long-term exposure to harmful factors can lead to chronic bronchitis, pneumoconiosis, disorders of the vegetative nervous system, and reduced work capacity [13].

Discussion

In order to prevent occupational diseases, periodic medical examinations of workers, sanitary and hygienic control of the production environment, and strict adherence to safety precautions are required [14].

Preventive measures

To protect the health of workers at grain processing enterprises, it is advisable to implement the following measures:

- introduction of effective ventilation systems in production rooms;
- use of technologies that reduce dust and harmful gases;
- provision of workers with respirators, masks, earplugs and special clothing;
- proper organization of work and rest regimes at workplaces;
- conduct periodic preventive medical examinations;
- strengthen control over compliance with sanitary and hygienic rules [15].

Conclusion

The labor activity of workers at grain processing enterprises is complex and has its own characteristics in terms of medical and hygienic aspects. The production environment is characterized by harmful factors such as dust, chemical fumes, noise, vibration and unfavorable microclimate. With prolonged exposure to these factors, the risk of developing various occupational diseases in the health of workers increases. Therefore, improving occupational hygiene in enterprises, using modern protective equipment and strengthening preventive medical supervision are important factors in maintaining the health of workers.

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