HYGIENIC ASPECTS OF LABOR PROTECTION IN LIVESTOCK PRODUCTION COMPLEXES AND MILK PRODUCTION FARMS

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HYGIENIC ASPECTS OF LABOR PROTECTION IN LIVESTOCK PRODUCTION COMPLEXES AND MILK PRODUCTION FARMS.

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Resume,

The cattle-breeding complexes and farms workers are exposed to adverse climate, chemical and biological factors throughout the year. The presence of ammonia, hydrogen sulfide, dust and high bacterial contamination in the air takes on a special role.

All of the above dictates the need to develop optimal working conditions and protect the health of workers in livestock farms and complexes.

Key words: animal husbandry, ammonia, bacterial contamination, sanitary life of the population, sanitary protection zone.

The goal of the work

A dairy cattle breeding is one of the most labor-intensive sectors of animal husbandry. Industrial-type technology at specialized complexes and milk production farms provides for the simplification of the process of obtaining products, the maximum exclusion of manual labor and the participation of workers in animal service processes.

At the same time, the widespread introduction of a new technology for the production of milk, the mechanization of the main processes, and a large concentration of animals significantly change the working conditions of workers in this sector of animal husbandry. The main production processes at dairy complexes and farms are the production of milk and animal care - their maintenance, feeding, watering, grooming and removal of manure [2].

Milking cows is the most difficult process in dairy farming. It most contributes to the disease of the hands of milkmaids, the disease of lumbosacral radiculitis, neuralgia [1].

Modern milking machines used in the vast majority of complexes and farms, compared with manual milking, increase the productivity of milkmaids by 2–4 times, freeing them from heavy labor. The working conditions of workers in dairy production are determined mainly by the state of the air environment of the workrooms. A significant place in the environment of harmful production factors is occupied by contact with water. In the milking parlors and in the areas of primary milk processing, high humidity (more than 90%) is noted, the air velocity is up to 0.6 m / s. In general, the meteorological conditions in the premises of barn in winter are characterized by low temperatures, high relative humidity and moderate air velocity (in winter the temperature is 3-8 degrees, in the summer + 25-30 degrees, relative humidity corresponds to 80-95 and 50-70% [3].

In addition to the microclimate in dairy farms and complexes, they can have a harmful effect on the body of working carbon dioxide, ammonia and hydrogen sulfide, secreted by animals and generated during the decomposition of manure. All of the above dictates the need to develop optimal working conditions and a set of hygienic measures to protect the health of workers of livestock farms and complexes.

Purpose of the study is development of hygienically sound measures, to improve working conditions and protect the health of employees of dairy farms and complexes.

Materials and methods

The object of research was the livestock farm of the “Fayz” farm in Gijduvan district. The determination of temperature and humidity was carried out using an aspiration psychrometer -
Russia (SanPiN RUz 0324-16), the speed of air movement with a wing-mounted anemometer (SanPiN RUz 0324-16). The determination of carbon dioxide, ammonia, hydrogen sulfide was carried out according to the guidelines for the determination of chemicals in enclosed spaces (MU 012-3 / 0015-81), dustiness of the air using a gas analyzer-aspirator (MU 012-3 / 0014-81), illumination - Argus light meter. At the same time, bacteriological contamination of the premises was determined by keeping animals. The work was carried out jointly with the Gijduvan district center of the State Sanitary and Epidemiological Surveillance.

**Research results**

Studies have shown that in the summer period (July - August) the air temperature in the milking parlor was 28-36°C, relative humidity - 40-60%, air velocity - 0.3-0.4m / s. In the winter period (December), the air temperature in the milking parlor and in the areas of primary milk processing was characterized by high humidity - 90-98%, air velocity - 0.6-0.8m / s, air temperature - + 3°-2°C.

High persistent relative humidity (90-98%) in the milking parlor was observed due to significant releases of animal moisture and the use of water to wash the udder and wash milking equipment. The highest relative humidity exceeding 95% in the milkmaids work area was observed in cowsheds where hydra was used with a smooth method of removing manure. The combination of low temperature, high humidity and significant air velocity can contribute to hypothermia.

Air pollution in the cowsheds also occurred due to the accumulation of carbon dioxide, ammonia and hydrogen sulfide, which are secreted by animals and formed during the decomposition of manure. The concentration of carbon dioxide in the daytime (from 8 to 19 hours) in ventilated rooms - cowsheds in most cases (observation was carried out for 5 days) did not exceed 0.3-0.4%. The greatest amount of gas was found in the cowsheds in the morning hours in the month of December (winter period), when all window and doorways were closed (0.8-0.9%). The ammonia concentration in the cowsheds ventilated in the milking parlor ranged from 3 to 22 mg / m³, hydrogen sulfide was detected only in maternity wards and cowsheds in concentrations of 0.4 - 16 mg / m³, which does not exceed the requirements of SanPiN RUz № 294-11. In the morning hours (4-7 hours) the ammonia concentration in the cowsheds was 20-35 mg / m³, which exceeded the permissible norm.

The high air temperature in the summer period contributed to the strengthening of the processes of decay and fermentation of waste from the livestock complex, and therefore, in the warm period of the year, the intensity of unpleasant odor increased, which had a negative impact on the living conditions of the population living near the livestock complex. Studies conducted in the Gijduvan district showed that in the village located on the windward side of 1000 m from the livestock complex, all the surveyed population (250 questionnaires) noted a sharp increase in unpleasant odors and the number of flies in the warm season.

The determination of the bacterial contamination of atmospheric air and the ammonia content in it as one of the most important indicators of pollution indicates that the distribution range of pollution is 2000 m in terms of ammonia content. bacterial air pollution at a distance of 3000 m was 320, which does not represent an epidemiological danger. The distribution level of hydrogen sulfide from the source was 1,500 m and no hydrogen sulfide was detected at a distance of 2,000 m (Table 1).

In the process of servicing animals, workers in the cowsheds and feed workshops were exposed to dust to the greatest extent. In the studied livestock complex, increased dust concentrations (from 20 to 25 mg / m³) in the workplace were observed during the distribution of dry concentrated feed and cleaning (18-24 mg / m³) and the feed mill (20-26 mg / m³) during processing and loading in feed dispensers of rough and loose feeds.
Table 1. Ammonia content and bacterial airborne contamination in the area of the livestock complex.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Warm season</th>
<th>Cold season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from the livestock complex, m</td>
<td>1000</td>
<td>1500</td>
</tr>
<tr>
<td>Ammonia, mg / m³</td>
<td>3-4</td>
<td>0,1-1</td>
</tr>
<tr>
<td>Hydrogen sulfide, mg / m³</td>
<td>0,1-0,3</td>
<td>0,01-0,02</td>
</tr>
<tr>
<td>Bacterial contamination per 1m³</td>
<td>2410</td>
<td>2120</td>
</tr>
</tbody>
</table>

When measuring natural and artificial lighting in the delivery room, deviations from sanitary standards were not noted. In the milking parlor, the coefficient of natural lighting was 0.7-0.8%, artificial lighting – 160-180lx, which corresponds to the established standards.

In the livestock complex, conditionally pathogenic microflora influence the workers' bodies.

For the prevention of various diseases in the spring against mites, cowsheds were treated with formalin and pesticides, which also pollute the air of the working area in cowsheds to a certain extent (research continues in this direction).

**Conclusions**

In livestock complexes and farms, workers are exposed to adverse microclimate, chemical and biological factors throughout the year.

The main measures to combat harmful factors occurring in livestock farms should be carried out in the direction of their elimination or limitation, taking into account existing technology and equipment.

To prevent overcooling in the winter in each barn, it is advisable to arrange a room for heating and drying workers' clothes. When choosing a site for the construction of livestock complexes, the wind regime of the area is of great importance. In this case, it is necessary to take into account only its average annual characteristic of the wind rose, but also its seasonal characteristics.

We can assume that the climatic features of Uzbekistan represent one of the cases of unfavorable aerological conditions, therefore, it is advisable to achieve an increase in the sanitary protection zone for cattle-breeding complexes with a capacity of 5,000 and more animals up to 3,000 meters.

In order to reduce the concentration of harmful gases and maintain the required microclimate parameters in cowsheds and milking parlors, an exhaust and supply ventilation device is required. Moisture and gases accumulate in the upper zone of the room, so it is advisable to use combined ventilation: local supply with air heating, localized exhaust to remove air from the manure channels and an exchange hood on the roof, which removes air from the upper zone of the room.

In order to combat dustiness, it is necessary to maintain proper sanitary condition, uninterrupted operation of the ventilation system, as well as periodic wet floor cleaning in open areas.

When treating cowsheds with formalin aerosols and pesticides, maintenance personnel must wear protective goggles and respirators.

In livestock breeding complexes for dairy and meat appointments, it is necessary to organize a laboratory to monitor both the quality of the veterinary-sanitary processing of equipment and the state of the air environment of the premises.

With manual milking of cows, special treatment and preventive measures should be applied to prevent diseases of the hands — warm baths followed by a massage itself.

In order to prevent workers' diseases and timely monitor the state of their health, livestock farms need 1 time per year according to the order of the Ministry of Health of Ukraine No. 2397 of a strict medical examination with the involvement of a therapist, dermatologist and gynecologist.

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