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Industrial Hazards in Poultry Farms and Measures to Improve the Working Conditions of Workers

Abstract. *The volumes of increasing the sales of poultry meat by Ukrainian producers and the working conditions of poultry workers were characterized. The main causes of occupational accidents are indicated. It is noted that the main dangerous and harmful factors that causing occupational injuries and diseases on the workplace are stay of an employee into hazardous equipment zones, high levels of noise, organic and inorganic dust, ammonia and other chemicals, biological agents, cold and thermal stresses, the severity and tension of labor, the repetition of technological operations at a super-fast pace, uncomfortable working poses that lead to musculoskeletal injuries of worker. Organizational measures for the prevention of injuries and occupational diseases were proposed..*

Key words: *poultry farms, workers, working conditions, dangerous and harmful factors, noise, dust, traumatic injuries*



Ukrainian poultry exports have reached a record high of 329,000 tonnes thanks to increased demand from the EU and Middle East countries. In 2018, due to continued extensive geographical diversification and consolidation in new markets after leaving the Russian market, there was a positive tendency towards an increase in the volume of meat and offal exports (Ukraine poultry, 2019). Poultry meat exports from Ukraine in the first quarter of 2019 accounted for 103.6 thou. tons. The chicken meat supplied is worth USD 146.9 million, 1.4x more from the corresponding period of 2018 (74.7 thou. tons, USD 111.95 million). The State Fiscal Service of Ukraine (SFSU) informs that the key importers in the indicated period are as follows:

- Saudi Arabia – 28.2 thou. tons for the amount of USD 39.9 million (27.2 per cent);
- the Netherlands – 17.1 thou. tons, USD 24.2 million (16.5 per cent);
- Slovakia – 9.9 thou. tons, USD 14.1 million (9.7 per cent);

- others – 48.2 thou. tons, USD 68.4 million (46.6 per cent) (Poultry meat, 2019).

There were nearly 30,000 workers employed in poultry processing in 2018. Their work mostly involved slaughtering or processing poultry. Poultry processing workers routinely use cutting tools, packaging machinery, and other dangerous processes and equipment. Workers in this industry incurred a rate of 6.1 cases of nonfatal workplace injuries and illness per 100 full-time equivalent workers in 2018. That was higher than the rate of 2,8 cases for all private industry workers. Among the events that led to accidents in poultry enterprises, four major ones are allocated, with a total weight of almost 59.6%, namely: road traffic accidents – 29.3%, fall of the victim – 15.8%, the action of objects and parts that are moving, rotate – by 14.4%. In poultry processing, the study found that repetitive motion, such as hanging poultry or using a knife, led to a higher rate of cases (Tairova and Marchyshyna, 2019).

There are many serious safety and health hazards in the poultry processing industry. These hazards include exposure to high noise levels, low or high air temperature of the working zone, high humidity and air flow, dangerous equipment, significant amount of moving transport, engineering communications, slippery floors, musculoskeletal disorders, pathogenic microorganisms and hazardous chemicals (ammonia). Working on the poultry processing can affect your health. Musculoskeletal disorders are of particular concern and continue to be common among workers in the poultry industry. Employees can also be exposed to biological hazards associated with handling live birds or exposures to poultry feces and dusts which can increase their risk for many diseases. In many cases the effects on health build up over time. Of particular



significance in poultry processing is the ill health caused by manual handling, dust or spores, infections and noise. Of workers with occupational ill health 50% experience chronic back pain. Also one exposure to some dust and spores can cause severe health effects and sensitisation (*Marchyshyna et al., 2015a*).

Machinery is a significant source of fatalities and serious injuries in poultry processing. The primary causes of accidents involving machinery are crushing, falling into moving mechanisms, being struck and entanglement. Those at risk of injury are persons operating the machinery and those in the vicinity when machinery is being operated. Workers use an array of workshop tools and equipment for maintenance and repairs. This equipment may pose a risk due to entanglement in moving parts, heat, explosion, being struck by particles and sparks. These may cause injury to the person using the equipment or those who may be in the area.

About a third of all reported accidents are due to poor manual handling. Most manual handling accidents result in back injury. Lifting heavy loads results in arthritis of joints, particularly hip and knee joints. Damage is also caused to tendons, ligaments and muscles. Injuries can result from manual handling due to the work itself, the load, the work environment, or the individual's ability. Twisting your spine while lifting or carrying a load is particularly dangerous.

The risk of musculoskeletal disorders injury depends on the frequency of the task performed, the level of required effort, the duration of the task, as well as other factors. Not all of these risk factors will be present in every job.

Employers, however, should look for these factors when screening and analyzing jobs, operations, or workstations to determine which risk factors are present. Jobs and tasks that have multiple risk factors have a higher probability of causing musculoskeletal disorders. Poultry processing involves a combination of highly repetitive and forceful movements that places employees at an increased risk for upper extremity musculoskeletal disorders. Because much of the work on a poultry processing line involves the hand and wrist, workers may be particularly at risk for carpal tunnel syndrome. Researchers found a significant relationship between increasing exposure to repetition and force among poultry workers and increasing prevalence of carpal tunnel syndrome (*Marchyshyna et al., 2015b*). Many back injuries are the result of slips and falls on greasy floors.

Dust and spores cause very serious illness. Sources of dust and spores are mouldy grain, poultry feathers and litter and dust in intensive poultry houses. The effects of these materials can cause short-term effects (including irritation, bronchitis and shortness of breath), and long-term effects (including chronic bronchitis, asthma, shortness of breath, weight loss, light farmers and sensitization). Sensitization is very serious, since any impact on the future will have health consequences. Workers must always wear appropriate personal protective equipment.

Chemicals present a risk in various ways, including inhalation, intake and intake. The risk posed by a chemical depends on its chemical properties, especially toxicity. The effect of harmful health is due to irritation, allergies, poisoning or even death. The most dangerous chemicals are in concentrated form. Those at risk are those who use chemicals and those who may be exposed to chemicals when they are in a poultry factory. All chemicals should be stored in closed stores.

Poultry slaughter processes begin with off-loading poultry from transport trucks after arrival at processing plants. Following off-loading, workers typically shackle the birds in a hanging room after which they are stunned, killed, bled-out, and de-feathered. Evisceration, or removal of the birds' internal organs, follows during which the birds are washed and inspected. After evisceration, the birds are placed in chillier baths of water and anti-microbial agents to reduce pathogen loading. After a specified period of time in a facility's chillier baths, the poultry are recovered for processing. This often involves the use of sharp-bladed instruments to debone, trim and cut the birds into various parts. Secondary processing may also occur in which parts are converted to ready-to-eat products.

The following precautions can help prevent injury or illness:

- Before starting work, workers must make sure that all machines are properly protected.
- Workers must turn off the equipment during cleaning or maintenance activities, and always lock or tag out to prevent unintended start-up.
- To prevent slipping floors, gutters and surfaces must be kept clean and free from excess waste and fat.
- If necessary, workers should wear protective clothing, safety glasses, hearing protection equipment,

respiratory protective equipment and protective boots.

- It is necessary to inform the head of the early signs of repetitive motion injuries. These may include: hand pain or numbness; stiff fingers; swelling in the hand, wrist, or forearm; and back or shoulder pain.
- You need to seek medical help if you have a scrape or cut to the skin, and if you are bleeding.
- In case of contact with the liquid in the eye, immediately wash off with water to prevent infection (Voinalovych and Marchyshyna, 2016).

Workers have the right to speak about unsafe working conditions without fear of retaliation.

Conclusions

Employers should organize healthy and safe working conditions for poultry workers. They should implement measures to train employees, medical examinations to prevent occupational diseases, provide modern safe equipment, personal protective equipment, etc. ■

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Производственные опасности на птицефабриках и меры по улучшению условий труда работников

Аннотация. Охарактеризованы показатели увеличения реализации мяса птицы украинскими производителями и условия труда работников птицефабрик. Указаны основные причины несчастных случаев на производстве. Отмечено, что основными опасными и вредными факторами, которые приводят к производственному травматизму и профессиональным заболеваниям на рабочих местах являются попадание работника в опасные зоны производственного оборудования, высокие уровни шума, органическая и неорганическая пыль, аммиак и другие химические вещества, биологические агенты, холодовые и тепловые стрессы, тяжесть и напряженность труда, повторяемость технологических операций в сверхбыстром темпе, неудобные рабочие

позы, приводящие к мускульно-скелетным нарушениям у работников. Были предложены организационные меры по профилактике у работников травм и профессиональных заболеваний.

Ключевые слова: птицефабрики, работники, условия труда, опасные и вредные факторы, шум, пыль, травмы

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Виробничі небезпеки на птахофабриках та заходи щодо поліпшення умов праці працівників

Анотація. Охарактеризовані показники щодо реалізації м'яса птиці українськими виробниками та умови праці працівників птахофабрик. Вказані основні причини нещасних випадків на виробництві. Відмічено, що основними небезпечними і шкідливими чинниками, що призводять до виробничого травматизму та професійних захворювань на робочих місцях є потрапляння працівника у небезпечні зони виробничого обладнання, високі рівні шуму, органічний та неорганічний пил, аміак та інші хімічні речовини, біологічні агенти, холодовий та тепловий стреси, важкість та напруженість праці, повторюваність технологічних операцій у надшвидкому темпі, незручні робочі пози, що призводять до мускульно-скелетних ушкоджень працівників. Були запропоновані організаційні заходи щодо профілактики у працівників травм і професійних захворювань.

Ключові слова: птахофабрики, працівники, умови праці, небезпечні і шкідливі чинники, шум, пил, травми

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