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Working Conditions, Dangerous and Harmful Factors on Poultry Farms

Working conditions, dangerous and harmful risk factors on poultry farms were characterized. It is noted that the main harmful risk factors that cause traumatic injuries and occupational disease of poultry farm workers are production equipment, organic and inorganic dust, ammonia and other chemicals, biological agents, thermal stress, high noise levels, repetitiveness operations at a rapid pace, forceful exertion, awkward static postures. Organizational arrangements for preventing the development among workers traumatic injuries and occupational diseases have been proposed.

Poultry farms, working conditions, dangerous and harmful factors

The European Union (EU) broiler meat production is expected to increase in 2016. Consumers have been switching from other meats to broiler meat (cheaper and more convenient), due to difficult economic situation in the EU region. EU broiler meat imports are still forecast to remain flat in 2016 with higher level imports from Ukraine.

Workers involved in poultry breeding, farming and the loading and transport of poultry to processing facilities face a number of potential health hazards. Exposures to chemicals such as ammonia or disinfectants and detergents used on poultry farms are possible as well as exposures to agricultural dust, both inorganic and organic. Poultry dust, even in healthy

flocks, carries its own inherent risks for workers. The poultry workers are more likely to suffer from bronchitis, chronic cough, excessive phlegm, and chest tightness than workers in other industries. Infections and resultant health effects may occur due to exposures to biological agents including viruses (e.g., *avian influenza virus*), bacteria (e.g., *Campylobacter j.*, *E. coli*, *Salmonella*), and fungi (e.g., *Histoplasma capsulatum*). Musculoskeletal injuries may result from working in awkward body positions during activities such as poultry catching. Thermal stress experienced during warm summer months and cold winter months may also be a concern. Noise exposures, particularly in poultry confinement houses, can also be a significant

concern. Traumatic injuries and deaths of poultry farm workers have occurred from improper practices and use of industrial machinery present on poultry farms [1].

Poultry slaughter and evisceration processes begin with off-loading live 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 chiller baths of water and anti-microbial agents to reduce pathogen loading. A variety of chemicals are present in facilities where poultry slaughter and evisceration occur that may present an occupational hazard. Potential exposures include ammonia used in refrigeration systems, chlorine or other antimicrobial chemicals applied by spray cabinets and dip tanks, and sanitation chemicals used to clean equipment. Exposures to high levels of carbon dioxide (CO₂) may result from the use of CO₂ as an acidifying agent. Reports of health effects during poultry slaughter and evisceration have often included eye and respiratory irritation, thought to be related to airborne chlorine or other anti-microbial-related compounds. Similar to reports from poultry catchers at poultry houses and confinement units, respiratory symptoms have also been associated with exposures to organic dust and bacterial endotoxins generated during poultry shackling and hanging operations. Temperature extremes may be experienced at workers in these types of facilities as well as high noise levels.

Poultry processing involves a combination of highly repetitive and forceful movements that place employees at in-

creased risk for upper extremity work-related musculoskeletal disorders. Poultry workers may be particularly at risk for carpal tunnel syndrome because much of the work on a poultry processing line involves the hand and wrist. The researchers found a significant relationship between increasing exposure to repetition and force among poultry workers and increasing prevalence of carpal tunnel syndrome. Cold temperatures, common in poultry processing facilities, combined with repetition and force, increase the risk of developing work-related musculoskeletal disorders. The employees did not have adjustable platforms at their workstations. Poultry processing jobs continue to be hazardous despite repeated studies documenting the high prevalence of carpal tunnel syndrome. Early recognition of, reporting of, and intervention in work-related musculoskeletal disorders can limit injury severity, improve the effectiveness of treatment, minimize the likelihood of a disability or permanent damage, and reduce the rate of workers' compensation claims.

After a specified period of time in a facility's chiller 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. In many cases, these parts can be processed with seasonings, spices, marinades, or other ingredients for consumers. Secondary processing may also occur in which parts are converted to ready-to-eat products such as sausages or nuggets. Packaging of birds, either in whole or in parts, occurs as a last step prior to shipping to food distribution networks. During these processing and packaging steps, traumatic injuries and musculoskeletal disorders have been the primary health effects reported. Such traumatic in-



juries may result from the extensive use of knives and other sharp-bladed instruments; musculoskeletal disorders may result from the cumulative effects of rapid and repetitive movements by the workers [2]. Additionally, ammonia and chlorine are also potentially used in these facilities and may present occupational hazards; the extensive use of dry ice may also present the possibility for worker exposure to high levels of carbon dioxide. Indoor temperatures are often kept quite low in these areas resulting in health issues related to cold stress.

Many back injuries are the result of slips and falls on greasy floors. When workers spray birds with water to clean them, this creates a fatty, slippery film on the floor. Poultry plants keep to a rigorous cleaning routine to rid the floor of potentially harmful substances. A gritty, nonslip track and special, high-traction boots for workers can provide added protection for poultry workers.

General ventilation in the facility plays an important part in ensuring adequate indoor air quality for evisceration and processing facilities. Maintaining the heating, ventilating, and air conditioning system on a regular basis will ensure proper functioning of all components of the system. This includes ensuring that all fans associated within the system are functioning and turned on as intended. It is necessary to ensure that the ventilation system is providing adequate numbers of air exchanges for the areas the system serves. If insufficient fresh air is introduced into these areas, the impact of general dilution of airborne contaminants may be minimal. Also, it is necessary to ensure that the flow of air provided by the positive-pressure ventilation system is directed through the facility from the cleanest areas of a facility to the dirtiest areas. In general, this would ensure air flows from areas of little chlorine use (such as the packaging and storage area) towards areas of higher chlorine use (such as the slaughter, evisceration, and chiller baths areas). The comfort fans should not violate the intended air flow and direction through the facility. After cleaning shifts when chlorine-containing chemicals are used, necessary to ensure sufficient time prior to the start of the next work shift for ventilation to introduce adequate air for maximum dilution of airborne chlorine compounds [3].

Conclusions

Employers have a legal duty to protect their workers against risks to their health that could arise through work-related activities, and must assess such risks properly. Researchers on occupational health recommended a processes that addresses the following: accurate injury and illness recordkeeping; early recognition and reporting of symptoms; systematic monitoring of employee health. ■

Охарактеризованы условия труда, опасные и вредные факторы риска на птицефабриках. Следует отметить, что основными вредными факторами риска, которые вызывают травматические повреждения и профессиональные заболевания рабочих птицефабрик являются производственное оборудование, органическая и неорганическая пыль, аммиак и другие химические вещества, биологические агенты, тепловой стресс, высокие уровни шума, повторяемость операций в быстром темпе, напряженность труда, неудобные статические позы рабочих. Были предложены организационные механизмы для предотвращения развития среди рабочих травм и профессиональных заболеваний.

Птицефабрики, условия труда, опасные и вредные риск-факторы

Охарактеризовані умови праці, небезпечні та шкідливі ризик-фактори на птахофабриках. Слід зазначити, що основними шкідливими чинниками ризику, що викликають травматизм та професійні захворювання працівників птахофабрик є виробниче обладнання, органічний та неорганічний пил, аміак та інші хімічні речовини, біологічні агенти, тепловий стрес, високі рівні шуму, повторюваність операцій у швидкому темпі, напруженість праці, незручні статичні робочі пози. Були запропоновані організаційні механізми для запобігання розвитку серед працівників травм і професійних захворювань.

Птахофабрики, умови праці, небезпечні і шкідливі ризик-фактори

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