



HYGIENIC ASSESSMENT OF THE WEIGHT AND INTENSITY OF WORKING CONDITIONS IN POULTRY FARMS

Ortikov Azim Akhrorovich

Bukhara State Medical Institute

✓ *Resume*

In the state programs of the President of the Republic of Uzbekistan on the reform of agriculture, emphasis is placed on an integrated approach to the development of poultry farming in the republic. This scientific research is devoted to the hygienic assessment of the working conditions of poultry farmers and the development of hygienic reasonable measures to reduce the general morbidity among them and prevent the occurrence of occupational morbidity.

Key words: *Occupational health, temperature, dust content, biological, chemical factors.*

ПАРРАНДАЧИЛИК ФАБРИКАЛАРИ ИШ ШАРОИТИНИНГ ОФИРЛИГИ ВА ЖАДАЛЛИК КЎРСАТКИЧЛАРИ БЎЙИЧА ГИГИЕНИК БАХОЛАШ

Ортиқов Азим Ахрорович

Бухоро давлат тиббиёт институти

✓ *Резюме*

Ўзбекистон Республикаси Президентининг қишлоқ хўжалигини ислоҳ қилиши бўйича давлат дастурларида шахсан паррандачилик ишлаб чиқарини ривоҷлантиришига алоҳида эътибор берилган. Ушбу илмий изланишида паррандачилик хўжаликлари ишларининг меҳнат шароитига гигиеник баҳо берилиб, улар орасида умумий касалликларни камайтириши ва касб касалликларининг келиб чиқшини олдини олиши чора тадбирлари ишлаб чиқилган.

Калит сўзлар: *Касбий саломатлик, ҳарорат омили, чанг, биологик, кимёвий омиллар.*

ГИГИЕНИЧЕСКАЯ ОЦЕНКА УСЛОВИЙ ТРУДА ПТИЦЕФАБРИКИ ПО ПОКАЗАТЕЛЯМ ТЯЖЕСТИ И НАПРЯЖЕННОСТИ

Ортиков Азим Ахрорович

Бухарский государственный медицинский институт

✓ *Резюме*

В государственных программах Президента Республики Узбекистан по реформе сельского хозяйства делится упор на комплексной подход к развитию птицеводства в республике. Данной научный поиск посвящены гигиенической оценки условий труда птицеводов и разработка гигиенический обоснованной мероприятий по снижению среди них общей заболеваемости и предупреждению возникновения профессиональной заболеваемости.

Ключевые слова: *Профессиональная здоровье, температура, запылённость, биологические, химические факторы.*

Relevance

In the period of transition of the Republic of Uzbekistan to a new market economy, there is strong competition in the production of consumer goods and services. All this requires the acceleration of production, the introduction of new technologies to obtain a high level of production.

It should be noted that this process is reflected in the agricultural sector, which has reached the level of industry. Today, poultry farming is a rapidly developing and economically viable sector of the



agro-industry. As of 2021, the Republic of Uzbekistan has 510 large egg factories and 260 meat-producing poultry farms, which cover 82% of the population's demand for eggs and 79% of the country's demand for poultry meat. Resolution No. PQ 4015 of the President of the Republic of Uzbekistan dated 15 November, 2018 "On additional measures for further development of poultry" has created great opportunities for the development of poultry in the country.

However, despite the improvement in the technology of poultry farms and factories, the introduction of new equipment (semi-automatic cell batteries), the transition from land-based to grid methods of poultry farming, in many parts of the world there are many problems with their organization and operation (E.P. Krasnyuk, 2005), (M.E. Eglite, 2000), (A.A. Doblo, 2004).

Industrial poultry farms are characterized by high physical and nervous excitement, pressure, adverse microclimate conditions, chemical compounds in the air of workplaces, dust from plants and animals, highly active biological substances, various microorganisms, as well as low lighting, high noise (V.S. Golenko, 2001), (G.G. Ladnova, 2004), (N.V. Boysova, 2004).

Such a production environment has a negative impact on the health of workers working in poultry farms and factories and their health. It can also affect the sanitary living conditions of the population in the areas where poultry farms are located (V.S. Alekseev, 1998), (L.N. Mikhova, 2004), (H.O. Kasimov 2019, 2020).

All this is due to the hygienic assessment of technological processes and regulations of poultry farms, the hygienic basis of working conditions in the implementation of technological processes, the implementation of targeted inspections to assess the disease on the basis of temporary disability and medical examination, and hygienically based preventive measures. requires development and recommendation.

Materials and inspection methods

Sanitary and hygienic inspection; Two industrial poultry farms (Jondor Chinor Chorva, Gijduvan Omad Savdo) LLC hygienically inspect the working conditions of workers, check the microclimate of production, dust and gases in the air in the workplace, the level of noise, vibration and lighting in the workplace. includes evaluation.

The importance of the microclimate is that human life activity is moderate under conditions of temperature homeostasis.

The microclimate parameter (air temperature, humidity, speed of movement, heat energy) maintains homeostatic balance. However, it can negatively affect workers' emotions, work ability, and health (A.E. Malisheva, 2006; R.F. Afanaseva, 2005; G.G. Ladnova, 2004; I.I. Ibko, 2001). Employees of poultry farms work for a long time (up to 6-7 hours) in special microclimates, where poultry rooms are defined on the basis of zootechnical requirements and completely different for humans (P.B. Vinogradov, 2009).

The microclimate in the workplaces of poultry farms is inspected at the beginning, middle and end of work on the basis of the state standard No. 12.01.005-88 "General sanitary and hygienic requirements for the air of the working zone." The results obtained on the basis of "Sanitary and hygienic norms of the microclimate" No. 0324-16, sanitary norms and "Hygienic classification of conditional labor on the basis of indications of the harmfulness and danger of factors of production, assessment and pressure of the labor process."

The amount of dust in the workplaces of poultry factories depends on the storage conditions and age of the birds. In addition, due to the imperfection of maintenance technology, inefficient operation of air exchangers, poor cleaning of rooms, improper design of rooms, dust appears in the workplace (M.E. Eglite, 2000).

Aspiration of dust in the workplace - by the method of measurement (GOST 12.1.005-88) "General sanitary and hygienic requirements for air conditioning of the air zone"; GOST 12.1.04-84- "Vozdux rabochey zony" (method of measuring the concentration of harmful substances in indikatornymi tubes). The results of the inspection are evaluated using San P i N RUz 0294-11 "Hygienic standards predelno-dopustimiye kontsentratsii (PDK) vrednyx veshchestv v vozduxe rabochey zony."

Illumination of workplaces is of great importance in maintaining a high level of human ability to work. According to zooveterinary requirements, artificial lighting in poultry houses should be 20-30 lk, and according to the design of buildings, poultry rooms should not receive natural light. Workers are therefore forced to work in low light conditions (V.A. Kiryushin, 2003).

Illumination of workplaces is carried out using Yu-116 photoelectrocalorimeter on the basis of UK 2.2.4.706-98, RM 01.98 "Assessment of lighting of working places" and GOST 24 940 "Building and construction of methods of measuring lighting". The results of inspections are evaluated on the basis of documents San P i N 23-05-95, "Natural and artificial light" and SN i P 11-4-79 "Natural and artificial light".

Production noise is a factor that negatively affects the body of workers in poultry factories (M.E. Eglite, 2000; V.A. Kiryushin, 2002).

Noise level and its spectral composition in the workplaces of poultry farms SSBT GOST 12.1.050-86 "Methods of measuring the noise in the working area" and "Methodical indications for the measurement and hygienic measurement of noise in the working area" № 1844-7 It is measured on the instrument 003. The results of the inspection are evaluated on the basis of "Sanitary norms urovney shuma na rabochix mestax" - San P i N 0120-01. The oscillation of production is characterized by its level, frequency spectrum and physiological characteristics of the organism. Vibration leads to peripheral neurospasm in the body, spinal disc injury, impaired soft tissue and muscle motility, and the development of gynecological pathologies (G.A. Suvorov, 2004; N.V. Boytsova, 2004).

Vibration in the workplaces of poultry is carried out on the basis of "Sanitary norms of general and local vibration" - San PiN-0175-04 and GOST 12.1.012-90 - "Vibrational innocence of general vibration".

Methods of sanitary-chemical inspection of workplaces: Workplaces of poultry factories are polluted with gaseous substances, personally ammonia, hydrogen sulfate, gases emitted from poultry dust, sulfur dioxide. These occur as a result of the life activities of birds and the breakdown of organic matter (food, bedding, steam, feces). The amount of constantly emitted gases is inextricably linked with the age of the birds, storage conditions and the efficiency of air exchangers (V.S. Golenko, 2001, Bar-Sela, 1984).

GOST 12.1.005-88 "General sanitary and hygienic requirements for the air of working areas" and MU 3138-84 "Inspection of production at the time of justification, verification and correction" performed on the basis of.

The amount of chemicals in the air of workplaces "Hygienic standards of maximum allowable concentration (MPC) of harmful substances in the air of the working zone" San P i N 0294-11, in the atmosphere / 0173-09.

Methods of physiological examination: Physiological examination is mainly used to assess the state of the organism during work, the impact of the production process on workers' health, work capacity and the impact on fatigue (V.A. Kiryushin, 2002).

In industrial poultry farms, the activity is characterized by physical pressure on the musculoskeletal system, nervous function, nervous and excretory systems. (R.Ya. Khamitova, 2000, S.V. Schneider, 2002).

The severity and intensity of poultry labor is assessed on the basis of San P i N No. 0141-03 "Hygienic classification of conditional labor on the indications of the harmfulness and danger of factors of production, the intensity and intensity of the labor process."

Respiratory function is assessed by measuring the number of breaths and the vital capacity of the lungs using a dry spirometer. Dynamometric examinations assess changes in the activity of members of the base movement (TA Barovskaya, 1989).

The test involves measuring the strength of the finger muscles over the entire work shift using a finger dynamometer. To assess the symptoms of fatigue of employees of the enterprise, the continuity of their attention is checked. For this, Platonov's correction checklist is used.

Social hygienic methods: Analysis of common diseases, occupational diseases and diseases associated with temporary loss of ability to work in manufacturing enterprises allows to determine the nature, frequency, dynamics of the work process and the reasons for their increase or decrease. The main document of the analysis of temporary disability is a report in the form of 16 VN.

According to the results of the medical commission in poultry farms, 31 acts were analyzed, in which 865 workers' documents related to their work experience, age, profession, gender were analyzed. Questionnaire method is useful in assessing the impact of physiological discomfort, discomfort, atmospheric air pollution on the sanitary life of the population (D.I. Sokolov, 2006). With this in mind, 365 questionnaires were conducted to study the impact of harmful factors in the air of

workplaces and residential areas on the work of workers and the sanitary living conditions of the population.

Statistical methods: All test results were statistically processed on an Intel Pentium III computer using the Microsoft Office 2000 SR-1 Pentium office suite.

Mathematical-statistical processing of the results of the scientific examination includes determination of the mean error, determination of the value of the Student's criterion and the report of real changes between the control group and the examined group and the correlation coefficient in the quadratic method (Pearson method).

Hygienic assessment based on the severity and intensity of working conditions: There are more than 40 occupations in large poultry farms. Each of these is characterized by appropriate production technologies. But in farms, workers are involved in most production processes, i.e. not limited to one profession.

The main occupations at the poultry factory of Jondor Chinor Chorva LLC are poultry operators, poultry slaughterhouse workers, egg sorting shop and auxiliary workers (duty plumbers, electricians, auxiliary workers), who are an experimental group for this research. The control group is the administrative and service staff (foremen, veterinarians, kitchen and medical staff, technologists, shop supervisors, accountants). The workplaces of poultry operators are the restricted zone (mainly poultry) where these subjects are concentrated.

Chronometric observations show that the workload of poultry operators in keeping birds in the ground is 69.3%. Poultry feed delivery and preparation accounted for 16.2 percent, feed distribution and irrigation for 27.6 percent, poultry monitoring and quality for 11 percent, and room cleaning for 12.3 percent.

Based on the work specifications of poultry operators, when observing the timing, they have a body with a forced bend at 11-17% of the working time, ie 100 to 150 times per shift. They also stand on their feet for a long time and cover a distance of up to 8 km in the shop.

In timekeeping, poultry operators spend 33 percent of their working time feeding birds, 16 percent watering, washing chickens, and 11 percent observing and sorting birds while keeping them in cages.

Thus, the workload of operators is 64 percent. Work in an incubator is distinguished by its known sequence and its precise management. The main production operation is characterized by the processes of sorting, cleaning, placing eggs in boxes, disinfection, sorting chickens, cleaning rooms.

In timekeeping, the poultry operator spends 23.2 percent of his working time recording the incubator performance and 29.8 percent of his working time observing equipment performance. At the same time, the workload is 54.9%. Also, 81.6% of working time is spent on sorting chickens. Food process work process equipment monitoring, control of mechanisms and units. However, most work processes are done manually. Inconvenient working conditions include adding components to nutrients, repairing them, and repositioning nutrients that have fallen to the ground.

In most cases, this process is carried out by keeping the body in a forced position, holding the body in a bent position of 30%.

The weight and intensity of the work process of the workers of this poultry factory are shown in Table 1.2.

In conclusion, it should be noted that the division of working conditions into classes according to their harmfulness and safety, as well as the hygienic criteria for evaluation were found to be related to the technology of their work.

Such:

- by weight: I level (3.1. class working conditions) poultry operators; to the permissible level (class 2) - poultry slaughter, food preparation and egg sorting shops.

- In terms of intensity: permissible level (2nd class) - poultry operators, poultry slaughter, feed preparation, egg sorting shops.

Table1
Poultry factory work process weight assessment.

Factors	Professions	Working conditions			
		1	2	3.1	3.2
The weight of labor	Poultry operator	-	-	+	-
	Food preparation workshop	-	+	-	-
	Poultry slaughter, egg sorting shop	-	+	-	-

Table 2.

Evaluation of the intensity of working conditions in a poultry factory

Factors	Professions	Working conditions			
		1	2	3.1	3.2
The weight of labor	Poultry operator	-	+	-	-
	Food preparation workshop	-	+	-	-
	Poultry slaughter, egg sorting shop	-	+	-	-

Hygienic assessment of the severity and intensity of working conditions at the poultry factory of Gijduvan Omad Savdo LLC.

The main occupations of the factory are poultry operator, poultry slaughter, egg sorting shops and auxiliary workers and they are selected as an experimental group and as a control group of employees of administrative, service (veterinarians, cooks, technologists, shop supervisors, accountants).

Chronometric observations show that the intensity of work in the care of birds in the field is 74% per day of work of poultry operators. In addition, the preparation and transportation of food - 14.2%, food distribution and irrigation - 27.9%, poultry tracking and sorting - 13.1%, cleaning - 14%. According to the specifics of the work, when monitoring the timing, operators are in a mandatory position of the body 13-17% of the working day (bent 130-140 times per shift). They also walk 6-8 km per day on their feet.

Operators spend 32 percent of the working day distributing feed to poultry, 19 percent of cleaning hours to irrigate trays and food troughs, and 9 percent of hours to observe birds. Thus the work density is 60 per cent.

The main production process in the incubator is sorting the eggs, placing them in boxes, disinfecting, lighting the eggs, sorting the chicks, cleaning the room and equipment.

During the timing inspection, the operator on duty spends 25.1% of working hours to record instrument readings, and 29.2% of working hours to monitor equipment operation. The intensity of the working day is 54.3%. In addition, 81.2% of the working day is spent on poultry sorting. The density of the working day is 54.3%. In addition, 81.2% of the working day is spent on poultry sorting.

The work process in the food shop consists of recording the performance of measuring instruments, monitoring the operation of mechanisms and units. Most of the work here is done manually. Unfavorable working conditions in this shop include the addition of components to the compound feed by us, control over the operation of units, repair of equipment, repositioning of raw materials on the production line. This technological process is performed in a forced working position with the body tilted to 30-35% assessment of the complexity and intensity of the work process of the workers of this poultry factory is reflected in tables 3.4. Thus, taking into account the assessment on the basis of hygienic criteria of classification on the severity and intensity of working conditions, we distributed as follows;

- By weight: I level class (3.1. class working conditions).

Poultry operators: permitted (class 2) - workers of poultry slaughter, food preparation, egg sorting shops,

- by intensity: permissible (class 2) - poultry operators, workers of poultry slaughter, food preparation and egg sorting shops.

Table 3

Evaluation of factory workers by the weight of the work process.

Omil	Professions	Classes of working conditions			
		1	2	3.1	3.2
The severity of the work	Poultry operator	-	-	+	-
	Food preparation workshop	-	+	-	-
	Poultry slaughter, egg sorting shop	-	+	-	-

Table 4

Evaluation on the intensity of the factory work process.

Omil	Professions	Classes of working conditions			
		1	2	3.1	3.2
The intensity of the work	Poultry operator	-	+	-	-
	Food preparation workshop	-	+	-	-
	Poultry slaughter, egg sorting shop	-	+	-	-

Conclusion

Poultry factory workplaces are affected by complex physical (temperature, humidity, dust, noise, low light), chemical (ammonia, carbon monoxide, nitrogen oxides) and biological (bacteria, vomit) factors that adversely affect the body of workers. In order to protect workers from the impact, it is necessary to mechanize the work processes of poultry farms, optimize the mode of work and rest, and improve the quality of medical services provided to factory workers.

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