WORKPLACE

FARMER

RISK ASSESSMENT

WORK PROCESS

- Chickens are brough from Germany via trucks
- They mature split into male/female groups for up to 19 weeks
- They are moved together to grow for another 44 weeks
- The chickens lay eggs that are disinfected and stored in controlled conditions
- These eggs stay for 18 days in incubators
- They hatch into broilers (chickens for meat)
- The adult broilers (max. 40 days) are transported to slaughterhouse
- They are transported into plastic cages
- They are unloaded into hanging conveyor
- They are stunned with electric current (automated process), 6V
- They are sacrificed and sent to packaging in plastic foils

WORK SYSTEM COMPONENTS

WORK MEANS

- Animals (chickens – both "parents" and broilers)
- Different types of knives, cutting instruments
- Product hooks, conveyors
- Product transport boxes
- Trucks used for transport
- Abbatoiring equipment
- Cleaning equipment
- Silos for storage of food (cereals)
- Feeding and watering systems
- Forklifts and transpallets
- Incubators

WORK ENVIRONMENT

- The activity happens inside the growing areas, on the way to the slaughterhouse, in the slaughterhouse and in the buildings surroundings (outside)
- Air temperature is controlled by the existing HVAC system
- Activity happens under artificial illumination inside the hallways

WORK TASKS

Operations:

- Feeding animals and watering the automated systems
- Loading and unloading the silos
- Animal transport with trucks
- Vaccination of the live animals
- Quality checking of the eggs
- Operating automated equipment (transport conveyors, pumps at silos, etc.)

- Transporting trolleys with eggs towards the incubators
- Loading the incubators with eggs
- Transferring animals using forklifts or transpallets
- Loading and unloading live animal cages
- Animal transport is performed via automated conveyor with hooks.
- Cleaning and disinfection of working areas
- It is forbidden to overload the conveyors.
- Before starting work, the place will be checked to comply with standards.
- Medical examination is periodically done depending on the type of job.
- In case of small emergencies, the victim will be at first transported to the first aid area.
- No machinery will be left working after leaving the workplace.
- Any cutting will be done towards outer areas not towards the workers.

Any operator is forbidden to use machinery or other equipment that he/she is not qualified for.

PERFORMER

Operator is a non-qualified worker and is trained specific standard operating procedures in order to perform in this specific domain.

He/she has to be physically and psychically capable to do the job (medical statement).

He/she is responsible for his/her own errors, mistakes or negligences.

RISK FACTORS

WORK MEANS

➢ MECHANICAL RISK FACTORS

- Blocking or crushing superior or inferior members when working with automated equipment.
- Hitting or crushing any body part during home-work travel.
- Accidents during transport of chickens to the slaughterhouse.
- Hitting or crushing any body part with automobile/truck/forklift handling.
- Falling objects from height (this can include spare parts, equipment parts, heavy objects, structure elements, lighting posts, etc.).
- Falling products from height, chickens from hook conveyor.
- Vibrations due to automated equipment.
- Water spillage due to pipe cracking.
- Improper work surfaces (slippery, wet, cutting edges).
- Accidents with automobiles or trucks during deliveries.
- Accidents with automobiles or trucks during unloading activities.
- Contact with tools, objects, or other hazardous surfaces/materials.

➢ THERMAL RISK FACTORS

- Direct hot surfaces contact.

- Low temperature of metallic structures during winter and also entering into the colling room of the eggs.
- Fire caused by electrical failures.

➢ ELECTRICAL RISK FACTORS

- Electrocution due to touching visible (not insulated) wires while working with machinery or automated equipment.
- Electrocution due to indirect touch or step voltage, improper conditions of earthing, wiring and systems.

➢ CHEMICAL RISK FACTORS

- Exposure and inhalation of cleaning substances used during cleaning of the hall.
- Exposure and direct touch of irritant chemicals used in disinfection and cleaning (Virakil, Ox-Virin, Intra Hydrocare etc.)
- Exposure and direct touch of irritant chemicals when disinfecting eggs
- Accidental stabbing of own body during vaccination.

➢ BIOLOGICAL RISK FACTORS

- Viruses, bacteria, fungus that come from air or animals.
- Viruses, bacteria, fungus that come during egg checking.
- Viruses, bacteria, fungus that come during candling.
- Viruses, bacteria, fungus that come from other infected employees.
- Pests which are "facilitated" by this type of industry.

WORK ENVIRONMENT

➢ PHYSICAL RISK FACTORS

- Exposure to harsh and extreme environments: very low temperature.
- Exposure to harsh and extreme environments: very high humidity (51% in candling)
- Insufficient illuminated areas that force workers to adopt difficult positions.
- Too much lighting in some areas that imitate chicken growing environments.
- Natural disasters, hail, storms, earthquakes.
- Improper preparation of work space.
- Little amount of oxygen inside the silos (loaded or empty).
- Extremely high level of noise in hallways with live animals (from animals and also fans, silo pumps and loading systems etc.).

WORK TASK

➢ PHYSICAL OVERWHELM

- Very high magnitude of force applied when pulling, pushing, lifting weights.
- Predominant standing position, standing on the ground positions.
- High periods of sitting and difficult orthostatic positions.
- Working in the same workplace and positions and in the same static positions for longer periods of time.
- Visual overwhelm (due to poor or overlighting).

- **PSYCHICAL OVERWHELM**

- Taking decisions in short periods of time.
- Repetitive movements during the exposed period.
- Stress due to very heavy workload, managers or other colleagues' bullying and intimidation.
- Repetitive movements of joints.

WORKER

- **ERRORS**

- Showing at work under improper conditions of fatigue, stress, alcohol use.
- Acting in other way than legal requirements.
- Entering in forbidden areas or in areas with hazards that are signaled.
- Non-sync when working in teams.
- Entering in dangerous areas on walking pathways.
- Overloading the conveyors with products.
- Falling from same height, tripping.
- Falling from height.
- Entering in silos.
- Falling in silos.

- **NEGLIGENCES**

- Forgetting to use personal protective equipment or other engineering safety measures/devices.

***	EVALUATION OF WORKPLACE POSITION OPERATOR					
NON-QUALIFIED WORKER			**DURATION OF EXPOSURE TO RISKS:** *8 h/day*			
FARMER			**EVALUATION TEAM:** ***Evaluator, OSH Expert, Owner, External Service.***			
WORK SYSTEM COMPONENTS	**RISK FACTORS**	**CONCISE DESCRIPTION OF RISK FACTORS, INCLUDING PARAMETERS WHERE APPLICABLE**	**WORST CASE SCENARIO**	**GRAVITY**	**PROBABILITY**	**RISK LEVEL**
0	**1**	**2**	**3**	**4**	**5**	**6**
WORK MEANS	**MECHANICAL RISK FACTORS**	- Blocking or crushing superior or inferior members when working with automated equipment.	Death	7	1	3
		- Hitting or crushing any body part during home-work travel.	Death	7	2	4
		- Accidents during transport of chickens to the slaughterhouse.	Death	7	2	4
		- Hitting or crushing any body part with automobile/truck/forklift handling.	Death	7	1	3
		- Falling objects from height (this can include spare parts, equipment parts, heavy objects, structure elements, lighting posts, etc.).	Dis. Gr. II	5	2	4
		- Falling products from height, chickens from hook conveyor.	Dis. Gr. III	4	1	2
		- Vibrations due to automated equipment.	LTI 45-180 days	3	1	2
		- Water spillage due to pipe cracking.	LTI 45-180 days	3	2	2
		- Improper work surfaces (slippery, wet, cutting edges).	Dis. Gr. I	6	3	5
		- Accidents with automobiles or trucks during deliveries.	Death	7	3	5
		- Accidents with automobiles or trucks during unloading	Death	7	3	5

	activities.				
	- Contact with tools, objects, or other hazardous surfaces/materials.	Dis. Gr. II	5	3	4
ELECTRICAL RISK FACTORS	- Electrocution due to touching visible (not insulated) wires while working with machinery or automated equipment.	Death	7	1	3
	- Electrocution due to indirect touch or step voltage, improper conditions of earthing, wiring and systems.	Death	7	1	3
CHEMICAL RISK FACTORS	- Exposure and inhalation of cleaning substances used during cleaning of the hall.	Dis. Gr. I	6	2	4
	- Exposure and direct touch of irritant chemicals used in disinfection and cleaning (Virakil, Ox-Virin, Intra Hydrocare etc.)	Dis. Gr. I	6	2	4
	- Exposure and direct touch of irritant chemicals when disinfecting eggs	Dis. Gr. I	6	2	4
	- Accidental stabbing of own body during vaccination.	Death	7	1	3
THERMAL RISK FACTORS	- Direct hot surfaces contact.	Dis. Gr. I	6	2	4
	- Low temperature of metallic structures during winter and also entering into the colling room of the eggs.	LTI 45-180 days	3	2	2
	- Fire caused by electrical failures.	Death	7	1	3
BIOLOGICAL RISK FACTORS	- Viruses, bacteria, fungus that come from air or animals.	Death	7	2	4
	- Viruses, bacteria, fungus that come during egg	Death	7	1	3

		checking.				
		- Viruses, bacteria, fungus that come during candling.	Death	7	1	3
		- Viruses, bacteria, fungus that come from other infected employees.	Death	7	1	3
		- Pests which are "facilitated" by this type of industry.	Dis. Gr. III	4	2	3
WORK ENVIRONMENT	**PHYSICAL RISK FACTORS**	- Exposure to harsh and extreme environments: very low temperature.	Dis. Gr. I	6	5	6
		- Exposure to harsh and extreme environments: very high humidity (51% in candling)	Dis. Gr. I	6	5	6
		- Insufficient illuminated areas that force workers to adopt difficult positions.	LTI 45-180 days	3	5	4
		- Too much lighting in some areas that imitate chicken growing environments.	LTI 45-180 days	3	5	4
		- Natural disasters, hail, storms, earthquakes.	Death	7	2	4
		- Improper preparation of work space.	Dis. Gr. III	4	4	4
		- Little amount of oxygen inside the silos (loaded or empty).	Death	7	3	5
		- Extremely high level of noise in hallways with live animals (from animals and also fans, silo pumps and loading systems etc.).	LTI 45-180 days	3	6	4
	PHYSICAL OVERWHELM	- Very high magnitude of force applied when pulling, pushing, lifting weights.	Dis. Gr. II	5	5	5

		- Predominant standing position, standing on the ground positions.	Dis. Gr. III	4	3	4
		- High periods of sitting and difficult orthostatic positions.	Dis. Gr. III	4	3	4
		- Working in the same workplace and positions and in the same static positions for longer periods of time.	Dis. Gr. III	4	3	4
		- Visual overwhelm (due to poor or overlighting).	Dis. Gr. III	4	3	4
WORK TASKS	**PSYCHICAL OVERWHELM**	- Taking decisions in short periods of time.		3	5	4
		- Repetitive movements during the exposed period.	Dis. Gr. III	4	3	4
		- Stress due to very heavy workload, managers or other colleagues' bullying and intimidation.	Dis. Gr. III	4	3	4
		- Repetitive movements of joints.	LTI 45-180 days	3	2	2
WORKER	**ERRORS**	- Showing at work under improper conditions of fatigue, stress, alcohol use.	Death	7	1	3
		- Acting in other way than legal requirements.	Death	7	2	4
		- Entering in forbidden areas or in areas with hazards that are signaled.	Death	7	2	4
		- Non-sync when working in teams.	Dis. Gr. I	6	2	4
		- Entering in dangerous areas on walking pathways.	Death	7	2	4
		- Overloading the conveyors with products.	Dis. Gr. II	5	1	3
		- Falling from same height, tripping.	Death	7	1	3
		- Falling from height.	Death	7	1	3

		- Entering in silos.	Death	7	2	4
		- Falling in silos.	Death	7	1	3
	NEGLIGENCES	- Forgetting to use personal protective equipment or other engineering safety measures/devices.	Death	7	2	4

Global risk level is:

$$N_{rg} = \frac{\sum_{i=1}^{54} R_i r_i}{\sum_{i=1}^{54} r_i} = \frac{0(7x7) + 2(6x6) + 5(5x5) + 27(4x4) + 15(3x3) + 5(2x2) + 0(1x1)}{0x7 + 2x6 + 5x5 + 27x4 + 15x3 + 5x2 + 0x1} = \frac{784}{200} = 3{,}92$$

PARTIAL RISK LEVELS PER FACTORS

Farmer

Global risk level: 3,92

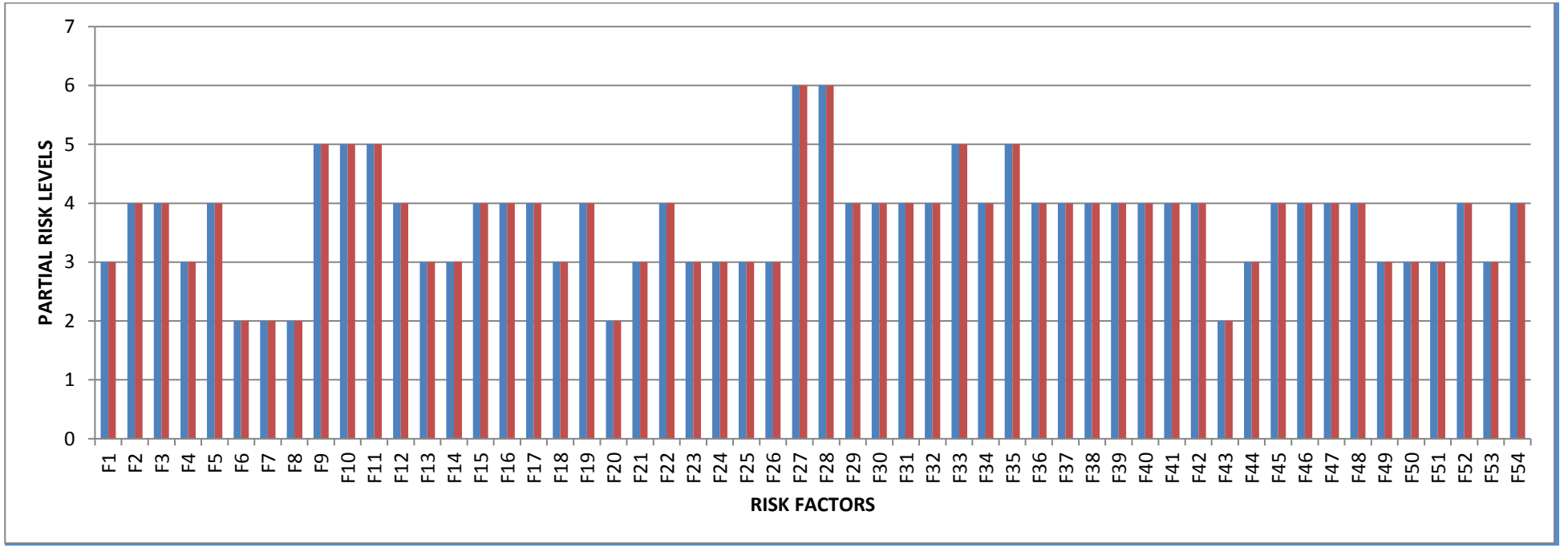

FIGURE LEGEND

F1	- Blocking or crushing superior or inferior members when working with automated equipment.
F2	- Hitting or crushing any body part during home-work travel.
F3	- Accidents during transport of chickens to the slaughterhouse.
F4	- Hitting or crushing any body part with automobile/truck/forklift handling.
F5	- Falling objects from height (this can include spare parts, equipment parts, heavy objects, structure elements, lighting posts, etc.).
F6	- Falling products from height, chickens from hook conveyor.
F7	- Vibrations due to automated equipment.
F8	- Water spillage due to pipe cracking.
F9	- Improper work surfaces (slippery, wet, cutting edges).
F10	- Accidents with automobiles or trucks during deliveries.
F11	- Accidents with automobiles or trucks during unloading activities.
F12	- Contact with tools, objects, or other hazardous surfaces/materials.
F13	- Electrocution due to touching visible (not insulated) wires while working with machinery or automated equipment.
F14	- Electrocution due to indirect touch or step voltage, improper conditions of earthing, wiring and systems.
F15	- Exposure and inhalation of cleaning substances used during cleaning of the hall.
F16	- Exposure and direct touch of irritant chemicals used in disinfection and cleaning (Virakil, Ox-Virin, Intra Hydrocare etc.)
F17	- Exposure and direct touch of irritant chemicals when disinfecting eggs
F18	- Accidental stabbing of own body during vaccination.
F19	- Direct hot surfaces contact.
F20	- Low temperature of metallic structures during winter and also entering into the colling room of the eggs.
F21	- Fire caused by electrical failures.
F22	- Viruses, bacteria, fungus that come from air or animals.
F23	- Viruses, bacteria, fungus that come during egg checking.
F24	- Viruses, bacteria, fungus that come during candling.
F25	- Viruses, bacteria, fungus that come from other infected employees.
F26	- Pests which are “facilitated” by this type of industry.
F27	- Exposure to harsh and extreme environments: very low temperature.
F28	- Exposure to harsh and extreme environments: very high humidity (51% in candling)
F29	- Insufficient illuminated areas that force workers to adopt difficult positions.
F30	- Too much lighting in some areas that imitate chicken growing environments.
F31	- Natural disasters, hail, storms, earthquakes.
F32	- Improper preparation of work space.
F33	- Little amount of oxygen inside the silos (loaded or empty).
F34	- Extremely high level of noise in hallways with live animals (from animals and also fans, silo pumps and loading systems etc.).
F35	- Very high magnitude of force applied when pulling, pushing, lifting weights.
F36	- Predominant standing position, standing on the ground positions.
F37	- High periods of sitting and difficult orthostatic positions.
F38	- Working in the same workplace and positions and in the same static positions for longer periods of time.
F39	- Visual overwhelm (due to poor or overlighting).
F40	- Taking decisions in short periods of time.

F41	- Repetitive movements during the exposed period.
F42	- Stress due to very heavy workload, managers or other colleagues' bullying and intimidation.
F43	- Repetitive movements of joints.
F44	- Showing at work under improper conditions of fatigue, stress, alcohol use.
F45	- Acting in other way than legal requirements.
F46	- Entering in forbidden areas or in areas with hazards that are signaled.
F47	- Non-sync when working in teams.
F48	- Entering in dangerous areas on walking pathways.
F49	- Overloading the conveyors with products.
F50	- Falling from same height, tripping.
F51	- Falling from height.
F52	- Entering in silos.
F53	- Falling in silos.
F54	- Forgetting to use personal protective equipment or other engineering safety measures/devices.

LIST OF MEASURES FOR: FARMER

Item	RISK FACTOR	Risk Level	Proposed Measures
0	1	2	3
1.	MEANS OF PRODUCTION	Min. 4	OM: SOP to follow local national traffic rules. TM: Enclose moving parts of automated equipment. TM: Update incubator with automated feeding device.
2.	WORK ENVIRONMENT	Min. 4	TM: Rigorously give PPE based on all activities in the farm, based on a system in place. OM: Ensure standard procedures to regularly check the HVAC OM: Ensure standard to perform daily checks to workplace standards and behaviours of workers. OM: Training workers on how to use tools and the local updated legislation. TM: Install sprinkler system (automated fire protection).
3.	WORK TASK	Min. 4	OM: SOP to regularly check electrical installation and before starting to work TM: Changing and updating safety systems: - Changing type of fuses used. - Update fire protection measures.
4.	WORKER	Min. 4	TM: Where it is the case, installing guards that protect the workers from moving parts, where applicable, and also update protection systems of the machines. TM: Update standard for all work at height equipment (belt, harness etc.) OM: Regularly updating the periodical training system and trainings on: - Using correctly any equipment. - Using correctly any safety system of the equipment.

SUMMARY

The global risk level calculated for this work place **Farmer** is **3.92**, which ranks it as an unacceptable risk work place, as it is reaching maximum limit of 3.50.
The result of the evaluation is that 34 risk factors reach minimum 4 as the grade for partial risk level.
Risk factors that are ranked as "not accepted" are:

Item	RISK FACTOR	PARTIAL RISK LEVEL
1.	Hitting or crushing any body part during home-work travel.	4
2.	Accidents during transport of chickens to the slaughterhouse.	4
3.	Falling objects from height (this can include spare parts, equipment parts, heavy objects, structure elements, lighting posts, etc.).	4
4.	Improper work surfaces (slippery, wet, cutting edges).	5
5.	Accidents with automobiles or trucks during deliveries.	5
6.	Accidents with automobiles or trucks during unloading activities.	5
7.	Contact with tools, objects, or other hazardous surfaces/materials.	4
8.	Exposure and inhalation of cleaning substances used during cleaning of the hall.	4
9.	Exposure and direct touch of irritant chemicals used in disinfection and cleaning (Virakil, Ox-Virin, Intra Hydrocare etc.)	4
10	Exposure and direct touch of irritant chemicals when disinfecting eggs	4
11.	Direct hot surfaces contact.	4
12.	Viruses, bacteria, fungus that come from air or animals.	4
13.	Exposure to harsh and extreme environments: very low temperature.	6
14.	Exposure to harsh and extreme environments: very high humidity (51% in candling)	6
15.	Insufficient illuminated areas that force workers to adopt difficult positions.	4
16.	Too much lighting in some areas that imitate chicken growing environments.	4
17.	Natural disasters, hail, storms, earthquakes.	4
18.	Improper preparation of work space.	4
19.	Little amount of oxygen inside the silos (loaded or empty).	5
20.	Extremely high level of noise in hallways with live animals (from	4

	animals and also fans, silo pumps and loading systems etc.).	
21.	Very high magnitude of force applied when pulling, pushing, lifting weights.	5
22.	Predominant standing position, standing on the ground positions.	4
23.	High periods of sitting and difficult orthostatic positions.	4
24.	Working in the same workplace and positions and in the same static positions for longer periods of time.	4
25.	Visual overwhelm (due to poor or overlighting).	4
26.	Taking decisions in short periods of time.	4
27.	Repetitive movements during the exposed period.	4
28.	Stress due to very heavy workload, managers or other colleagues' bullying and intimidation.	4
29.	Acting in other way than legal requirements.	4
30.	Entering in forbidden areas or in areas with hazards that are signaled.	4
31.	Non-sync when working in teams.	4
32.	Entering in dangerous areas on walking pathways.	4
33.	Entering in silos.	4
34.	Forgetting to use personal protective equipment or other engineering safety measures/devices.	4

In order to minimize the effects of these 34 risk factors, there are measures proposed in the **List of measures.**

In terms of categories, risk factors are as follows:

- 27 risk factors of **means of production, 53 %**
- 13 risk factors of **work environment**, **24 %**
- 4 risk factors of **work tasks**, **7 %**
- 9 risk factors of **worker, 16 %**

It can be stated that, from evaluation, 25 risk factors can result in irreversible effects to the workers, mainly death, and they represent 46 % of the total risk factors.

PIE CHART OF RISK FACTORS
PROFESSION – FARMER
GLOBAL RISK LEVEL: 3,92