

**WORKPLACE NO. 8**

**FARMER**

**RISK ASSESSMENT**

## **WORK PROCESS**

Activity consists of:

- Preparing soil to host seedling planting.
- Irrigating the soil inside the greenhouse by using automated or manual irrigation systems.
- Keeping soil under clean and mellow shapes and conditions.
- Cutting weeds and keeping different aspects of plants in good shape.
- Harvesting activities during harvest season (picking up, breaking vegetables from plants or soil).
- Operate tractors or other combines for harvesting activities.
- Spraying operations in order to prevent contamination and keeping products disease-free (remove insects, dirt, bad products etc.).
- Fertilizing soil with fertilizer products (chemicals).
- Preparing finished products form different vegetables to be canned or jared (mixing, crushing, milling etc.)
- Packing products into cartons, wooden boxes, pallets etc.

## **WORK SYSTEM COMPONENTS**

### **WORK MEANS**

- Tools.
- Raw and packaging materials.
- Trolleys.
- Euro pallets.
- Combine harvesters.
- Tractors.
- Irrigation system.
- Milling or mixing machines.

### **WORK ENVIRONMENT**

Farmers' activities happen inside the greenhouse and outside its premises, on the ground, in the fenced area.

Depending on the season and the area where the farmers are working, temperatures can be higher or lower than legal range. Usually inside the greenhouse the temperatures are extreme during summer.

Naturally illuminated areas. Artificially illuminated systems are used only in case of maintenance.

For short periods of time (i.e. when working in production areas), environment can be very loud due to the process equipment or other heavy machinery, harvesting etc.

## **WORK TASKS**

### Operations:

- Cleans workplace outside and inside the greenhouses/solariums.
- Operates automated equipment in greenhouse and heavy machinery outside.
- Operates irrigation system.
- Knows the characteristics of the chemicals in the farm and follows with great attention its safety rules and restrictions.
- Knows the technological process he is responsible for.
- Presents himself or herself to work with full working capacity to follow his/her work tasks.
- Takes responsibility of equipment working in normal operating conditions.
- Takes responsibility of following standard working procedures.
- Follows direct orders from managers or other hierarchic members.
- Operates automated equipment inside packaging areas.

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

## **PERFORMER**

Farmer 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 when entering in contact with loading/unloading operations.
- Slipping or falling from same level due to inappropriate condition of path ways or from height due to errors in following work tasks.
- Cutting or stinging different body parts with hand tools (i.e. shovels).
- Falling in ground trenches dug to plant massive seedlings.
- Falling while manually manipulating loads.
- Objects falling from height.
- Projection of particles or objects.
- Stinging or cutting members when handling material or when using inappropriate tools.
- Accidents with combine harvesters, tractors, forklifts, or other heavy machinery.

#### **➤ ELECTRICAL RISK FACTORS**

- Electrocution due to touching visible (not insulated) wires while working with machinery or automated equipment.

- Electrocution due to touching metallic equipment parts that are accidentally under voltage (supports, racks, drives etc.) and not earthed or with neutral wire disconnected.
- Electrocution (when operating automated machinery, lighting system, automated irrigation system etc.).

#### ➤ **CHEMICAL RISK FACTORS**

- Exposure and inhalation of surfactant and alcohol-based solutions that are used to disinfect vegetables.
- Exposure and inhalation of chloride and sodium-based solutions that are used to treat the seedlings and seeds.
- Exposure to different herbicides and pesticides that contain dangerous, irritant and toxic chemicals (such as bentazone, imazamox etc.).
- Exposure and inhalation of car or truck exhaust gases.
- Exposure and inhalation of environment gases resulted from fertilization of the soil.
- Exposure to enzymes that can cause sensitizations of the skin (allergy types).
- Intoxication with fuels, petrol or diesel.

#### ➤ **BIOLOGICAL RISK FACTORS**

### **WORK ENVIRONMENT**

#### ➤ **PHYSICAL RISK FACTORS**

- Exposure to harsh and extreme environments: very high temperatures.
- Exposure to harsh and extreme environments: very high humidity.
- Exposure to harsh and extreme environments: very low temperatures.
- Exposure to harsh and extreme environments: very arid weather.
- Noise coming from agricultural machinery (tractors, combine harvesters etc.), industrial fans, light panels drives, traffic.
- Natural disasters – risk of earthquake and flooding.
- Very intense lighting inside greenhouses (light is amplified by lens-like outer panels).

### **WORK TASK**

#### ➤ **PSYCHICAL OVERWHELM**

- Large work volume or increased rythm of work during some periods of time (i.e. multiple deliveries at the same time, large trucks that are on clock etc.), that require special attention.
- Stress due to conflictual situations at work, psychological harassment from managers (intimidation, humiliation etc.), lack of communication or consultation – can result in accident of own person or other colleagues.

### **WORKER**

#### ➤ **ERRORS**

- Inappropriate organization of the workplace (without warning signs, blocked pathways etc.).
- Not following through own responsibilities (supervision or control of the working equipment).
- Working or performing a task before being properly trained to do this type of job.
- Inappropriate maneuvers of raw and packaging materials.

- Inappropriate maneuvers of agricultural machinery.
- Inappropriate use of the safety systems of any equipment in use.
- Wrong positioning of pallets, tools, objects.
- Utilizing tools with defects.
- Slipping or falling from same level due to inappropriate condition of path ways.
- Leaving workplace without safety measures.
- Performing tasks which are not in his/her responsibility, without asking for permission.
- Entering or staying into dangerous or hazardous areas (i.e. where combine harvesters work).
- Lack of synchronizing with other co-workers when manipulating or handling materials.
- Absence of some prevention/preparation steps when performing any given task.
- Using tools or any piece of equipment without checking its status and condition.
- Not following safety rules and procedures.
- Not following fire safety rules and procedures.
- Using inappropriate or non-supervised sources of heating.
- Presence at work under inappropriate condition (fatigue, alcohol use, disease etc.)

➤ **NEGLIGENCE**

- Forgetting to check technical status of the equipment before use – accident risk.
- Forgetting to use personal protective equipment or other engineering safety measures/devices.

*** GRUP GREENHOUSES		EVALUATION OF WORKPLACE POSITION NO. 8	DURATION OF EXPOSURE TO RISKS: 10 h/day			
NON-QUALIFIED WORKER			EVALUATION TEAM: Evaluator, OSH Expert, Owner, External Service.			
FARMER						
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	2	4
		Hitting or crushing any body part when entering in contact with loading/unloading operations.	Dis. Gr. I	6	2	4
		Slipping or falling from same level due to inappropriate condition of path ways or from height due to errors in following work tasks.	LTI 45-180 days	3	2	2
		Cutting or stinging different body parts with hand tools (i.e. shovels).	LTI 45-180 days	3	3	3
		Falling in ground trenches dug to plant massive seedlings.	LTI 45-180 days	3	2	2
		Falling while manually manipulating loads.	LTI 45-180 days	3	2	2
		Objects falling from height.	Death	7	1	3
		Projection of particles or objects.	LTI 45-180 days	3	1	2
		Stinging or cutting members when handling material or when using inappropriate tools.	Death	7	1	3
		Accidents with combine harvesters, tractors, forklifts, or other heavy machinery.	Death	7	2	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 touching metallic equipment parts that are accidentally under voltage (supports, racks, drives etc.) and not earthed or with neutral wire disconnected.	Death	7	2	4
		Electrocution (when operating automated machinery, lighting system, automated irrigation system etc.).	Death	7	2	4
	CHEMICAL RISK FACTORS	Exposure and inhalation of surfactant and alcohol-based solutions that are used to disinfect vegetables.	LTI 45-180 days	3	2	2
		Exposure and inhalation of chloride and sodium-based solutions that are used to treat the seedlings and seeds.	LTI 45-180 days	3	2	2
		Exposure to different herbicides and pesticides that contain dangerous, irritant and toxic chemicals (such as bentazone, imazamox etc.).	LTI 45-180 days	3	2	2
		Exposure and inhalation of car or truck exhaust gases.	Death	7	1	3
		Exposure and inhalation of environment gases resulted from fertilization of the soil.	LTI 3-45 days	2	2	2
		Exposure to enzymes that can cause sensitizations of the skin (allergy types).	LTI 3-45 days	2	4	2
		Intoxication with fuels, petrol or diesel.	LTI 45-180 days	3	1	2
	BIOLOGICAL RISK FACTORS	Lack of handwashing or showering facilities in some areas can cause serious illnesses.	LTI 3-45 days	2	1	1
		Viruses, microorganisms, or other pathological agents coming from contaminated water, other infected persons or A/C filters.	Death	7	1	3

		Diseases coming from wildlife fauna and insects (rodents, mosquitoes, etc.).	Death	7	1	3	
		Intoxications, allergies, other conditions caused by wildlife flora.	LTI 45-180 days	3	2	2	
<b>WORK ENVIRONMENT</b>	<b>PHYSICAL RISK FACTORS</b>	Exposure to harsh and extreme environments: very high temperatures.	LTI 45-180 days	3	3	3	
		Exposure to harsh and extreme environments: very high humidity.	LTI 45-180 days	3	3	3	
		Exposure to harsh and extreme environments: very low temperatures.	LTI 45-180 days	3	3	3	
		Exposure to harsh and extreme environments: very arid weather.	LTI 3-45 days	2	3	2	
		Noise coming from agricultural machinery (tractors, combine harvesters etc.), industrial fans, light panels drives, traffic.	LTI 3-45 days	2	2	2	
		Natural disasters – risk of earthquake and flooding.	Death	7	2	4	
		Very intense lighting inside greenhouses (light is amplified by lens-like outer panels).	LTI 3-45 days	2	2	2	
<b>WORK TASKS</b>	<b>PSYCHICAL OVERWHELM</b>	Large work volume or increased rythm of work during some periods of time (i.e. multiple deliveries at the same time, large trucks that are on clock etc.), that require special attention.	LTI 3-45 days	2	3	2	
		Stress due to conflictual situations at work, psychological harassment from managers (intimidation, humiliation etc.), lack of communication or consultation – can result in accident of own person or other colleagues.	LTI 3-45 days	2	2	2	
<b>WORKER</b>	<b>ERRORS</b>	Inappropriate organization of the workplace (without warning signs, blocked pathways etc.).	LTI 3-45 days	2	3	2	
		Not following through own responsibilities (supervision or control of the working equipment).	Death	7	1	3	
		Working or performing a task before being properly trained to do this type of job.	Death	7	1	3	
		Inappropriate maneuvers of raw and packaging materials.	Death	7	1	3	
		Inappropriate maneuvers of agricultural machinery.	Death	7	1	3	
		Inappropriate use of the safety systems of any equipment in use.	LTI 45-180 days	3	6	4	
		Wrong positioning of pallets, tools, objects.	LTI 3-45 days	2	4	2	
		Utilizing tools with defects.	Death	7	2	4	
		Slipping or falling from same level due to inappropriate condition of path ways.	Death	7	2	4	
		Leaving workplace without safety measures.	Death	7	1	3	
		Performing tasks which are not in his/her responsibility, without asking for permission.	Death	7	1	3	
		Entering or staying into dangerous or hazardous areas (i.e. where combine harvesters work).	Death	7	1	3	
		Lack of synchronizing with other co-workers when manipulating or handling materials.	Death	7	1	3	
		Absence of some prevention/preparation steps when performing any given task.	LTI 3-45 days	2	6	3	
		Using tools or any piece of equipment without checking its status and condition.	Death	7	1	3	
		Not following safety rules and procedures.	Death	7	1	3	
		Not following fire safety rules and procedures.	Death	7	1	3	
		Using inappropriate or non-supervised sources of heating.	Death	7	1	3	
		<b>NEGLIGENCES</b>	Forgetting to check technical status of the equipment before use – accident risk.	Death	7	2	4
		Forgetting to use personal protective equipment or other engineering safety measures/devices.	Death	7	2	4	

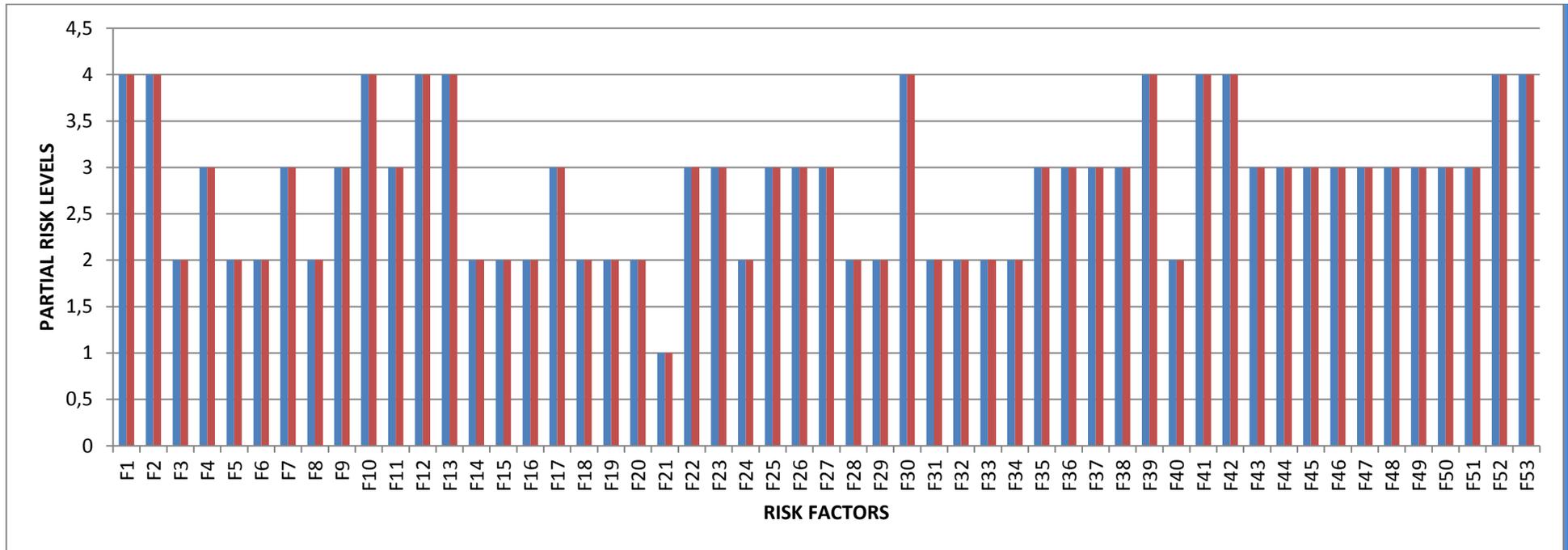
**Global risk level is:**

$$N_{rg8} = \frac{\sum_{i=1}^{53} R_i r_i}{\sum_{i=1}^{53} r_i} = \frac{0(7 \times 7) + 0(6 \times 6) + 0(5 \times 5) + 11(4 \times 4) + 23(3 \times 3) + 18(2 \times 2) + 1(1 \times 1)}{0 \times 7 + 0 \times 6 + 0 \times 5 + 11 \times 4 + 23 \times 3 + 18 \times 2 + 1 \times 1} = \frac{456}{150} = 3,04$$

# PARTIAL RISK LEVELS PER FACTORS

*Farmer*

Global risk level: 3,04



## FIGURE LEGEND

F1	Blocking or crushing superior or inferior members when working with automated equipment.
F2	Hitting or crushing any body part when entering in contact with loading/unloading operations.
F3	Slipping or falling from same level due to inappropriate condition of path ways or from height due to errors in following work tasks.
F4	Cutting or stinging different body parts with hand tools (i.e. shovels).
F5	Falling in ground trenches dug to plant massive seedlings.
F6	Falling while manually manipulating loads.
F7	Objects falling from height.
F8	Projection of particles or objects.
F9	Stinging or cutting members when handling material or when using inappropriate tools.
F10	Accidents with combine harvesters, tractors, forklifts, or other heavy machinery.
F11	Electrocution due to touching visible (not insulated) wires while working with machinery or automated equipment.
F12	Electrocution due to touching metallic equipment parts that are accidentally under voltage (supports, racks, drives etc.) and not earthed or with neutral wire disconnected.
F13	Electrocution (when operating automated machinery, lighting system, automated irrigation system etc.).
F14	Exposure and inhalation of surfactant and alcohol-based solutions that are used to disinfect vegetables.
F15	Exposure and inhalation of chloride and sodium-based solutions that are used to treat the seedlings and seeds.
F16	Exposure to different herbicides and pesticides that contain dangerous, irritant and toxic chemicals (such as bentazone, imazamox etc.).
F17	Exposure and inhalation of car or truck exhaust gases.
F18	Exposure and inhalation of environment gases resulted from fertilization of the soil.
F19	Exposure to enzymes that can cause sensitizations of the skin (allergy types).
F20	Intoxication with fuels, petrol or diesel.
F21	Lack of handwashing or showering facilities in some areas can cause serious illnesses.
F22	Viruses, microorganisms, or other pathological agents coming from contaminated water, other infected persons or A/C filters.
F23	Diseases coming from wildlife fauna and insects (rodents, mosquitoes, etc.).
F24	Intoxications, allergies, other conditions caused by wildlife flora.
F25	Exposure to harsh and extreme environments: very high temperatures.
F26	Exposure to harsh and extreme environments: very high humidity.
F27	Exposure to harsh and extreme environments: very low temperatures.
F28	Exposure to harsh and extreme environments: very arid weather.
F29	Noise coming from agricultural machinery (tractors, combine harvesters etc.), industrial fans, light panels drives, traffic.
F30	Natural disasters – risk of earthquake and flooding.
F31	Very intense lighting inside greenhouses (light is amplified by lens-like outer panels).
F32	Large work volume or increased rythm of work during some periods of time (i.e. multiple deliveries at the same time, large trucks that are on clock etc.), that require special attention.
F33	Stress due to conflictual situations at work, psychological harassment from managers (intimidation, humiliation etc.), lack of communication or consultation – can result in accident of own person or other colleagues.
F34	Inappropriate organization of the workplace (without warning signs, blocked pathways etc.).
F35	Not following through own responsibilities (supervision or control of the working equipment).
F36	Working or performing a task before being properly trained to do this type of job.
F37	Inappropriate maneuvers of raw and packaging materials.
F38	Inappropriate maneuvers of agricultural machinery.
F39	Inappropriate use of the safety systems of any equipment in use.
F40	Wrong positioning of pallets, tools, objects.

F41	Utilizing tools with defects.
F42	Slipping or falling from same level due to inappropriate condition of path ways.
F43	Leaving workplace without safety measures.
F44	Performing tasks which are not in his/her responsibility, without asking for permission.
F45	Entering or staying into dangerous or hazardous areas (i.e. where combine harvesters work).
F46	Lack of synchronizing with other co-workers when manipulating or handling materials.
F47	Absence of some prevention/preparation steps when performing any given task.
F48	Using tools or any piece of equipment without checking its status and condition.
F49	Not following safety rules and procedures.
F50	Not following fire safety rules and procedures.
F51	Using inappropriate or non-supervised sources of heating.
F52	Forgetting to check technical status of the equipment before use – accident risk.
F53	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	4	<p><b>Technical measures</b>                      Work will be done only after checking status of machinery, confronted with technical documentation.                      Electrical tools will be installed with safety protection, with log out/tag out systems to block its functioning when improper condition.                      Hand tools will be repaired to be always without cracks or physical non conformities.</p> <p><b>Organizational measures</b>                      Warning signs will be mounted everywhere needed.                      Improvizations are strictly forbidden.                      Safety systems of machinery will be regularly checked by assigned employee.</p>
2.	WORK ENVIRONMENT	4	<p><b>Organizational measures</b>                      PPE will be worn depending on the season (warm, cool, etc.)</p>
3.	WORK TASK	4	<p><b>Organizational measures</b>                      Tasks will be performed under supervisor's guidelines which will take responsibility for assuring OSH rules and restrictions.</p>
4.	WORKER	4	<p><b>Technical measures</b>                      All tools with defects will be repaired.                      All electrical installation will be continuously checked in order to avoid malfunctioning of electric tools.                      All machinery will be regularly serviced at an authorized center.</p> <p><b>Organizational measures</b>                      Warning signs and information boards will always be in place.                      PPE will always be available and regularly checked for defects.</p>

			Other activities which are not covered in any SOP will be strictly forbidden. Supervision of tasks will be performed only by qualified personnel.
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## SUMMARY

The global risk level calculated for this work place, no. 8 **Farmer** is **3.04**, which ranks it as acceptable risk work place, as it is not reaching maximum limit of 3.50.

The result of the evaluation is that 11 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.	Blocking or crushing superior or inferior members when working with automated equipment.	4
2.	Hitting or crushing any body part when entering in contact with loading/unloading operations.	4
3.	Accidents with combine harvesters, tractors, forklifts, or other heavy machinery.	4
4.	Electrocution due to touching metallic equipment parts that are accidentally under voltage (supports, racks, drives etc.) and not earthed or with neutral wire disconnected.	4
5.	Electrocution (when operating automated machinery, lighting system, automated irrigation system etc.).	4
6.	Natural disasters – risk of earthquake and flooding.	4
7.	Inappropriate use of the safety systems of any equipment in use.	4
8.	Utilizing tools with defects.	4
9.	Slipping or falling from same level due to inappropriate condition of path ways.	4
10.	Forgetting to check technical status of the equipment before use – accident risk.	4
11.	Forgetting to use personal protective equipment or other engineering safety measures/devices.	4

In order to minimize the effects of these 11 risk factors, there are measures proposed in the **List of measures**.

In terms of categories, risk factors are as follows:

- 24 risk factors of **means of production, 45 %**
- 7 risk factors of **work environment, 13 %**
- 2 risk factors of **work tasks, 4 %**
- 20 risk factors of **worker, 38 %**

It can be stated that, from evaluation, 28 risk factors can result in irreversible effects to the workers, mainly death, and they represent 53 % of the total risk factors.

**PIE CHART OF RISK FACTORS**  
**PROFESSION NO. 8 – FARMER**  
**GLOBAL RISK LEVEL: 3,04**

