



AgriSafetyNet

Agricultural Safety Through Lifelong Learning

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Module 4

BASIC ELEMENTS OF RISK PREVENTION MANAGEMENT



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Module 4 - Occupational Hazard Prevention Management

1. Occupational Hazard Prevention Management Systems

1.1. Occupational Hazard Prevention Policy

Agricultural work, the most prevalent type of employment in the world, has become a major concern focus because of its safety and health issues engendered by biological agents, chemical substances, ergonomic risk factors, noise, psychosocial risk factors, radiation, vibration, and work environment (Papkalla & Collison, 2017): foodborne illnesses, HIV/AIDS, injuries, livestock-related illnesses, musculoskeletal diseases, noise-induced hearing loss, pesticide exposure, reproduction issues, respiratory diseases, undernutrition, water-associated vector-borne diseases (Frank *et al.*, 2004; Hawkes & Ruel, 2006; Wolf *et al.*, 2018). **Agriculture**, together with hotels & restaurants and construction, are the sectors most affected by long working hours (biceps tendonitis, clavicle fractures, frozen shoulder, glenohumeral joint osteoarthritis, impingement, rotator cuff tendinopathy/tear, shoulder bursitis, shoulder dislocation, shoulder fractures, shoulder separation) (Leka & Jain, 2010).

Land and/or soil in hazardous condition are those at high risk of contamination by hazardous substances (agricultural chemical agents, heavy metals, other industrial waste) (Zhang, 2003). But agricultural wastes also can be hazardous if they contain counterfeit and substandard chemicals or because of inadequate transportation, lack of coordination amongst concerned authorities, low enforcement of already outdated legislation, low levels of awareness and capacity, poor storage, porous border control, and scarce quality control (WHO, 2016, 2019a).

Environmental and agricultural drivers of infectious diseases of poverty (agricultural intensification, climate change, dams, lakes and irrigation systems, ecological disruption and contamination, and forestry changes) should also be taken into account (WHO, 2013).

Nanotechnology (“the branch of technology that deals with dimensions and tolerances of less than 100 nanometres, especially the manipulation of individual atoms and molecules” – *Lexico*), which offers considerable opportunities for the development of innovative products and applications for agriculture, may also have a negative impact on human health (FAO & WHO, 2013).

The point is that the number of agriculture-related **noncommunicable diseases** (WHO & UNO, 2018; Wolf *et al.*, 2018) is huge: cancer (breast, cervical, colorectal, liver, lung, prostate, stomach), cardiovascular diseases (cerebrovascular disease, congenital heart disease, coronary artery disease, deep-vein thrombosis and pulmonary embolism, heart attack, peripheral artery disease, stroke), chronic respiratory diseases (asthma, chronic obstructive pulmonary disease, cystic fibrosis, occupational lung diseases such as black lung, pulmonary hypertension), and diabetes (Types 1 and 2).

Unintentional poisonings kill an estimated 355,000 people globally each year. In developing countries (where two thirds of these deaths occur) such poisonings are associated strongly with **excessive exposure to, and inappropriate use of, toxic chemicals**. In many such settings, toxic chemicals may be emitted directly into soil, air, and water – from industrial processes, pulp and paper plants, tanning operations, mining, and **unsustainable forms of agriculture** – at levels or rates well in excess of those tolerable to human health. (World Health Organisation)

In order to address identified and assessed hazards, including ergonomics-related hazards (**ergonomics** is “the study of people's efficiency in their working environment” – *Lexico*), a farmer should take **preventive measures** to deal with:

- A newly identified hazard in a speedy and efficient manner;
- Ergonomics-related hazards that are identified when planning implementation of change to the work environment or to equipment, practices, processes, or work duties.

Preventive measures are all useful, practical and effective methods that make it possible to avoid the occurrence of a hazardous situation by controlling current working conditions, existing activities, or present hazards.



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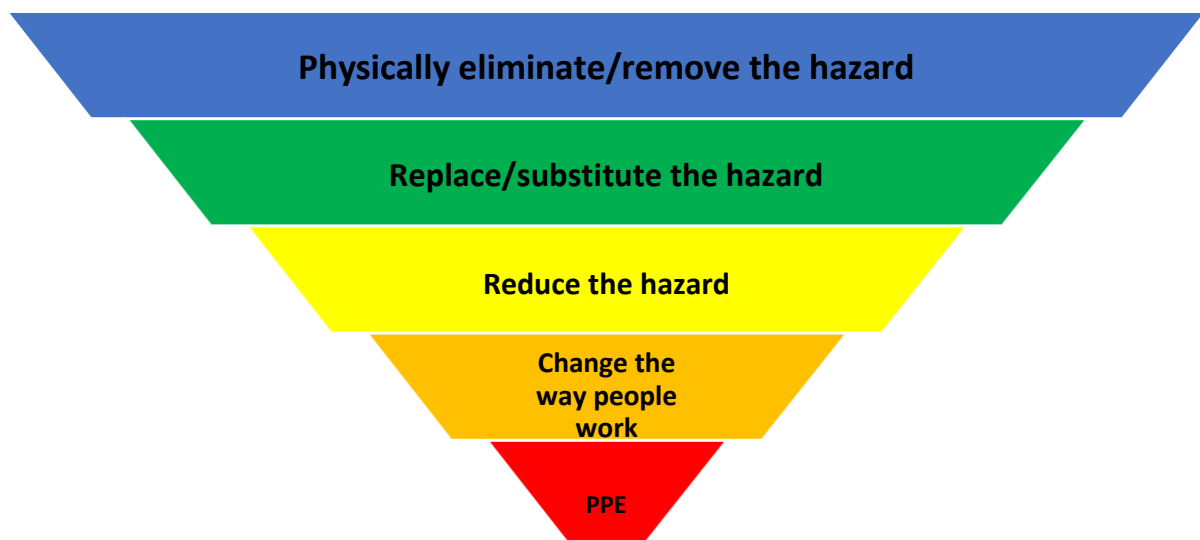
For example, when handling **pesticides**, farmers should pay attention to such aspects as application / spraying, classification / labelling, disposal, exposure, first-aid, health problems, loading mixing, personal protective equipment, post-application, spilling, and transport (Fait *et al.*, 2001; WHO & FAO, 2019).

Are **preventive measures** the following (*Hazard Prevention Program Guide*, 2014; OSHA, 2016):

- a) The **physical elimination/removal of the hazard**: the machine, thing, condition or activity that constitutes the hazard is replaced by another machine, thing, condition or activity that eliminates the original hazard, and which does not create a new hazard; for example, detoxifying agriculture from highly hazardous pesticides is possible by applying Integrated Pest Management, i.e. the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of

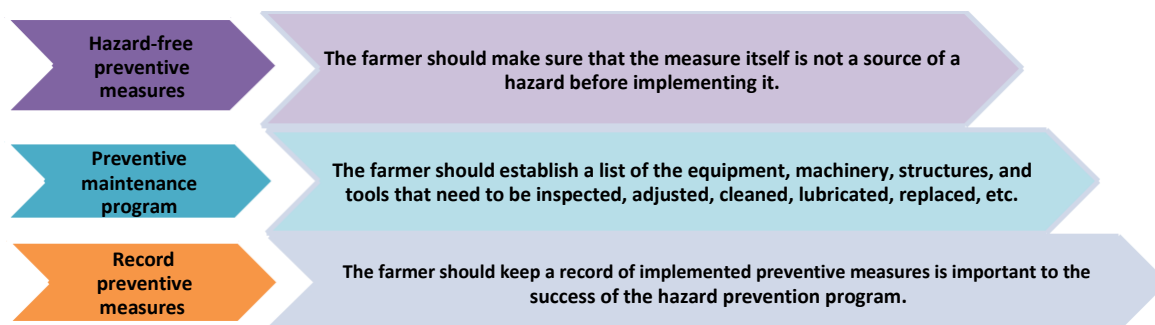
pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment through the use of good agricultural practices, low-risk chemical pesticides, microorganisms (bacteria, fungi, viruses), natural enemies of pests (plants and animals), pest monitoring, semiochemicals (chemical substances or mixtures released by an organism that affect the behaviours of other individuals), and sustainable farming systems (FAO & WHO, 2019); the lists of hazardous pesticides have been continuously updated (Montreal Protocol, 1989; Stockholm Convention, 2004; and Rotterdam Convention, 2004 – cf. WHO, 2019b);

- b) The **replacement/substitution of the hazard**: if the farmer cannot eliminate the hazard, he/she can attempt to reduce it through control techniques that aim to diminish the intensity of the hazard should it occur, prevent the hazardous situation from occurring, or eliminate hazardous tasks; for example, buying quiet equipment and tools;
- c) The **reduction of the hazard**, including isolating it: for example, controlling the noise hazard;
- d) The **change of the way people work**: for example, setting time limits;
- e) The **provision of Personal Protective Equipment (PPE)**: if the farmer cannot reduce hazard, he/she should protect himself to counter a hazardous occurrence or diminish the scope of potential damage. There are two types of protection – group and personal:
 - **Group protection** involves blocking or separating the hazard from the employee: for example, sending the noise-making equipment to the mechanic for repair;
 - **Personal protection** involves providing employees with protective equipment or clothing such as dust mask, earplugs, eyewear (safety glasses, safety goggles), face shield, high visibility apparel/clothing (head ware, gloves, jackets, pants, rainwear, shirts, sweatshirts), protective boots, protective helmet, safety gloves, women’s clothing.



In order to avoid failures that could result in a hazard to employees, the farmer shall develop and implement a set of **management techniques** that aim to reduce the hazard) as part of the **preventive measures** (*Hazard Prevention Program Guide, 2014; OSHA, 2016*):

- a) **Hazard-free preventive measures:** since a preventive measure controls a current working condition, an existing activity, or a present hazard, the farmer should make sure that the measure itself is not a source of a hazard before implementing it: for example, if he/she installs a conveyor belt to replace a lift truck, he/she should make sure it is in compliance with current safety standards. If a new hazard arises, it must be dealt with as soon as possible: for example, when indicating areas for pedestrian traffic, the farmer should make sure it does not cause an unsafe congestion of lift trucks in another location, install mirrors so that the operator can see pedestrians before turning a blind corner, etc.
- b) **Preventive maintenance program:** such a program consists in establishing a list of the equipment, machinery, structures, and tools that need to be inspected, adjusted, cleaned, lubricated, replaced, etc.; drawing up a maintenance schedule; describing the maintenance procedures; recording the work completed; verifying the progress of work; and assessing effectiveness. It is mandatory because its purpose is to prevent failure in the long term of equipment, machinery, structures, and tools through routine inspections and the repair of worn parts: for example, mechanical maintenance, planned inspections, and the replacement of worn brakes on a tractor are indispensable prevention measures.
- c) **Record preventive measures:** keeping a record of implemented preventive measures is important to the success of the hazard prevention program. The farmer needs this record to complete the subsequent steps in the prevention process.



1.2. Hazard Evaluation

In order to assess/evaluate hazards on his farm, the farmer should develop a **hazard identification** (to highlight the operations of critical tasks – tasks posing significant risks to the health and safety of employees – and the hazards pertaining to certain equipment because of activities performed, energy sources, and working conditions) and **assessment methodology**, including one for **ergonomics-related hazards**, taking into account the following documents and information:

- Any employee reports on hazards;

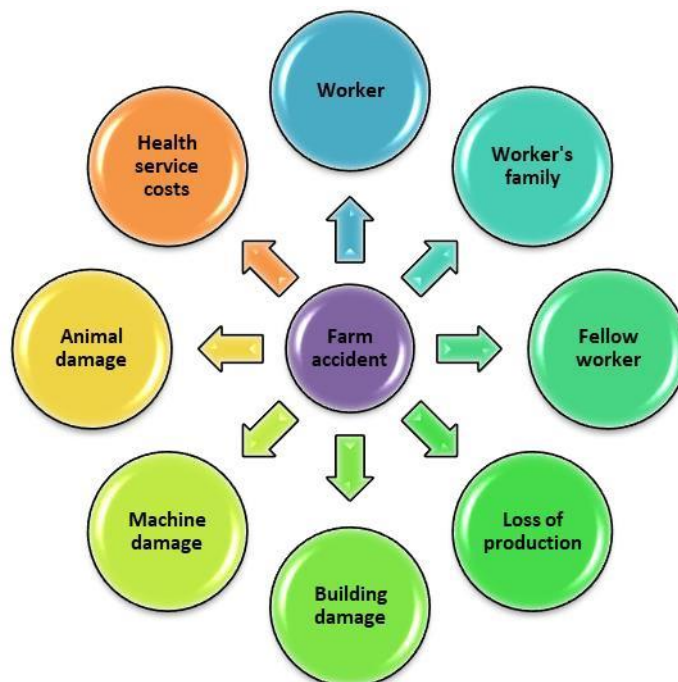
- Any government or farmer reports, studies and tests concerning the health and safety of employees;
- Any hazardous occurrence investigation reports;
- Any reports made under the Safety and Health Committees and Representatives Regulations;
- Any results of work place inspections;
- First aid records and minor injury records;
- The record of hazardous substances;
- Work place health protection programs;
- Any other relevant information, including ergonomics-related information.

The **hazard identification and assessment methodology** should include:

- The steps and time frame for identifying and assessing the hazards;
- The keeping of a record of the hazards;
- A time frame for reviewing and, if necessary, revising the methodology.

The farmer can identify hazards by observing tasks that are actually performed at the various work stations for each of these **hazard identification techniques**: accident and incident investigations, failure analysis, potential accident factors, preliminary investigations, task safety analysis, and work place inspections.

It is important to identify hazards in due time because farm accidents affect not only a worker, but his/her entire environment (El Batawi, 2004).



The identification method may vary depending on the **size of the work place**:

- On a **small farm**, it may be to the farmer's benefit to identify hazards **per individual**, as each individual performs specific tasks: for example, one employee is a tractor driver, while another one is a tractor driver who also takes care of the mechanical maintenance of tractors;
- On a **larger farm**, it is more likely that several employees hold the same positions: for example, body workers, mechanics, tractor drivers, etc. Therefore, it may be to the farmer's benefit to identify hazards **per work station**;
- On a **still larger farm**, it may be to the farmer's benefit to identify hazards **by work area**, grouping individuals and work stations by similarity of tasks, hazards and management – for example, on a mix farm, animal raising, crop growing, equipment maintenance, etc. – where hazards should be identified for all animal raisers (for example, avian influenza – cf. *WHO*, 2006), for all crop growers, for all maintenance technicians, etc.
- On **very large farms**, it may be to the farmer's benefit to identify hazards **by divided areas** or **by facility**, where each foreman is responsible for both production and his/her prevention program.

After having identified the hazards, the farmer should establish and maintain an **identification record** in print or electronic format.

The **identification technique** consists in identifying five components of work:

- Equipment (machines and tools);
- Materials (substances and products);
- Environment;
- Personnel;
- Work organization.



The interaction among these five components may be, when transporting fresh vegetables to the green market, for example:

- **Normal**, when the fresh vegetables are delivered to the green market retailers with a truck, etc.;
- **Abnormal**, when incidents such as an accident, a fire, or an occupational disease occur, and the fresh vegetables do not reach the green market.

To identify the hazards involved in driving a truck, for example, the farmer should:

- Identify the work components (of the truck, for example);
- Ask what may go wrong (back injury, collision, falling material, flammable material, possible breakdown of a truck part).

The farmer should define the **steps for the identification of hazards** and a **time frame for hazard identification** by including the following information:

- Who is responsible for the identification: for example, an individual or individuals appointed by the health and safety committee, the work place health and safety committee, etc.;
- How the identification reports are processed: for example, compilation and processing by the committee, by individuals appointed by the committee, etc.;
- What the time frame is: for example, the identification of hazards for animal raisers must be completed in December, for crop growers in April, and for mechanics in November;
- What the date for the review of the identification is: for example, every two years.

Emphasis should be placed on identification, because follow-up of the prevention program depends upon it: assessment of hazards, employee education, and implementation of preventive measures.

The farmer should identify and assess the **hazards in the work place**, including ergonomics-related hazards, in accordance with the methodology presented above, taking into account the following:

- Any employee reports on hazards;
- The effects (real or apprehended) of the exposure on the health and safety of employees;
- The employees' level of exposure to the hazard;
- The frequency and duration of employees' exposure to the hazard;
- The preventive measures in place to address the hazard;
- the nature of the hazard and, in the case of ergonomics-related hazards, all ergonomics-related factors such as:
 - The circumstances in which the work activities are performed, the organization of the work, physical demands of the work activities, the work environment, and the work procedures;
 - The characteristics of animals, equipment, goods, materials, persons, things, tools, and work spaces;
- Any other relevant information.

It is very likely that the hazards encountered on a farm during the identification step are numerous, which makes any single action to control all of them impossible. Therefore, the farmer should critically examine all of the hazards in order to establish an order of priority to be able to prioritize his/her preventive measures, without losing sight of the final objective – eliminating all hazards in the work place or, if they cannot be eliminated, controlling them.

The farmer can consult the employee reports, the first aid record, the hazardous occurrence reports, the minor injuries record, and his/her workers' compensation statements, which can enable him/her to assess the level of hazard exposure to employees.

The farmer can use any other assessment method, provided it takes into account all the factors mentioned above (under **hazards in the work place**).

1.3. Preventive Planning Activity

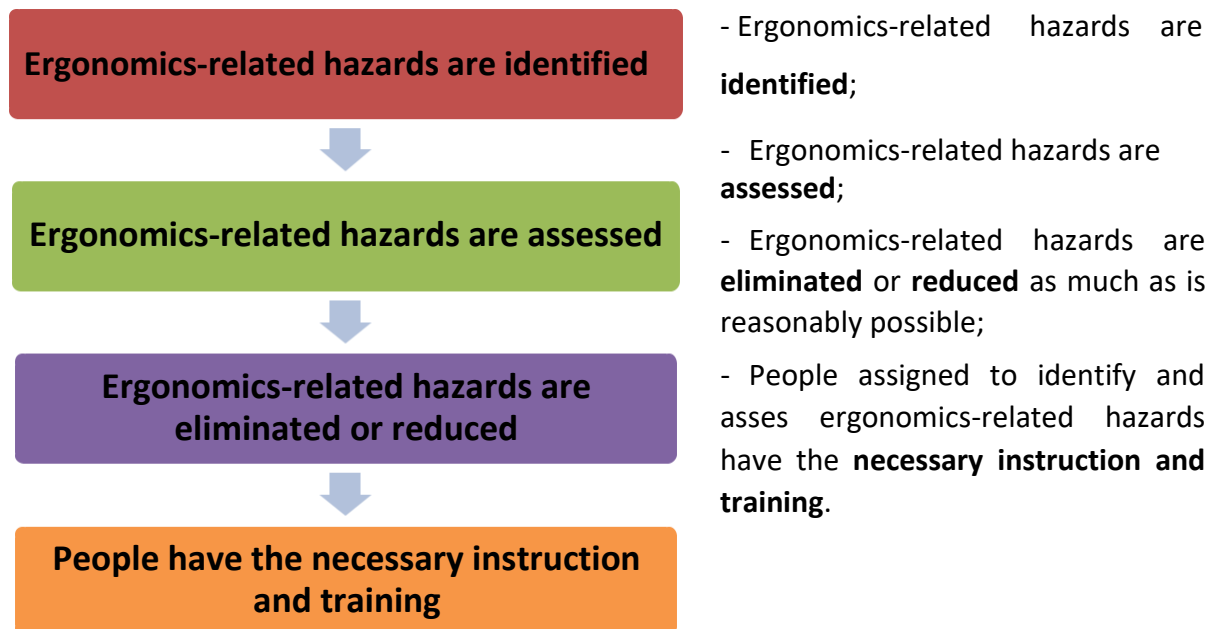


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To implement his/her hazard preventing plan, the farmer should:

- Develop an implementation plan specifying the time frame for each phase of the development and implementation of the prevention program;
- Monitor the progress of the implementation of the preventive measures;
- Review the time frame of the implementation plan regularly and, if necessary, revise it.

In **implementing the prevention program**, the farmer should ensure that:



There are two **ways of monitoring the implementation of a prevention program**:

- To verify whether the scheduled activities took place as planned, step by step, by:

- Describing the measure to be implemented and the work to be performed (new work conditions, new tasks, new technical activities, new work, etc.);
 - Approving the work to be performed;
 - Document new work procedures;
 - Provide employee training;
- To verify whether the preventive measures were implemented as planned: if, for any reason, implementation of a scheduled measure of the prevention program was delayed, the farmer should revise the work schedule immediately because other work planned to follow may have to be shifted.

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2. International Institutions and Organizations

2.1. Inter-governmental Organisations

Inter-governmental Organisations cooperating in **occupational health** are either **international** or **regional and sub-regional**.

2.1.1. Are international inter-governmental organisations involved in **occupational health** the following:

- The **African Union (OAU)**, a continental organisation whose mandate is to encourage political and economic growth among member states, and to eradicate colonialism and neo-colonialism from the African continent. It was established on 9 July 2002, and is headquartered in Addis Ababa, Ethiopia.
- The **International Labour Organization (ILO)**, a United Nations agency whose mandate is to advance social and economic justice through setting international labour standards. It was established on 29 October 1919, and is headquartered in Geneva, Switzerland.
- The **Organization for Economic Cooperation and Development (OECD)**, an economic organization whose mandate is to stimulate economic progress and world trade. It was established on 16 April 1948, and is headquartered in Paris, France.
- The **Organization of American States (OAS)**, a continental organization whose mandate is to enhance solidarity and cooperation among its member states within the Western Hemisphere. It was established on 30 April 1948, and is headquartered in Washington, DC, USA.
- The **World Health Organisation (WHO)**, a specialized agency of the United Nations, whose mandate is to advocate for universal healthcare, coordinate responses to health emergencies, monitor public health risks, and promoting human health and well-being. It was established on 7 April 1948, and is headquartered in Geneva, Switzerland.

2.1.2. Are regional and sub-regional inter-governmental organisations involved in **occupational health** the following:

- The **Caribbean Community (CARICOM)**, an organisation of fifteen nations and dependencies throughout the Americas, whose mandate is to promote economic integration and cooperation among its members whose mandate is to ensure that the benefits of integration are equitably shared, and to coordinate foreign policy. It was established on 4 July 1973, and is headquartered in Georgetown, Guyana.
- The **European Free Trade Association (EFTA)**, a regional trade organisation and free trade area consisting of four European states (Iceland, Liechtenstein, Norway, and Switzerland), whose mandate is to serve as an alternative trade bloc for those European states that were unable or unwilling to join the then European Economic Community (EEC), which subsequently became the European Union. It was established on 4 January 1960, and is headquartered in Geneva, Switzerland.
- The **European Union** (formerly the European Coal and Steel Community and the European Economic Community), a political and economic union of 27 member states that are located primarily in Europe, whose mandate is to respect the rule of law and human rights. It was established on 1 November 1993, and is headquartered in Brussels, Belgium.
- The **North American Free Trade Agreement (NAFTA)**, an agreement signed by Canada, the United Mexican States, and the United States of America, whose mandate is to promote trade among the members of this trade bloc. It was established on 1 January 1994, and is headquartered in Ottawa, Canada, Mexico City, Mexico, and Washington, DC, USA.
- The **Southern Common Market**, a South American trade bloc, whose mandate is to promote free trade and the fluid movement of goods, people, and currency. It was established on 26 March 1991, and is headquartered in Montevideo, Uruguay.

2.2. International Non-governmental Organisations

Are **international non-governmental organisations** the following:

- The **International Commission on Occupational Health (ICOH)**, is an international professional society whose mandate is to foster the scientific development, knowledge, progress of occupational health and safety in all its aspects. Eight of its 39 scientific committees deal with occupational-related issues (Occupational and Environmental Dermatoses, Occupational Health and Development, Occupational Health for Health Workers, Occupational Health in the Chemical Industry, Occupational Health in the Construction Industry, Occupational Health Nursing, Occupational Medicine, and Occupational Toxicology). It was established on 31 October 1906, and is headquartered in Rome, Italy.

- The **International Organization for Standardization (ISO)**, a standard-setting body composed of representatives from various national standard organisations, whose mandate is to promote worldwide commercial, industrial, and proprietary standards. It was established on 23 February 1947, and is headquartered in Geneva, Switzerland.
- The **International Social Security Association (ISSA)**, an organization bringing together national social security administrations and agencies, whose mandate is to co-operate in the promotion and development of social security throughout the world in order to advance the social and economic conditions of the population on the basis of social justice. It was established on 4 October 1927, and is headquartered in Geneva, Switzerland.

Chapter 3. Case Studies

3.1. Case Study no. 1

Source: smeeni.com (online newspaper)

Website: <https://smeeni.com/video-s-a-activat-planul-rosu-de-interventie-intre-smeeni-si-pogoanele-in-urma-unui-accident-rutier-cu-mai-multe-victime-un-microbuz-s-a-izbit-puternic-de-un-tractor-care-s-a-rupt-in-doua/>

Event: The Red Intervention Plan between Smeeni and Pogoanele was activated following a road accident with several victims: A minibus crashed heavily into a tractor, which broke in two

Date: 2 August 2018

Narrative: Initial news. The Red Response Plan was activated following a serious accident on Thursday afternoon in Ceptura, Prahova County, on National Road 2C. A minibus carrying several passengers collided with a **tractor** on the road linking Buzău and Slobozia. A car was also involved in the event. The personal transport truck and multiple casualties from Buzau Inspectorate for Emergency Situations took over two victims for transport to Buzau Emergency Admission Unit. An 18-year-old woman, 5 months pregnant, was picked up by a Mobile Emergency, Resuscitation and Extrication Service (MERDS) helicopter for transport to Bucharest University Hospital: the person is conscious but has polytrauma in the abdomen area. It is not known whether the foetus suffered from the mother's injuries. "Initially, 10 victims were reported, the red plane went off. There are six victims with multiple injuries, more than six emergency crews have been deployed to the scene," Buzau Inspectorate for Emergency Situations spokesman, sub-lieutenant George Cretu. A third vehicle, a car, was also involved in the accident. According to the Inspectorate General for Emergency Situations, the first information shows that there are 12 people who are victims of the accident (10 adults and 2 children), all of whom are conscious but have various injuries. There were no incarcerated people. A multi-victim truck, 2 (MERDS) first aid crews, a de-incarceration truck, a fire extinguisher and four ambulances from the County Ambulance Service were alerted. The

collision occurred when **the tractor left the field for the national road without the driver giving priority to the minibus**. As a result of the impact, the tractor was broken in half and its driver fled to the field and is being searched at this time by the police. Witnesses say he may have been intoxicated. The minibus driver said the tractor driver was speeding when accessing the National Road and only stopped when the minibus collided. The Police and the prosecutor's office are now investigating the exact causes of the road event. Traffic in the area was stopped for more than two hours during the search. **Update:** The tractor driver involved in the accident in which ten people were injured, fled the scene. The man accused of causing the road event has been searched by police all evening. A few hours later, he was identified and brought to the hearing, who was under the influence of alcohol. The tractor driver was detected following the activities of the police officers of Pogoanele, Buzau County, and of the Special Action Service of the Police Inspectorate of Buzau County and was taken to the hearings. He is about 40 years old and under the influence of alcohol (over 0.80 mg/l in the exhaled air). The tractor driver is most likely to be responsible for the event in which ten people were injured, all passengers in the minibus of Rushețu, including two children and a 5-month pregnant woman.

Video available: <https://www.youtube.com/watch?v=CvF4Uz01q0>

Photo available: <https://smeeni.com/video-s-a-activat-planul-rosu-de-interventie-intre-smeeni-si-pogoanele-in-urma-unui-accident-rutier-cu-mai-multe-victime-un-microbuz-s-a-izbit-puternic-de-un-tractor-care-s-a-rupt-in-doua/>



3.2. Case Study no. 2

Source: StirideBuzau.ro (online newspaper)

Website: <https://stiridebuzau.ro/actualitate/video-doi-raniti-indtr-un-accident-produs-din-cauza-unui-tractorist-neatent-2109.html>

Event: Two injured in crash caused by inattentive tractor

Date: 21 September 2018

Narrative: A road accident resulting in two victims occurred on 21 September 2018 on the European road E85, in the area of Posta Câlnău, Buzau County. A car crashed into a **tractor**

and two people were injured as a result of the collision, one of whom was incarcerated. The accident occurred at around 11.00 a.m. on National Road 2E85 at Posta Călnău. While driving a car towards Buzau, a 19-year-old from Bacau drove his car into the **trailer of a tractor** driven by a 30-year-old man from Buzau. The driver remained incarcerated and it took the intervention of a de-incarceration crew from Buzau Inspectorate for Emergency Situations to remove him from the severely damaged car. The young man was later transported to hospital. That's where a passenger of the same age arrived. Traffic in the area was halted to allow rescue and on-site search. According to the police, the accident occurred because of **the tractor that did not adequately secure itself when leaving the scene**, suddenly appearing in front of the driver in Bacau.

Video available: <https://stiridebuzau.ro/actualitate/video-doi-raniti-indtr-un-accident-produs-din-cauza-unui-tractorist-neatent-2109.html>

Photo available: <https://stiridebuzau.ro/actualitate/video-doi-raniti-indtr-un-accident-produs-din-cauza-unui-tractorist-neatent-2109.html>



3.3. Case Study no. 3

Source: *Opinia Timisoarei* (news site from Timis County, Romania)

Website: <https://www.opiniatimisoarei.ro/accident-grav-pe-o-sosea-din-timis-doi-oameni-raniti-foto/28/10/2019>

Event: Serious accident on a road in Timis County: Two people injured.

Date: 28 October 2019

Narrative: Serious traffic accident on Monday night (28 October 2019) on a road that connects the localities of Sanmartinu Sarbesc de Peciu Nou, Timis County. Two people were injured after the car they were in crashed into the **trailer of a roadside tractor**, which was unmarked. The driver of the car did not notice that there was a **faulty tractor** on the right side of the road and it crashed heavily into the trailer. The hood of the car was simply ripped off and got caught in the trailer. As a result of the impact, both he and the passenger on the right

were injured. Immediately, fire and police crews arrived at the scene. Law enforcement officials have opened a criminal case against the driver for bodily harm from culpability.

Photo available: <https://www.opiniatimisoarei.ro/accident-grav-pe-o-sosea-din-timis-doi-oameni-raniti-foto/28/10/2019>



3.4. Case Study no. 4

Salvi, Cristiana, Frost, Melinda, Popescu, V., Butu, Cassandra, Grbic, Miljana, Grasu, C.-V., Arafat, R. & Nitzan, Dorit. (2018). From Capacity Mapping to Development of a National Response Plan: Increasing Emergency Risk Communication Capacity in Romania. *Public Health Panorama*, 4(1), 38-43.

Chapter 4. Activities



<https://www.bing.com/images/>

I. Which of the following **occupational hazards** may occur on a farm? Explain.

- **Biological hazards** (infectious diseases caused by animals – birds or insects, bacteria, fungi, humans, plants, and viruses),
- **Chemical hazards** (adhesives, paints, solvents, toxic dusts, etc.),
- **Ergonomic risk factors** (heavy lifting, repetitive motions, vibration),
- **Physical hazards** (heat, noise, radiation, etc.).

II. Choose the proper variant:

1. Biological hazards can cause allergies, cancer, infections, and skin irritation.
A. True B. False
2. Biological hazards include bacteria, fungi, mushrooms, parasites, and viruses.
A. True B. False

3. Biological hazards including bacteria, parasites, viruses and fungi can enter the human body through contaminated fluids, contaminated gas, and contaminated objects.

A. True B. False

4. Biological hazards may include all of the following, except

A. Bacteria B. Viruses C. Sandblasting D. Insects

5. Biological hazards occur through naturally occurring substances.

A. True B. False

6. Examples of biological hazards include

A. Medical wastes B. Pest infestations C. Zoonoses D. All of the above

7. Insects that may cause anaphylactic shock include

A. Mosquitos B. Ticks C. Bees D. All of the above

8. The personal protective equipment for biological hazard includes eye shields, face shields, gloves, masks, protective clothing, and shoe covers.

A. True B. False

III. Match the following chemicals commonly used on farms and that might turn into chemical hazards with their definitions.

Item	Definition
<i>acaricide</i>	a chemical that destroys fungus
<i>bactericide</i>	a poison used to kill rodents
<i>fungicide</i>	a substance or other agent which destroys harmful microorganisms
<i>germicide</i>	a substance poisonous to mites or ticks
<i>herbicide</i>	a substance that is toxic to plants, used to destroy unwanted vegetation
<i>larvicide</i>	a substance used for destroying insects or other organisms harmful to cultivated plants or to animals
<i>molluscicide</i>	a substance used in medicine and veterinary medicine to kill parasites (especially those other than bacteria or fungi)
<i>nematicide / nematocide</i>	a substance used to kill larvae
<i>parasiticide</i>	a substance used to kill molluscs
<i>pesticide</i>	a substance used to kill nematode worms (worms of the large phylum Nematoda, such as a roundworms or threadworms)
<i>raticide</i>	a substance which kills bacteria
<i>rodenticide</i>	something that kills rats, especially a chemical substance used as a rat poison

IV. Which of the occupational hazards in the figure below may occur on a farm? Explain.



V. Match the following **items of Personal Protective Equipment** with their definitions:

Item	Definition
<i>dust mask</i>	a covering made of fibre or gauze and fitting over the nose and mouth to protect against air pollutants
<i>earplugs</i>	a garment for the upper body made of cotton or a similar fabric, with a collar and sleeves, and with buttons down the front
<i>eyewear</i>	a hard or padded protective hat
<i>helmet</i>	a loose, warm sweater, typically made of cotton, worn when exercising or working
<i>jacket</i>	an outer garment extending either to the waist or the hips, typically having sleeves and a fastening down the front
<i>pants</i>	close-fitting glasses with side shields, for protecting the eyes from glare, dust, water, etc.
<i>rainwear</i>	coverings for the hand worn for protection against cold or dirt and typically having separate parts for each finger and the thumb
<i>safety glasses</i>	knickers
<i>safety gloves</i>	pieces of wax, rubber, or cotton wool placed in the ear as protection against noise, water, or cold air
<i>safety goggles</i>	things worn on the eyes, such as spectacles and contact lenses
<i>shirt</i>	toughened glasses or goggles for protecting the eyes when using power tools or industrial or laboratory equipment
<i>sweatshirt</i>	waterproof or water-resistant clothes suitable for wearing in the rain

VI. What **Personal Protective Equipment** is wearing the mechanic in the cartoon below?



<https://www.bing.com/images/>

Chapter 5. Additional resources/materials (video, pdf files, other links)

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