



AgriSafetyNet

Agricultural Safety Through Lifelong Learning

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Module 0

INTRODUCTION



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Module 0: Introduction

In a European Union of 27 Member States, it is vitally important to consider the future of the primary production sectors, especially agricultural, livestock, fishing and aquaculture activities, as well as the development of the agro-food industry.

Agriculture and fisheries in the European Union are constantly facing transformation processes derived from enlargements / decreases of member states, liberalization of world trade, reforms of community policies, technological development, increased environmental demands and the emergence of new demands for quality and food safety by consumers.

The relevance of the agricultural and livestock sector in the European Union is increasingly evident, as a fundamental part of the market for the supply of food products to citizens, as well as for its role in preserving the environment and protected areas and rural environment. It is also an economic support in terms of employment, especially in rural areas and with a tendency to depopulation.

In Europe, as in the rest of the advanced economies, the economic importance of the agricultural sector is relatively low compared to industry and, above all, to services. It is estimated that around 22 million people live in the agricultural sector in Europe and most of them (almost 96%) carry out their activity in family businesses that represent a number of more than 10 million farms. What is produced in the EU agro-food sector guarantees food security for 500 billion people across Europe.

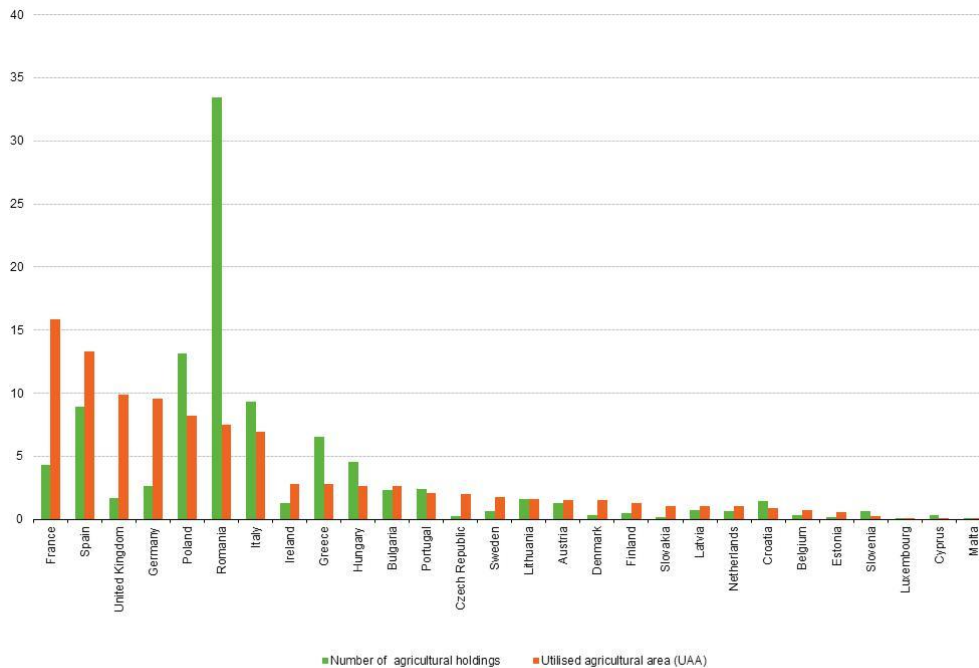
1. Characteristics and problems of the agricultural sector

1.1 Characteristics

In general, the agricultural sector in Europe is experiencing slow but progressive economic growth, due in large part to the acquisition and development of modern agricultural production systems and adequate soil for agriculture. Productivity per hectare has increased considerably since the second half of the 20th century.

Area: The structure of agriculture in the Member States of the European Union (EU) varies depending on differences in geology, topography, climate and natural resources. In Europe, agriculture and livestock constitute almost three quarters of the surface used in the EU, being almost 175 million hectares (40.0% of the total land area), which translates into an average size of 16.1 hectares per farm. France and Spain present the highest percentage of the agricultural area, with 15.9% and 13.3% respectively, while the United Kingdom and Germany presented percentages just below 10.0%. In terms of farms, Romania owns a third

(33.5%) of the total farms in the EU, followed by Poland (13.2%), Italy (9.3%) and Spain (8.9%). The average size of a farm is sixteen hectares.



Source: Eurostat (online data code: ef_1vaareg)

Sectors: Predominantly in Europe we find four types of economic sectors in the agrolivestock sector. The main farms are based on: dairy farming, cereals, oilseeds and protein crops. Depending on the country, the data may change, giving more importance to other sectors such as vineyards (France and Italy), livestock (Greece) or greenhouse horticulture (Malta).

Climate: Given its diversity of agricultural soils and climates, Europe produces a wide variety of products.

Rural development: There is a European trend of “back to rural”, which implies a socioeconomic revitalization of rural areas and an increase in labor diversification and development in rural areas. Many young people belonging to agricultural families and who left their localities to study and work are gradually returning to their places of origin to continue and modernize family businesses or to start businesses.

Employment: in the EU, 96% of farms are family and of these, most of them have a single legal owner. Even so, the number of permanent agricultural workers is almost 22 million people across Europe, the vast majority employed on a full-time fixed contract

Changes in consumption trends: European citizens, and the world population in



general, are experiencing important changes in their diet and food consumption. As for consumption, in recent years there have been some dietary changes. For example, the consumption of red meat has increased considerably in the last five decades and Europeans eat more poultry, fish and seafood, fruits and vegetables. This implies that the agricultural companies have to bet on the diversification of their production to adapt to the new standards of consumer demand.

Ecological agriculture is being highly demanded by end consumers and this represents a change in agricultural production models.

1.2 Problems

Surface: The surface destined to the agricultural sector is suffering the effects of urbanization and changes in lifestyle, reducing the spaces destined for agriculture to very rural and unattractive and sometimes unproductive areas. Agriculture also competes for soil with energy generation (biofuels).

Intensification: Just as we talked about diversification as a feature, farmers also face that they have to make their land profitable. This means that intensified cultivation with the help of mechanical tools and the application of fertilizers and pesticides continue to be considered, which severely reduce the biodiversity of farmland and increase contamination of the soil, rivers and lakes.

Climate and Environment: Climate change is increasingly affecting agricultural production, assuming this the need to adapt to future sudden changes in seasons and rainfall. This implies a series of economic protection measures or innovation in detecting changes in the climate that not all farmers can achieve. Furthermore, farms have to ensure compliance with environmental protection laws and measures.

Rural development: Advances in agricultural techniques can be seen as ideal for rural development, however, it must be borne in mind that the poor training of agricultural entrepreneurs, the advanced age of farm owners, the lack of physical infrastructure and social problems of agriculture and the greater difficulties in accessing product markets are the main problem in developing the potential of rural areas.

Age: Currently, only 11% of European farmers are under forty years old and around 31% of farmers and ranchers are over 65 years old.

The agricultural sector is one of the oldest in Europe

Training: Most of the Union farmers and ranchers have not received formal training in agricultural activities: 70% have only practical experience, 20% have received basic training and 8% have attended a full agricultural training course. It is highly worrisome that more than 80% of those over 65 do not have any type of training.

Digitization: added to the worrying number of professionals trained in this field, it is worth mentioning that producers are not prepared for the technological and digital systems that are being developed for this sector, with the aim of achieving better work methods, productions of plant origin and animal with greater efficiency and less impact on the environment.

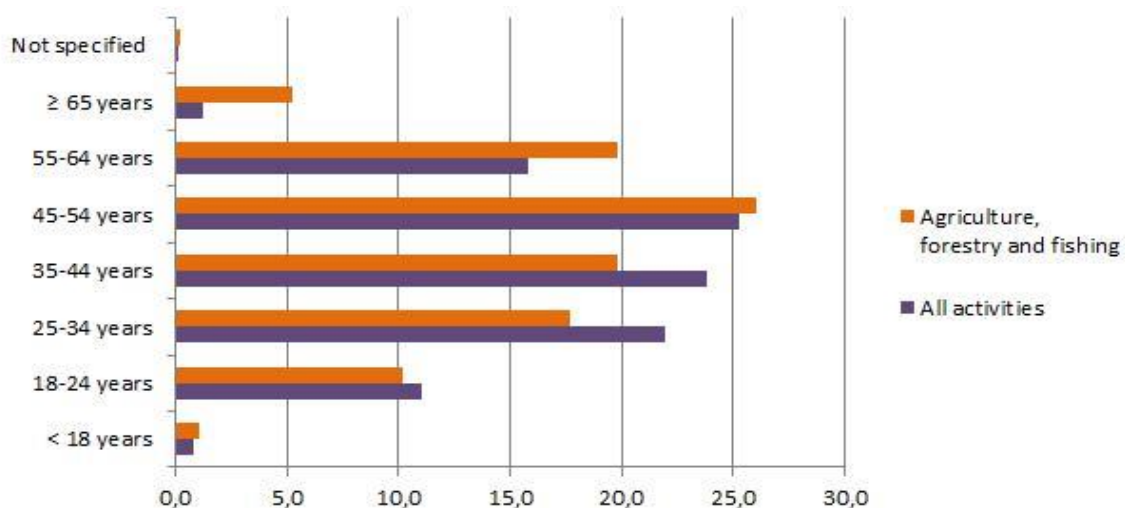
Increased demand: As the world population increases, the demand for food products also increases. The EU is one of the main food producers and exporters, but it is being seen that due to the sum of the above problems, a significant reduction in food production is taking place, which could lead to an increase in prices and a great increase in all segments of society, particularly families with few resources.

Bureaucracy: at the political level it is increasingly difficult to understand and abide by all the laws that are being imposed both at the national and European level. The EU Common Agricultural Policy plays an important role in future agricultural development, just as recent reforms have almost entirely abolished the relationship between aid to farmers and their production volume.

2. Typical shortcomings of farming enterprises

When approaching both fatal and non-fatal accidents in agriculture, forestry and fishing, we can assess which are the main shortcomings of farming enterprises and how to tackle them. In the year 2017 there were a total 148,326 non-fatal and 408 fatal accidents in the agriculture (Eurostat ([hsw_n2_01](#)) and ([hsw_n2_02](#))), forestry and fishing area, adding up to 4.8% of the non-fatal accidents and 12.5% of the fatal accidents in the work place in the European Union. Work accidents in agriculture are more serious than in other fields, as its ratio fatal/non-fatal is higher than average.

There are some particularities in agriculture that must be taken into account when assessing shortcomings of farming enterprises. The first characteristic we are going to focus on is the age of the workers suffering from the accidents. As mentioned before, only 11% of the workers are under 40 years old. This would answer why the percentage of people over 55 having a work accident exceeds the European average that much. While the European percentage of people having a non-fatal work accident aged 55-64 is the 15.8% and amongst those aged over 65 is 1.2%; the average of workers in agriculture, forestry and fishing in a work accident is 19.8% for the age range 55.64 years old (a surplus of 5% compared to the European average in all activities) and 5.2% for the age range over 65 years old (a surplus of a 4%).

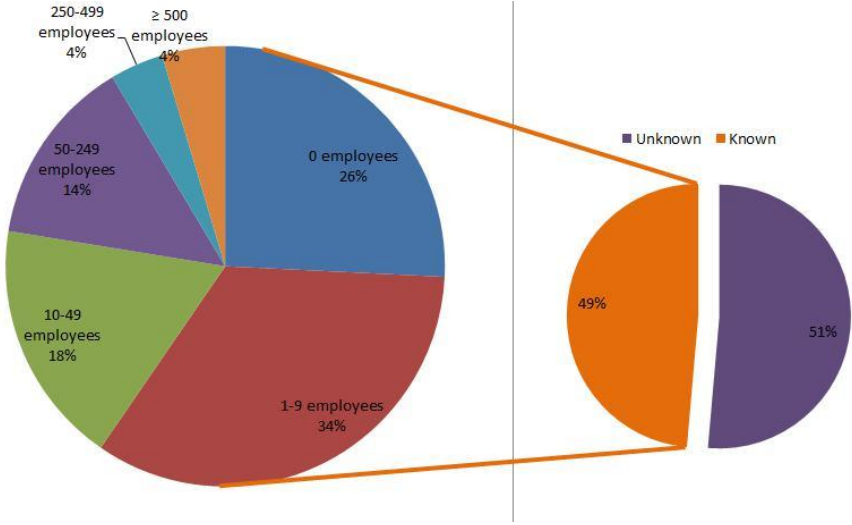


Note: non-fatal accidents reported in the framework of ESAW are accidents that imply at least four full calendar days of absence from work (serious accidents).

Source: Eurostat (online data code: hsw_n2_03)

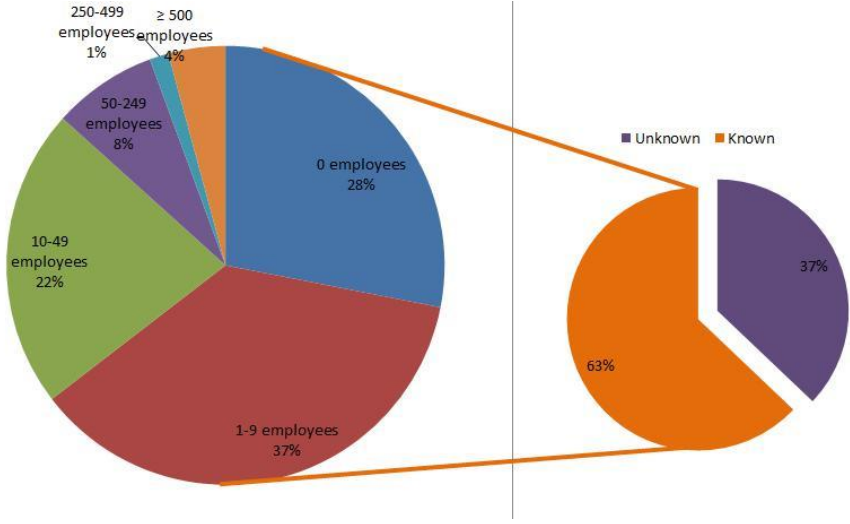
The other characteristic that is specific to the agricultural field and that has an impact on the accidents at work is the type of company. As previously mentioned 96% of the agricultural businesses in Europe are family run, and amongst the non-fatal work accidents by company size (only taking into account those whose size we know), 60% of the work accidents happen

in enterprises of 9 or less employees and 78% of them happen in enterprises of under 50 employees.



Note: non-fatal accidents reported in the framework of ESAW are accidents that imply at least four full calendar days of absence from work (serious accidents).
 Source: Eurostat (online data code: hsw_n2_05)

When we refer to fatal accidents at work, the percentage of small enterprises (amongst the ones which we know the size of) in which the accident occurs is even higher: 65% have 9 or less employees and 87% have fewer than 50 employees. Comparing this statistics to the average of accidents at work in all activities, there are ten times more non-fatal accidents and 4 times more fatal accidents in agricultural enterprises than in the average of all other activities.



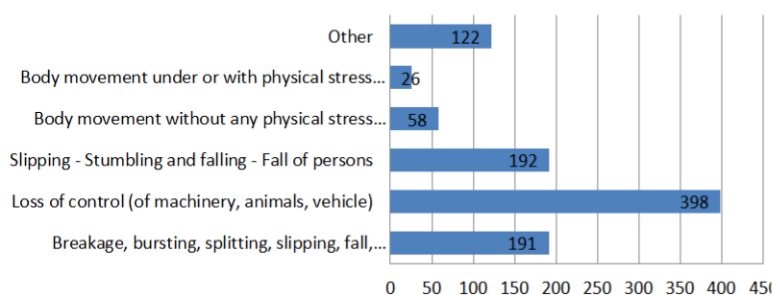
Source: Eurostat (online data code: hsw_n2_05)

We can therefore conclude that both the size and the age of the workers are a particularity in the agricultural field that needs to be taken into account when assessing the shortcomings of farming enterprises that may cause accidents at work.

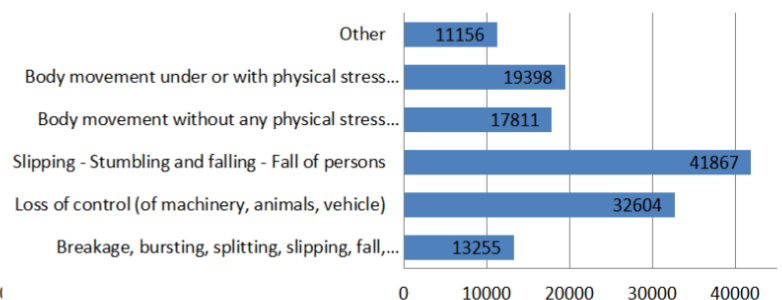
In the year 2005 a comprehensive research was carried out by Eurostat in which the causes of accidents at work by (amongst others) sector of activity are analysed. Even though the data can be out-dated, is the most comprehensive data we have at a European level and can help us understand what those causes may be, especially in relation to other sectors, allowing us to identify the particularities of the agricultural sector. The breakdowns of both the non-fatal and fatal accidents below only include those who amount at least 5% of the total. The following percentages are of the total of accidents in the agriculture, hunting and forestry sector:

- Breakage, bursting, splitting, slipping, fall, collapse of Material Agent: 9.7% of the non-fatal accidents and 19.4% of the fatal accidents
- Loss of control (including of machinery and animals): 24% of the non-fatal accidents and 40.3% of the fatal accidents
- Slipping, stumbling and falling, fall of persons: 30.8% of the non-fatal accidents and 19.5% of the fatal accidents
- Body movement without any physical stress (generally leading to an external injury): 13.1% of the non-fatal accidents and 5.9% of the fatal accidents
- Body movement under or with physical stress (generally leading to an internal injury): 14.3% of the non-fatal accidents and 2.6% of the fatal accidents
- Other: 8.2% of the non-fatal accidents and 12.4% of the fatal accidents

Fatal Accidents



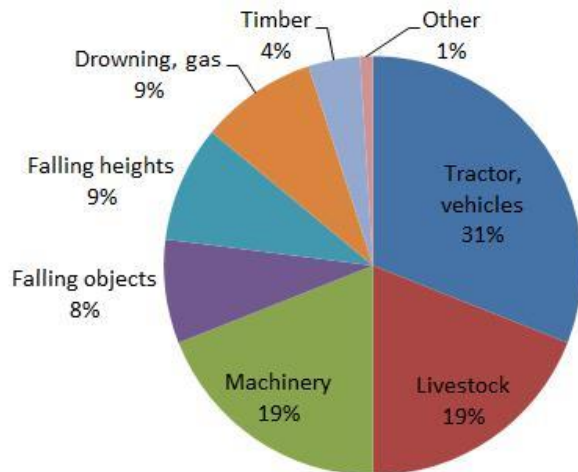
Non-fatal Accidents



Source: Eurostat (online data code: hsw_n2_05)

A more specific and recent research carried out in Ireland covers the fatal accidents in the Agriculture and Forestry from 2010 to 2019 (Irish Health and Safety Authority) and even if the results are not equivalent to those in the Eurostat research in 2015, the trends are. From the 214 deaths in Agriculture and Forestry in Ireland in this 10 year period, the main causes of

death are tractor vehicles (31%), machinery (19%) and livestock (19%), which add up to a total of 69% (compared to the 40.3% in the Eurostat research) and falling heights and falling objects, amounting to 17%, compared to the 19.5% in the European wide research.



Source: Irish Health and Safety Authority

Additionally, the International Labour Organisation (ILO) singles out agriculture for being one of the most dangerous jobs next to mining and construction, and points out several risk factors responsible for the high hazards this sector has:

- the use of countless complex technologies used in widely disparate environments, from highly mechanized commercial agriculture to intensive, small-scale subsistence agriculture. This involves differences in working methods that are much more important than in other sectors of activity;
- the fact that the workforce is scattered in remote rural areas where public services, health services, and communication systems are often inadequate or of lower quality than those in urban areas;
- the wide variety of tasks, especially in small-scale agriculture, that agricultural workers carry out most of the time using inadequate equipment and without having received the necessary information and training;
- the determining influence of environmental factors, since working outdoors in whatever the weather conditions makes it very difficult to control safety at work (for example, when gusts of wind occur while pesticides are applied, or when storms erupt at harvest time), and
- The inadequate application of safety techniques in agriculture, compared to the mayor rigor of the measures in the industry.

All of these specific hazards that make agriculture a particularly dangerous occupation added to the fact that most businesses are family run and that it is an aged occupation (having less resources), result in a great number of accidents, both fatal and non-fatal.

3. Accident rate in agriculture in Spain.

3.1 Main causes of accidents in agriculture in Spain

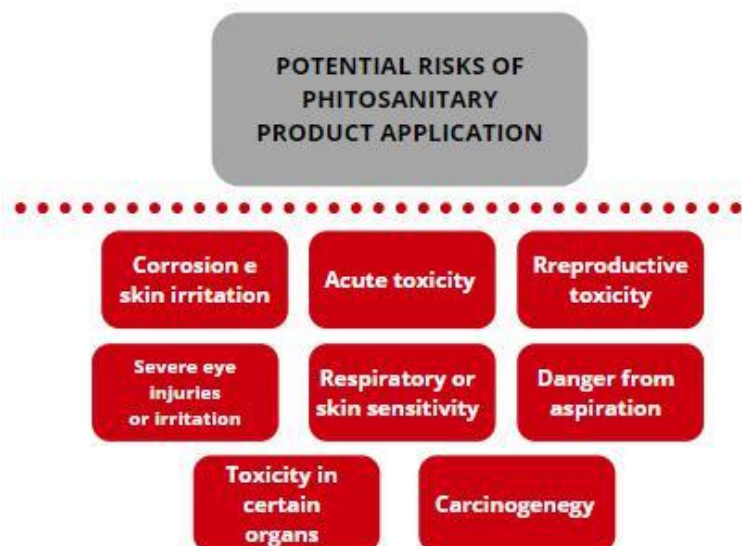
There is still a lot of room for improvement in terms of prevention of labor accidents in the agricultural sector. Not only traffic accidents or those related with machinery, but there are many risks that need to be taken in consideration in the agricultural activities, namely:

- **Phytosanitary hazard**

Phytosanitary products or pesticides are substances active and prepared, with one or more active substances, which are used to protect plants or plant products against harmful organisms (pests) or to prevent action of these organisms. The main ones used are **insecticide, herbicide and fungicide** products.

Health risks may be due to exposure direct of these products, for example workers who they are used during the working day, as is the case of the farmers.

There may also be other risks to consumers and other people present in the application of the chemical.



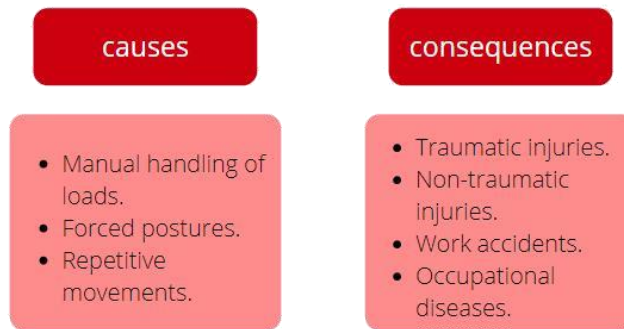
- **Ergonomy**

Source: Agripreven

Ergonomics is the body of knowledge applied to adapt products, systems and artificial environments to the needs, limitations and features of its users, optimizing efficiency, safety and well-being.

Musculoskeletal disorders are the whole of injuries and symptoms that affect the back, neck, shoulders and occupational diseases, some of which generate low and even, in the most serious cases, inability to work.

Overexertion is caused by an excessive physical effort while doing certain task. A large amount of labor accidents happen due to overexertion.



Source: Agripreven

- **Psico-social risks**

This group of risks includes those that, derived of the organization of work and the performance of tasks, have on the worker certain effects of an emotional nature or of conduct, usually leading to the appearance of states or diseases such as stress, anxiety, etc.

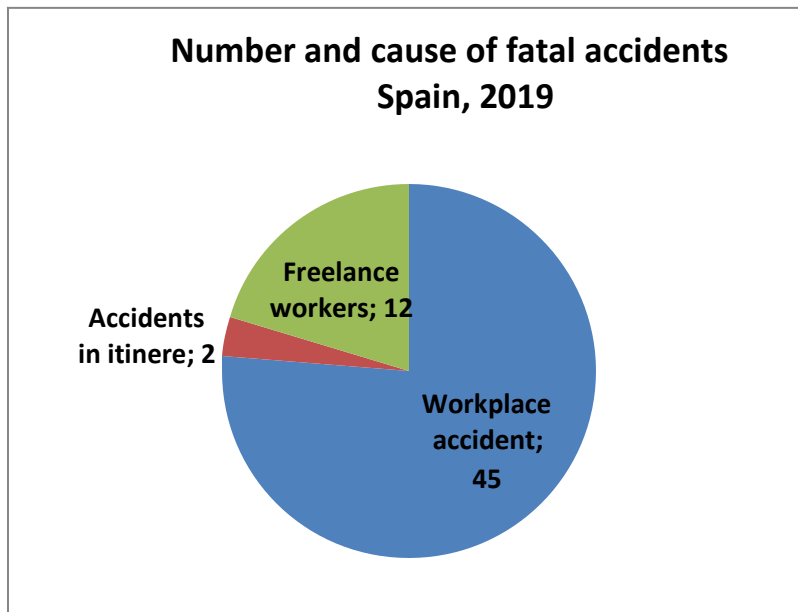
The consequences derived from psychosocial risks in workers in any economic activity are very diverse and can lead to a wide range of situations.

- Change of individual behavior. Behavior changes in social life and family, decrease of the performance at work, negative attitude, stress, anxiety, etc.
- Work accidents or illnesses not considered as professionals, such as respiratory problems, depression, muscle problems, hypertension, cardiovascular diseases, etc.

- **Youth and elderly**

According to the European Agency for Safety and Health at work, young workers located in an age range between 18 and 24 are more likely to suffer serious workplace accidents than other workers located in other higher age ranges. This can happen due to certain aspects, such as:

- Lack of working experience
- Under qualification
- Lack of prevention and safety awareness
- Lack of knowledge of the risks
- Seasonal, non-consolidated workers



Source: Ministry of Work, 2019

On the other hand, one third of the workers in the agricultural sector are over 65. This happens thanks to the increase of the life expectancy and the delay of the retirement age. The first consequence is an aged sector, in which the generation relief is not guaranteed.

Whereas aged workers have a huge experience and a deep know-how in the field, there are certain risks intimately

linked to age that can put in danger these workers, decreasing their physical, cognitive and organizational capacities.

- Machinery and road safety

According to the European Agency for Safety and Health at Work, agriculture is one of the most dangerous sectors in which refers to work accidents. Agricultural workers have an average rate 1.7 times higher non-fatal workplace accidents and a 3 times higher rate of fatal workplace accidents. Most of the occupational accidents in which it is the agricultural machinery involved is due to human failure.

This machinery can be: tractors, harvesters, mowers, crushers, brush cutters, balers, etc. Most fatal accidents are as a result of the tractor overturning. In Spain, there is an average of 70 fatal accidents with mortal victims due to tractor overturning.

3.2 Accident rate in Spain

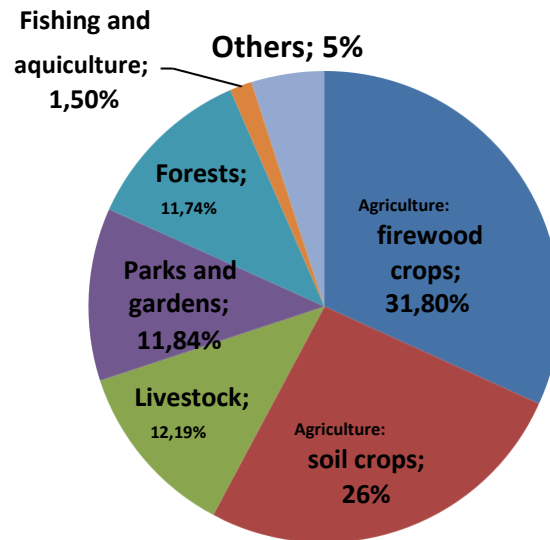
Agriculture and livestock are activities with high degrees of accidents, well above the average for other sectors. The most serious cases and deaths (59 victims in 2019) are just the tip of the iceberg. According to the report elaborated by the Spanish Ministry of Work, the number of accidents increased in 18% during 2019.

Recent studies reveal that between January and April 2020, 9.509 workers suffered an accident while working in agriculture, farming, forestry and fishing in Spain.

From January to October 2019 there have been 30.666 labor accidents in the primary sector. Of these, 382 were

serious and 43 were fatal. In other side, an indicator shows that in 2018 there were 5.297,9 accidents per 100.000 workers, well above the average of 3.408. Regarding the most serious cases, deaths, the incidence rate is 11,22 deaths, well above the 3,67 deaths for every 100.000 workers in all sectors.

Accidents in the primary sector with sickleave, during the working day and in itinere



Source: Ministry of Work, 2019

It is important to mention that only the 6% of fatal accidents

are classified as labor accidents, because many of them **involve elders and retired people**, who are not considered workers, and hence, forgotten by statistics.

Going back on time, in 2018 there where 35.400 accidents in the primary sector in Spain caused, principally, by overexertion of the musculoskeletal system, collisions with objects or machinery, cuts or blows against sharp elements and traffic accidents.

All these data reveal a very worrying reality that needs to be addressed through prevention campaigns.

4. References

- <http://www.hortoinfo.es/index.php/noticias-3/noticias/2860-prod-agr-ue-040117>
- <https://ec.europa.eu/eurostat/documents/53621/53703/Full-Publication%5BEN%5D-WO.pdf/6e90be02-c41e-43d6-87d4-68a4a7899ad1>
- https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farm_structure_statistics/es&oldid=442608
- <https://es.euronews.com/2020/03/13/una-mirada-a-la-agricultura-del-futuro-en-europa>
- <https://opendata.esri.es/datasets/superficie-agr%C3%ADcola-por-pais-uni%C3%B3n-europea>
- <https://www.eea.europa.eu/es/articles/la-agricultura-en-europa-como>
- https://www.hsa.ie/eng/Your_Industry/Agriculture_Forestry/Further_Information/Fatal_Accidents/
- https://www.ief.es/docs/destacados/publicaciones/papeles_trabajo/2013_13.pdf
- https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_008027/lang-en/index.htm
- <https://www.upa.es/upa/inicio/>
- <https://agri-preven.es/ap/>
- <https://www.upa.es/upa/noticias-upa/2020/3054/>