EU-OSHA review on the future of agriculture and OSH

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on behalf of ATB (DE), CIHEAM-IAMZ (ES/INT) and TEAGASC (IRL)

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Partners involved in preparing study

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John McNamara PhD – Teagasc (Irish Agriculture and Food Development Authority) - Teagasc National OSH Specialist Advisor and Adjunct Associate Professor (SACURIMA Vice-Chair)

Alun Jones – CIHEAM (International Centre for Advanced Agronomic Studies) – Director of International Projects & former EU-OSHA staff member (1997-2005)
Key aspects of the Study

Expert review on “main trends affecting agriculture, the resulting technological and organisational changes and the consequent implications for the health and safety of workers in the sector”.

1. **Key trends** affecting the agriculture sector in general.
2. Resulting **technological and organisational changes** to the sector.
3. **Occupational safety and health outcomes**.

**Sectors covered:** agriculture, horticulture/greenhouse activities, livestock farming and forestry.

Target audience: policy makers at EU and national level, incl. social partners, legislators and enforcement authorities, researchers and policy-makers in related areas.

Descriptions of initiatives undertaken in the Member States and knowledge gaps to help identify research priorities.

Deadline for completion – July 2020

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Project funded by the European Agency for Safety and Health at Work
OSH situation in agriculture

• Agriculture is a hazardous industry, great challenges in determining size of workforce and numbers of accidents at work.
• According to Eurostat, 4th highest sector in terms of fatal accidents.
• However, UK HSE and Irish HSA – both confirm top risk sector.
• Widespread under-reporting (16% - 90% - SACURIMA)
SACURIMA – EU COST action

Aim: cooperate to focus on gaining a better understanding of **safety culture** and **risk management** as preventive strategy in agriculture.

- Network dedicated to fostering interdisciplinary research and pooling scientific collaboration amongst over 30 countries.
- Evaluating health and safety programmes.
- Identifying **knowledge and attitudes** amongst farmers.
- Identifying training measures and developing indicators.
- [www.sacurima.eu](http://www.sacurima.eu)

Project funded by the European Agency for Safety and Health at Work
Most common causes of fatal accidents

Project funded by the European Agency for Safety and Health at Work

Most common causes of death

- Transportation accidents (being run over or overturning of vehicles).
- Falls from height (from trees, through roofs).
- Being struck by falling or moving objects (machinery, buildings, bales, tree trunks).
- Drowning (in water reservoirs, slurry tanks, grain silos)
- Handling livestock (attacked or crushed by animals, zoonotic diseases).
- Contact with machinery (unguarded moving parts).
- Entrapments (under collapsed structures).
- Electricity (electrocutions).

THE BENEFITS OF SMART AGRICULTURE

**Increased PRODUCTION**
Optimised planting, treatment application and harvesting improve yields.

**Real-Time Data and PRODUCTION INFORMATION**
Real-time access to information about sunlight intensity, soil moisture, markets, herd management and more provides for better and faster decisions by farmers.

**Better QUALITY**
Precise information about production processes and quality helps farmers adjust and increase the specificities of the products as well as nutritional values.

**Improved LIVESTOCK HEALTH**
Sensors can detect and prevent poor health in animals early on, reducing the need for treatment. Livestock management can also be improved through geofencing location tracking.

**Lower WATER CONSUMPTION**
Lower water consumption due to soil moisture sensors and more accurate weather forecasting.

**Lowered PRODUCTION COSTS**
Better resource efficiency through automated processes in crop and livestock management, leading to lower production costs.

**Accurate FARM AND FIELD EVALUATION**
Data about historical yields help farmers plan and predict future crop yields as well as the value of their land.

**Reduced ENVIRONMENT, ENERGY AND CLIMATE FOOTPRINT**
Increased resource efficiency reduces the environment and climate footprint of food production.
Project funded by the European Agency for Safety and Health at Work
1. Key trends and resulting changes - digitalisation of agriculture (smart farming)

• All forms of digitalisation will increase - resulting gains in agricultural productivity and reduced production costs.

• Smaller family farms gradually replaced by larger farms (increase in food produced by large entities).

• Significant reduction in jobs in the sector as manual and seasonal workers gradually replaced by more “e-skilled” and technologically versatile workforce.

• Uneven spread and lagging uptake of smart farming techniques.

• Less physical demands, improved ergonomics and smart safety mechanisms.

• More flexible work patterns and work-life balance improvements.

• Data security and cybersecurity challenges - “hacking” as an economic and safety threat.

• Increase in lone working and monotonous work as machines do most of the physical work.
OSH impacts - digitalisation of agriculture

• Improved ergonomics.
• Better machine and process safety – sensors, monitoring, decision-support systems.
• However, need for integration of OSH early on in product development.
• Monotony, boredom and stress.
• Potential to reduce pesticide and chemical exposures – smart application systems.
• Risk of “hacking” and personal data (GDPR)
• Improved monitoring of farmers – lone workers and GPS, personal alarms, health vitals monitoring (example of precision livestock monitoring).
• Increased monitoring by sensors (objects and physiological parameters) – however stress and ethical considerations.
2. Key trends and resulting changes – Labour market trends

- Farm population - Rural depopulation, ageing agricultural workforce, generational renewal - key challenges.
- Workforce has steadily declined, declining number of smaller family farms and larger more efficient agricultural holdings.
- Part-time work - pluri-activity – temporary/seasonal workers.
- Family work (94%) amongst which women who provide substantial labour input.
- Retirees (farmers above 65) make up a large proportion of the workforce.
- Long working hours also dominate the sector.
- Migrant workers contribute 4.3% of the EU agricultural workforce - lower than in other sectors, with the exception of ES (25% of agricultural workers), DK (20%) and IT (15%).
OSH impacts of labour market trends

- Older workers (higher OSH risk, reporting, health monitoring).
- Family members (reporting, health monitoring).
- Long working hours – with associated OSH risks.
- Structure of sector – Micro-entreprises – EU-OSHA on SMEs.
- Low level of unionisation (family farms) – role of social dialogue in OSH prevention strategies.

OSH determinants: lack of OSH culture, working retirees, atypical workers, incentives to report, inspection oversight and health monitoring, lone working, SMEs and family farms, etc.
3. Key trends and resulting changes – Climate change and environment

- Heat stress on farmers, animals and plants.
- Farmers will work differently with changing work patterns, e.g. during the night and at different times of year (changing seasonality) adding to job insecurity through unpredictability.
- Extreme weather events such as droughts, heatwaves, heavy rain, floods and gales.
- Expansion of fire-prone areas and longer fire seasons are projected in most EU regions.
- Reduced use of other chemicals such as fertilizers (environmental protection).
- EU reduction of pesticide use - Sustainable Use Directive (SUD) and Integrated Pest Management (IPM):
  1. manual de-weeding (MSD risk?)
  2. performed by robots/drones? (less MSD risk)
  3. more insect-borne disease
OSH impacts from climate change and environment

- Natural disasters, extreme weather, forest fires – increased civil protection risks.
- Heat stress on farmers (alternative working patterns).
- Sun/UV exposure – skin cancer.
- Increased incidence of zoonotic diseases – particularly vector-borne diseases.
- Pesticides, chemicals – volatility of chemicals under high temperatures and use of PPP.
- Increased dryness and dust exposure.
- Integrated Pest Management (IPM) practices – more manual de-weeding.
- Green jobs (pluri-activity) – multiple risks.
4. Health determinants and holistic health concepts

General health background: More than half of farmers report MSDs, over 15% report exposure to skin and respiratory diseases, over 20% suffer from noise exposure & more than 40% suffer from excessive work pace (EU, 2004).

- Heat stress, sun exposure.
- Pesticides use – increased use of pesticides despite IPM (Sustainable Use Directive).
- MSDs (increasing IPM).
- Zoonotic diseases – Bird flu, vector-borne, anti-microbial resistance.
- Stress and psychosocial risks – sectoral suicide rates amongst highest in a number of countries.

Health status of self-employed workers across Europe largely unknown – In Ireland farmers have been shown to have higher levels of Cardiovascular Disease (CVD) and Cancers, than other occupational groups.
4. Health determinants (holistic health concepts)

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- Heat stress, sun exposure
- Pesticides use – increased use of pesticides despite IPM (Sustainable Use Directive)
- MSDs
- IPM – MSD risks
- Zoonotic diseases – Bird flu, vector-borne, anti-microbial resistance,
- Stress and psychosocial risks – sectoral suicide rates amongst highest in a number of countries

Figure 6: Share of workers (%) with a limiting chronic disease, by occupation and education, EU, 2015
Prevention culture in farming

• Resistance to change: Farmers value freedom and autonomy & reluctant to change.
• Tendency to value first-hand experience, knowledge and practices passed down through generations - if always worked then carry on in same way despite risk.
• Information provided by family, friends and trusted professionals is relied on to a far greater extent than information provided by ‘outsiders’.
• Dominant masculine culture similar to other high-risk sectors with increased overconfidence and risk-taking (Nielsen, 2015).
• Pervading sense of fatalism (i.e. accidents will happen), as with other high-risk areas. Farmers can see themselves as invincible.
• Occupational health is seen as a personal and private matter by many farmers.
• However, examples of change over time through agricultural extension support.
Role of EU-OSHA Focal Points

- Consortium has strong links with farming OSH entities in many countries through ISSA Agriculture group and SACURIMA (see list).
- Good links to EU sectoral dialogue committee on agriculture, EU farm advisory network, ILO, and non-EU MS (USA, Canada, Australia).
- Nevertheless, information and resources on farm safety are dispersed and limited.

Focal Points can provide support:
- Enable active engagement of national agri-OSH counterparts in the study.
- Provide inputs and direction on OSH challenges.
- **Sourcing of solutions (good practices, interventions, etc).**
- Cross-fertilisation between general OSH and agri-OSH experts at national level.