PROGRAM:	**ERASMUS+**
ACTION / SUBPROGRAM:	**Key Action 2 / Strategic Partnerships**
PROJECT TITLE:	**"OSH+ for the European Agriculture sector - Stimulating growth in rural areas through capacity building for providers (and beneficiaries) of occupational medicine and OSH services"**
Intellectual Output :	**O4 – Course 1-Safety Experts – Training Materials – Case Study 3**

AGROSH+

C3 / Training Course for Safety Experts in Agriculture

CASE STUDY 3 – Fish farm

Romania

CONTENT

HOW THE CASE STUDIES WILL BE USED

Main features of the Case Studies

There will be five (5) Case Studies, namely two (2) from Romania, one (1) from Bulgaria, one (1) from Greece, and one (1) from Ireland).

Each one of these Case Studies will have to be designed, developed and documented based on an existing company, located in each of the countries mentioned above, working in the Agriculture economic sector, in any of the economic sub-sectors which are usually part of agriculture, namely:

- Aquaculture,
- Beekeeping – apiculture,
- Mollusk farming,
- Pisciculture (fish farming),
- Sericulture,
- Animal husbandry – Aviculture (poultry farming),
- Animal husbandry – Cattle,
- Animal husbandry – Sheep farming,
- Animal husbandry – pig farming,
- Horticulture,
- Forestry (Silviculture).

One of the main roles of the Case Studies is to serve as a “host” for collective exercises part of the training course for safety experts. Therefore due to pedagogical reasons there will be one (1) collective exercise based on each of the Case Studies, hence there will be 5 collective exercises. Each of these collective exercises will actually consist of multiple tasks assigned to the 3 groups of trainees that will attend the training course for safety experts; the reasoning behind this split/allocation of trainees in 3 groups is purely pedagogical, the overall number of trainees (15-20) will be split in smaller groups (5-7 trainees per group) so as to favor practical group work. Therefore it is necessary that the information provided for each Case Study is reach enough so as to inform the collective exercises. This could mean as well that some of the data within each Case Study will have to be made up so as to feed the various aspects of the collective exercises.

Roles and uses of the Case Studies

The five (5) Case Studies which are going to be developed are having mainly two very different roles.

1. Their first role is to be part of the second training course to be developed under the AGROSH+ project, namely the Training Course for Safety Experts providing services to companies in agriculture, are going to be part of the training materials of this training course. Therefore they should be considered as pedagogical material on which 5 collective exercises are going to be developed for the trainees which will attend the Training Course for Safety Experts.
2. On the other hand these five (5) Case Studies will also be a part of the Intellectual Output 10 "Guideline OSH". Therefore their second role is to display features of Models of Good Practice in terms of preventative actions (related to both health and safety) taking place in companies within the agriculture economic sector. Therefore these Case Studies should be structured similarly, should definitely propose sound preventive programs, hence they should have a marketing / communication approach.

It is however obvious that for each of the five (5) Case Studies there will be two different versions, each one serving the purpose of fulfilling the two roles these Case Studies have, namely:

1. An extended version, rich in information, even enclosing "made up" sections of text (so as to better accommodate collective exercises).
2. A shorter version, more marketing oriented, to be agreed with the companies themselves, so as to be published in the "Guideline for OSH in Agriculture".

Objectives of the Case Study

Each of the five (5) Case Studies will have to achieve the following objectives:

1) To provide enough background information so as each one of the Case Studies serves as the basis for a complex, comprehensive, and multiple-tasked collective exercise;
2) To provide enough information regarding the employees (and all related Human Resources matters) so as the Case Studies are well articulated on the companies' workforce;
3) To provide enough information on all the hazards and risks, aiming to describe the applicable situation of the particular company for each of the risk factors categories

(physical, chemical, ergonomic, biological, and psycho-social ones); Particular information needs to be given to each of these hazards/risks since they have the potential to be one of the richest sources of material and data for the Case Studies;

4) To provide enough information for existing or planned preventive programs and initiatives hosted in the company;
5) To be developed using the template provided further on in this document, so as an acceptable level of comparability between the 5 Case Studies is achieved, facilitating therefore the process of developing three (3) collective exercises for each of the Case Studies;

What additional resources should be made available together with the Case Study

For each of the Case Studies there is necessary to provide multiple categories of data, of which some could be already available at the moment of the visit of the AGROSH+ project partner at the company, while some data will need to be gathered with the occasion of the visit/s. These categories of data could be the following (without being limited to them):

- Risk Assessment reports;
- Health Reports;
- Any other types of analysis reports concerning the workforce, or the working conditions (risk factors, etc.), ergonomics analysis, etc.;
- Pictures and videos displaying the working conditions (however respecting the privacy rules decided by the company);

CASE STUDIES – TROUT FARM

Introduction

Romania's market in terms of fish farming is at a constant growth over the last decade. There is also a growing need for naturally bred and reared fish, as well as fed with ecological nourishment. The case study chosen to be analyzed in terms of health and safety legislation and risk assessment procedure consists of 2 types of jobs in a fish farm (trout breeding): material handler (forklift driver) and farmer (fish breeder).

This trout breeding farm is a family owned company located in Romania's *** County, 10 km North-East from Huedin, began its activity in 2005 and raised standards up to being the biggest and most modern farm of this type in Eastern Europe. The maximum production capacity of *** Trout Farm is over 41 tons of fish per month, most of which reaches the shelves of 3 popular hypermarket chains. One of the most important achievements for this farm is the ability to use the 4 natural springs located on the farm's site. The potential of those springs is utilized at maximum. The water is very clear and clean (0 nitrites), has constant flow and temperature (10.5^{o}C both in summer and winter), is rich in minerals and is perfect for breeding salmonids.

A very concise description of this fish farming production process is as follows: spawn (fish eggs) is bought from Denmark and placed in the "maternity" where it stays for minimum 2 months, then it hatches into an intermediate water tank where the young fishes are fed ecological food, after another 2 months they are transferred into outer pools that imitate a river ecosystem, where they mature for around 1-1.5 years, after which they are sacrificed and transferred to the packaging area.

General features of the company

Name of the company	*** SRL, MIDWEST, ROMANIA
Type of the company (LLC, etc.)	Limited Liability Company
Is the company a branch of a larger corporation	Not a corporation. Family owned business (one location) with 2 associates upgraded with EU funds.
Address of the company	No. 98 ***, Romania
Types of accreditations & certifications the company has (ISO for Quality, for OSH, for Environment, others)	HACCP ISO 22000:2005 (IFS-HPC)

Figure 1. Trout Farm Panorama (© *** *** SRL)

Human Resources related data

Total number of employees	29
Breakdown of employees per age / Less than 18 / 18-55 / older than 55	0 / 26(89%) / 3(11%)
Breakdown of employees per gender / Male-Female	56% male / 44% female employees
Other relevant Human Resources related data: number of employees with disabilities, number of employees known to be suffering of chronic diseases & taking daily medication, etc.	No employees with disabilities Few employees with chronic diseases
Types of personnel per profession / specialization	Administrator (owner) – Q Business Development Manager – Q Sales Manager – Q Quality Personnel – Q Production Personnel (breeder/farmer, packer, packing operator) – NQ Maintenance Technicians – Q Forklift Drivers – Q *Q – Qualified NQ – Non-qualified

Working time / Night shifts / Irregular work (seasonal work, temporary workers for some peculiar operations like in vineyards, etc.)	3 shifts production (3x8h/day, 5 days/week) – breeding, quality checks, packing and packaging, offline personnel (support departments). 4 shifts supervision (3x8h/day, 7 days/week) – breeding and feeding (1 person from production department in 4 shifts). Types of shifts: night shifts, weekend shifts, bank holidays shifts, continuous process of supervision.
Absenteeism data (medical absenteeism, not-justified absenteeism)	N/A

Economic sector and sub-sector in which the company works / types of operations, of equipment and of professions within the company

Economic sector and sub-sector in which the company is working / Agriculture / Any of the following subsectors (Aquaculture, Beekeeping – apiculture, Mollusk farming, Pisciculture (fish farming), Sericulture, Animal husbandry – Aviculture (poultry farming), Animal husbandry – Cattle, Animal husbandry – Sheep farming, Animal husbandry – pig farming, Horticulture, Forestry (Silviculture)	CAEN 0322 – Aquaculture in fresh water - Breeding and rearing of fish, including ornamental fish - Activities which involve the use of spawn (caviar)
NACE codes held by the company	A3.2.2 – Freshwater aquaculture C10.2.0 – Processing and preserving of fish, crustaceans and mollusks G46.3.8 – Wholesale of other food, including fish, crustaceans and mollusks
Main administrative divisions of the company (departments, productive areas, offices, etc.)	Administrative/Sales Department Quality Department Production Department
Number of employees per administrative	4 administrative (offline)

divisions	25 production (online)
Most important operations & working processes performed by the company (per administrative division if it is relevant only) For each of these operations the seasonal / time dependence should be given, should it be relevant	Administrative/Sales Department: - Marketing and client contracting - Raw and packaging materials ordering - Legal compliance - Production planning - Delivery ordering Quality: - Following quality management system - Performing QA checks on raw/pack - Performing QA checks on product Production department: - Raw/pack delivering - Spawn sorting - Fish/spawn transferring - Fish feeding - Packaging operating - Maintenance
Most important pieces of equipment / tools / instruments used by the company for performing its operations	*some cannot be described in detail – company's own patents in packaging department - Automatic gutter - Vacuum packer - Fish scrap remover - Outer pools
Most important professions of the employees performing the operations of the company, peculiar areas of expertise they possess (should this be applicable or relevant)	- Administrative lawyer (Business Development Manager). - Mechanic or mechanical engineer (Shift and Team Leaders). - Forklift driver

Figure 2. Trout Farm Overview (© *** *** SRL)

Figure 3. Spawn after unboxing and unpacking. They come in refrigerated trays from Denmark. (© *** *** SRL)

Figure 4. Spawn breeding. Spawn is placed into water lids and bred in treated water, rich in nutrients. (© *** *** SRL)

Figure 5. Intermediate water tanks in which baby trout is bred. (© *** *** SRL)

Figure 6. Outer water pools (vortexes) where adult fish is aged. (© *** *** SRL)

Figure 7. Processed fillet trout, after packaging department. (© *** *** SRL)

Figure 8. Processed fillet trout, manually handled on tray trolleys. (© *** *** SRL)

Figure 9. Quality check demonstration on trout fillet, aspect, colour and thickness. (© *** *** SRL)

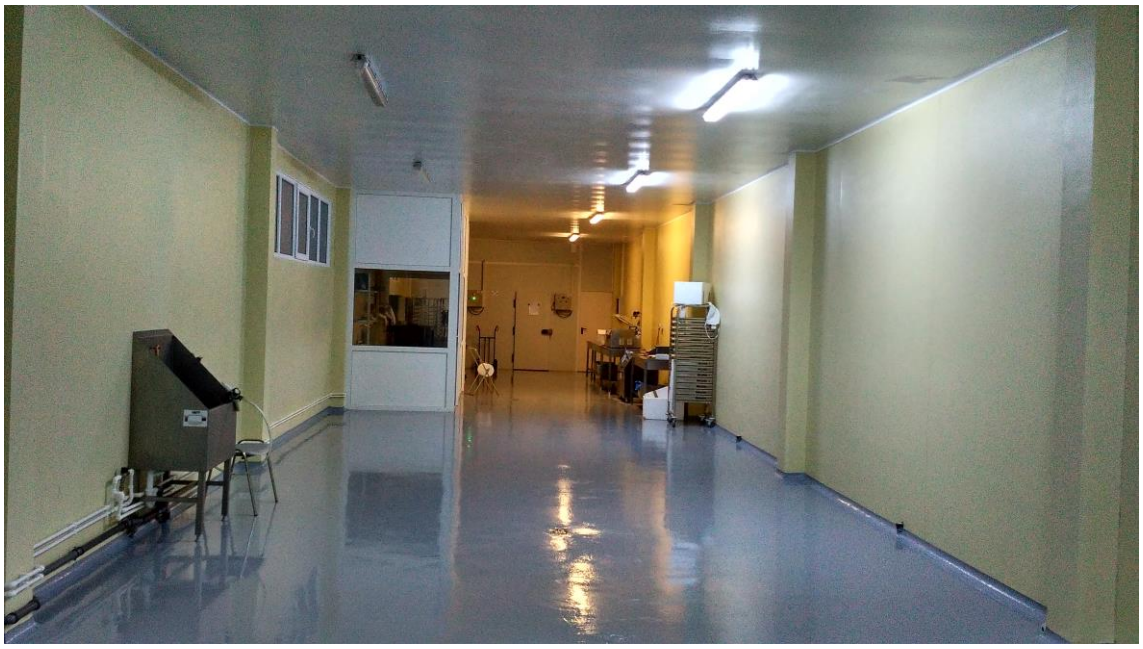

Figure 10. Quality laboratory entrance, separated. (© *** *** SRL)

Description of the OSH

How is OSH managed (internal service / external service / both)	Internal service with 1 worker assigned with OSH responsibilities, besides owner
Is there an OSH committee set up (give details)	No OSH committee. In Romania, OSH committee is mandatory for companies with over 50 employees.
Are there employees 'representatives in the OSH committee (give details)	1 employee representative (required by law) chosen through voting once every 2 years
Number of work-related accidents (LTI = Lost Time Injuries) / Number of fatalities / Number of First Aid Cases / Number of near misses	No fatalities/accidents (LTI)/injuries at work No first aid events Near misses and other incidents (which didn't result in harm or damage) are not documented, but solved on the spot.
When has the last comprehensive Risk Assessment been performed / What method of Risk Assessment was used (please PROVIDE DETAILS as to what measurements were made, who did them, how, etc.)	Last Risk Assessment (RA) performed in 2017. INCDPM Method performed by external risk evaluator, OSH worker and owner, team which performed the risk assessment. Procedures:

	- Defining risk exposure template - Describing work process - Defining production items - Describing the type of work - Describing the work environment - Risk factors identification – work (mechanical, thermal, electrical, chemical) - Risk factors identification – environment (physical) - Risk factors identification – job (physical and psychical stress) - Personnel risk factors identification - Risk evaluation - Risk factors analysis - Action plan/measures identification - Risk assessment evaluation - Risk assessment continuity
Which are the most relevant hazards and risks which have been assessed in the company? Please be VERY exhaustive here and provide details per each category/sub-category of hazards and risks:	*the most important are described below, detailed risk analysis in .pdf file*
Chemical risks (types) - please provide details How many employees and what professions are exposed to this risk category	- Asphyxiation or intoxication with methane or CO. These gases are used in cleaning UV treatment unit which purifies fresh water. - Work with combustible liquids and materials. Handling all raw and packaging materials consisting of paper, cardboard, wood, plastic, fuel for fire pumps etc. 3 professions are heavily exposed to this risk (administrative, farmer, quality assistant), around 20 workers.
Physical risks (temperatures, noise, light, air, electricity, etc.) - please provide details How many employees and what professions are exposed to this risk category	- Low temperature during the winter and high during summer: around half of the process is performed outside, thus, rearing of matured fish is impacted by the outer temperature in terms of risks to employees.

	- Noise inside farm hall (due to packaging equipment, water filtration, purification, outside farm due to trucks, cisterns that unload materials. Mechanical risks: - Equipment moving parts accident - Fall at ground level - Fall from height - Objects falling from height - Cut/sting due to wrong tool handling Electrical risk: - Electrocution Process/operation failure hazards: - Operation without training - Handling heavy automated equipment - Drowning in tanks or pools - Material handling (with lifting equipment) 2 professions are heavily exposed to this risk (farmer, forklift driver), around 12 workers, plus contractors (drivers, delivery etc.).
Biological risks-please provide details - please provide details How many employees and what professions are exposed to this risk category	- Viruses, microorganisms, or other pathological agents coming from possible contaminated water, other infected persons or A/C filters. All professions, all personnel are exposed to this risk, 29 employees, plus contractors (drivers, delivery etc.).
Ergonomic risks - please provide details How many employees and what professions are exposed to this risk category	- Manual material handling (operation failure, happening when personnel is not respecting ergonomics when handling heavy objects) All professions, all personnel are exposed to this risk, 29 employees, plus contractors (drivers, delivery etc.).
Psycho-social risks-please provide details -	- Heavy workload, work rhythm

please provide details How many employees and what professions are exposed to this risk category	- Concentration and attention - Working under heavy stress - Repetitive actions All professions, all personnel are exposed to this risk, 29 employees, plus contractors (drivers, delivery etc.).
Are safety induction information sessions being offered regularly to employees (provide details who is doing them, how often, what topics are usually approached, are there additional materials being used)	Safety inductions are performed: - For every new employee (min. 2 hours of introductive training) - Annually for all employees - For every standard operating procedure for all employees whenever the process changes Safety inductions are performed by the owner, OSH representative or external company. Materials used: safety introductive training (PPTs), standard operating procedures, other trainings (hearing protection, ergonomics, first aid trainings etc.).
Any other information & preventive OSH programs / projects / actions / initiatives organized in the company Please provide details concerning: Topic of the OSH preventive program; Target Group of the OSH preventive program (whole company/department); General objective of the OSH preventive program; Specific objectives of the OSH preventive program; Activities of the OSH preventive program; Results of the OSH preventive program; Dissemination materials produced as part of the	Preventive program: - Regularly updating standard operating procedures, risk assessments, preventive and protective plan. - Managing changes and obtaining all necessary approvals - Updating PPE registry - Regularly updating warning signs - Regularly replacing used PPE or when necessary. OSH preventive program targets whole company. General objective, target and plan of the OSH preventive program are to register 0 accidents at Work Inspectorate (0 accidents resulting in more than 3 days of work lost time). Result from 2015 to present: zero work related accidents.

OSH preventive program (factsheets, posters, brochures, guidelines, videos, movies, etc.);	Specific activities: - Evacuation drills and emergency scenarios, first aid trainings performed once every 2 years. - 100% all employees to be retrained in terms of OSH every year.

Figure 11. Trout processing - preparing for gutting. (© *** *** SRL)

Figure 12. Trout processing - preparing for cutting leftovers. (© *** *** SRL)

Figure 13. Trout packaging example - vacuumed bag. (© *** *** SRL)

Figure 14. Fish food storage - controlled temperature. (© *** *** SRL)

Figure 15. Spawn breeding. (© *** *** SRL)

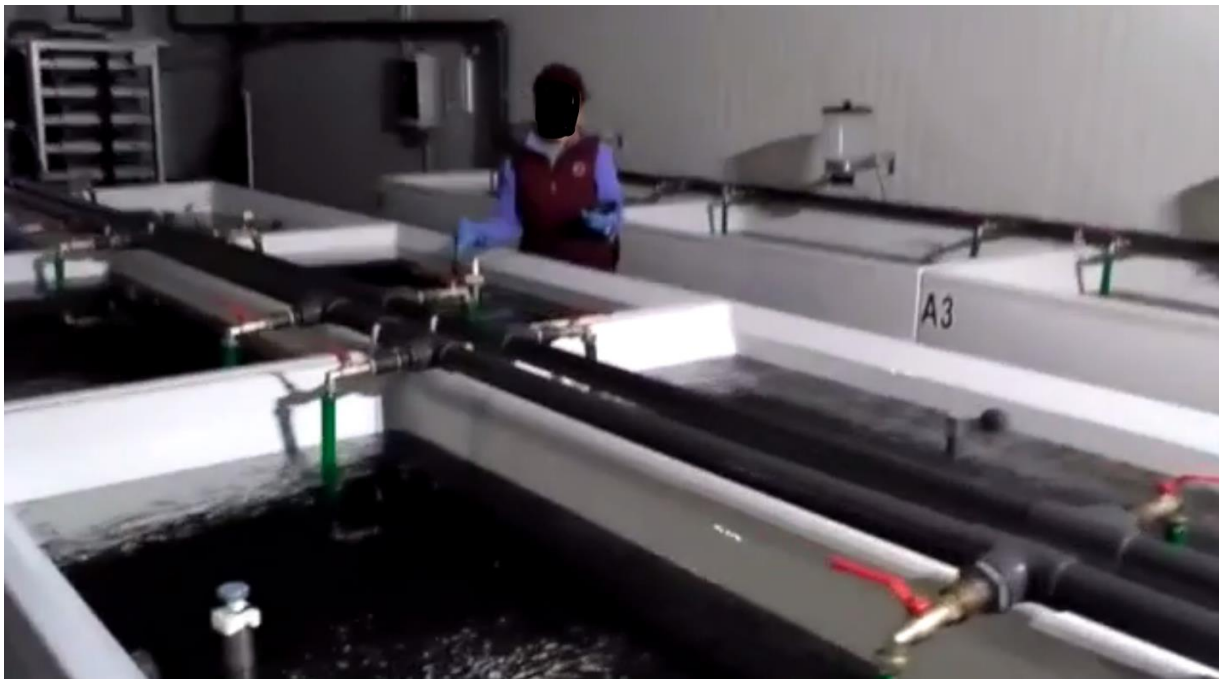

Figure 16. Taking water sample from spawn maternity. (© *** *** SRL)

Figure 17. Sacrificing fish in electric bin. (© *** *** SRL)

Figure 18. Transferring fish in barrel to be transported to processing. (© *** *** SRL)

Figure 19. Loading fish in automatic cutter. (© *** *** SRL)

Figure 20. Trout processing - removal of extremities. (© *** *** SRL)

Figure 21. Transferring fish to gutting. (© *** *** SRL)

Figure 22. Semi-automatic gutter. (© *** *** SRL)

Figure 23. Packaging - vacuum chamber. (© *** *** SRL)

Description of the occupational medicine services

How are the occupational medicine services managed (provide details: is it an independent office of occupational medicine, a clinic, a large provider of occupational medicine services, etc.)	Contract with local clinic (private) which performs legal occupational medical examinations to all employees.
Is there medical staff (doctor or nurse or hygienist) on the company premises / Is there a medical office on the company premises / Are there First Aid boxes on the company premises	No medical staff. First aid kits throughout the farm and a team of 4 first aiders.
Number & type of occupational diseases diagnosed in the company / Number & type if work related diseases diagnosed in the company	N/A.
Pre-employment & Regular medical check-ups	Pre-employment & annual medical examinations. - Anamnesis and occupational history - Clinical examination - Allergy history - Audiometry - Vision exam - Spirometry

	- ECG
Are health information sessions being offered regularly to employees (provide details who is doing them, how often, what topics are usually approached, are there additional materials being used)	Information is available at clinic. Health is also reinforced through boards, info displays etc.
Any other Occupational Medicine & Workplace Health Promotion programs / projects / actions / initiatives organized in the company (provide details)	HACCP ISO 22000:2005 (IFS-HPC) food quality management system has a chapter that contains health and safety consisting of maintaining a management system in terms of health, safety and environment, following a HSE program, with defined long term actions with annual update.
Any other preventive actions performed in the company	Inspections from authorities.

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