Agri-Form: An Innovative Training Model for Safety in the Agriculture and Forestry Sector

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Abstract

The following work offers and proposes the methodological foundations to develop a proactive and specific training model for the needs of the agricultural sector. The model was developed from a stage of gathering of information regarding the needs in the agricultural sector and adding to this what legal obligations which define a road map that can provide an efficient training programme for safety at work. After 2 years of experimentation the results achieved enable the model to be validated and also transferred and extended to similar sectors such as fishing and forestry.

Keywords: Course, Safety, Training
1 Introduction and state of the art

The regulations and laws that regard occupational health and safety have undergone many changes over the last few years. The most significant change was that of the introduction and enactment of Law Decree 81/08 in 2008 (which replaced the previous Decree 626/94) which is enforced in all work places where there is at least one employee.

Amongst the various important requirements and obligations is the role of information, and training workers. With regard to the above mentioned is the implementation of the two Regional-State Agreements of 21 December 2011 that regulate the duration, basic contents, the training method of the employer and employees, managers and supervisors. The employer has the obligation to provide employees with correct information and the risks connected to the work and tasks carried out and regarding the safety and protection measures implemented.

Training must always be carried out in the event of:

a) hiring/employment
b) transfer or change in tasks
c) introduction of new work equipment/machinery or technology, new materials or dangerous substances.

The agreement foresees two types of training:

a) general training: the same for all businesses
b) specific training: identified on the basis of risk (low, medium, high) and established for each macro-typology and according to the classification of the business ATECO 2002-2007.

With regard to the agricultural sector, the risk coefficient is set as “medium”. As a result of this level, all workers have to undergo compulsory training that is divided into two parts. The first is general and has a duration of 4 hours and the second is specific for the agricultural sector and lasts 8 hours.

With regards to the license to use equipment, Article 73 of Law decree 81/03 states the obligations, and training required. Furthermore, comma 5 states that for certain equipment, identified at the State-Region Conference (see document 22/02/2012), qualification and recognition of the qualification, trainers, subjects and minimum requirements regarding effectiveness of training are required. Amongst the equipment and machinery identified in the agreement is the wheel or caterpillar type tractor used in agriculture and forestry. This training is considered specific and therefore does not exempt workers from following compulsory training programs.

Although the legislative framework is complete, it is complex. In fact the legislation is difficult to implement in the agricultural and forestry sector in that, unlike other sectors, these work environments have many elements of variability.

These elements are:

1) the seasonal variation of the work carried out, where the main “uncontrollable” event is the weather. [1]
2) agricultural and forestry work is split into several small businesses and run by families
3) particular characteristics of the places where work is carried out (open and closed spaces) [2] [4]
4) many workers are hired on contract work (on-call contracts, payment by vouchers etc.)

**Figure 1 – Analysis of frequency of training**

**Figure 2 – Topics and subjects dealt with in training on a sample of 208 companies**
Many studies have highlighted the macro-criticalities in the training area. For example, lack of regular training periods for workers and even basic training for these workers. Training is seen as a cost, waste of time and too general in terms of the work carried out. [5]

Furthermore, as can be seen in Diagram 2 (which shows the topics covered in training in the agricultural sector) some topics which are extremely important such as moving loads, tasks and risks are dealt with poorly and with a scarce frequency. [7] [8]

As can be seen in Diagram 3, implementation of course contents by sample companies did not give objective results. 68% of employers that were trained chose inadequate PPE with regard to tasks to be carried out.

It is clear that training in occupational safety needs to be planned and regulated in the agricultural and forestry sector by implementing specific training models that propose innovative solutions for agricultural workers.

2 The methodology used and applied and the analysis of results of the proposed and experimented model

In order to meet these needs, CEFAP, the University of Udine and the University of Tuscia developed a working procedure that aims at creating ad hoc training programs with the purpose to maximize the existence of on the job training, which is practical and involves a homogeneous group of students.
### Table 1 – Working procedure: aspects of the system-minimum conditions

The objectives of the protocol are:

1. to define a proactive and specifically innovative model for agriculture that takes into account special features of the sector.
2. experimentation of new training methods on farms and on-line for “structured” workers.
<table>
<thead>
<tr>
<th>Area</th>
<th>General conditions</th>
<th>Specific elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training strategies</td>
<td>Contextualise and customise</td>
<td>- Plan specific training units for agricultural sector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Carry out “ongoing planning”</td>
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<td></td>
<td></td>
<td>- Adapt to flexibility</td>
</tr>
<tr>
<td>Tools</td>
<td>Integrate and innovate</td>
<td>- Predict training and guidance activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Support classroom activities with distance learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Use experiential learning tools</td>
</tr>
<tr>
<td>Approach to learners</td>
<td>Contextualise and customise</td>
<td>- Motivate (meet specific needs)</td>
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<td></td>
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<td>- Encourage a competence based approach</td>
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<tr>
<td></td>
<td></td>
<td>- Allow participation</td>
</tr>
<tr>
<td>Professional profiles</td>
<td>Oversee learning</td>
<td>- Tutorship</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Coaching</td>
</tr>
</tbody>
</table>

Table 2 – Training model: methodology-minimum conditions

Figure 4 – Targets and specific sectors
As can be seen in tree diagram 4, the methodology identified specific and predefined sectors and targets.

As can be seen in the chart, for each variable a detailed description of training methods, a simplified approach for workers with low profile jobs, a management approach for businessmen in the wine industry have been dealt with. Furthermore characteristics of the kind of teacher required for the target group and sector were also dealt with.

CEFAP, the University of Udine, The University of Tuscia have created an “information point” to inform companies on the current legal obligations in order to implement these obligations.

In addition, awareness raising events and seminars for companies were organized. These involved University professionals and Health sector experts and also direct participation of Agricultural associations (Coldiretti, Cia, Confagricoltura, Aibo and AAFVG).

There are 3 stages in the model:

1) identification of targets and sectors

2) create specialized trainers in the field of Agricultural Safety and Health. The trainers participated in multidisciplinary training where they shared experiences in teaching methods in the classroom, communication approaches and developed teaching material and formats of the tests that are shared.

<table>
<thead>
<tr>
<th>Module</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal references</td>
<td>Outline of course, structure and aims of training</td>
</tr>
<tr>
<td></td>
<td>Criteria for the qualification of the trainer for safety</td>
</tr>
<tr>
<td></td>
<td>Training and provision of information to prevent risks and for job safety. Legal framework and references related to safety in the Agriculture and Forestry sector.</td>
</tr>
<tr>
<td>Theory and practice in adult learning</td>
<td>Adult learning and multidisciplinary approach for training</td>
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<tr>
<td></td>
<td>The role of the trainer in learning stages</td>
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<tr>
<td></td>
<td>Trainer's Techniques and tools and their use in reaching training goals</td>
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<tr>
<td></td>
<td>Multimedia and e-learning tool management</td>
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<td></td>
<td>Analysis and assessment of the different teaching methods (group work, roleplay, case studies etc..)</td>
</tr>
<tr>
<td></td>
<td>Workshops on the online training methods</td>
</tr>
</tbody>
</table>
Communicating about risks: methodology and strategies

Management of relationships with participants: communication style and function. Boundaries and obstacles to listening and reception. Public speaking: skills required, stress and anxiety management techniques of trainers.

Trainings process and stages: training needs analysis, planning, carrying out evaluation of effectiveness.

Planning and design of training units: planning and design workshop of training for safety at work, develop training material, final tests, practice exercises.

Final test: simulation of a lesson

<table>
<thead>
<tr>
<th>Area</th>
<th>General conditions</th>
<th>Specific elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project team</td>
<td>Shared work</td>
<td>- Set up and formalization of a job network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Define environment for each participant</td>
</tr>
<tr>
<td>Support activities</td>
<td>Train the trainers</td>
<td>- take on a training method which is consistent with teaching introduced</td>
</tr>
<tr>
<td>Support activities</td>
<td>Teaching /training material</td>
<td>- develop ad hoc training and teaching materials and tools</td>
</tr>
</tbody>
</table>

Table 3 – Training module programme for trainers

The development of specific teaching and training resources and material which may also include multimedia. In particular: software that can support agriculture/forestry entrepreneurs to help identify obligations required according to the analysis of the business’s situation, a practical guide for entrepreneurs, a manual outlining safety procedures regarding driving wheel agriculture and forestry tractors.

Table 4 – Organizational aspect: minimum conditions

The training model was experimented from 2013 to 2014 during a series of courses carried out by CEFAP and with the collaboration of employer associations.
Table 5 – Sample on which model was tested

![GENDER](image1)
![AGE](image2)
![TYPE OF WORK CONTRACT](image3)
![EDUCATIONAL QUALIFICATION](image4)

Figure 5 – Characteristics of the sample where the model was tested

The following describes some summarized details of the results achieved.

In order to highlight the results of the model a diagram which describes the evaluation of the quality of training and user satisfaction has been used.

![QUALITY EVALUATION OF TRAINERS](image5)

Figure 6 – Quality evaluation of trainers
Conclusions

The research study and project developed a methodology that was able to streamline a training model. The proposed model defines some priorities and are summarized in the following road map:

- the need to program and plan courses in very specific fields such as safety at work (in addition to the programmes foreseen by law)
- codifying and analysis of training targets and profiles
- contextualization for each sector by identifying a model (different to normal courses where there are rigid structures and are centred on general laws)
- identification and definition of levels of knowledge and competences of trainers (training the trainer)
- Conferment of scores for each trainer based on knowledge of the field
- Development of technical sectors run by sector experts
- Dissemination of the model in info points through awareness raising

Given that the study has regional and local validity it has as a final objective to discover whether the model has helped reduce accidents at work. A preliminary evaluation has given positive results with regard to the following topics that were dealt with during training:

- Adaptation of machinery (increase quantity machinery by 15%)
- Increase in the request for updating of formal aspect (Risk Assessment Document)
- Increase in training in the agricultural sector even for training courses of supervisors or RIs (+20%)

In conclusion, only by adopting a dynamic and contextualized model is it possible to have objective results in the productive area.

References


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