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OPTIMISING OF THE SAFETY AND HEALTH SYSTEMS AT WORK SPECIFIC TO THE SME IN AGRICULTURE

Doctorate Thesis – Resume

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THE IMPORTANCE AND THE NECESITY OF THE THEME. THE OBJECTIVES OF THE THESIS.

The agricultural exploitation companies are categorized, most of them, in the category of the micro companies or the commercial companies and more seldom in middle or big size.

The specificity of the agricultural activities imposes a particular treatment of the management systems for security and health in work areas and of the evaluation of the risk factors.

The research has had considerations over multiple target stages:

- The knowledge of the problems with whom these companies are dealing with
- Evaluation of the risk factors
- Proposal of technical and organizational solutions regarding the decrease of the risks and improvement of the security and health in work systems (SSSM).

In the studies which were executed the premise was to start from the attitude of the employees towards the activity they are performing and from the way that they are respecting written and unwritten rules of work security and health. The obtained knowledge by means of applied research has been used for the development of a security and work health system which is optimal, and valid for this type of companies.

The base of the research was the knowledge, the hierarchy and selection of the factors which are influencing/determining de work security and health conditions by the employees.

The main objective of this work is *the optimization of the work safety and health systems (SSSM) of the SME from the agricultural area*, by means of comparative analysis and collaborative integration of the results.

From the main objective are resulting following secondary objectives:

1. The analysis of the specific elements of the SSSM linked with the legislative requests
2. Establishing a link between specific elements of the SSSM
3. Identification of the factors and essential causes
4. Ensuring the statistical relevance and feasibility of the results
5. Establishing of some optimization elements based on the links between the elements of the system

1. ANALYSIS OF THE ACTUAL STATUS OF THE SYSTEMS FOR WORK SAFETY AND HEALTH (SSSM)

1.1. The system for work safety and health (SSSM)

By law, the work safety and health are being defined as *the ensemble of institutionalized activities with the purpose of ensuring the best conditions in the development of the work process, defense of life, of physical integrity and psychological, of the health of the workers and other persons participating in the work process.*

The main objectives of the work safety and health are:

- To promote and to maintain at the highest degree of physical, mental and social well-being of the workers, no matter what their occupation is
- To prevent worker migration because of working conditions
- To protect the workers from the risks of accidents and professional sickness
- The implementation and maintenance of the workers in a working environment which is always adapted to the psychological and psychosocial capacities of them

Approached in an integrated fashion, based on the organized operations, the importance of the risk management has risen in the last years. Such an approach has reduced the frequency of accidents and has increased the productivity and economic performance of the company. Never the less, less importance was given to the definition of the components of a system of management for the work health and safety. For the moment, such a concept has not been defined in a unitary fashion, and, as a consequence, has not been yet operationalized.

One can draw the conclusion that the management system of the SSM is the equivalent of a systematic process, explicit and comprehensive for the management of the accidents dangers and professional sickness, which like other management systems, supplies instruments for the establishment of objectives, planning and measuring of performances.

Through a systemic approach of the work safety and health we contribute to the conformation of the organization to the legal requests, the standards and internal requests of the organization. Simultaneous it is being ensured the knowledge of all the employees of the proper way of fulfilling the requests and obligations.

1.2. The legal concept regarding the work safety and health

By means of Constitution, according to the article 41, Ch. (2), the workers have a guaranteed right to measures of social protection regarding work safety and health. As a first follow up document, the Law Nr. 319/2006 of the work safety and health, defines next to the obligations of the employers and the workers, the framework on which the system of work safety management must be built upon.

Secondary legislation (including all the methodological norms for appliance of the law, the minimum safety requirements, standards and other legal definitions), are forming the richest source of rules and requirements for the building and operating of the system by which means a safety environment at the workplace is ensured.

Tertiary legislation mainly includes the own instructions of work safety and health. These are being developed by the employer and establish at the organizational level, requirements for specific safety according to the particularities of the undertaken activities at the level of the workplaces, or work stations.

1.3. Comparative analysis of the management systems for the SSM at global level

In this scientificall research have been choose for analyzing the standards of implementation and certification of the management systems of the SSM from the countries where work safety is considered "an important problem for the society": Great Britain, U.S.A. and Australia. In these countries, the public organizations and private ones allocate considerable resources for the continuing improvement of the state of workplace safety. Next to the three national standards under also analyzed has been the guide of the International Work Organization (ILO).

We must mention that at the European level, including Romania, the widest spread standard for SSM management is the standard OHSAS 18001:2007. In the year 2008 this standard has been taken over by ASRO under the name "SR OHSAS 18001: Systems of management of health and occupational safety. Requirements"

2. METHODS OF MANAGING THE ACCIDENTS RISK TROUGH THE WORK SAFETY AND HEALTH SYSTEMS

2.1. Risk management

Regardless of the type and its size, any Organization is confronted with risks that can affect the achieving of its objectives in what regards the activities, strategical initiatives, operations, processes and projects, with different consequences on its strategical results, operational, financial and its image and reputation.

Risk represents the effect of the uncertainty over its objectives.

Note1: The effect represents the deviation from the expected status, be it positive or negative.

Note2: The objectives can have different aspects (like financial, security and work health and environmental protection) and can be applied at different levels (like strategical level, organizational level, project level, product or process level).

Note3: Risk is always described with reference to the potential events and consequences, or a combination of both of them.

Note4: Risk is expressed in terms of a combination between one event (including the change of the circumstances) and the likelihood of the appearance associated with the event.

Note 5: Uncertainty is the state of lack, even partial, of the information regarding the understanding or the knowledge of one event, of its consequences or from the probability of the appearance of it.

2.2. Assessment methods, analysis and evaluation of the risk of incident

"Depending on the mode in which the approach of the risk assessment is done, the evaluation methods can be divided into following categories:

- Exclusive deterministicall methods – they take into consideration the work equipment and evaluate the impact of the consequences upon persons
- Exclusive probabilisticall methods – they are based upon an estimation of the probability of the appearance of an event and its potential consequences of it or on the probability or frequency of appearance of a dangerous situation. Majority of the exclusive probabilisticall methods are designed to appreciate the risk at the level of a sub system of work (workplace, shop, division, etc.)
- Combined (based on an deterministicall and probabilisticall approach).

In the same time, the methods of risk assessment can be classified into two categories depending on the results of these actions: qualitative – they have as result recommendations and quantitative – they have as results indicators of the risk level. Combining the two types of criteria's deterministicall/probabilisticall and qualitative/quantitative results in 6 classes of methods for assessing the risks"

2.3. Strong points and limitations of the methods of risk assessment

"Following the analysis of the presented methods previously in the thesis one can affirm that there is a common theoretical base in the risk calculation mode. We can notice for example the absolute fact that every method has in common the "severity" of the consequences of the appearance of the undesired event or of manifestation of the danger.

2.4. Designing risk management systems

The most used method in Romania proposes five areas of main analysis of the management of the work safety of an organization:

- Involvement of the management
- Strategy, plans, procedures
- Consulting of the workers
- Identifying, evaluating and preventing risks
- Instruction, perfection, and forming of the personnel and SSM domain propaganda

In the following, there are described some aspects regarding the designing of the SSM management systems based on the requirements of the standard OHSAS 18001:2007

Following a comparative analysis, the design model and implementation which has been proposed by the OHSAS 18001:2007 standard is like that of the strategy of "Safe Systems" presented.

Designing systems for SSM management has as main element the process of risk assessment for accidents and professional sickness and the establishment of the measures of risk control. Second stage consists in the establishing of the strategical objectives and specifics in the area of safety and work health. Following this stage, we need to analyze the informational resources, material and human to be able to establish the responsibilities, work procedures and control on different structures of the hierarchy of the organization.

3. EXPERIMENTAL RESEARCH REGARDING THE RISK ANALYSIS OF ACCIDENTS FOR THE AGRICULTURAL COMPANIES

3.1. Structure, target, objectives and research methodology

3.1.1. Structure of the research

The applied research for knowing and improvement of the work system of the agricultural companies has been established in the period of **01.02.2013 – 15.04.2014** at a number of 14 commercial companies and one individual enterprise which are having activities in the area of plants cultivation in the area of the Arad County.

The 14 organizations that have their main objective the cultivation of cereals (exclusive rice), vegetable plants and plants producing oil seeds, having the CAEN Code: 0111.

Amidst them, the activities for preventing and protection in the area of work safety and health are done by an external service of prevention and safety established according to the law.

The research has discovered structural aspects and functional of the SSM systems, following in particular:

1. Elements of the extended work system
2. The structure and functioning of the SSM management system
3. Methods and documents used by the SSM management system
    - Assessing the accidents and health sickness risks
    - Prevention and protection plan
    - Operational control
    - Questionnaires for checking the knowledge of the workers
4. The impact of the management system of the SSM upon the organization.

For achieving the objectives of the comparative analysis, in frame of the research work there has been a basic investigation activity based on observation, applying of questionnaires and interviews to obtain an exact picture of the elements which are composing the systems of work safety and health.

The activity for investigating has taken place at all workplaces/workstations (on the farm and on the ground) of the companies.

3.1.2. Purpose and objectives of the research

Purpose of the research: Research regarding the appliance of the assessment method of the management systems of the work health and safety in agricultural economical units.
Main objective of the research: The experimental validation of the proposed method for evaluation of the performances of the SSM management system in Small and Medium Businesses from agriculture, based on a system of own indicators.
Secondary objectives of the research are the following:

1. Comparative analysis of the work health and safety systems of the SME's from agricultural field for the improvement of them by means of specificall elements from the SSM System correlated with the legislative requirements
2. Establishing a correlation between specific SSSM elements
3. Establishing of optimization elements based on the correlations between system elements
4. Establishing of improvement methods of the work health and security system
5. Checking of the efficiency of the SSM management system.

3.1.3. Methodology of the research

Methodology of the research has been similar as well as for the investigation of the perception regarding the work safety and health in the management area of the companies as well as that of the workers.

In the first stage of the research the data of interest and the performance indicators have been established that were supposed to be collected for the analyzed companies. Later on, 2 types of questionnaires have been distributed separated to the workers and to the managers. After these have been filled out, there was a stage where it was checked if all the fields of the questionnaires have been filled out properly.

The data that has been collected by means of questionnaires has been normalized and prepared for statistical analysis. There have been established histograms to facilitate the interpretation of the information connected to each component part of the system of work safety and health of each society, followed afterwards by their processing and the interpretation of the results.

3.2.2. Risk analysis for the agricultural companies

The fourteen analyzed organizations have used for the risk assessment the method developed by the National Institute of Research and Development in Work Safety "Alexandru Darabont" in Bukarest for the assessment of injury, accidents and professional sickness risks.

As mentioned before, at the companies that have been the object of this research, the prevention and protection activities are being done by an external service for prevention and protection. This service also does the operation control for prevention at the workplaces of the beneficiary. The prevention control is done on a monthly or trimestral basis according to the contracts, and is based on check lists. The check lists regularly contain the minimum requirements for work safety and health which are applicable to the company, as these are mentioned in the Government Decisions presented in the supplementary table. Also on check lists are being verified other legal requests that have to do with the way the legislation is being respected in the area of the emergency situations, maternity protection, extreme temperatures, etc.

The identified non-conformities are being mentioned within a document called *Note of synthesis of the SEPP visit* and are being forwarded in writing to the beneficiary with proposals for adequate measures. This document contains also the evidence of the non-conformities and the monitoring of the removal of them.

3.4. Molding the relation between the cultivated surface and the number of the employees

Molding the relation between the cultivated surface and the number of the employees is one of the results of the research. For the studied lot, there has been presented the molding curve of the relation between the cultivated surface and the number of employees.

The curve thus obtained from the molding of the relation between the cultivated surface and the number of workers of the company is important to the management of the companies of agricultural exploitation because:

- It is a useful tool in the design of the work systems
- It offers the management the possibility of quick checking of the right allocation of the work force in the exploitation of the system
- It is a support in establishing the real technical-economical parameters based on the two variables of the exploitation: cultivated surface and number of workers
- It permits the estimation of the costs with work safety and health starting from the moment of the organizing of the work system.

4. EXPERIMENTAL RESEARCHES REGARDING THE SELFASSESSMENT OF THE RISK OF THE WORKPLACE BY THE EMPLOYEES

4.1. Structure and research objectives

For the current being, the activities taking place in the agricultural exploitations are often catalogued as being very dangerous from the point of view of the work safety and the health, state of facts which is determined by a complex system of factors.

Primarily most of the work is done outside, fact that can lead to a hears work environment (heath or extremely low temperatures, high or low humidity, solar radiations), fact that generates a series of risks for the workers' health and safety. The heightened risk of injury has as source also the other auxiliary activities: maintenance, transport, handling, etc.

In this context, even though there are available few standardized risk assessment instruments for the agricultural activities, there are a series of categories of workers (refugees, immigrants, persons without education) for which there is practically no information available regarding work safety.

As has been mentioned before, the research has as objective the analysis of the system of work health and safety of the companies for agricultural exploitation from the perspective of the employees and the employer.

There have been analyzed the main structural aspects and functional of the SSM systems. So, in the frame of the research work there has been a base investigation activity for observation, applying of questionnaires and interviews of the employees on all work places/ work stations (on the farm and on the field) of the companies.

The objectives of the research are:

1. The experimental validation of the proposed method for evaluation of the performances of the SSM management system of the agricultural companies, the comparative analysis of the work health and safety systems of the SME's from agriculture in the attempt to optimize them through specific elements of the SSM system correlated with the legal requirements.
2. Establishing of correlations between specific elements of the SSM system
3. Establishing of optimization elements based on the correlations between system elements
4. Establishing of improvement measures of the work health and safety system
5. Checking of the efficiency of the SSM management system

4.2. The study of the factors which affect the health and safety of the work place

Obtaining data regarding the technical-social systems and implementation of some work health and safety system starts from the evaluation of a status quo and finding solutions. In this sense, the knowledge of the opinion of the ones which are directly involved is important. The applied test has had in view the identification of the impact of several factors upon the conditions of work health and safety. A large base of factors has been selected.

There has a selection upon these factors which has ensured the identifying of the factors which are considered important by the ones tested. The main criteria which has been applied being the sum of the granted points. This type of test considers the granting of a number of points to an influence factor, without having a clear definition of the value of the difference of importance for a granted point, the difference being established relative in the system.

The type of test that has been considered in the research has a double purpose, informative and predictive. This means that on the one hand the employee recognizes a status quo, and on the other side he expresses a desire to improve a given situation.

The author of the research has proposed the investigation of a number of 28 influence factors of the work health and safety system.

4.3. Methodology of the research

On this study, there have participated a number of 32 employees of some agricultural exploitation companies. There have been considered the 28 factors of influence upon the conditions of the work health and safety. The testing was done by giving points from 1 to 10 for this influence factors. Each factor has received thus a significance quote.

The interpretation of the obtained results has been accomplished by applying later on different hypothesis and statistical analysis procedures. The increase of the number of points means the increase of the importance of the analyzed factor for the work health and safety.

Consideration of the risk factors has covered a wide specter of the activity. This take into consideration organizational requirements, technical and legal. The measures regarding the work health and safety are applicable to the individual as well as to the organization.

From a certain point, there cannot be any separation of the degree of involvement of the two parts. The granting of a certain number of points for a factor and by this a certain importance, show the preoccupation of the employee towards that problem. The interviewed employees all had the same work environment, as they were all agricultural mechanics.

4.4. Statistical analysis for the hierarchizing and selection of the influence factors

The statistical primary analysis has considered the following: summing of the points, calculation of the middle value, calculation of the dispersion, calculation of the main value, calculation of the trust (comparison between the dispersion and the medium – expressed in percent).

The trust, V is being calculated as the comparison between the dispersion and the middle value

- 0 -15 % small dispersion - the sample is homogenous – the medium is representative
- 15 – 30 % the spread is medium – the medium is still representative
- over 30 % the medium is not representative any more

As a result of the research there was achieved the following hierarchy of the influence factors:

1. Organizational requirements
2. Technical requirements
3. Legal requirements

4.5. Selection of the factors what would define the conditions of work health and safety

For the chosen research, the hypothesis was established that the chosen factors for being investigated describe in a complete way the issue of work health and safety. So, the effect of them is 100 %.

It is being considered that the points for each factor as being the percentage of the sum for the points granted initially. So, all the respondents have appreciated that the factors have "the same unit of measure". The general over appreciation or under appreciation of the factors from one particular respondent is being eliminated.

The reinterpreted results have led to a new hierarchy of the influence factors. This has been used to select half of the factors based on the recalculated points. There were selected 14 factors. The reinterpretation procedure has been restarted and thus there have been selected only 7 factors, considered as being significant.

4.6. Formulating of a new system of the type input-output

The realized study by accordance of the points can generate a type o input-output system.

There has been selected the seven factors which the primary analysis showed that have an importance to express to work health and safety conditions. It is being considered that not the points given by an employee is important, but the difference of the points to the medium for the interval in which that factor was evaluated. So, the points below the medium where considered of low importance given to that factor, associated with the value -1. The points over the medium where considered of high importance to that factor and associated with the value +1. In that way, the scale (1-10) on which the points where established is no longer

essential to the study. The total amount of points granted was considered as being an objective function. This show the interest towards the issue of work health and safety.
The negative values have been considered -1 and the positive values +1. Following this interpretation there was achieved an experimental factorial plan with 7 influence factors, each with two levels.

5. EXPERIMENTAL RESEARCH REGARDING THE SELFASSESSMENT OF THE WORK CONDITIONS BY THE EMPLOYEES

5.1. Structure and research objectives

The research has as objective the analysis of the vision of the employees of the agricultural exploitation companies over a set of decisive factors for the work place in frame of the work health and safety system.

As structure, the research is founded on the analysis of 22 indicators of performance of the SSM systems of the 14 th companies, factors with influence upon the state of security and health in the enterprise in general and the work conditions in detail. Deliberately there has not been chosen know performance indicators a being definitional to the work conditions even for the workers.

The investigation of the opinion of the employees of the importance of each of the 22 indicators has been achieved by applying questionnaires and employee interviews.

In what follows there are being presented under the form of a diagram the stages followed in the preparation, deployment and finalizing of the applied research.
The objectives of the research have been:

1. Establishing the priorities of the employees regarding the elements of the SSM system
2. Establishing of some correlations between the specific elements of the SSM system
3. Establishing of some optimization elements based on the correlations between the system elements
4. Establishing of some improvement measures of the work health and safety system
5. Checking the efficiency of the management system of the SSM

5.2. Methodology of research

On this study, there have participated a number of 32 employees of some agricultural exploitation companies. There have been considered the 22 factors of influence upon the conditions of the work place. The testing was done by giving points from 1 to 10 for this influence factors. Each factor has received thus a significance quote.

5.3. Self-assessment of the working conditions by the employees

The 22 performance indicators have been coded and noted with P1-P22, and they had to be appreciated in importance by the questioned workers by giving them a number of points (in the interval of 1 – 10).
In this sense, the workers (noted with L1 to L34) have answered to the question:
"About the company in which you work it is important to know the following?"

By this method it was considered that the interviewed workers are equal regarding the interest towards the chosen indicators. It has been admitted from the beginning that some workers might grant low points, considering that as a general idea that all presented factors are not interesting for the issues regarding the work health and safety, or others might grant high points, over appreciating the presented factors. The workers have not received any

criteria's or pointing methodology, there was only an explanation of each pursued indicator. Corroborating between them the information detached from the analysis of the given answers offered by the workers of the 14 th agricultural exploitation companies, regarded from the points of view presented above, one can make the following appreciations:

- The questioned workers are interested in the issues of the work health and safety
- There has been granted an elevated number of points to the duration of the work place and of the work as sign of appreciation of the importance of the work stability
- There was a significant importance of the qualification of the workers, which proves that the danger for the work health and safety is being acknowledged, the way of work in the agriculture, in which the workers executed their tasks, willingly or unwillingly without having the proper qualifications
- The questioned workers do not grant importance on the aspects regarding the relation between the work accidents and work conditions
- The existence of non-conformities at the workplace is of no importance for the workers, which proves a lax preparation of them in the area of work health and safety
- It is unknown or it is not important at the level of the workers, one of the most useful tools for the activity of prevention and protection: risk assessment
- The research discovers major deficiencies of the work health and safety culture of the workers, fact which points out to a low level of preparation in the field of company management

6. IMPLEMENTING THE MEASURES OF PREVENTION OF THE WORK ACCIDENTS IN THE AGRICULTURAL EXPLOITATION COMPANIES

6.1. Interpreting the results of the risk assessment and applying the prevention methods

The activity of assessment, analysis and evaluation of the risks for each work place / work space which has been assessed is finalized with the developing of the assessing commission of a file with proposed measures.

The file with proposed measures contains all the assessed risks, of whom the partial risk level is > of 3,5, level of which according to the measure separates the risks considered acceptable from those considered unacceptable. The risks written in files in the decreasing order of the risk level.

One can notice that between the assessed risk and the proposed measure is no correspondence in a bilateral exclusive way. So, the possibility appears that for one risk more than one measure are being established or that for several risks the same measure might apply. There have been summarized the measures of prevention and protection which have been proposed by the assessment commission and centralized on the categories mentioned by the law.

Following the analysis which was done it results that the portion of the proposed measures by the assessors represents the organizational measures (50 %) and that of the technical measures (39,65%), the other categories of measures represent together approx. 10 %.

Between the measures for the organization with significant frequencies proposed by the assessors we would like to mention:

- Training of the workers in the area of work health and safety regarding the risks written down in the files

- Overseeing the state of health of the workers trough medical services from the work medicine
- Ensuring the individual protective equipment specific to each risk
- Perfecting of the professional preparing of the workers
- Ensuring the materials for instruction-testing and information of the workers

As technical measures, we would like to mention:

- Improving the security and work health signalizing
- The proper illumination of the general work places and of the dangerous areas in special
- Furnishing with instruments for improving of the microclimate
- Replacing the faulty tools and equipment
- Completing to the necessary level of the protection units of the agricultural machines
- Measures for improving of the work conditions
- Improving of the storage conditions for hazardous substances

It has been underlined the technical measures are usually the ones which ensure the intrinsic protection, at the creation of the work place / work space. The technical measures proposed by the assessors indicate the fact that at the creation of the work place / work space there have not been applied all the possible technical measures, or that on the way their completion or correction has been imposed.

6.2. Results of the unannounced inspection and of direct observation

The unannounced inspection of the external prevention and protection service have between other things the role of identifying the non-conformities of the work places / work spaces in the desire to establish the measures for their correction.

6.3. Implementing the management system of the SSM based on the risk assessment

The implementation of the OHS systems for the agricultural companies has been an important preoccupation in the last period. The method of extracting of primary data about risk factors and work conditions are statistical researches based on the opinion of the employees.

For the work health and safety systems implemented in the industrial environment and in agriculture there have been many conclusions of which we would like to mention:

- Assessing the risks cannot be accomplished on the long run
- The plans for reducing the risk of injury are not the responsibility only of the OHS manager (the responsible with the work health and safety) but the responsibility of each employee
- The monthly meetings of the employees with the OHS manager. At those meetings, it is being encouraged that the employees declare any incident or discuss any causes that have led to that
- The encouragement of the employees to report about the eventual problems related to the work health and safety
- The observance of the employees at the work place by the OHS manager. He can observe risks that perhaps are not being noticed by the employee.
- Any inspection must follow a list of problems. Any incident or risk factor which has been identified must be noted in a written report.

- A risk hierarchy must be established – on a scale from not important to extreme. There will be taken into consideration the possibility of having an incident and its consequences.
- Realizing of controls for identifying and then eliminating or minimalizing a risk, by proposing and implementing of technical solutions or organizational ones to reduces de risk
- The periodical evidence of the number of incidents and their significance
- The training of the new employees and the periodical assessing of them

7. CONCLUSIONS AND PERSONAL CONTRIBUTIONS. PERSPECTIVES OF RESEARCH DEVELOPMENT

The realized research has confirmed the initial assessment regarding the fact that the specificity of the activities of the agricultural exploitation impose a specific approach in the work health and safety in this organizations.
From the specificall aspects of the developed activities in this sector of economical activity we would like to mention:

- The fact that usually these have a small number of workers, being categorized from this point of view more often in the area of the microenterprises, of the small enterprises and rarely on the medium and large enterprises
- As a consequence, their hierarchical structure is a simple one, with a reduced degree of hierarchical levels
- The reduced level of the professional qualifications of the workers, in relation to the fact that usually they have to perform a lot of activities which require proper qualifications or competences
- The workers of these companies are being exposed to a great number of risk factors for injury and professional sickness; for example, with the occasion of the risk assessment for the position of "agricultural mechanic and maintenance" there have been identified no less than 56 risk factors
- A wide assortment of risk factors on which the workers are exposed, from the ones that are dependent on the production means used in the work process, to the ones specific of the work environment in which most of the work processes are being executed
- The temporary activity of the agricultural activities; this makes that the work relations between employer and employee is determined by work contracts of a limited amount, with a fraction of a norm or even on a daily basis; this makes that in a lot of cases, the production cycle is being restarted with a complete change of personnel
- The low responsibility of the workers as a result of instability, poor preparation, low wages, etc.

All these things have determined the administrators to be convinced by the fact that they will not succeed with their own strength to respond to the requirements related to the deployment inside the company of the prevention and protection activities in the area of work health and safety, which can ensure the deployment and reestablishment of the work processes in the full safety conditions for the workers.

Furthermore, they have understood that they will not be able to design, implement and maintain a valid management systems for the work health and safety.

Towards this situation, the companies under study have resorted to the solution of developing these activities by contracting an external service for prevention and protection

abled under the condition of the law.

The management system implemented by the external service for prevention and protection of the studied companies can be developed, is suited for informatization and can be recommended to other companies as well of the same size, which have not yet implemented a system for work health and safety.

The applied research has provided valuable information regarding the way that the workers of the companies have been able to self-assess themselves regarding the state of work health and safety and the conditions of work from the companies under this study.

It has resulted that so the workers are interested in the issue of the work health and safety, but also that their training in this area is lacking, as there are problems which seem to be beyond their reach. From these, the ones related to the work accidents and the activity of the ITM have received the lowest points on the applied questionnaires.

During the research there have been noted, without receiving special treatment in one of the previous chapters and other aspects resulted from the specificall activities in the domain.

7.2. Personal contributions

From the personal contributions, we would like to mention:

- Realizing of a synthesis of the SSM systems and the risk factors
- An applied research of the agricultural exploitations
- Proposal of a SSM system which is adaptable based on an input-output type model
- Assessing the risk to the employee, work place and enterprise
- Assessing the risk associated to a technological process

7.2.1. Theoretical contributions

The main theoretical contributions are:

- The documentary study of the actual state of the researches undertaken in the area of the management systems of work health and safety
- The comparative study between different standards at the global level for the management systems of work health and safety at the global level
- Capturing, analysis and interpretation of the results obtained from the researches executed, gaining thus deep knowledge regarding the work health and safety systems

7.2.2. Experimental contributions

The work brings a series of experimental contributions of which we would like to mention those with significant impact:

- Experimental research regarding the self-assessment of the working conditions by the employees of the companies of agricultural exploitation
- Experimental research regarding the self-assessment of the security conditions of the workplace by the employees of the companies of agricultural exploitation
- Research regarding the implementation of the prevention and protection measures in the area of work health and safety

- Developing a management system of the work security tailored specifically of the agricultural companies
- Developing of the model curve of the relation between the land surface exploited and the number of workers

7.3. Perspective of further development of the research

Through the contributions of this present work there are developed the following perspectives of the further development of the research:

1. Continuation of the experimental research by using and adapting of the methodology verified for the case of the big agricultural enterprises (>250 workers), of the type of integrated agro-food structures
2. The results of the questionnaires, of the statistical analysis and of the identification and interpretation of the non-conformities, will be used for the creation of an intelligent system, in real time for the risk management in the small agricultural enterprises, a system which will satisfy their specific needs

7.4. The development applied the systems of work safety and health

As we have shown, the management system of the SSM of the analyzed companies for the current scientificall research is one proposed and developed by SC PROMUN SRL from Arad, an external service for prevention and protection that offers consultancy to those companies. The management system of the SSM is a simplified version of a management system for SSM build according the specifications of the standard OHSAS 18001:2007, but which does not implement all the requirements of that standard or of the other standards for the SSM management.

Because of financial resources, material, human and limited time, there was need for the developing of a management system for the SSM that does not require the allocation of resources from the organization, the accent being on the activity which is developed by the personnel from the external service for prevention and protection. The system works according to the model of type PDCA which is amply presented in this work.

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