

# Occupational Accidents In Agriculture And Necessary Measures

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**Abstract—Agriculture; It is the sector, which is mainly made to provide raw materials for nutrition and industry and always takes place in the first place as an important source of income. As in all sectors, accidents and occupational diseases caused by the agricultural sector and agricultural machinery are the main problems of the producers. Ensuring production and sustainability of agricultural production are important for people to survive. For the continuity of production, it depends on the protection of the health of the workers in the production. On the other hand, many deaths, injuries and financial losses occur every year as a result of work machinery accidents and occupational diseases. Despite efforts to prevent accidents and occupational diseases caused by work and construction machinery in agriculture, the desired level has not been reached yet. In this study, by researching the agricultural machinery accidents in the world and in Turkey and their causes, by making a literature review on the measures that can be taken, the information obtained on the prevention of the construction machinery accidents in the agricultural areas is given to the relevant people and the precautions to be taken are listed.**

**Keywords—Farm machinery accidents; agriculture; occupational safety**

## I. INTRODUCTION

This All activities in agricultural production necessitate the workforce. Occupational health and safety are one of the biggest problems faced by the workforce. Because each field of activity reveals different risks and needs different occupational health and safety measures.

Occupational accidents and occupational safety problems continue to be on the agenda for underdeveloped or developing countries. According to many analyzes and reports, agriculture is classified as one of the most dangerous sectors. For this reason, one of the most important tasks for a developing country's economy is to develop the country's agricultural sector. Among the three basic needs are food, clothing and shelter, which are the important components of life. Agricultural activities with dangerous potential are not very different from other activities.

In parallel with the increasing population in the world, the need for food is also increasing. This

situation makes agriculture a strategic sector in terms of both nutrition and employment.

With the definition of safety in agricultural works, it is understood that the measures to be taken in order to ensure that normal working conditions are sound and to maintain these conditions. In case of ensuring occupational safety, it is possible to reduce accidents as well as reduce lost time and thus increase machine efficiency. In case of taking precautions, besides the driver's life safety, it is inevitable that the machine will be damaged and therefore both life and property losses will occur.

There are many reasons for the occurrence of accidents and occupational diseases in agriculture. However, accidents of agricultural machinery, mainly tractors, which are used as the main power source in agriculture, and pesticides used in the sector, etc. Exposure to chemicals can be listed as two main causes. We can say that about half of the accidents in agriculture are related to tractors, and about half of them are tractor overturning accidents. We can clearly see this from many studies conducted in these areas [1].

Studies show that [2],[3],[4] reveal that accidents are usually caused by carelessness and ignorance. The elimination of this deficiency is an educational problem. A well-trained operator knows how to use the machine. He knows how to control these tools.

If a driver takes good care of his machine, he will have fulfilled the safety requirements to a large extent. Otherwise, if good maintenance is not done and at the same time, if the driver's knowledge is not sufficient, there is always danger. constitutes ignorance.

Appropriate training on a machine is to learn all the controls of the machine and aim to get used to them. However, not all controls work in the same way and in the same direction with different machines. In this respect, operating a new machine by handing it over to a driver who does not know it well can have dangerous consequences in terms of life and property safety.

Today, 1.3 billion of the 3.3 billion people working in the world work in the agricultural sector [5]. In this sector, which is faced with work accidents and occupational diseases, accident rates are in the first place together with the mining and construction business. This situation is not only for developing countries, but continues to be an important problem for developed countries as well. The main causes of occupational accidents in agriculture are the fact that agricultural activities are carried out in the open field,

the education level of the employees is low, the working environments, nutrition and resting environments are insufficient, and the employees work in more than one job and cause factors such as carelessness and imprudence at the point of adaptation to their work [6].

## II. CAUSES OF WORK ACCIDENTS IN THE AGRICULTURAL SECTOR

Occupational accidents in the agricultural sector occur with the effect of many factors.

a- The seasonality of the activities in agricultural enterprises, the sequencing of certain works, the intensity of the work on one side, the intensity of the work on the other, the dependence of some activities on a certain time, the work being done in open areas, changing according to the seasons, the negativities caused by the meteorological conditions, the necessity of doing the agricultural works on time, Employees' frequent job changes can be listed as unforeseen and unplanned work and rest.

b- Dust and allergic conditions originating from plant products, roughage, concentrated feed and grain stores and animal shelters,

c- Hazards created on the respiratory system and skin by the effect of pesticides and fertilizers used in agricultural control,

d- Tiredness and distraction caused by difficulties in transportation to business and agricultural areas,

e- The necessity of changing eating habits as a result of changing workplaces, moving away from health surveillance,

f- Difficulties of living conditions in small businesses,

g- Majority of the agricultural workers are unpaid family workers,

h- In working methods, whether working by machine or by hand,

i- Ignoring occupational health and safety standards and regulations in small businesses,

j- The use of unqualified labor force, the prevalence of uneducated and child labor,

k- It is a complex agricultural machinery structure. Inadequate maintenance and repair of the machines in the machine park,

l-As a result of falling, catching on moving parts, crushing, cutting, jamming in freely rotating parts; It can be said that it causes loss of limbs and organs as a result of wrapping with unsafe clothes.

There may also be risks in animal production. Due to the necessity of working close to animals, besides bringing dangers such as kicking, biting, squeezing, hitting a hard place; It causes pests such as viruses, bacteria, parasites to be transmitted to humans by contact with animals or by respiratory tract. First aid personnel and other personnel should be trained against possible animal bites and attacks. Materials such as antidote, ammonia, permanganate, hypochlorite should be kept in the first aid kit. Allergy records of workers working in production should be kept, and allergy sufferers should carry allergy needles

with them. Insect repellents should be available and tetanus vaccinations should be followed up.

Agricultural activities should not be thought of as only outdoor sowing, planting, fertilizing or irrigation activities. In addition to this, it is seen that those working in warehouses, storage of agricultural products, transportation and transmission facilities, and processing workshops are also in the strong risk group.

## III. SAFETY MEASURES IN AGRICULTURAL VEHICLES

There are two types of measures, general and specific, in working with agricultural vehicles.

General safety precautions:

1. All attention should be given to work,
2. Unnecessary actions and risks should not be taken,
3. Before starting the lubrication or adjustment, the motor must be stopped and the flow of motion to the driven machine must be interrupted,
4. All the controls of the machine used should be learned and they should be kept ready in appropriate working conditions.
5. All safety guards must be installed during machine operation. The machine should not be operated before the guards that have been removed for repair or adjustment are replaced.

Special security measures are;

- 1-Control ease and comfort,
- 2-Protection measures,
- 3-Maintenance measures can be listed as.

It is very important that the driver is as comfortable as possible during work. In the absence of comfort, the driver cannot constantly engage in work. Therefore, his adaptation to work deteriorates and the probability of an accident increases. Briefly, this issue can be stated as the equipment that the driver can use the vehicle in the best way should be in place. The fact that the driver's seat can be adjusted according to the driver's height and weight is the best example of this in terms of ergonomics.

Protective security measures; It is necessary to attach a guard to the moving parts of the vehicles, to frequently check the belt tension in the belt pulley mechanism, etc. can be sorted as Persons who will use agricultural tools and machinery must wear masks, helmets, overalls, gloves, etc., with the necessary protective clothing. should wear. Protective equipment of agricultural tools and machinery must be fitted.

Maintenance measures, on the other hand, are applications for the suitability of command and control devices on machines. We can list such works as maintenance of brake system, maintenance of clutch and tires, lubrication of moving parts, etc.

#### IV. CONCLUSION

Occupational safety in agricultural work; It includes practices that will prevent damage to the health and safety of the employee and the devices used. The cost of accidents that may occur due to carelessness and negligence is high. Spiritual losses are more important than material losses. It should not be forgotten that a damaged machine can be replaced by a new one, no matter how expensive it is. However, it is never possible to restore people and their health. In this respect, it is extremely important to comply with the rules for occupational safety in order to prevent unfortunate developments in the future.

In places where agricultural activities are carried out intensively, agricultural machinery parks should be established. While its control and preservation will be ensured in safety, its usage periods will be increased by protecting it out of seasonal activity. Maintenance or repair needs will be provided by the service or technical staff in these places. It will reveal a business planning by revealing the use of shared machinery [7]. Thus, it will strengthen the awareness of acting in solidarity, unity and solidarity in the region.

There is not enough and healthy data on occupational accidents in the agricultural sector in our country and in the world. However, the available data show that the agricultural sector is among the risky sectors in terms of occupational health and safety. The agricultural sector, which employs 40% of all workers in the world, causes many people, lost working days and material and moral losses due to occupational accidents. It should not be ignored that the economic return of the share of agricultural production in employment will contribute to the socio-economic welfare of the country. The sustainability of these contributions, above all, is closely related to ensuring the health and safety of workers in agriculture. For this purpose, employees should be trained on occupational health and safety. Universities can be used for the training of employees. You can also get help from local radio and television.

In order to increase the level of implementation of measures for occupational health and safety in

agriculture, inspections and controls should be carried out, and legal sanctions can be taken if necessary.

It is important to take steps to avoid all kinds of risks, to analyze possible hazards and risks, and to decide on the measures to be taken by making a risk assessment. The harmony between the farmer or employer, the occupational health and safety specialist, the occupational physician, the other health personnel and the employees will ensure the success of occupational safety in agricultural activities.

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