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SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

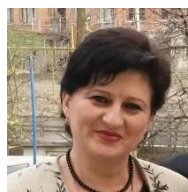
Year: 2019 Issue: 02 Volume: 70

Published: 28.02.2019 <http://T-Science.org>

QR – Issue



QR – Article



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RECOMMENDATIONS FOR PREVENTION OF OCCUPATIONAL DISEASES OF AGRO-SECTOR EMPLOYEES

Abstract: The article discusses about the measures necessary to avoid the diseases of people employed in agriculture caused by agro-chemicals. Also, the means of minimizing the foot diseases with special footwear selected with optimal parameters and preventing the results of hard physical work are presented. Those are the necessary factors for creating normal sanitary-hygienic working conditions.

Key words: agriculture sector, professional diseases, special equipment.

Language: English

Citation: Grdzeldze, M. G. (2019). Recommendations for prevention of occupational diseases of agro-sector employees. *ISJ Theoretical & Applied Science*, 02 (70), 288-291.

Soi: <http://s-o-i.org/1.1/TAS-02-70-29> **Doi:**  <https://dx.doi.org/10.15863/TAS.2019.02.70.29>

Introduction

It is known, that based on the specifications of agrarian sector there are different working conditions, and the requirements for work safety and hygiene are different respectively. The terms of work safety are specific, which is conditioned by the variety of agro-chemicals used. A lot is written about their negative impact on the human health, but the magnitude of preventive actions is not fruitful.

For the purpose of creating proper conditions for work safety it is essential to protect the requirements of Sanitary Code within the legislative base. This will provide the employees with maximally safe working environment and will support the process of getting the local legislative closer to the European standards. The life of employed person is one of the fundamental rights and must be protected properly. Therefore, at the working locations, where such risks of life exists, it is necessary to carry out specific measures in order to avoid the risks of health deterioration. For provision of sanitary-hygiene measures the distribution of sanitary clothes, footwear and other accessories must take place.

Materials and Methods

One of the most active issue of state sanitary supervision is the control of protecting the requirements

of sanitary laws regarding the production, consumption, storing and transportation of pesticides and agro-chemicals. It is known, that in the agriculture about 150 types of pesticides are being used. The quantity of used pesticides increases each year. Alongside, the number of cases of gross violation of usage and transportation terms of them doesn't decrease. It is emphasized by the numerous reported cases of improper placement, storing, using and transportation of chemicals in farms and individual households. This problem is especially problematic in micro and household farmings, where less attention is paid to this issue. Workers doesn't wear special clothes, special footwear an dother individual means of protection (respirators, glasses, gloves, aprons, armbands, headgear and etc).

For solving the problem of work hygiene the provision of special clothes and footwear, selected considering all the specific requirement of work, is necessary, the role of which is great in the human health care.

Besides wearing the individual protection means, the terms for cleaning and re-using of them is not less important. There are means, that aren't subject of re-using, therefore the secondary use of them may become the source of diseases instead of preventing it. This concerns to the unitary consumption items, the multiple use of which is strictly prohibited.

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The workers, who has to work with pesticides and agro-chemical, in most cases, should be provided by the special food ration. The scientific-research institutes of developed countries work in this direction and establish the norms, the protection of which is necessary by workers of specific conditions in order to preserve their health and prevent pathologies. Chemical and toxic contamination may cause serious and irreversible processes in the human body, basically related to cancer and chronic diseases.

From the point of chemical and toxicological protection the footwear and gloves play one of the most important role in the individual safety of the workers employed in agriculture. The footwear, as the item of multiple use, first of all, should be itself hygienic, non-toxic, which is explicitly conditioned by the package of materials used to produce it, on the other hand, it should have the mean of protection from the external harmful conditions. Not all the materials used in the production of footwear has this capability. Everyday practice shows, that the most of the population use already used and outdated household shoes useless for exploiting in the working process, which has the difference purpose. For example, based on the qualification characteristics, absolutely different requirements of exploitation will be set to household footwear compared to special footwear. Therefore selection criteria of it should be strictly defined and must be protected by all, who has to have a physical contact with agro-chemicals.

Besides hygiene, the convenience, lightness, elasticity and optimal characteristics of other consumer properties will be required to the footwear in order to avoid the overtiring of the foot and the entire lower limbs in case of preassure because of standing whole day or constant movements, as well as to maintain healthy limbs and for preventing the progression of the existing pathologies. Additionally, the footwear must protect the foot from the harmful impact of the chemicals and material package selected according the specifications must be resistant against them.

Working personnel will wear the footwear designed to use in agricultural activities for the entire working day, that's why, besides its shape and convenience of the construction, it is necessary to achieve the maximally high indicators of sanitary-hygienic properties. So personnel will feel comfortable during the day.

A lot depends on the quality of materials, first of all, the hygiene of the feet and inner comfort, which is supported by the natural materials. The natural leather has the ability to absorb the moisture of the feet and transmit it into the air. Moreover, it is not coarse and easily takes the shape of the foot in the process of exploitation. It has high elastic property and stability for multiple bending (the durability is long lasting, respectively). Especially important is the quality of fabric for lining, its hygiene and toxicological characteristics in

particular, because the fabric has direct contact with the foot. In the conditions of high temperature and intense motion the feet is the source of moisture (the sweat) and accumulating of it takes place between the foot and the shoe. The moisture segregates the toxic substances from the fabric (in case of existence) and the probability of getting into the body through the foot skin is high (because the skin participates in the exchange of the substances of the organism). Thus, the inner comfort of the footwear is vital problem.

The main negative feature of the synthetic materials is the minor ability of the hydrophilicity. The majority of them doesn't even have this property, which makes them extremely different from the natural materials. Use of cotton socks (or made with other natural materials) in the footwear of synthetic fabric or rubber doesn't provide the hygiene and the comfort for the feet. Only the full package of the natural materials gives the ability of creating the optimal air and moisture flow capacity and maintaining normal climate into the footwear during the entire day [1].

Work in agro-sector is quite labor-intensive and long-term. The personnel usually has to work for the whole day and have the contact with the soil. Sometimes such a heavy regime of the work lasts for entire year. Thus the inner shape of the footwear must be optimally correspondent to the foot shape of the consumer and must not cause the mechanical damage, pressure or distress of the osteoarticular parts of the foot and disturbing the normal biomechanics of it, respectively. Apart from these, the inner surface must be wide not to limit the walking in the process of leaning on and motion, not to disturb its smoothness and maximally support keeping the balance while standing or moving. Using soft materials for the inner seat (removable insole) will support minimization of local loads in the process of leaning on. The shape of front part of the shoe must be wide and rounded not to distress the normal movement and functioning of the toes in footwear. The surface construction of the shoe must be performed using minimal number of sutures. The height of the heel must be average – 25-45mm (not as low as 0-25mm and not higher than 45mm), because after standing and walking on the too low heel the local load is maximum on the heel bone, on the muscular tissue and tendons below the heel (heel muscle and heel tendon), and the tiredness and pain peaks at the end of the day. In the case of medium heel – 25-45mm, axis of the body is moved forward, and the load will be distributed to the bones of front part of the foot respectively. In that moment the heel bone is relaxed and is loaded equally with the front foot-phalanx, so the load is balanced along the foot [2].

In case of standing or moving with the shoes with a narrow vamp and toe cap, or generally, with

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uncomfortable construction, the workers will not be able to perform the work properly because of the inconveniences for the foot, and the mood of them and the quality of the work will be low. It will cause the loads on the foot provoking heavy deformations, which may have very negative impact on it as for the point of musculoskeletal system (especially the spin), as well as, it may become the causing reason of the various inner diseases, because the perfect functioning of the whole organism is highly dependent on the normal conditions of the feet [2, 3].

The welt of the special footwear is desirable to be produced from the light and elastic polymers, which supports the lightness and elasticity, moisture, wearing out and slipping resistance properties for the shoe, are bendable and have amortizing features. The welt should be monolithic, one piece with the heel (without isolated heel), which reduces the tension of the arch part of the foot, helps to relax and improve the comfortableness.

In such a specific environment, basically in the conditions of high moistness, especially inherent to the agro-sector it is necessary to use the rubber shoe in order to protect the foot from the harmful impact of external environmental factors. In this kind of footwear it is vital to use highly hygienic materials for lining and the socks made from the natural fibres. It is recommended to use so called bio-polymers as the lining material in such type of footwear, the sanitary-hygienic properties of which significantly approaches to the features of natural materials. And additionally, it has the property to maintain the healthy micro-climate for the foot at the expense of self-non-toxicity and after the taking off the foot it transfers the moisture into the air without leaving the specific unpleasant smell (this feature and the

positive sides of other measures necessary for the normal functioning of the foot are confirmed by the multiple pilot exploitations conducted by us) [1-8].

In this respect, first of all, it is necessary to improve the hygiene education and awareness of the people working in the agro-sector about the inevitability of using individual protection means, as far as the portion of the manual work is still high in agriculture (according to the international data it comprises 80% of the animal breeding and 70% of plantsmanship) [9, 10]. Moreover, on the working locations there are no sanitary-living hygienic storage rooms, in particular, the room for having meals, wardrobe, sanitary facilities, shower rooms and etc.

Stated issue is taken under the control of government level in the developed countries, in particular, the constant monitoring is being held to the protection of working conditions [4] and administrative events take place as in the case of legal persons, as well as for sole proprietors. The interest from the state is conditioned by the big portion of the expenses incurred to heal and rehabilitate the workers harmed because of not protecting the work hygiene.

Conclusion

The social education is poor on this issue. The workers of this conditions almost never make the health check in order to avoid the occupational diseases. Neither the employer is interested with prophylactic health check of the staff. This issue must be regulated by the state. Otherwise, frequent toxicosis, various types of virus infections, the reasons of frequent chronic and oncological diseases still stays as unanswered questions and somehow, abovementioned problem is not considered as a causing reason in most of cases.

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San Francisco, California. L_26. p. 120-124.

DOI: http://doi.org/10.15350/L_26/10/5

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