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LABOR PROTECTION AND WELFARE IN AGRICULTURE: A COMPARATIVE APPROACH BETWEEN COLOMBIA AND CHILE

PROTECCIÓN LABORAL Y BIENESTAR EN LA AGRICULTURA: UN ENFOQUE COMPARATIVO ENTRE COLOMBIA Y CHILE

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Labor Protection and Welfare in Agriculture: A Comparative Approach between Colombia and Chile

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ABSTRACT

Introduction: This article aims to inform and make known about the aspects related to labor protection and well-being in the area of agriculture in the countries Colombia and Chile, this sector throughout history has been a fundamental support in social economic development in both countries. Despite their climatic differences, these two countries have found in this sector a key source of employment, exports and sustainable growth. In this document, a systematic exploration will be carried out with everything that is related to occupational risks and health in this agricultural sector, how regulations, agreements, laws are implemented in these two countries and how they are carried out so that workers have good working conditions, where their physical integrity is the most essential and the working conditions are the most appropriate while carrying out their activities. **Objective:** The objective of this report is to investigate the situations of defense and professional hygiene in the agricultural zone of Chile and Colombia, determining the main dangers and the policies implemented in both countries. Likewise, it seeks to generate reflection on the opportunities to strengthen the protection of agricultural workers. **Methodology:** This document is based on an exploration of documents from secondary sources, including official reports, laws, regulations, government reports, regulations, as well as academic studies on occupational safety and occupational well-being in agriculture in Chile and Colombia, in order to achieve greater knowledge about this information in this sector. **Results:** It was determined that both Chile and Colombia have made progress in the creation of professional protection standards in the area of agriculture. Despite these advances, frequent challenges continue to arise in both countries, such as labor informality, poor access to individual safety devices, and the lack of health training and protection for agricultural workers. Furthermore, extreme weather conditions and the handling of agrochemicals without adequate protective measures continue to represent a significant danger to the well-being of employees in this sector.

Keywords: agriculture, safety, health, work, agricultural sector

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Protección Laboral y Bienestar en la Agricultura: Un Enfoque Comparativo entre Colombia y Chile

RESUMEN

Introducción: Este artículo tiene como objetivo informar y hacer saber sobre los aspectos relacionados con la protección y el bienestar laboral en el área de la agricultura de los países Colombia y Chile, este sector a través de la historia ha sido un soporte fundamental en desarrollo social económico en ambos países, A pesar de sus diferencias climáticas, estos dos países han encontrado en este sector una fuente clave de empleo, exportaciones y crecimiento sostenible. En este documento se llevará a cabo una exploración sistemática con todo lo que se relaciona con los riesgos y salud laboral en este sector agrícola, cómo implementan en estos dos países la reglamentación, acuerdos, leyes y como se realizan para que los trabajadores tengan unas buenas condiciones laborales, donde su integridad física sea lo más primordial y las condiciones de trabajo sean las más adecuadas mientras realizan sus actividades. **Objetivo:** El objetivo de este informe es investigar las situaciones de defensa e higiene profesional en la zona agrícola de Chile y Colombia, determinando los principales peligros y las políticas implementadas en ambos países. Así mismo, busca generar reflexión sobre las oportunidades para fortalecer la protección de los trabajadores agrarios. **Metodología:** Este documento se fundamenta en una exploración de documentos de fuentes secundarias, incluyendo informes oficiales, leyes, regulaciones, informes gubernamentales, normatividad, así como estudios académicos sobre seguridad laboral y bienestar ocupacional en la agricultura en Chile y Colombia, esto con el fin de lograr un mayor conocimiento sobre esta información en este sector. **Resultados:** Se pudo determinar que tanto Chile como Colombia han avanzado en la creación de normas de protección profesional en el área de la agricultura. A pesar de estos avances, se siguen presentados desafíos frecuentes en ambos países, como la informalidad laboral, el acceso deficiente a dispositivos de seguridad individual y la carencia de aprendizaje en salud y amparo para los obreros agrícolas. Además, las condiciones climáticas extremas y el manejo de agroquímicos sin medidas de protección adecuadas siguen representando un peligro significativo para el bienestar de los empleados en este sector.

Palabras Claves: agricultura, seguridad, salud, trabajo, sector agrícola

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INTRODUCTION

The purpose of this article is to inform about everything associated with the defense of vigor and occupational protection in the agricultural sector in the countries of Colombia and Chile; it should be noted that this sector plays a key role in the economic context and social improvement in both countries. However, the working conditions in this area present multiple challenges in terms of defense and professional care in the work areas. Workers are committed to different risks, including biological, ergonomic and chemical hazards, as well as extreme weather conditions and the lack of effective regulation that can sometimes occur in some cases, all this has become an urgent issue in occupational safety.

Work in agriculture is extremely dangerous worldwide. Heavy equipment, such as tractors and harvesters, cause the majority of serious injuries and fatalities in this field. The growing dependence on chemicals causes the death or disability of thousands of people due to constant exposure, accidents or improper use of these substances, according to the ILO. In the Chilean country, the agricultural sector had an accident rate of 5.9 in 2012, according to Suseso, which placed it third in the accident rate in the country.

In Colombia, this sector presents challenges where it is essential to implement some actions to optimize the working circumstances of these employees and thus promote sustainable development in agricultural activities. The progress of the sector, both in innovation and in the expansion of new markets, has not necessarily been accompanied by a reduction of its accident rate, being one of the most dangerous sectors of the economy, both nationally and globally. This is due to the fact that for the development of the various tasks, the labor force is merged with the use of sophisticated equipment and technologies

which has led to the introduction of new risks in the workplace. In Colombia, the agricultural sector is one of the most difficult for workers, with reports of some 50,000 incidents, which, together with non-formalized work, increase the risks. Colombian farmers are exposed to inadequate machinery, chemicals, extreme environmental conditions, contagious diseases and infections from parasites and insect bites, along with insufficient availability of potable water and adequate sanitation. The



environment is worsened by the existence of young workers, who have higher rates of occupational accidents than adults.

BACKGROUND

Decree 1071 of 2015 promulgates the single regulation for the agricultural, fishing and rural improvement administrative sector. The Ministry of Agriculture and Development is responsible for directing, supervising and evaluating the exercise of the competencies of its related and related entities with deterioration of the providence powers that correspond to them, in addition to contributing to the enunciation of policies, the development of sectoral programs and their implementation

Resolution 0312 of 2019 establishes the fundamental specifications of the Global Management System for Accident Prevention and Occupational Health, applicable to all organizations, including mining organizations. These Minimum Standards belong to the group of guidelines and necessary conditions of mandatory compliance procedures for employers and contractors that allow establishing, examining and monitoring the basic technical-administrative conditions, as well as the indispensable financial conditions for the effective execution and continuous development within the model of Comprehensive Management of Occupational Safety at Work.

Decree 1072 of 2015, also called Workplace Safety Regulation, is a Colombian standard that institutes the basic requirements that companies must meet to avoid hazards in the workplace and promote a protected and healthy work environment. This decree compiles all legislation related to the labor sector.

Law No. 18,755 regulates the rules of the Farming and Cattle Service, repealing Law No. 16,640 and other practices. The Agrarian and Bovine Service will operate as a decentralized entity, with permanent existence, endowed with legal identity and independent property, with full capacity to obtain assets, practice substitutions and assume commitments. This service will be under the supervision of the State Director, through the Ministry of Agriculture. Its main headquarters will be in the city of Santiago, without affecting the specific residences designated by it.

Supreme Decree No. 158 of 2015 of the Ministry of Health ratifies the statute on situations to ensure the hygienic safety of individuals during the ground use of agricultural plant protection products. The frequent inadequacy of this activity arises from the importance of establishing adequate safety



measures to safeguard the strength and righteousness of both the workers involved and residents in areas near the study site or who may receive the after-effects of pesticides.

Law No. 20,308 of 2008 of the Ministry of Agriculture on the Protection of Workers in the Use of Phytosanitary Products establishes that all pesticides must be marketed in closed containers, in the type of packaging authorized for each product, and with labels that specify in Spanish, definitively, the structure of the product, the knowledge for its proper and safe use, the method of disposal of empty containers, the necessary warnings, the name of the manufacturer or importer, and any other information determined by the Service by means of a resolution.

METHODOLOGY

This reflection is based on a review of global, national and local documentation, focusing on the last 5 years. A bibliographic search was carried out in governmental sources, graduate works and academic search engines, analyzing and interpreting information from various documentary sources. Studies, reports and statistical data on occupational health and safety in Colombian and Chilean agriculture were examined in order to recognize similarities, differences and best practices. In order to make this research more effective, the search was conducted in English. Thus, seeking the incorporation of all relevant information on the subject, to ensure clearer information.

RESULTS AND DISCUSSION

The results of the desk review indicate that both Colombia and Chile have made progress in implementing standards and regulations to protect agricultural workers. However, there are still important challenges related to the effective enforcement of these standards, lack of resources and labor informality.

In Colombia, the informality in the agricultural sector and low literacy hinder the implementation of OSH order. In addition, lack of training and inadequate use of particular defense elements increase exposure to chemical and physical risks. The situation of governmental negligence towards rural workers aggravates these losses by limiting their access to education, health care and safe working conditions.

The International Labor Organization (ILO) highlights the importance of promoting healthy and safe work environments in Colombia's rural sector. Joint efforts are being made between the ILO, the

Ministry of Labor, the European Union, representatives of employers and workers, and regional bodies to improve farmers' OSH skills and promote a culture of preventive safety.

In Chile, although there has been characteristic progress in the formalization of the agricultural sector and the training of workers, there are still challenges in the prevention of incidents and working conditions. Exposure to pesticides, the use of heavy equipment and adverse atmospheric conditions are among the most frequent risks in Chilean agriculture.

In Colombia, the agricultural sector has significant rates of occupational accidents, reflecting a work environment with considerable risks. In 2021, 59,310 occupational events were obtained in the agricultural, cattle, hunting and forestry sector, along with 70 occupational ailments and 35 deaths; During the first half of 2020, a total of 211,055 occupational accidents were recorded in Colombia, of which 12.8% corresponded to the agricultural sector. This implies a rate of 6.75 events per 100 workers in this sector; In 2012, the General System of Labor Risks reported 48,957 incidents in the agriculture sector, symbolizing approximately 8% of the national total.

The most common types of mishaps in the agricultural sector include accidents with machinery and tools: they represent a large part of the incidents. It is estimated that the improper use of tools and machinery is responsible for 39% of occupational accidents, accidents due to falls and blows, these injuries are frequent and constitute a significant proportion of occupational accidents in this sector, traffic accidents, approximately 40% of fatal accidents in the agricultural sector are caused by road accidents and finally there are exposures to chemical substances: the handling of pesticides and agrochemicals also contributes to the accident rate, generating intoxications and occupational diseases.

In terms of occupational fatalities, 198 occupational fatalities were recorded at the start of the 2020 half year, with 14 deaths (7.1%) attributed to the agricultural sector. This translates into an occupational fatality rate of 1.53 incidents per 100,000 employees. These data highlight the pressing need to implement effective strategies to increase labor protection and occupational wellbeing in the agricultural sector in Colombia.

In Chile, the farming sector has a significant accident rate, and data indicate that agricultural workers have at least double the mortality risk compared to other sectors. According to the Superintendence of Social Security (Suseso), the accident rate in the Agricultural, Forestry and Fishing sector was 5.9 in

2012, ranking as the third sector with the highest rate. The accidents that are most common are related to machinery-related accidents such as tractors and lawn mowers are responsible for a high frequency of serious injuries and fatalities. More than 30% of fatal events in this sector are caused by tractors; there are also falls and blows, which represent approximately 40% of occupational accidents in general in Chile, being a common cause also in agriculture. Interaction with chemicals such as the use of pesticides and agrochemicals significantly increases the risk of intoxication and serious diseases among agricultural workers and finally there are also accidents due to cutting tools as they make improper or accidental use of hand tools also contributes to accidents in this sector.

In a broader analysis, it was reported that 1.90% of work events in the agricultural sector are serious or fatal, a figure higher than other sectors such as industry (0.93%) and services (0.82%), in 2022 there were 313 fatal work accidents in total, with a significant percentage attributed to agricultural work. These data reflect the urgent need to optimize occupational circumstances and safety in the agricultural sector to protect workers and reduce the accident rate in Chile.

In the first half of 2020, 353 cases of occupational diseases were reported in the farming, bovine and forestry sectors, representing a rate of 88,225 per 100,000 workers. This sector occupies the first places in terms of occupational disease rates in Colombia. According to Fasecolda, in 2021, 70 occupational diseases were recorded in the agricultural sector officially affiliated to the General System of Occupational Risks. However, this figure could be higher due to the high rate of non-formal work in the rural sector, which exceeds 80%. The most significant diseases are musculoskeletal disorders with 92%, this disease is more prevalent in this sector as it is associated with repetitive physical efforts and inadequate postures. We can also find bilateral sensorineural hearing loss that is caused by prolonged exposure to noise generated by agricultural machinery and finally there are respiratory and dermatological diseases that are associated with exposure to agrochemicals and pesticides, also including chronic intoxications and skin allergies.

In Chile, occupational diseases in this sector according to the Superintendence of Social Security (Suseso), in the phase from 2017 to 2021, agriculture has shown a high rate of occupational diseases, although the exact figures may vary due to the lack of complete reports due to labor informality. Overall, the accident rate in the agricultural sector was 5.9 in 2012, which placed it as one of the

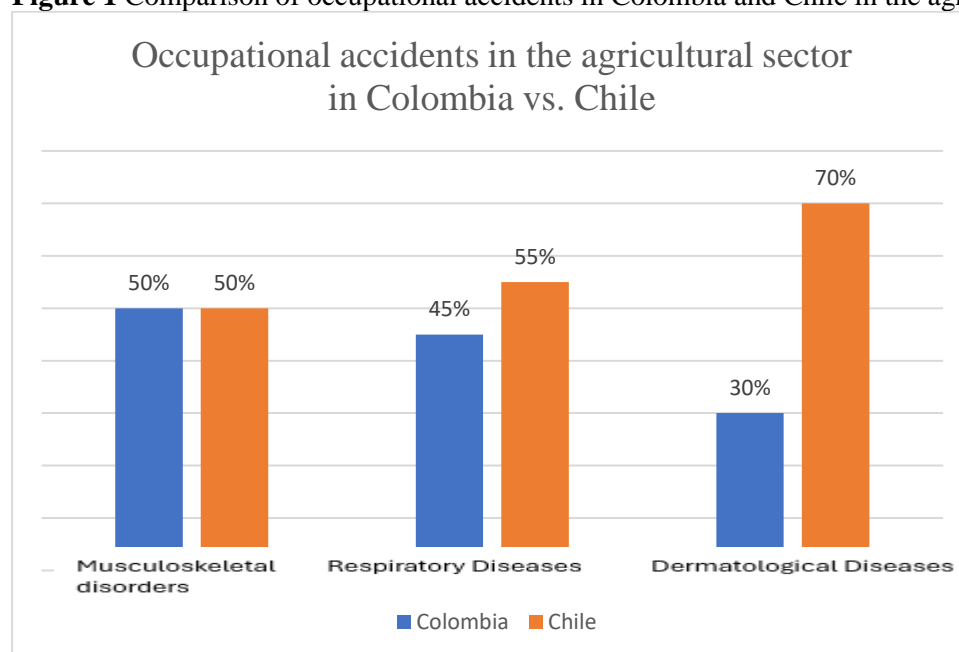


sectors with the highest risk. In 2022, there was a 12% increase in occupational accidents at the national level, which may also be related to an increase in occupational diseases. The most important diseases are psychological disorders such as occupational stress and precarious working conditions can contribute to psychological problems, although these are less reported, as well as in Colombia faces musculoskeletal diseases, these are more common and are associated with the handling of heavy loads and positions not suitable for health. Including problems such as low back pain and repetitive strain injuries, contact with agricultural chemicals is a major concern. It is estimated that a considerable proportion of agricultural workers suffer acute or chronic poisoning due to pesticides and agrochemicals, and prolonged exposure to dust, chemicals and other air pollutants can lead to chronic respiratory diseases among agricultural workers.

The rural sector in Chile and Colombia faces a high risk of occupational diseases, mainly musculoskeletal disorders, psychological disorders and conditions related to chemical and environmental exposure.

conditions related to chemical and environmental exposure. These figures reflect the urgency of correcting occupational situations and strengthening occupational safety and health policies in this area.

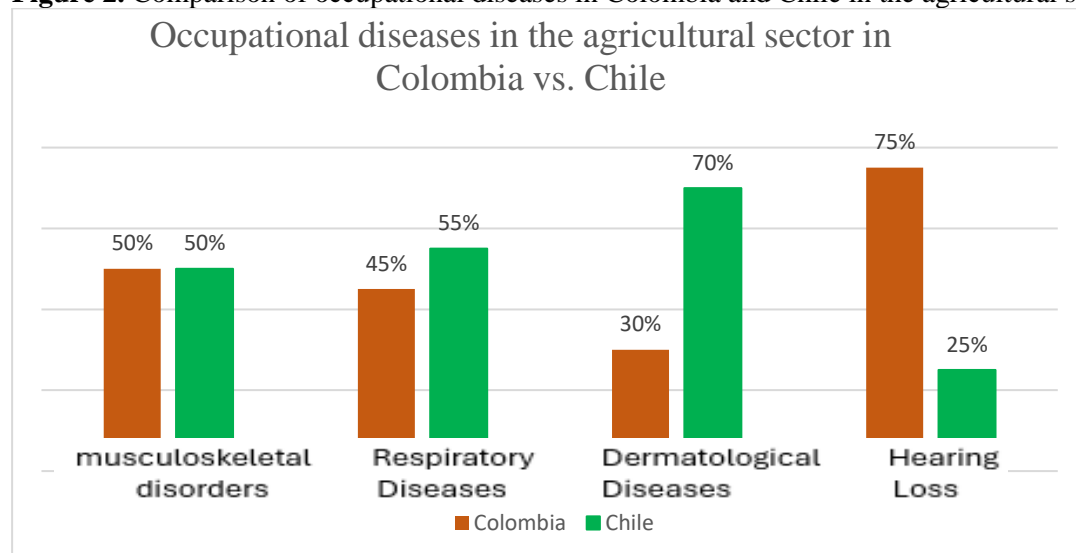
Figure 1 Comparison of occupational accidents in Colombia and Chile in the agricultural sector.



fountain: Pabon,H.(2025)

In the previous graph it can be determined that the most significant accidents in this sector are traffic accidents with 80%, Colombia being the most relevant. Accidents involving machinery in Colombia account for 61% and Chile for 39%, accidents due to falls in Colombia account for 60% and Chile for 40%, chemical exposures are the same in Colombia and Chile with 50%. It can be observed that in Colombia occupational accidents in this sector are more characteristic than in Chile.

Figure 2. Comparison of occupational diseases in Colombia and Chile in the agricultural sector.



fountain: Pabón,H.(2025)

The graph shows that diseases such as musculoskeletal disorders are equal in Colombia and Chile where workers suffer more from this disease, respiratory diseases in Colombia have 45% and in Chile 55%, dermatological diseases in Colombia are 30% and in Chile 70%, hearing loss in Colombia is more significant with 75% and in Chile 25%.

CONCLUSIONS

- Both countries have made progress, but challenges remain Both Colombia and Chile have established workplace safety standards for the agricultural sector, but challenges remain in implementing them effectively.
- Informality is a key issue; labor informality, especially in Colombia, hinders the implementation of security strategies and access to support equipment and training..
- There are specific predominant risks workers in both countries face due to extreme weather, unprotected handling of agrochemicals and the operation of heavy machinery.

- Accident rates are significant in the agricultural sector in both Colombia and Chile, with Colombia being the country with the highest number of accidents and deaths. In Chile, agricultural workers face a higher mortality risk compared to other sectors.
- International organizations such as the ILO are working with governments and other stakeholders to improve the protection and welfare situation in Colombia's rural sector.
- The most common types of accidents occur in agriculture in both Colombia and Chile, including those involving machinery, falls, transport incidents and exposure to chemicals. This suggests the need for specific interventions that address these specific hazards in both countries.

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