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# **Work Health and Safety in Cotton Ginning Industry: A Survey of Practices in Australia**

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## **ABSTRACT**

This survey focuses on the WH&S (Work Health and Safety) practices in Australia and relates them with those in Pakistan. It also highlights the planned areas of work required on WH&S in cotton ginning industry of Pakistan. This article is one a series of research studies that will inform a broader approach development. The aim of the survey was to design a standardized health and safety Act for cotton ginning industry of Pakistan and to help ginners meet their due industry obligations under the model WH&S Act.

The first component of the research study survey was to review the relevant Australian work and safety model as this provides a framework to protect the health, safety and welfare of all employees at work and of other people who might be affected by the job.

The second aspect of the research study survey concerned site visits to cotton gins with the support of Australian Centre for Agricultural Health & Safety, Moree, NSW. During these visits the existing ginning process in terms of WH&S were reviewed. Informal interviews were also conducted with Gin Managers and Ginning Experts regarding WH&S in the Australian cotton ginning industry.

**Key Words:** Work Health & Safety, Dust, Floating Micro Cotton Fibers.

## **1. INTRODUCTION**

**W**H&S is the area of science that focuses on protecting health and safety of stakeholders in the work-place from exposure to hazards and risks at work. This is of key importance in the cotton ginning industry as this industry involves processing of separating cotton seed from lint (fibers) for use in textile industry, while requires use of heavy machinery that produce dust and noise pollution [2]. Through the process of ginning, raw cotton is conveyed through series

of machines and in this process dust, flating micro cotton fibers and raw materials are discharged in the environment. These particles may expose the workers to a variety of medical conditions such as asthma, bronchitis, byssinosis etc. In Pakistan, cotton ginning is the weakest link in the textile chain because of sub-standard WH&S conditons.

Pakistan produces 8.7% of the world's cotton, making it the fourth largest producer across the globe [6]. The cotton

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ginning industry in the country also provides raw material to the textile industry and contributes 21.4% to the GDP along with employing more than quarter of the labor force, making this industry the backbone of Pakistan's economy. Despite the importance of cotton ginning industry in Pakistan, sub-standard optimal ginning factories result in poor quality and contaminated cotton due to inadequate transportation, storage facilities and unskilled handling and harvesting. Ginners also use obsolete technology, old machinery and have an untrained labor force, resulting in significant WH&S issues, low profitability and efficiency.

The work environment in the cotton ginning industry of Pakistan may be considered hazardous to health due to generation of large amounts of whirling dust and floating waste fibers produced by out dated gin machinery. During the ginning process workers are exposed to various hazards and risks [7]. The major WH&S issues associated with ginning in Pakistan are dust, floating fibers, noise levels, poor arrangement of machinery. Similarly, high risk work issues faced by ginning workers are crush injuries, falling from height, lifting activity related injuries, electrocution, fire etc. Another notable issue amongst workers in cotton industry is that there are no health checks available to gin workers.

Currently, the cotton ginning industry of Pakistan lacks any WH&S regulations. Therefore, there is a need for urgent legislation and policies to design WH&S requirements for cotton ginning in Pakistan to fix rigorous air quality standards, improve machinery guarding and ensure medical surveillance in occupations related to cotton ginning. This is in stark contrast to the practices in Australia where stringent WH&S are put in place by the government [8-10]. The objective of this survey was to elucidate the WH&S practices in Australian cotton ginning industry and put forward recommendations for the ginning industry in Pakistan.

## **2. METHODS**

A survey was designed with collaboration of researchers from Australian Centre for Agricultural Health & Safety, Moree, NSW. The aim of the study survey was to identify basic information on WH&S practices in Australia's cotton ginning industry to assist the authors with their work in developing safety standards for cotton ginning in Pakistan.

The survey was uploaded online using a web-based application (Survey Monkey®)

The URL address for the survey via the domain was made available to potential participants from the Australian Cotton Ginners Association. Participants were required to complete a confidential quality assurance survey. Participant information was secure and only available to the authors through the use of both server authentication and data encryption. This site is hosted in a secure data center environment that uses firewall and intrusion detection systems to prevent interference or access from outside intruders. An IP address was also collected from the computer sub-mitting the questionnaire to identify the number of questionnaires submitted from a particular computer.

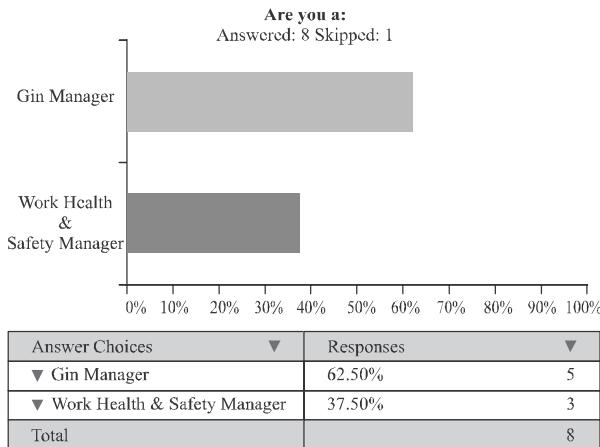
The survey questionnaire mainly focused on information pertaining to demographics of the respondents, health checks for workers, risk factors for injuries and injuries sustained while at work. The survey was circulated through the mailing list of Australian Cotton Ginners Association to 20 potential participants, with 8 participants responding.

## **3. RESULTS**

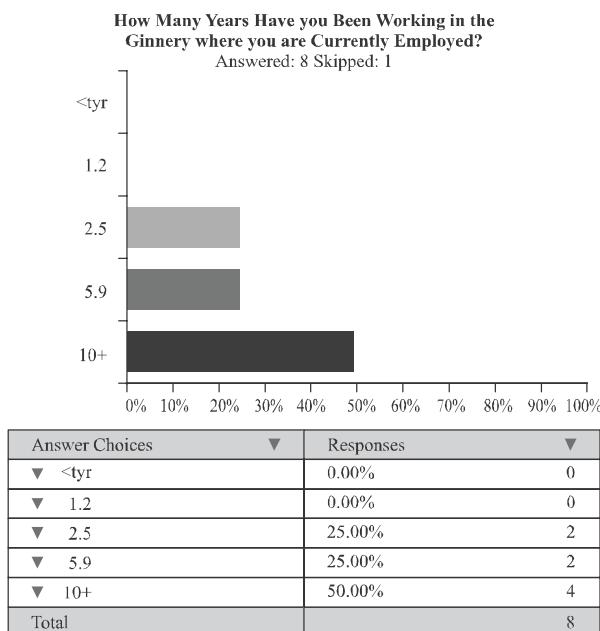
The response rate from the survey was 40%, 8 out of 20 GM or WH&S Managers of Australian Cotton Ginning Industry from the Moree, NSW region in Australia responded. Majority of the respondents were GM (62.5%)

and two-thirds of them (75%) had more than five years of experience working in their present cotton ginneries (Fig. 1-2). Also 75% of the respondents had more than 10 years of working experience in the cotton ginning industry.

More than half of the GMs or WH&S Managers had more than 15 full time staff working at their gins in peak season (Fig. 3). All of the GMs or WH&S Managers screened the employees for through health check before employing

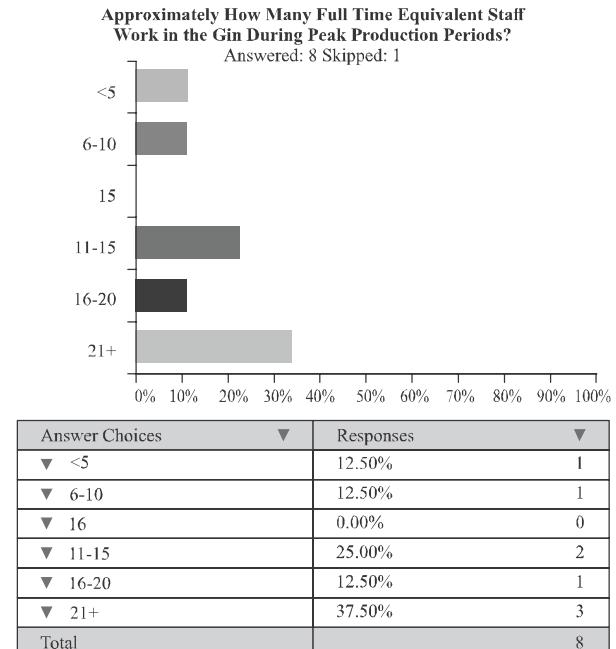


**FIG. 1. DEMOGRAPHICS OF THE SURVEY RESPONDENTS**

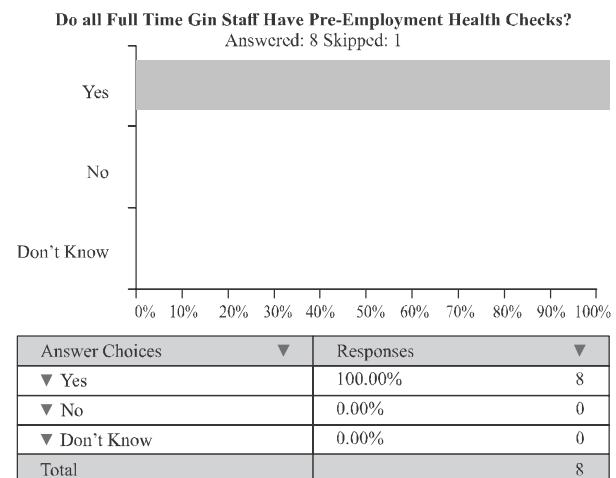


**FIG. 2. EMPLOYMENT EXPERIENCE OF WORKING IN A GINNERY**

them (Fig. 4). Quarter of the GMs (25%) also made health checks available to gin workers after employment and, 50% GMs and WS&H managers did not make health checks available. Of the 25% managers who made the health checks available specified that bi-annual monitoring of hearing and lung function were conducted, and recently there has been an introduction of a physical assessment for long term workforce (Fig. 5).

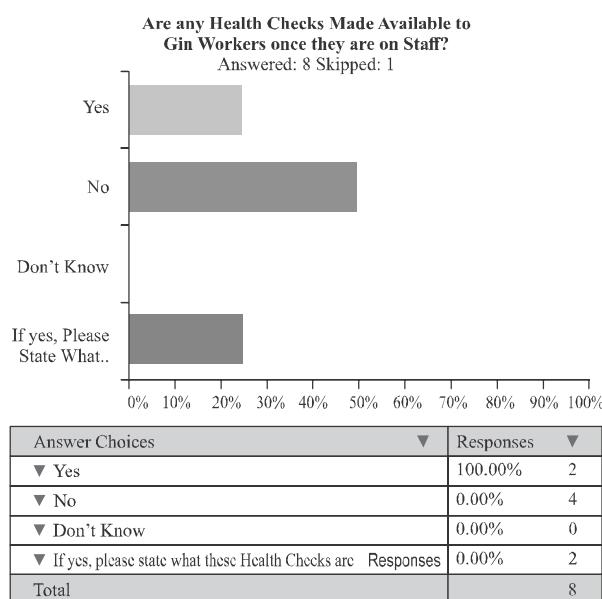


**FIG. 3. NUMBER OF FULL TIME STAFF EMPLOYED BY THE GIN DURING PEAK SEASON**

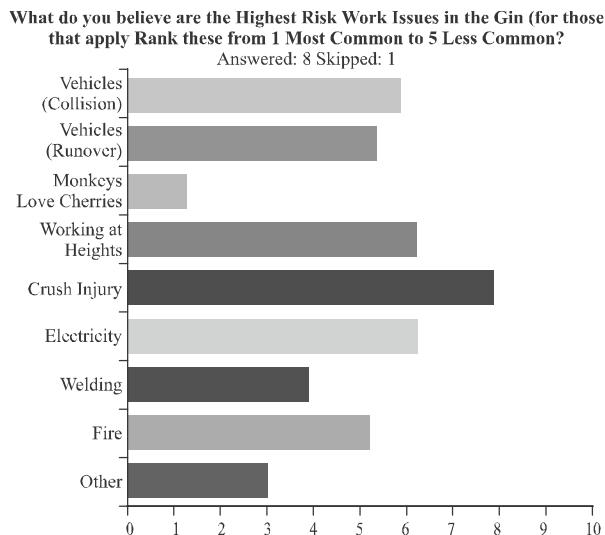


**FIG. 4. HEALTH CHECK OF EMPLOYEES PRE-EMPLOYMENT**

The GMs and WH&S managers believed that the highest risks of injury associated with working at gins were sustaining crush injuries, getting injured while working at heights, electrocution and vehicles collision or vehicles run overs (Fig. 6). Most of them also classified lacerations, slips/trips, falls and crush injuries as the most frequent types of injuries in the gins (Fig. 7).



**FIG. 5. HEALTH CHECKS FOR GIN STAFF POST EMPLOYMENT**



**FIG. 6. RISK FACTORS FOR INJURIES AT GINS**

When respondents were asked, what were the three most significant steps taken at the gins to manage safety? They responded by commenting safety fist approach and elimination of hazards where possible. On the question regarding their recommendations for developing a health and safety system in Pakistan;

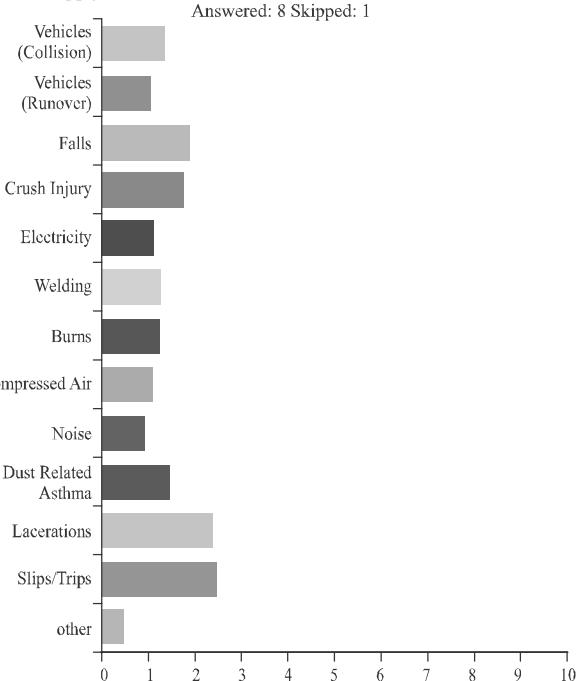
The top responses were:

- Set safety rules and enforce them
- Use health screen to match people to tasks
- OH's officer with discipline power

#### **4. CONCLUSIONS**

The survey showed that WH&S is very important for any organization in protecting the health and safety of all stakeholders at the workplace from exposure to hazards and risks resulting from work activities. The results showed that WH&S regulations are well integrated in the

**What are the Most Frequent Types of Injuries in the Gin (for those that apply Rank these from 1 Most Common to 5 Less Common)?**



**FIG. 7. COMMON INJURIES AT GINS**

Australian Ginning industry and that all employees go through pre-employment health checks and most employees have access to free health checks post-employment. Such an approach allows the screening of at risk workers and enables the identification of risk factors for injuries. The results also showed that lacerations as the most common types of injuries. Perhaps such injuries can be easily prevented by the use of protective equipment such as gloves etc. It is also interesting to note that vehicle collisions were also noted as a cause injuries, although road traffic accidents essentially occur outside the gins but they usually involve vehicles coming in and out of the gins. Such accidents can be prevented by only allowing expert drivers to drive in the vicinity of the gins and strict implementation of speed limits. Previous research has shown that the WH&S in Pakistan's ginning industry is dysfunctional and no structured protocols are in place. Henceforth, the authors recommend espousing a similar approach to the Australian work health and safety Act for cotton ginning in Pakistan.

The WH&S provides a framework to protect the health, safety and welfare of all gin workers at work and of other people who might be affected by the work. It is very important for organizations to protect the health and safety of all stakeholders in the workplace from exposure to hazards and risks resulting from work activities.

## 5. RECOMMENDATIONS

Technological developments are continuing in cotton ginning and on-going modernization will continue to increase productivity of this industry. Implementation of international standard WH&S requirements is essential for the cotton ginning industry of Pakistan to enhance the health, safety and well-being of the gin workers. The Ministry of Textile, Government of Pakistan should setup mandatory pre and post-employment health checks for workers in the ginning industry. The data of the health

checks should be shared with researchers so that a better understanding of the risk factors for injuries is developed. GMs should also employ occupation health and safety professionals as it is also done in the Australian ginning industry. These professionals can assist in implementation of WH&S protocols in a more organized way.

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