Techno-Science

Scientific Journal of Mehmet Akif Ersoy University

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Original Research Article

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IMPACT ASSESSMENTS OF OCCUPATIONAL FARM-SAFETY ON NIGERIA AGRO-ECONOMY RECOVERY AGENDA

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ARTICLE INFO

Article History

Received : 24/08/2020
Revised : 14/01/2021
Accepted : 22/04/2021
Available online : 30/04/2021

Keywords

Farm, Employees, Safety, Policy, Injury and Economy.

ABSTRACT

Human capital is a great investment in a mechanized agricultural sector for productivity growth of a national economy. Poor safety policy actions increase burden of injuries/illness (BOI) on farm employees thereby, impeding productive efficiency, financial profitability, return on investment (ROI) and mitigating national agro-economy growth which represents the bottom line of farming business. It was in this view this research work assessed the impact of farm safety policy implementation and monitoring on Nigeria economy diversification and recovery policy through a productive mechanized agricultural sector using Novum Agric Industry (NAI) -an integrated commercial farm- as a case study. One hundred and twenty (120) respondents from various sections on the farm were randomly selected. Farm safety policy (FSP) performance questionnaires and structured interview were adopted for data collation. Descriptive statistics analysis revealed 56.7% and 61.7% male dominated and literate farm population, age 18-30 and 31-40 years constituting 51.7% and 41.7% of total farm population respectively. The percentages of employees strongly agreed and strongly disagreed to the respective assertions: 56.7% and 2.5% - farm mechanization technique practices; 14.2% and 27.5% - hazard awareness; 4.2% and 52.5% - safety training; 12.5% and 40% - use of personal protective equipment (PPE) 1.7% and 56.7% - FSP implementation; 0% and 63.3% - FSP monitoring. Consequently, the followings strongly agreed and strongly disagreed to the corresponding injury assertions: 40% and 9.2% - fractures and sprains; 39.2% and 2.5% - chemical attacks; 55% and 0% - body lacerations; 29.2% and 15% - specific and non-specific chronic obstructive pulmonary diseases (COPD). Based on these, 35.8% and 15%; 23.3% and 25.8%; 30.8% and 10% strongly agreed and disagreed to delay in farm work; reduction in -: employees', annual farm return, and employees' income. Farm safety policy actions should be fully implemented, monitored and periodically reviewed by the employer.

1. INTRODUCTION

For Nigeria to attain self-sufficiency in food production as a country, farmers have to adopt mechanization approach in their agrarian activities to enhance production and abolishing loss of time. While Nigeria has the capability of attaining the food basket of Africa, this is key to realizing it. However, this comes at a price, precisely, substantial hazards to the health and welfare of farm workers and farm household members. "Agriculture" embraces not only farming, but also many other allied activities like irrigation, pest management, crop processing, grain storage, packaging, animal husbandry and other related activities [1]. It is a traditional engine of development for Nigeria's economy. It is contributing about 42-45% of the Gross Domestic Product (GDP) and engaging about 70% of the nation's populace [2]. The agriculture community has imperative economic reasons to be worried and well-versed about farm safety policy. After construction, it employed more than a third of the world's work force in many countries, specifically in Africa and Asia; recording the worst job-related fatalities and one of the nastiest for occupational ill-health and injuries [2]. In a study, Ngigi stated that the consciousness of the African Green Revolution and Nigeria contribution to food security and economic advancement in Sub-Saharan Africa is endangered by several factors [3]. The direct consequence of these factors on agricultural production and food security are aggravated by greater exposure to occupational diseases and illnesses that lessens labour throughput. Sub-Saharan Africa countries

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To cite this article: Enemaku, L., Oluwagbayide, S., (2021). Impact Assessments Of Occupational Farm-Safety on Nigeria Agro-Economy Recovery Agenda. Techno-Science, vol. 4, no. 1- p. 1-6

e-ISSN 2651-3722

recorded over 54,000 fatal work-related accidents yearly; nearly, 42 million occupational accidents happened that resulted in at least three days' absence from work; where fatal accident rate in agriculture is 22.5 per 100,000 [4]. One of the most hazardous occupations in Nigeria is farming and it characterizes with the exposure to variety of hazards such as noise, dusts, animals, unguarded machinery and compressed air, airborne toxins and extreme temperatures. According to McKnight and Melvin, farming accidents resulting from operations in mechanized and unmechanized farms has highlighted the dangers to which farm workers are exposed with injury rates equal to or exceeding those in construction and mining [2]. The increasing use of pesticides, fertilizers, and other farm agrochemicals; and the rapid mechanization of farming as automotive engines replaced the horse, mules and oxen are two major trends in mechanized farming revolution during the 20th and 21st century that had not only improved farm productivity, but shaped the health and safety hazards associated with farming operations. Farm workers are prone to hazard varying from physical, chemical, biological, ergonomics and psychosocial hazards in so doing resulting in malfunctions and disorders such as musculoskeletal disorder and diseases like carcinogenicity, mutagenicity, tetragenicity, psychiatric disorder and delayed neuropathy, and the dusts have been acknowledged to cause diseases varying from byssinosis, pneumonitis, occupational asthma and non-specific chronic obstructive pulmonary disease (COPD). In a research, Chris reported that agricultural sector has the nastiest record for job-related fatalities after construction and one of the worst for work-related ill-health and injuries; thereby impeding workers' productivity and efficiency, decreasing agricultural throughput and weakening productivity [5]. There was little interest in learning about health and safety concerns in many agricultural settings until nearly a decade ago. Only a few institutions had programs that concentrated on this aspect of farming. Effective and sound management of farm health and safety will help to deliver enhanced productivity and efficiency. This has been attributed to positive performance indicators (PPIs) [6]. Farm safety is thus a pivotal issue for better-quality agricultural productivity in Nigeria. With the enlargement of agricultural technology, there is a rising health apprehension with crude and unsafe practicing farmers with little or no expertise of health and safety practices as it links to agriculture; exposing millions of this sector workers to hazards with many sustaining injuries and possibly death [7].

Novum Agric Industries (NAI) Limited is located at Farm 11, Panda, Karu local government area, Keffi, Nasarawa state with a geographical coordinate of (9o12'09.9"N 7o49'33.6"E). The commercial agricultural production in NAI Limited is optimally mechanized with different types of agricultural machinery, equipment and tools operating on a large scale both indoor and outdoor under a varying climatic condition. Unsafe and reactive attitudes towards accidents and diseases within the farm places its activities potentially hazardous. The major accidents and ill health contributory causes on the farm include:

- Working with heavy machinery, all-terrain vehicles, equipment and tools;
- Exposure to unwarranted vibration and noise;
- Slips, trips and falls from heights;
- Lifting heavy weights and other work giving rise to musculoskeletal disorders;
- Exposure to dust particles and other organic substances, chemicals and infectious agents.
- Working conditions, such as exposure to extreme temperatures, inclement weather conditions within the farm environment.

2. MATERIALS AND METHODS

The materials utilized for this research work on NAI Limited which is located at Farm 11, Panda, Karu local government area, Keffi, Nasarawa state with a geographical coordinate of (9o12'09.9"N 7o49'33.6"E) were primary demographic characteristics data; employer's occupational health and safety policy statements, questionnaires on health and safety policy implementation, practices and monitoring administered to randomly selected 120 respondents out of over one hundred and seventy (170) staff population from the following three (3) major sections on the farm respectively: Farm Machinery and Agricultural Equipment (FM&E); Agro-Chemical (AGC); and Farm Workshop and Tools (FW).

These were supplemented with secondary data from reports and internet publications relating to this study and descriptive statistical method was used for data analysis.

3. RESULTS AND DISCUSSION

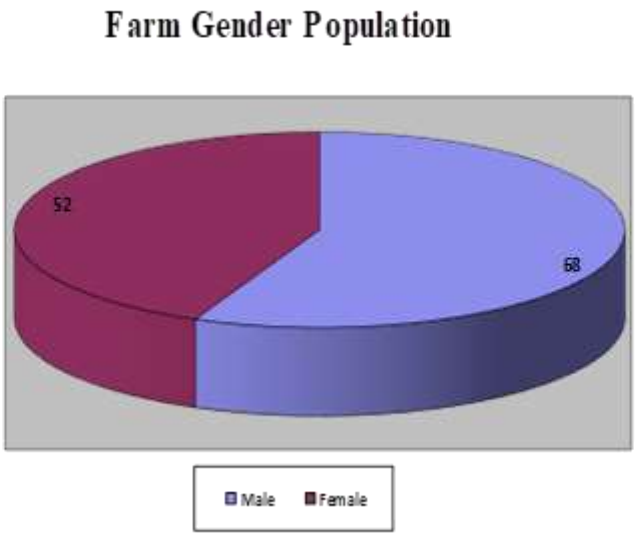

Fig 1. The gender of farm population.

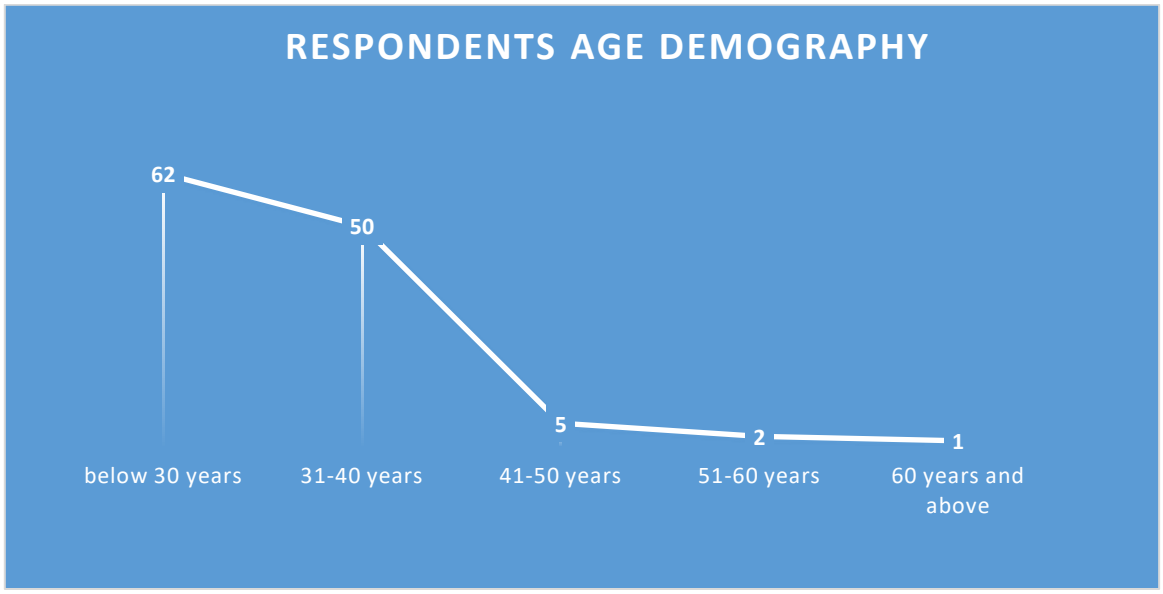

Fig 2. Ages of the respondents.

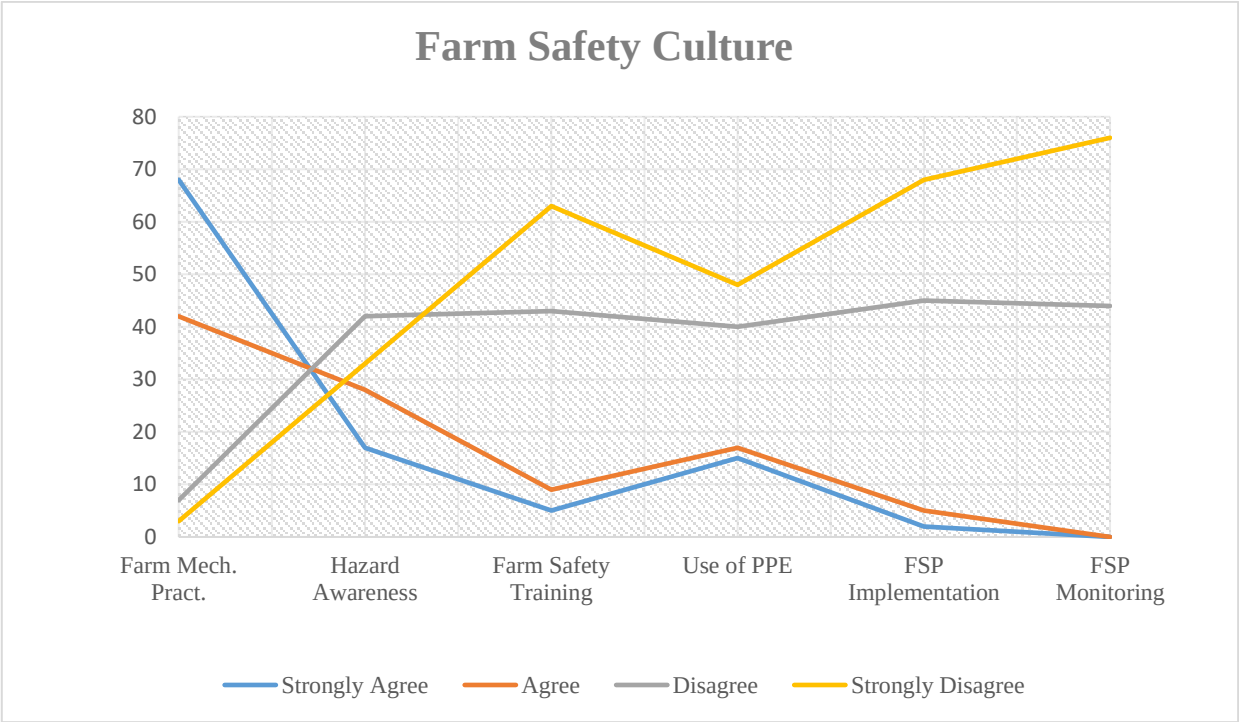

Fig 3. Safety Practices of the farm

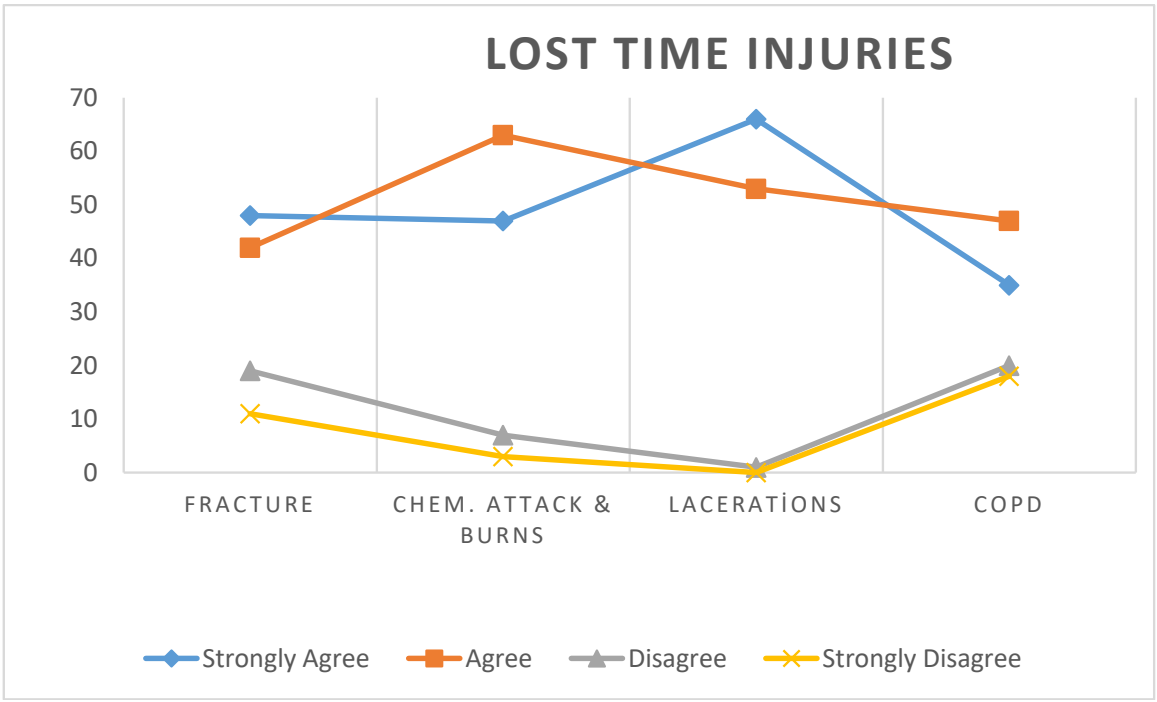

Fig 4. Farm work related accident injuries.

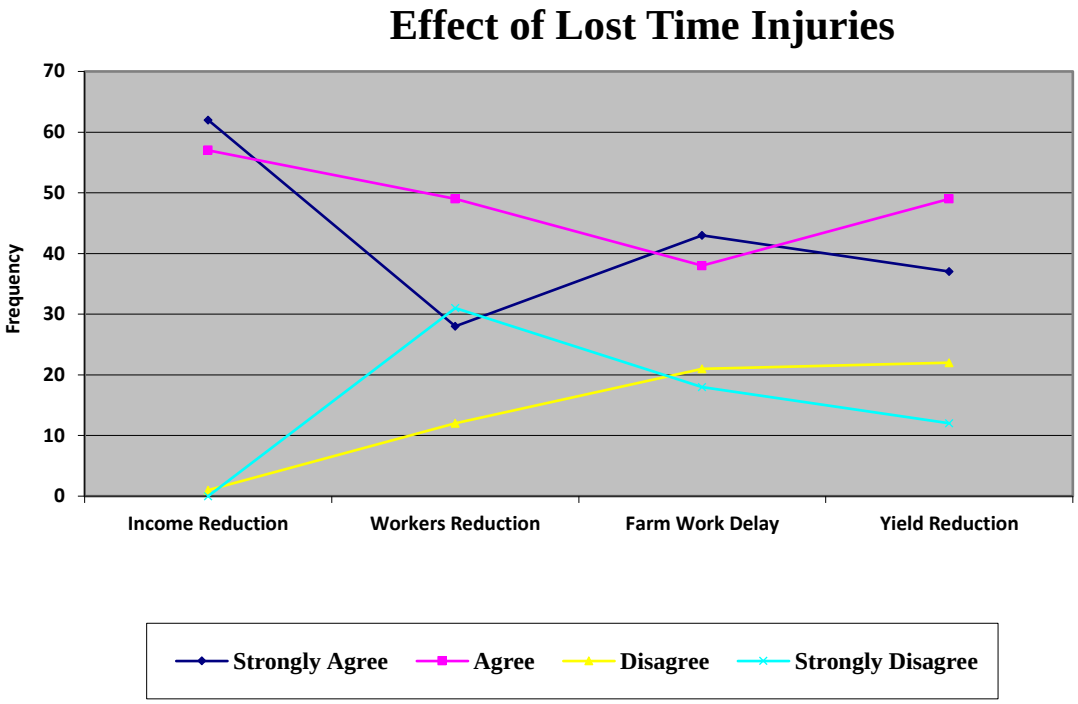

Fig 5. Effect of farm work related accident injuries

Data collated in Fig. 1 shows a male dominated farm with a 56.7% of the total farm population. The respondents age demography showed a dominating age of less than or equal to 30 years (≤ 30) and 31-40 years, which constituted 51.7% and 41.7% respectively for the total farm population according to Fig. 2. These percentages show the high numerical age range population of vigour and strength for the farm.

According to Fig. 3, an above average rating of 56.7% of the farm populating agreed strongly that farm mechanization techniques were been practiced on the various farm sections, while only 2.5% strongly disagreed with these techniques-practiced notion. From the level of hazard awareness ascertained from the employees, 27.5% of them who strongly disagreed against a 14.2% who strongly agreed to hazard awareness, signified the highly recorded percentages for accidents which occurred across the farm major sections. Only 4.2% and 12.5% of the employees' population had undergone safety training and strongly agreed with the use of PPE respectively while on duty, while 52.5% and 40% strongly disagreed to these assertions.

Fig. 4 shows that 39.2% of the respondents in the agro-chemical section strongly agreed they had chemical attack and burns of various degrees of injuries from chemicals due to unsafe exposure to chemicals, while 29.2% of the total farm population had specific and non-specific chronic obstructive pulmonary diseases (COPD). The above reports outnumbered 2.5% and 15% of employees who strongly disagreed with these occurrences; while 40% and 55% strongly agreed they had fracture, sprains and lacerations such as wrist/hand injury, lower back pain, knee injury and body cuts from the various farm sections, only 9.2% strongly disagreed.

Based on data findings as stated above, varying percentages of the overall farm employees strongly agreed to the following assertions and facts: 35.8% of the total farm population asserts to delay in daily farm work due to employees' absenteeism to nurse injury/injuries as the case may be; 23.3% asserts consequent reduction in farm workers who became either dissatisfied or lost confident on the job. While 30.8% asserts to the overall reduction in annual farm product yield; 51.7% asserts that, the total monthly and annual employees/farmers income, had drastically reduced.

These results showed the prominence of occupational injuries on the farm due to poor safety culture of both employer and employees arising from poor safety training level recorded and the non-monitoring programs being executed on poorly implemented safety policies by the employer; and the non-compliance with the use of PPE by the employee's population. These can be attributed to employer's low awareness level or negligence in identifying the roles that an effectively functional health and safety policies can play in maximizing the farm overall productivity and the social economic well-being of the employees.

In addition to costs reduction, efficient safety and health management elevates and enhances business efficiency. Thousands of job-related accidents, ensuing in more than three days off work are being reported to the Health and Safety Authority yearly [8]. Occupational or job-related diseases and ill-health are very difficult to ascertain and measure due to their extended dormancy period but result in surplus of one million days lost at work yearly. These accident and ill-health cases are resulting from failures and deficiencies in the occupational safety and health management in organizations.

4. CONCLUSIONS

Conclusively, the usefulness of farm employees' health and safety to the productivity output of the agricultural sector cannot be overstated. Human capital has been described as a great capital investment for agricultural productivity, hence agricultural food productivity in a mechanized agricultural segment is a dependent of the health and well-being of the employees. Therefore, financing the farm safety policy implementation, monitoring and programme becomes important, since it is economical and better to invest rather than accept the cost burden and consequences of an unhealthy, unsafe and unproductive agricultural sector on the national agricultural economy.

5. RECOMMENDATIONS

Based on the general discoveries from this study, it is recommended that there should exist a formulation, implementation, monitoring and training of a uniquely structured farm safety policies that suites the farm daily activities. All employees should have at least the minimum level of educational qualification in Nigeria, and should be adequately trained on agricultural occupational health and safety techniques and practices. The employer also, must give strong priority to the provision and usage of personal protective equipment (PPE) for all employees, while efficient record keeping on agricultural health and safety activities should be stimulated for periodic performance evaluation and appraisal.

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