

Environmental Safety Awareness, Extension and Agricultural Development in Nigeria

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ABSTRACT

This study examined Environmental Safety Awareness, Extension and Agricultural Development in Nigeria. The objectives were to; review the sociocultural factors influencing farmers disposition to environmental safety and awareness in Nigeria, assess the level of environmental safety awareness among farmers and extension agents, identify the role of farm safety awareness agencies/organisation in the world with that of Nigeria, highlight the importance of safety awareness to agricultural development and determine the constraints to effective safety awareness in Nigeria agricultural development. The study observed that; Race, Ethnicity, Gender, Health insurance, use of opinion leaders, and rural farmers cooperatives were sociocultural factors that influence farmer's disposition to environmental safety awareness. the study identified safety agencies in Australia to include; The National Center for Farmer Health, Tripple Zero, Work-safety Victoria, Farm Safety Australia. Farm Safety Agencies in Nigeria includes; The Federal Ministry of Agriculture, The Federal Ministry of Health, among others while Non-Governmental Organizations (NGOs) included; Safety Awareness and environmental Support Initiative, Farm Awareness for Food Preservation Initiative (FAFPI), and Safe Food and Feed Foundation. The benefit of having an environmental safety awareness programme for farmers and the extension system include; to promote and encourage good farm safety behaviour, particularly around tractors and machinery, livestock, slurry, and work at height and improving the health facilities and making it accessible and affordable for farmers and extension. The study recommended that government and agricultural agencies should increase their level of safety awareness for farmers and the extension system.

KEYWORDS: *Environment, Safety, Agricultural Safety, Safety Awareness, Agricultural Development*

1.1 Introduction

Environmental safety implies ways or methods, processes or practices that provides or improves sanity based on the utilization of safety principles, activities, knowledge, conditions and so on, that eliminate the ills associated with farming and extension services in the agricultural system as it concerns this study. The farm or agricultural environment includes all agro farms, Agro businesses, enterprises or Agro companies, farm sites, farm operation, farm ecology, farm family interaction, social norms and cultures as it relates to farming. Environmental safety also implies the protection of valuable resources and all interactions within and around it in the farm environment. In this context, the farmer and extension agents are valuable agricultural resources influenced by an overwhelming and dynamic environment and it interaction that has sustained or endangered their activities, conditions, life and production. It is also the elimination of all forms of hazards and challenges that threaten the safety of these resources through negligence, over exploitation, abuse or downgrading and destruction.

Safety as a practise is a direct opposition to insecurity. Ensuring safety in Agriculture means security for agricultural production, assets, enterprises, processes, resources, and so on. Safety awareness improves production confidence, investment, agricultural growth and development. It also influences the social system, demographic consciousness, social interaction, and security while improving the standard of life of the rural farmers and their knowledge capacity (Etim, Obu, & Obhiokhenan, 2022). This will in turn sustain an attitude of peace and knowledge and information based decision making through the communication of safety procedures, methods, practices, safe activities, safe conditions, hazards, accidents, problems and so on, to provide awareness, enhance record keeping on hazards, accident and injuries in the agricultural system, enhance research based knowledge on the perceived effects of hazards and their mitigation, and the identification of resources that constitute a potential threat, risk or hazard to the farm environment, farmers or the farm community at large.

The change of behaviour that safety awareness provides will improve human resources as an input factor of production to enhance best practices, safety consciousness, and improve agricultural productivity through harnessing relevant production information that can reduce losses, poor yield, reduce health hazards from agro-chemicals, low motivation, insouciant attitudes among farm stakeholders such as farmers and the extension agents and reduce over exploitation of production resources, and abuse of the environment and it's resources.

The farm environment involves a collection of activities, life pattern, assets, operations, practices, policies, programmes, culture, social behaviour and so on, that relates to the interaction between the farmer and the farm, extension agent and his job of transferring innovation to the farm community. Farmers encounter many health and safety risks during their daily work. Statistics clearly indicate that farmers are a high-risk group, and the results of searches show that this area has attracted very little research attention, as the main determinant of safe behavior is the farmer's approach to his personal safety in his agricultural environment (Hasan and Zehra, 2019).

According to James Phelan, chairperson of Farm Safety Partnership in 2013, the agricultural sector is one of the most hazardous sectors globally, and which continues to have a poor occupational safety and health record. Each year fatalities in the sector account for between 30% and 50% of all workplace deaths, while farms make up just 6% of workplaces. Farm injuries and ill health cause much suffering to farm families and can also lead to significant

farm business losses. Research has shown that farm family members suffer over 90% of injuries on farms (Farm Safety Partnership (2013). Most injuries actually occur in the farmyard and most are predictable and indeed preventable.

The mental environment of farmers provides a psychological interaction that explores their knowledge and practices (skills) in relation to farm practises/adoption of beneficial technology, which will suit their farm operation, improve their profit and constitute less hazards. Low level of awareness or information imperfection (incomplete information provided by a company on their products or display in a manner that is difficult to comprehend) can affect farmers judgement of a technology based on what they feel, think or belief, and may cause them to react to the technology based on experiential learning or situational occurrences with similar technology which had affected their productivity, income, health and overall standard of living whether positively or negatively. The less-educated farmer tends to lack awareness of both pesticide residues and the importance of applying pesticide in standardized ways. Consequently, with less education, there is a higher chance that the farmer will apply prohibited pesticide excessively, leading to highly concentrated pesticide residues (Huang, Liu, & Pei, 2008). Low level of awareness, safety communication, and sociological behaviour of farmers seem to allow them to judge among technologies and improve their knowledge and awareness through social interaction such as the age-grades, market associations and village meetings which may be weak as in a heterophilous society or strong in a homophilous society. Farmers informal review of technology or innovation on the basis of safety is now receiving more attention over its profitability. Several innovations have increased profit but constitute danger to the health, and farming environment while also bringing into extinction certain socio-cultural values and biodiversity. Also the diffusion of modern technologies has seemed to dilute rural culture in so many ways. The use of dangerous chemical innovation endangered wildlife species that has cultural, ritual and spiritual significance to the religious lives of the rural people. Also, medicinal herbs with traditional and spiritual significance are also going extinct since there are not often cultivated or domesticated. Chemicals that poses health and environmental hazards are now receiving firm opposition by some communities and social organizations based on increasing level of knowledge, awareness, and experience (example is the use of Gamalin 20 in fishing in local ponds and streams). This has increased community's dependence on social groups for awareness and judgement of technologies to ensure safety to the environment and farmers health. Such are; peer groups, cooperative societies, opinion leaders, farmers association/field schools, opposition companies or fear-mongers. This is due to the non-availability of national agricultural safety agencies or farm safety organizations to evaluate and enforce safety practices among agro-companies and farmers, as applicable in Nigeria. Nigeria has a generalized safety policies for all civil servants in the country. There is therefore no particular legislation on farm safety policies or programmes specifically for farmers and their households. Implementation of agricultural/environmental safety in the agricultural sector is mostly practised by farm companies/industries. As the national occupational safety applies to all the sectors generally. However, there is an adequate level of awareness. Ecobichon, (2001) as cited by Hasan, and Zehra, 2019 posited that there is a lack of regulations and legislation to control pesticides as well as training programs for farmers to monitor use and to initiate training programs for pesticide consumers.

A review of the National Policy on Occupational Safety and Health (no date) shows that; Institutions regulating and supervising the occupational health and safety in Nigeria are the Federal Ministry of labour and productivity and the Federal Ministry of Health. Occupational Safety and Health security covered by these ministries cuts across all the sectors of the Nigerian economy. It is a general Health and Occupational Safety cover for only workers employed by the federal government. In the private sector, companies are responsible for the occupational health and safety of their employees. Farmers are not employed by government and do not have a right to the privilege of occupational health and safety insurance cover since they are in their personal business. They are not included in the Nigerian Safety policy cover for civil servants. The Nigerian Safety and health policy does not also incorporate rural dwellers who are also involved in one farming business or the other, also it does not include private or local industries that have no affiliation with the government. This has again pre-disposed the vulnerable people to an absence of safety and protection from hazards and health problems. There is also no legal framework that provide legislative backup for farmers on health and safety by the government and her programmes for rural dwellers. Unlike Ireland and Australia, Nigeria do not have a Health and Safety Authority in the country to spearhead the implementation of safety regulations, safety reports and data management in the agricultural sector in Nigeria in order to ensure appropriate record keeping, planning and intervention.

Some agricultural bodies known to be very efficient and functional includes; the Nigerian Agricultural Insurance Corporation (NAIC), environmental bodies such as; the National Biosafety Management Agency (NBMA), the National Environmental Standard Regulatory Enforcement Agency (NESREA) and the Federal Environmental Protection Agencies, among others. Non-Governmental Organization in this category are; Safety Awareness and Environmental Support Initiative (SAESI), Farm Awareness for Food Preservation Initiative (FAFPI), Safe Food and Feed Foundation, among others. But there is no national or state agency on farm safety for farmers as the government of Nigeria has declared readiness to improve the sector. This has also affected the human resource capacity and production resources in Nigeria and has resulted to the shady agricultural development observed in Nigeria as agricultural still remains in it primitive state and in the hands of the poor, old, weak and ill farmers that have poor security, low insurance, poor interventional support and degrading health and poor health facilities in their areas. This also buttress the low level of attention given to the agricultural sector as the food base of the federation.

In 2008, the Organic Consumer Association of Nigeria reported that 112 people had been poisoned by pesticide. In some regions, direct contact with agrochemicals used in agriculture is a widespread problem. Mixing and applying agro-chemicals has resulted in acute poisoning due to uptake via the respiratory organs or through direct contact with the skin or eyes. Agrochemicals pose a further hazard for the residents of rural areas or surrounding communities for example air pollution, soil pollution when there is soil erosion from the farms and water contamination especially where water resources are shared within the communities (Organic Consumer Association, 2008 as cited by Eunice, Kennedy, and Amos, 2017).

Agro-chemicals classified as being extremely or highly hazardous by FAO and WHO are used in developing countries causing 3.5 to 5 million acute poisonings a year (WHO, 2003). Agro-chemicals have replaced biological, cultural, and mechanical methods for controlling

pests, weeds and diseases. Industrialized countries have been taking significant steps to reduce pesticide use, while use in developing countries is on the increase (Wessling, 2003 in Eunice, *et al.*, 2017).

The Social or traditional environment has its own problems to constrain safety for the extension worker. Farm environments or communities prone to communal clashes between rivals or land tussle between families puts both the life of the farmer and the extension agent in danger, any thing may happen any day or time that may instigate fresh war during an on-farm visit, whether the agent is aware or not. Hence Extension agent must seek safety awareness from village opinion leaders.

The academic/research environment (for the extension system), is also bedevilled with factors that challenge the safety of the farmer and his farm business. The wrong application of research information, and the use and practice of farm technologies in relation to inadequate awareness can cause harm on the farm, farmer, or agent by affecting the farmer's trust and confidence on the research institution when it results to losses/accidents (Ashby, Barun, Garcia, Guerrero, Hernandez, Quiros and Roa, 2000; Chema, Gilbert and Roseboom, 2003).

Health status constitutes the most crucial physiological factor of production. A farmer or extension agent who has a poor environmental protection from poorly ventilated house, poor waste disposal system, poor drainage systems, bushy premises, improper use of the mosquito net, voracious sexual lifestyle, poor hygiene, and maintenance of his home environment, will always be prone to disease, ill health and death which will affect his productive capacity. Other factors as unsafe acts and unsafe conditions constrain the farmer and the extension agents from fulfilling their set goals.

Increasing the level of awareness can help to provide safety for both the environmental resources, the extension system, extension agents, the farmer and the farm communities; improve best practices due to knowledge and proper use of safety information.

1.2 Statement of the problem

Various environmental bodies have reviewed and studied the challenges of environmental safety in agriculture in various countries. Such is the Better Health Channel (2018), which summarized her report on farm safety, risks and hazards to posit that; the most dangerous workplaces in Australia are farms. Agencies in Australia such as the National Center for Farmer Health, Tripple Zero, Work-safety Victoria, Department of Environmental and Primary Industries and the Farm Safety Australia, have provided safety awareness to farmers and their farm families in both industrial and subsistent production levels. All these agencies have their help lines for farmers and the farming community.

The National Policy on Occupational Safety and Health is government's approach for achieving, inter alia, a National Development philosophy of building a united, self-reliant and egalitarian economy through minimizing so far as is reasonably practicable, the causes and effects of hazards inherent in the working environment. The Federal Government ratified ILO Convention No. 155 on Occupational Safety, Health and Working Environment in 1994, in the firm belief that safe and healthy working conditions are critical to the attainment of social justice and economic growth. This is reflected in the 1999 constitution

of the Federal Republic of Nigeria, Section 17.3c “the state shall divert its policy towards ensuring that the health, safety and welfare of all persons in employment is safeguarded and not endangered or abused.” It noted that Occupational Safety and Health is a multidisciplinary field embracing specialized professional services rendered by Federal Ministry of Labour and Productivity, Federal Ministry of health, Federal Ministry of Environment, Federal Ministry of Petroleum Resources, Fire Service and other relevant governmental and non-governmental agencies such as; Safety Awareness and Environmental Support Agency (SAESI) in Nigeria, Farming World, among other organizations (Etim, 2018).

However, Findings from the review of the Nigeria’s safety and health policy, implies that the Federal Ministry of labour and productivity and the Federal Ministry of Health are the major institutions regulating Safety and Health in Nigeria. Also that It is a general Health and Occupational Safety cover for only workers employed by the federal government in all sectors including Agriculture. Again, it does not cover private sector companies which are responsible for the occupational health and safety of their employees. Rural farmers are not under government employment and do not enjoy this occupational safety cover. This means that farmers, farm families, farm companies, agricultural production companies, and agrarian communities who are involved in the risky agricultural jobs will be responsible for their own safety and health insurance. This has predisposed the vulnerable farm community to an absence of safety and protection from hazards and health problems resulting to various degrees of farm illnesses, accidents and hazards from the government. Moreso, there is no legal framework that provide legislative backup for farmers on health and safety by the government.

Unlike Ireland and Australia’s Agricultural safety regulations, Nigeria do not have an Agricultural Health and Safety Authority in the country to spearhead the implementation of Safety regulations, safety report writing, and monitoring, for appropriate record keeping, planning and intervention, enforcement and awareness and provision of a legal framework to ensure farm safety awareness and practice. All these are absent in Nigeria whose population are mostly farmers. Policies that specifically identify the safety and protection challenges of the agricultural human resource (the extension agent) that transforms other resources through the reasonable combination and application of Man, Money, Material and Method which is crucial for agricultural development is unavailable. As a *Man*; the extension agent has safety needs as well as basic logistics, and occupational needs as a knowledge factor for positive changes in agricultural production and development (Etim, Kennedy, Ntui, & Ayi, 2022). As *Money*; he is the key that motivates a change in farmer’s income and productivity which thereby improves the overall economy. As a *Material*, he is a resource personal, a trained professional and a subject matter specialist that enhance rural development by solving the problems of the rural people and their felt needs. And as a *Method*, he is the process that bring about total change in the attitude, behaviour, knowledge of farmers, improved farm practises, develop leadership, motivate team spirit and community effort towards the development of programmes, guiding implementation and the evaluation of set goals through a communication and education dimension. Available research regarding the environmental safety of the extension agents and farmers in the study area is limited. The level of awareness undetermined. Farm agencies for agricultural development in Nigeria are existent but their role to safety in the farm environment are unavailable. This is the knowledge gap that this research hopes to fill, by identifying the

factors, activities, and conditions that affect safety practices as it concerns agricultural development in Nigeria.

1.3 Research questions

There is a called for increase agricultural productivity through innovations that can transform the agricultural system and enhance profit, poverty reduction, industrialization, growth and development, but the following research questions follows;

1. What is the sociocultural factors influencing farmers disposition to environmental safety and awareness in Nigeria?
2. What is the level of environmental safety awareness among farmers and extension agents?
3. What are the role of farm safety awareness agencies/organisation in the world with that of Nigeria.
4. what are the importance of safety awareness to the Nigerian agricultural development?
5. what are the constraints to effective safety awareness in Nigeria agricultural development?

1.4 Objectives of the study

The general objective is to review literature on environmental safety awareness in agricultural development in Nigeria.

The sub-objectives were to;

- i. review sociocultural factors influencing farmers disposition to environmental safety and awareness in Nigeria
- ii. assess the level of environmental safety awareness among farmers and extension agents
- iii. identify the role of farm safety awareness agencies/organisation in the world with that of Nigeria.
- iv. highlight the importance of safety awareness to agricultural development.
- v. determine the constraints to effective safety awareness in Nigeria agricultural development

2.0 LITERATURE REVIEW

2.1 Sociocultural Factors Influencing Farmers Disposition to Environmental Safety and Awareness in Nigeria.

2.1.1 Race, Ethnicity, and Gender

A large body of research has demonstrated that household-level motivations, cultural and social values, and socialization have a primary influence on farm structure, management, and adaptation (Gasson and Errington, 1993; Loblely and Potter, 2004; Salamon, 1992; Bennett, 1982). All farmers must balance economic and non-economic goals, which have historically benefited agriculture and ensured the persistence of family farms and ranches through sustainability. Extension agent from a different tribe may be refused access to relevant information about a community due to differences in believes and social

relationships between the tribes. In Nigeria, racial differences have impacted agriculture in terms of the location of the race, the feeding culture, farming culture, farm practices dedicated to ancient and historic backgrounds, social life, hierarchy of authority and level of social freedom of association between persons based on; sex, age grade, clan, and so on. Some ethnic groups do not attach any value to the female gender as women are seen and believed to be properties owned and can't take part in any meaningful process or meeting for community development. Such may be expected if the extension agent is a woman.

Social and cultural factors are influenced by farmer race and ethnicity. Such is the increasing ethnic diversity of farmers (Hispanic, Asian, Native American, and African Americans) (National Agricultural Statistics Service (NASS), 2007). Each ethnic group has unique historical and cultural legacies that influence their goals, motivations, values, access to land, and resources, which, in turn, influence the way each group structures their farms, envision the future and safe guard their farm tradition.

Likewise, farm transition policies and programs need to address the differences between male and female farmers, as women now account for 14% of principal farm operators (NASS, 2007). By the culture of some ethnic groups, females are not allowed to sit in a meeting with the men, this will affect any innovation that incorporates women. Likewise in some, women are not allowed to go out of their compound after marriage, farm practices and labour is restricted to the males alone. The males are always the symbol of authority thereby restricting any technology that will do with their wife's staying out of their chores. Some cultures don't allow strangers to look at their wife's. Any stranger seen inside the compound interacting with the wife/wives of the farmer in their husbands absence risks his life and he can be killed. Some of these gendered values have been correlated with specific farm structures, including the prevalence of and preference for low-input production, cooperative farm markets, direct marketing, value-adding, and craft development. These differences directly impact current and future farm structure and land management decisions, Inwood (2013).

2.1.2 Health Insurance

Health care costs have been cited as a significant problem for farmers. Studies consistently show farmers purchasing private insurance pay more than those obtaining benefits through an off-farm job (Jones, Parker, Ahearn, Mishra and Variyam, (2009); Mishra, El-Osta, and Ahearn, 2012). The Health Insurance Survey of Farm and Ranch Operators in the Midwest found that, while most respondents had health insurance, one in five had outstanding debt from medical bills with one in four reporting health care expenses contributed to their financial problems (Lottero, Pryor, Rukavina, Prottas and Knudson, 2007). Insurance costs and high rates of underinsured farmers can have severe consequences for farm productivity, welfare, and transitions. Farmers tend to be cash poor and land rich, and transfer experts noted that farmers are reluctant to transfer their land to a new generation for fear of giving up any assets that can be used for retirement and future medical costs (Inwood, 2013). According to Inwood (2013), resources are being re-directed towards health insurance rather than being reinvested. Ironically, in labor-intensive operations, farmers who have a spouse working off the farm to collect benefits may have to hire additional part-time labor that does not receive any health insurance benefits. This implies that farmers will likely keep their land as insurance for their health rather than giving it out for development or investment. In most rural households in Nigeria, farmer's health insurance are mostly to native doctors or

herbal practitioners rather than advanced medical practitioners. This is because of the high cost of orthodox medicine in relation to local herbs which are readily available and easily sourced without any cost. This is because most rural farmer in Nigeria are conservative in nature.

2.1.3 Use of Opinion Leaders

Use of early adopters or innovators is paramount for any technology transfer system. In a heterophilous social system opinion leaders have a massive role to play by encouraging her people to adopt a technology which he knows is safe and healthy for the social system. His rejection of a technology spells the end for that innovation because it can not be adopted. Opinion leaders have been regarded as a knowledge based factor among rural communities who protect the interest of the community and her citizens. They examine, determine, evaluate, and ascertain which idea can be adopted from external factors into the communities. They are key in ensuring environmental safety and provides awareness to members of the community. Hence, any innovation that contradicts their historic and most respectful norms and culture or belief may be jettisoned.

2.1.4 Rural Farmers cooperatives

Farm cooperatives has been a crucial forum for agricultural safety interaction and technology dissemination among farmers. It is also a forum that propagate fear mongering about a product or technology. Farmers in the cooperative can protect and propagate their cultural instinct more than any scientific innovation. These are ways they ensure their collective safety and awareness. However, even when some may have a high degree of skepticism based on cultural inclinations, most cooperatives in Nigeria are well advanced in safety practices and information dissemination that provides safety awareness to their members.

2.2 Level of Environmental Safety Awareness among Farmers and Extension Agents

According to Lunner-Kolstrup and Ssali, (2016) on awareness and need for knowledge of health and safety among dairy farmers interviewed in Uganda, the results obtained in this study indicate that the dairy farmers interviewed had low knowledge and awareness of risk factors and farmer health and safety issues relating to dairy farming. They experienced physically demanding and hazardous work tasks related to working with their livestock and farm work in general, which jeopardized their safety and health. Lunner-Kolstrup and Ssali (2016) indicated that information and practical training on prevention of injuries and diseases relating to dairy farming in general was not available to farmers.

The availability and efficiency of agricultural institutions and agencies have a crucial role to play in promoting safety awareness in the agricultural environment through awareness programmes and training.

Illiterate farmers handling dangerous agrochemicals, without proper instructions and PPE, face an increased risk of allergic or irritant skin reactions and acute and chronic intoxication. Besides directly affecting farmers' health. The use of agrochemicals and drugs was reported to be associated with insufficient information from the drugstore or on packaging and misuse of medication due to ignorance. Most farming households in Africa and Nigeria are mainly pastoralists and are dependent on high milk yield as one of their main protein sources. In

order to boost milk production, crossbreeding between local cattle and imported high-yielding Holstein Friesians cattle is common. These crossbreeds have lower susceptibility and resistance to local diseases and require antibiotics, anti-parasitic drugs, and intensive tick protection to survive. Without such treatment, there is not only a threat to animal health and a risk of heavy losses of livestock but also a threat to human health, Lunner-Kolstrup and Ssali, (2016). Subsequently, due to poor level of awareness, users often employ no form of quality control or restriction (Groot and van't Hooft, 2016). Unfortunately, poor legislative support and enforcement of safety in agriculture and the environment has given way to several unsafe practices. A number of the agrochemicals available in many developing countries are banned, unregistered, out-dated, and unlabelled pesticides sold uncontrolled and without restrictions at local markets or small shops by illiterate or ignorant vendors. Also, farmers may be unable to understand or relate the symbols and warning signs on the packaging. This means that information and instructions need to be adapted to users and their language and culture, Lunner-Kolstrup and Ssali, (2016).

2.2.1 Farm Safety Awareness Agencies and Organization around the world, and in Nigeria

Unlike Ireland's agricultural sector which has entered a positive expansion phase and provides an important contribution to Ireland's economy. Having made a considerable progress in raising awareness of farm safety. This is because Ireland as a country has a National Farm Safety Agency (Teagasc) among others, safety policies, an enforcement and awareness component and also a legal framework which has been institutionalized to ensure farm safety awareness and practice (Farm Safety Partnership (2013)). Most of Nigeria's agricultural programmes were initiated by successive administrations and the programmes are unsustainable once the government tenure is over. But Nigeria has a well established ministry of Agriculture that oversees the agricultural needs of the country. This ministry has enough skilled and well bred professionals but the will that propels agricultural development in Nigeria is rather more political than normal. This is the major challenge while the sector is still underdeveloped.

A. Farm institutions that supports agricultural safety in Ireland.

Many farming organizations have undertaken farm safety awareness initiatives without depending on the national body (Farm Safety Partnership, 2013). In particular:

- *The Foundation of the Embrace Farm organization*: which gives support to bereaved members of families following a fatal farm accident, has contributed greatly to the importance attributed to farm safety.
- *FBD Insurance*: have set up a 'Champions for Change' campaign aimed at creating a nationwide community of interest, discussion and support around the farm safety issue using digital technology.
- *The (Irish Farmers Association) IFA*: launched a 'Save Lives' campaign to encourage farmers to change their working practices, to be more responsive to the potential dangers and to take preventative action to reduce the risks.

• *The Department of Agriculture, Food and Marine (DAFM)*: has incorporated mandatory farm safety training as a condition of TAMSII grant schemes. This was to improve farmers safety.

B. Farm safety institutions in Australia

According to Better Health Channel (2018), in Australia, farmers are given education on where to get help in case there is a safety challenge, institutions or agencies to get awareness and help in case of any farm risk or hazard were identified as;

- The National Center for Farmer Health
- Tripple Zero,
- Work-safety Victoria,
- Department of Environmental and Primary Industries
- The Farm Safety Australia.

C. Organizations supporting Agricultural Safety in the United States

According to the Rural Health Information Hub (2019).

1. National Institute of Food and Agriculture: NIFA improves agricultural safety by supporting programs that teach:
2. Missouri Farm Bureau in Ag Safety Awareness Program (ASAP), North America organizes periodic programmes to educate farmers on safety measure. Farmers are urged to focus on farm safety in a variety of areas on the farm to prevent accidents, injuries and lost time.
3. The Environmental Protection Agency's Occupational Pesticide Safety and Health program focuses on worker safety in industries that use pesticides and sets requirements for safe pesticide handling, such as the Agricultural Worker Protection Standard (WPS).
4. The National Education Center for Agricultural Safety provides education and training focused on promoting safety, and preventing illnesses, injuries, and deaths among farmers and ranchers, agricultural and horticultural workers, their families, and their employees.
5. The National Tractor Safety Coalition is a multi-sector working group with the mission of preventing tractor related deaths in the U.S. agricultural industry.

D. Farm safety Agencies in Nigeria

- The Federal Ministry of Agriculture (responsible for rural development, food security, rural income growth)
- The Federal Ministry of Health (sets standards for health care delivery)
- The Federal Ministry of Environment (the specific role of the Federal Ministry of Environment is intended to ensure that environmental food contaminants, organic pollutants, environmental pollution and waste disposal are adequately controlled.)
- The Federal Ministry of Science and Technology (facilitates the development and deployment of science and technology apparatus to enhance socioeconomic development)

- The Federal Ministry of Trade and Investment (takes the primary role of maintaining international trade in safe food and promoting the World Trade Organization's (WTO) sanitary and phytosanitary guidelines in Nigeria)
- The State Ministries of Agriculture

Notable agencies under the federal ministries

- National Agency for Food Drug Administration and Control (NAFDAC), (plays a superior role in regulating and controlling the distribution, sale, and use of food)
- Nigerian Institute of Food Science and Technology (NIFST)
- Nigeria Customs Service, National Biotechnology Development Agency (NABDA)
- Standards Organization of Nigeria (SON)
- National Agricultural Seeds Council, Consumer Protection Council, and
- The National Biosafety Management Agency

(Onyeaka, Ekwebelem, Eze, Onwuka, Aleke, Nwaiwu, and Chionuma (2021)).

Non – Governmental Organizations (NGOs)

- Farming World
- Farm Awareness for Food Preservation Initiative (FAFPI),
- Safe Food and Feed Foundation,

- **Safety Awareness and environmental Support Initiative**

Safety Awareness and Environmental Support Initiative SAESI – Nigeria is a national non-governmental organization in Nigeria that provides awareness, sensitization, and observance on environmental safety which include the conservation of wildlife and biodiversity, prevention of bush burning, protection of forest resources, industrial safety awareness campaign, environmental sanitation, and interaction with safety and environmental stakeholders and agencies while in collaborating with the Federal Ministry of Environment, State Governments and other non-governmental organization including international bodies to empower the citizens of Nigeria by encouraging adherence to environmental protection regulations. They have taken their campaigns to various rural residents and farm households, various agricultural product markets, interaction and involvement in various stakeholders meetings on environmental hazards, risks and prevention such as floods, disease outbreak, farmer's health campaign and environmental safety education across Nigeria. Its mandate is generally on environmental safety and not limited to agricultural conservation (www.saesi-ng.com).

2.3 Importance of Safety Awareness to Agricultural Development

The provision of awareness programmes, sensitization, training, and input such as safety tools to farmers will encourage and elevate the level of safety awareness among Nigerian farmers. The recognition of extension agents as a veritable tool for agricultural development and the provision of safety advice, support, equipment, and professional training will help to equip extension agents with the knowledge and materials needed to foster agricultural development. Environmental, safety and agricultural agencies and non-profit organizations

can collaborate and support farmers and extension agents through the provision of awareness, support, organizing safety awareness programmes, providing professional advice to farmers and the agricultural extension agents, serve as a link between the farm actors and the government, and soliciting international support to improve the safety of man, resources, money and materials in the Nigerian agricultural sector. The preservation of life and conservation of the agricultural environment is the key focus of environmental safety awareness. This will cause a total reduction in the incidence of accident, fatalities, death, disease and infection spread, destruction of environmental resources, among others (Bridgewater (2017); PEGASUS (2017)).

The importance of environmental safety awareness for agricultural development are anchored on the well-being of farmers and agricultural workers which is vital to strong communities and the economy. Safety training gives farm families the awareness and information they need to reduce safety hazards and protect their children who often work on the farm. Safety training enables farmers to; avoid serious and fatal accidents, use chemical pesticides and fertilizers safely, reduce income loss to agricultural accidents, and reduce incidences of chemical-related cancers,

According to Bridgewater (2017), accidents cost time, money, and involve intangible losses. Time will be lost during the period of recovering, medical and rehabilitation bills will begin to add up, and, farmer may not be able to function as before the accident. It is said, "if Safety is too expensive, try accident." Accident costs reduce the profit margin of operation and, in the worst cases, accidents cost people their lives. Safety is everyone's responsibility. It is up to everyone associated with the agricultural industry to use safe working practices. All family members and employees can contribute to each other's safety. This is because, operators of machinery aren't the only ones who get hurt in agricultural accidents.

The benefit of having an environmental safety awareness programme for farmers and the extension system include;

1. to promote and encourage good farm safety behaviour, particularly around tractors and machinery, livestock, slurry, and work at height.
2. improving the health facilities and making it accessible and affordable for farmers and extension.
3. to establish initiatives that will reduce the level of death and injuries arising from working with livestock.
4. to provide a guide for safe handling of livestock, reading the danger signals of livestock
5. to provide a guide for visitors to farms, particularly their interactions with livestock and warning signs
6. to encourage the development of safety training courses for livestock handling
7. to promote and provide training on the star rating system as it relates to safe working with animals.
8. to implement programmes for the protection of health and wellbeing of persons, including vulnerable groups, working in agriculture.
9. to include farmer health issues in all major national seminars and events.

10. to encourage first aid training and the development of an emergency plan for farmers.
11. to take action regarding the establishment and collection of data on accidents and ill health in agriculture within the health service.
12. sponsor further research in the area of occupational health in agriculture.
13. support research on farmers' health in the following areas: musculoskeletal disorders and noise-induced hearing loss.

2.4 Challenges or Problems that Hinders Adequate Safety Awareness

Different environmental, occupational and institutional factors interact to produce unsafe work place for farmers and extension agents. Etim, Aboh, Idiku and Okoi (2021), identified most problems associated with safe extension service delivery and optimal performance which also affects the farmers' efficiency. For the extension agents several unsafe conditions exist such as; delayed payment of salaries and allowances, delayed benefits associated with their job and service delivery, the use of extension workers for activities other than extension work, poor office outfit, poor repair and maintenance of education and communication equipment, lack of commitment and continuity of interventionist programme due to government's inactions, self-born community entry, religious barriers, fear mongering among farmers for an innovation, lack of an insurance cover for extension agents, poor level of support on safety awareness by institutions and agencies, inadequate provision of safety gadgets, PPE among other, absence of training and provision of field materials, poor logistic support.

Limited agricultural programmes, Poor funding of programmes to completion, lack of commitment to the development and industrialization of the agricultural sector, poor linkage between the agricultural stakeholders and the government and agricultural agencies in the provision of training, access to inputs and farm data (Agbamu, 2011). Also are poor infrastructural development as about 90% of Nigerian farms are cultivated on subsistent levels, the non-availability of a reasonable number of commercial farms have impacted the farm workers knowledge and safety enforcement to improve their farm practice and safety consciousness (Bridgewater (2017)).

Poor institutional support and collaboration exist among agricultural agencies. This poor support is usually due to poor administrative leadership and access to fund at the government level. About 60% of agricultural interventions and programmes that involved federal or state agencies are mostly international support from donor organizations or foreign government. There is limited statistical information and data management on environmental and safety concerns as it concern farmers and extension agents in Nigeria. This also may be due to the rate of underdevelopment of the agricultural sector, as agriculture is mostly subsistent. Hence, safety and environmental challenges are self-born by the farmers and extension agents. This poor information/data management system on health, safety and the agricultural environment has showed the level of underfunding and underdevelopment among state and federal agencies which is totally dependent of the administrative will of the leadership to fund agricultural projects. There is also no established channel for communication of health and safety concerns affecting agriculture. Communication Channels and media are mostly

ineffective in communicating farmers safety and environmental challenges since farming is a private or personal business.

3.0 SUMMARY, CONCLUSION AND RECOMMENDATION

3.1 SUMMARY

Use of opinion leaders in agricultural extension will enhance a holistic adoption of safety awareness instruction in any agrarian community to enhance agricultural development. Expanding the role of agricultural agencies in Nigeria to incorporate safety and awareness mandate, will improve safety and agricultural development in Nigeria. The study indicates that the level of safety awareness in the farm environment is low and farmers or extension professional do not have a professional safety and awareness institution which cater for their personal development and health, among others. This study shows that there are a number of good policy framework and international agencies on farm safety and awareness whose implementation can prevent deaths, accidents and avoid potential threats in the farm environment. This is how important safety awareness is to agricultural development. Several constraints have been identified including poor institutional support and collaboration which exist among agricultural agencies.

3.2 CONCLUSION

The study conclude that the agricultural sector is myriad with a hug safety constraint, which indicate the need of massive awareness campaign and administrative support from different government agencies, private agencies, non-governmental organization. The study showed that safety awareness is crucial to agricultural development in Nigeria. Different national and international agencies where listed and their role identified, as well as non-governmental organization. From the review, farmers and private extension professionals are excluded from the national health and insurance scheme of the Federal Government. It also showed that several agencies have been providing environmental and safety awareness programmes to farmers without government support.

3.3 RECOMMENDATION

1. Sociocultural factors such as; race, ethnicity, gender, and the use of opinion leaders has affected safety, extension delivery and agricultural development in Nigeria negatively. It has caused a divide in the agro-environmental ecology of Nigeria in the level of implementation of agricultural policies, distribution of inputs and resources. Government must ensure that the implimentation of it agricultural development policies among the different agro-ecological, social and cultural zones in Nigeria is biase free.
2. The level of environmental safety awareness for farmers and Extension agents in Nigeria is discouraging, based on the fact that the Federal Government's Safety Support Systems and policies are mainly for public servants, while rural farmers and private extension agents are not captured. The Nigerian Government through the Ministry of Agriculture should impliment a Rural Safety Support Policy for farmers and extension agents in all rural communities of Nigeria.
3. The roles of international farm safety agencies in providing safety awareness and environmental consciousness initiatives have been felt in most countries like Australia,

The Federal Government must ensure the preservation of knowledge, and agricultural human resources of indigenous farmers in all the rural areas of the country to improve the agricultural GDP and agro-cultural festivities and rites by ensuring the safety of farmers through the inauguration of farm safety awareness agencies to facilitate this mandate.

4. Environmental safety awareness for farmers and extension agents have prevented deaths, accidents, reduced the level of risks, improved knowledge, capacity, and data collection, storage and processing on agricultural safety. The Federal Ministry of Agriculture should incorporate environmental and agricultural safety courses in the curriculum of tertiary institutions offering agricultural courses to improve the knowledge and practice of safety in the Nigerian Agriculture system.
5. Several constraints bedevilled agricultural development in Nigeria. The activities of Non-Governmental Organizations (NGOs), Civil Societies and the Media, should be synergized in collaboration to provide safety awareness and improve agricultural development in Nigeria.

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