N.B: My review is within the paper text as following:

In Yellow: text to remove (to change)

In Red: suggested text to replace the removed one

In blue: sentences need to be reformulated

In Green: questions to the authors, comments and suggestions to improve the paper

Review Article

Farmers 'Exposure to Pesticides -Review Article

Abstract

When applying synthetic pesticides to crops, it is absolutely necessary to use them sparingly in order to avoid complete crop damage. Many studies have found that the use of pesticides by farmers is associated with higher levels of pesticide exposure than that experienced by the general population. Whenever pesticides are sprayed on crops, the primary targets of the poisons are the farmers who are sprayed. Farmers, on the other hand, may come into touch with pesticides that are not directly relevant to their field of work or employment. In accordance with the American Chemical Society, handling pesticides or coming into close contact with chemical residues can be particularly hazardous for persons who are exposed to these chemicals on a regular basis. The possibility of making an inaccurate judgement call while dealing with this type of contact exists. A wide variety of routes, including the lungs and skin, are used to introduce pesticides into the body on a regular basis. Regular pesticide handling exposes the face and hands to a high level of pesticide exposure, which is why it is vital to wear protective equipment when handling pesticides. According to the Environmental Protection Agency, farmers can decrease their exposure to pesticides by wearing personal protective equipment (PPE) during all steps of the pesticide handling process. Using personal protective equipment (PPE) can assist farmers in reducing their pesticide consumption (PPE).

Drift, agricultural labour, and direct spray contact, so as to mention a few terms, are used to characterise the scenario in this context.

The abstract didn't show the main of this review?

The abstract should be reformulated!!

Keywords: Agricultural Task, Weedicides, Contact, Occupational Hazard

Introduction:

A succinct summary of the most significant points is provided here.

The issue of environmental pollution has been a source of heated debate for quite some time, and with good cause.

The term "agricultural chemical agents" refers to compounds or substances that are used in agricultural and public health programmes to protect plants against pesticides, weeds, and illnesses, as well as to protect people from diseases caused by mediators such as malaria, dengue fever, and schizophrenia (Referance FAO??). These compounds or substances are also referred to as "agricultural chemicals" in some cases. Other than farming areas, such as public parks and sports fields, the usage of these goods, including their improvement and maintenance, may be beneficial in some instances. These chemicals are also utilised in less well-known applications such as the eradication or prevention of the existence of undesired species, which are not widely known. Among other things, pet shampoos(1-2), construction materials, and boat flooring are examples of the applications for this substance. (3). Chemicals and other foreign compounds in the air that have

the potential to harm human health, such as pesticides and other foreign substances, can have an immediate impact on human health, according to the World Health Organization (Ref). While the presence of other pollutants builds up over time in the environment and the person, the existence of these pollutants might cause illness years after the initial exposure. There is the potential for many pesticides to build up in the body, resulting in long-term and chronic harm to humans and animals. One possible explanation is that people are exposed to pesticides on an on-going basis as a result of a variety of things such as their way of life, their employment, their dietary choices, and their smoking habits. Identification of the precise ramifications of a disease is a tough undertaking in and of itself. In order to secure financing, it is important to demonstrate a causal relationship between exposure and illness (4). It is necessary for governments to rely on chemicals in order to achieve economic growth and development objectives. Their incorrect and indiscriminate usage, on the other hand, may be detrimental to human health and the environment (2,3,5). A large number of people are exposed to pesticides as a result of their employment, due to the widespread availability of pesticides (2,3,5). When it comes to pesticide residues in food and drinking water, as well as pesticides in the environment, the general public's diet is more likely to be discovered than when it comes to the diet of members of the scientific community (6). Pesticide exposure is higher in the agricultural industry than it is in the general population, with farmers and trained pesticide applicators being the most vulnerable groups.
Should give example of those chemical pesticides??!! And refer to published articles?

An extensive amount of investigation into the effects of weedkiller exposure has been conducted, with the vast majority of studies being conducted on agricultural workers who are registered pesticide applicators rather than on the general public. It is considered that pesticide exposure among agricultural workers is rare, and that the vast majority of farmers are not directly exposed to potentially hazardous chemicals, contrary to what was previously thought. toxicity of pesticides, and the potential for harm caused by them (dangers) (Réf)

When discussing the safety of pesticides, the terms "pesticide toxicity" and "pesticide risk" are sometimes used interchangeably. Material toxicity is a term used to describe the properties of a substance that are essentially harmful. It can be characterised in the following ways: (7). In every case, regardless of the drug's toxicity, the risk (or hazard) is determined by the possibility of exhibition while the item is in operation. If we are talking about pesticide safety and protection, the phrases toxicology and risk are two terms that are distinct from one another. When a chemical is studied in isolation, the intrinsic potential for harm associated with the molecule is referred to as "toxicity" (7). In order to measure the risk (or riskiness) connected with a given chemical (or its riskiness), just the possibility of being exposed to that chemical (or its riskiness) may be considered, not the toxicity of the substance. It is the ability of a chemical to produce sickness or death that is discussed in toxicology; on the other hand, risk is the likelihood that a chemical's interaction with other chemicals would result in illness or death as a result of that interaction is discussed in risk. A variety of methods are used to assess pesticide hazard levels, including testing to determine the toxicity of a component, as well as the amount and kind of exposure(8,9).

When the factors of toxicity and exposure are combined, there is significant cause for concern. Using weedicides incorrectly might result in serious health consequences for the user's family and friends. Pesticides produce internal organ or system damage in the case of poisoning, whereas external irritants are the source of injury in the case of abrasion. Acute pesticide exposure can cause mild skin irritation and other allergic reactions in some persons, while others may have severe skin irritation and other allergic reactions. Others, on the other hand, may experience severe headaches and dizziness as a result of long-term pesticide exposure. Several pesticides, such as organic phosphates, such as organic phosphate, have the potential to have lethal consequences; as a result, it is critical to assess the hazards associated with these chemicals. There are three main kinds of

toxicity associated with pesticide exposure in humans: the type of exposure, the route of exposure, and the body system that has been affected by the chemical (10-12).

The toxicity of a chemical is classified according to the method by which the material was exposed.

It is possible to categorise pesticide-related toxicities into three groups based on the amount of time spent being exposed to a pesticide and the frequency with which toxicity symptoms reveal themselves.Toxicities caused by pesticides in humans can be classified into three groups based on the amount of time that an individual has been exposed to a substance and the onset of symptoms: Because of the acute poisoning that might follow from exposure to a single dose of pesticide after receiving it, an agricultural worker will experience acute poisoning. It is defined as a skin contact event that occurs within a short length of time when it comes to acute skin exposure events, whereas it is defined as a skin toxic event that occurs within a short period of time when it comes to an acute skin toxic event. In contrast to acute oral disclosure, acute inhalation disclosure refers to the administration of the same dose of pesticide through the mouth as an acute oral disclosure. Acute toxic effects are those that occur within 24 hours of contact with a toxicant or chemical and are distinguished from chronic toxic effects (also known as acute toxic effects). When consumed in large quantities, some active substances, even in extremely small doses, have the potential to be lethal. It is possible to evaluate the acute toxicity of a pesticide by carefully reading the warnings given on the product label.

Depending on the method of entry, the 4th Classification of Toxic Substances is used.

Humans are most commonly exposed to pesticides through the skin, the mouth (swallowing), and the lungs, which are all common entry points for pesticides. Pesticides are more likely to enter the body if they are solid, liquid, or gaseous, rather than if they are not solid, liquid, or gaseous (8). While solid materials are less likely than liquids and gases to enter the respiratory system, liquids and gases are more likely than solid materials to do so. When pesticide solids are small enough and remain on the skin for an extended period of time, it is possible that they will be able to enter the body in the same way as liquids or gaseous substances do. When it comes to the general public, pesticide poisoning that is transferred through the skin is the most common mode of distribution. (7). While handling a pesticide, it is possible that the pesticide will be absorbed through the skin due to splattering or spitting on the skin (mixing, loading, or disposal). It is possible that a significant amount of residue will be exposed to the skin, with the risk that some of the residue will be absorbed into the skin. There are various elements that influence pesticide absorption via the skin, including the toxicity of the pesticide and the length of time the skin has been exposed to it, the chemical makeup of the pesticide, and the area where it has been sprayed, among others (9). In contrast to liquid pesticides, powder, dust, and granular insecticides do not contaminate the skin or other tissues of the human body, as opposed to liquid pesticides that do so.
If you compare organic solvent and oil-based pesticides to dry pesticides, organic solvent and oil-based pesticides are absorbed into the body more quickly. For example, the high concentration of potentially dangerous substances found in emulsifiable concentrates makes it easier for the chemicals present in the solution to be absorbed via the skin, resulting in increased toxicity. Pesticide absorption is more likely to occur in some parts of the body than it is in other parts of the body in specific situations. Oral pesticide use can have major health consequences, including disease, injury, and death, for those who do so. Pesticide consumption should be avoided at all costs (7). It is possible for individuals who do not wash their hands before eating or smoking to unintentionally swallow these poisons, which can lead to oral illnesses in the event that they are not sufficiently cleansed.

In rural parts of developing countries, pesticide poisoning deaths increase, exacerbating the problem of suicides in these areas, which is prevalent in these areas. Among other things, pesticide residues can be found in a wide variety of foods, including prepared meals, light meals, and animal feed, among other things. Also important to remember is that cleaning with soap and water alone will not completely remove the residue. (4) There are very few instances where safety regulations are not adhered to to the letter of the law. However, safeguards vastly underestimate the underlying health risk, particularly in the case of concomitant exposure to two or more real-world chemicals that, in real-world conditions, may have synergistic effects on one another. In the future, there is a risk that something similar to this would happen again. According to the researchers, the presence of pesticides in human breast milk samples has sparked concerns about the risk of prenatal exposure as well as the health of future generations as a result of the findings.

Inhaling pesticides can have major health repercussions, including damage to the nose, throat, and lungs, among other things. Pesticides should never be inhaled. It is more likely that pesticides will be inhaled when this method is employed since pesticides are easily absorbed when this method is utilised. Consider using a respirator and wearing respiratory protection when working or playing, if you are having difficulty breathing.

If pesticides come into contact with the eyes, they can cause immediate eye injury, blindness, or even death if the eyes are not protected. If the chemical comes into contact with the eyes, it has the potential to be fatal. When working with potentially hazardous substances, it is always recommended that you use eye protection to preserve your vision. In the event of contact with diluted sprays or dusts, the use of eye protection is recommended as a precautionary measure in the event of contact. Because the minuscule particles are so massive and heavy, they pose a significant threat to the health of the eyes' optic nerve. When particle treatments are carried out with power tools, it is possible for particles to bounce off plants and cause injury or poisoning to the applicator's eyes or hands as a result of the bouncing (eg. eyes).

Consequently, if the pesticide comes into contact with one's eyes, one must immediately put on protective goggles to avoid further damage.

Reducing the quantity of pesticides to which people are exposed

If you have plants that are not pesticide resistant, it may be possible to replace them with plants that require fewer pesticides under specific circumstances.

It is critical to move to alternative farming practises that are less reliant on pesticides in order to keep pesticide exposure to a bare minimum. Alternative agricultural practises are becoming increasingly popular among people. The environmental plant protection measures that are already in place may need to be emphasised even more in order to achieve this goal. Cropping systems can be made more productive by optimising the use of natural processes, boosting the creation of antagonists, enhancing system diversity, and encouraging the reuse of internal resources, among other strategies. Non-chemical pheromones can be used to improve disease and pest control, organic matter management, and agricultural tillage tactics, to mention a few potential applications. The implementation of these technologies can also aid in the improvement of other aspects of crop development, such as the ability of crops to retain a healthy state, which increases their resistance to disease and pest infestation. Tactics used to increase resistance include the selection of plants that are better able to fend off weeds or diseases, such as those that are more resistant to late blight, as well as boosting the attack or damage thresholds of sensitive plants, among other things(11-12).

Out of every 100 cases involve the use of personal protective equipment (PPE) (PPE)

PPE (personal protective equipment) is available to pesticide workers in various configurations to keep their skin from becoming exposed to pesticides and other chemicals while they are on the job (PPE). Gloves, boots, helmets, long-sleeved shirts, and chemical-resistant coveralls are just a few examples of the sorts of personal protection equipment that workers frequently wear in the workplace. It is ultimately decided by the toxicity of the pesticide that is used, the environmental conditions under which it is employed, and the personal preferences of farm employees that they choose to use as personal protection equipment (PPE) on their farms. When it comes to the vast majority of pesticide chemicals, personal protective equipment such as gloves and shoes are essential (PPE). Individual protective equipment (PPE) should be worn when dealing with extremely hazardous pesticides in order to ensure that you are only exposed to the minimum amount of toxic substances.

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