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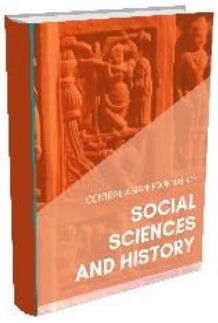

Agriculture Pesticide Impact on Human Health and Environment

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Abstract:
Pesticides are chemicals that are used to kill or harm pests and insects that attack crops. For millennia, a variety of insecticides have been employed to preserve crops. Pesticides are beneficial to crops, but they are also harmful to the environment. Pesticides used in excess can have a negative impact on biodiversity. Pesticides pose a serious threat to the survival of many birds, aquatic animals, and other animals.

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Keywords: Pesticides, human health, and the environment are all issues that need to be addressed.

Introduction:

The term pesticides include many compounds including pesticides, fungicides, herbs, rodenticides, molassesides, nematides, plant growth regulators and others. Since the 1960s, most of these technologies have banned or restricted the use of organochlorine (OC) pesticides, which have been successfully used to control many diseases such as malaria and typhus; other Synthetic Pesticides Organophosphate (OP) pesticides in the 1960s, carbamate in the 1970s and pyrethroids in the 1980s; herbicides and fungicides in the 1970s; and herbicides and fungicides in the 1970s. The pesticide should, in theory, be harmful to the target insects, but it is necessary for non-target animals, such as people. Unfortunately, this is not the case, and there is a controversy about pesticide use and overuse. The widespreaduse of these chemicals has led to the destruction of human and other lives, as the saying goes, 'A little is goodand a lot is good'. [1]

Pesticide use has increased dramatically in recent decades. Pesticides are expected to be utilised in the amount of 6.3 billion pounds per year over the world. Pesticides have become a prevalent practise all over the world for pest management. They are used to manage mosquitoes, rats, cockroaches, ticks, fleas, and other dangerous bugs indoors in the form of poisons, sprays,and powders.As a result, in

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addition to their presence in the air, pesticides are frequently discovered in our food. Pesticides can be manufactured from natural or synthetic chemicals. They can be from any of the several pesticide classes. Organochlorine, carbamates, organophosphates, pyrethyroids, and noenicitinoids are the main classes, with the majority of them being currently and widely used pesticides. Active chemicals in pesticide formulations include heavy compounds, pollutants, and occasional impurities. Pesticides break down into metabolites after being released into the environment, which are sometimes more harmful than the active components.

Pesticides' Effects on Natural Enemies:

Predators are species that survive by preying on other organisms, and they play an essential role in insect control.Predators play a vital role in the biological control system, which is an important aspect of integrated pest management. The availability of integrated pest management IPM programmes depends on the combination of chemical and biological controls. Pesticides may be ingested by predators under the following circumstances: by direct contact with a drop of spray: Increasing residue when in contact with contaminated surfaces: When they eat contaminated food. Several scientists examined the side effects of pesticides on predators and found that the main cause of pesticides is a decline in predatory populations.

Pesticides can also have an impact on predator behaviour and life-history factors including as growth rate, development period, and other reproductive processes.For example, the behaviour of glyphosate-based herbs in the eastern USA and the survival and effects of spiders and ground beetles were affected. Similarly, the effects of dimethoate on the carabid beetle Petrostichusmelaitilicus were also studied and a decrease in body size, number of hemorrhages, and morphometric parameters were observed.[2]

Sprays of any pesticide are toxic to most parasites; However, at the rate of parasitism, the rate of host feeding and forging efficiency can have much better results. While Trichogrammabrassi (Bezdenko) males treated with low doses of the pesticide deltamethrin did not respond to the female signal, females treated with these pesticides reduced their ability to attract parasitic males. Amitraz was found to be harmful in the field concentration and half dose recommended for the greenhouse whitefly parasitic disinfectant AncarsiaFormosa. It evaluated the effects of acetamiprid and imidacloprid pesticides on the developmental stage of parasitoid, Trichogrammapretiosum, and reported that it was slightly detrimental to the parasitic potential of Trichogrammapretiosum.

Human Health Effects of Chemical Fertilizers and Pesticides:

It has been concluded that agrochemicals in developing countries are considered a powerful weapon or magic bullet to increase agricultural productivity in India. Agrochemicals, on the other hand, have been discovered to offer a severe concern, with some pesticides affecting the human endocrine and immunological systems, as well as stimulating the development of cancer.

Farmers are said to not wear safety masks, gloves, or other protective gear when spraying pesticides because poisons enter the bloodstream through respiratory and skin dangers that harm their eyes, skin, and respiration.There appears to be a link between the number of pesticides used and sickness indications and symptoms among spray farmers in Bhopal, Madhya Pradesh, according to this study.

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[3]Who sprayed pesticides on their own, putting themselves in direct touch with them?

Pesticides Effects on Environment:

Pesticides are mostly released into the environment during their preparation and use. Different applications may apply depending on criteria such as formulation type, controlled pest, and treatment duration. Pesticides can be used on crops, fields, or soils. Boom sprayers, tunnel sprayers, and airborne systemic insecticides are examples of liquid sprays often employed in crops. Insecticides can be applied as granules, injected as a fumigant, or sprayed on the soil surface, followed by pesticides in the top layer of soil, just as they can in soils.Before planting, insecticides are sometimes administered to the seeds. Pesticides can be carried by target creatures, destroyed or buried after application; they can, for example, infiltrate surface water, disrupt the atmosphere, and reach inanimate animals. Pesticides' behaviour and fate are influenced by their physical and chemical qualities, as well as soil, site conditions, and management strategies.[4]

Pesticides are sprayed on floats and are poisonous to aquatic animals, fish, and non-target species. These insecticides are dangerous in and of themselves, and they interact with strains such as harmful algae blossoms. Pesticide misuse has resulted in the extinction of some fish species. There are three ways that aquatic creatures are exposed to pesticides that are detrimental to them. Directly absorbed through the skin; Breathing: Passing through the gills when breathing; Orally: by ingesting tainted water. The consequences of unrestrained usage of these chemicals must not be overlooked.Pesticides have a significant impact on the populations of marine and terrestrial plants, animals, and birds. Pesticide buildup in the food chain is of particular concern because it directly impacts predators and reptiles. Pesticides, on the other hand, can lower the quantity of weeds, bushes, and pests that feed more orders.

Herbicide and fungicide bug sprays have also been related to a fall in the number of residents in uncommon animal and bird species. Furthermore, as previously stated, their long-term and consistent usage can result in bioaccumulation. Aquatic plants provide around 80% of the dissolved oxygen, which is critical for aquatic life. Herbicides that destroy aquatic plants cause a drop in O2 levels, depriving fish of oxygen and reducing fish productivity.Pesticides enter the groundwater through degradation, inappropriate disposal, and unanticipated spills and sprays in any event. Pesticides floating in lakes, ponds, and nallas are wreaking havoc on the aquatic ecosystem. Similarly, atrazine has an indirect effect on amphibian immunity and is toxic to several fish species.

Human Health and Pesticides:

Many employees and residents, particularly in rural regions, are exposed to pesticides on a daily basis, putting them at danger of poisoning. Because many pesticides produce changes in the central, peripheral, and autonomic nervous systems, this exposure can lead to neuroscientific sequencing, which is common after suicide attempts. These effects can be employed as a pesticide in addition to being a cause of neuropsychiatric diseases that can occur as a result of suicide. Pesticide suicides are widespread in several Asian and Latin American nations, according to World Health Organization (WHO) data.Pesticides, especially in low- and middle-income nations, are frequently unregulated and easily available. In the early 1990s, the first epidemiological report on pesticide-related suicides was published. Suicides and suicides involving pesticides are currently a source of worry for many organisations and governments, as increased pesticide exposure is linked to depression and suicide. Many studies on how and why pesticides are threatened are inspired by this worry, and researchers have developed ways to alleviate this major social problem.[5]

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Whether the poisoning was intentional, unintentional, or commercial, detoxification measures are critical. When the patient is exposed to pesticides or has specific symptoms, it is easier to detect the virus. However, if the patient normally experiences symptoms, the poisoning may be ambiguous. As a result, information about the diagnosis and treatment of patients, including family members and those present throughout the contamination process, should be available. This person will be asked how thecontaminating route was revealed and the possibility of intoxication at the same time with other toxic substances. Analytical detection of pesticides is required along with these identification steps. The method of designation is a required sign, and the care and maintenance of the care nit dots must be combined; nonetheless, new cases of contamination may develop. Professionals in the same region of contamination, as well as other patients, must wear protective equipment until the diagnosis and treatment are completed.

From the gastrointestinal tract, there are ways to avoid poisoning. Because gastric lavage is so harsh and invasive to the body, it is only used in life-threatening situations. Methods that cause intestinalmotility to extinguish pesticides Diarrhea due to poisoning is not appropriate. Alternatively, sorbents can bind to a hazardous agent and produce a stable compound, or sorbents can bind to a poisonous agent and generate a stable compound. This chemical is ejected because it is not absorbed by the gastrointestinal tract. This approach is frequently used in conjunction with the cathartic method. Activated charcoal is the most common sorbent, however it does not absorb all pesticides. Vomiting can be relieved with the use of syrup, which is a herb. In the case of hydrocarbons or caustic chemicals, however, this approach is not recommended.

Patients should begin the signalling process by showering and cleaning their skin, hair, nails, ear canals, and other possibly contaminated body parts with soap and water before coming into touch with the skin.When the eyes are brought in front of the eyes, they should be rinsed with clean water. Clothing and shoes All materials and clothing used by the patient during such intoxication should be removed. In the event of major contamination, the need to prevent all people working in the emergency room must be considered. [6]

Research Method:

The study mainly targeted the farming community in Sri Ganga Nagar, Rajasthan.

Questionnaire for the Interview:

Land ownership, plantations currently in operation by farmers, pesticide exposure, pesticide use, and use of regularly used pesticides, as well as precautionary information on pesticide sources and disease indications and symptoms, were all covered in the interview questionnaire. During the interview, some symptoms of pesticide exposure were observed, including tremors, skin rashes, and severe wheezing. The indications and symptoms were collected as reported by the farmers in the cross-sectional survey.

Gender Distribution of Respondents (Table 1.1)

S. N.	Gender	No. of Respondent	Average
1.	Male	88	58.67
2.	Female	62	41.33

Source: Analysis

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The above table 1.1 describes the gender-wise distribution of the respondents and it was observed that out of 150 respondents 88 (58.67%) of the respondents are male respondents and the remaining 62 (41.33%) respondents are female respondents.

Gender Distribution of Respondents (Table 1.1)

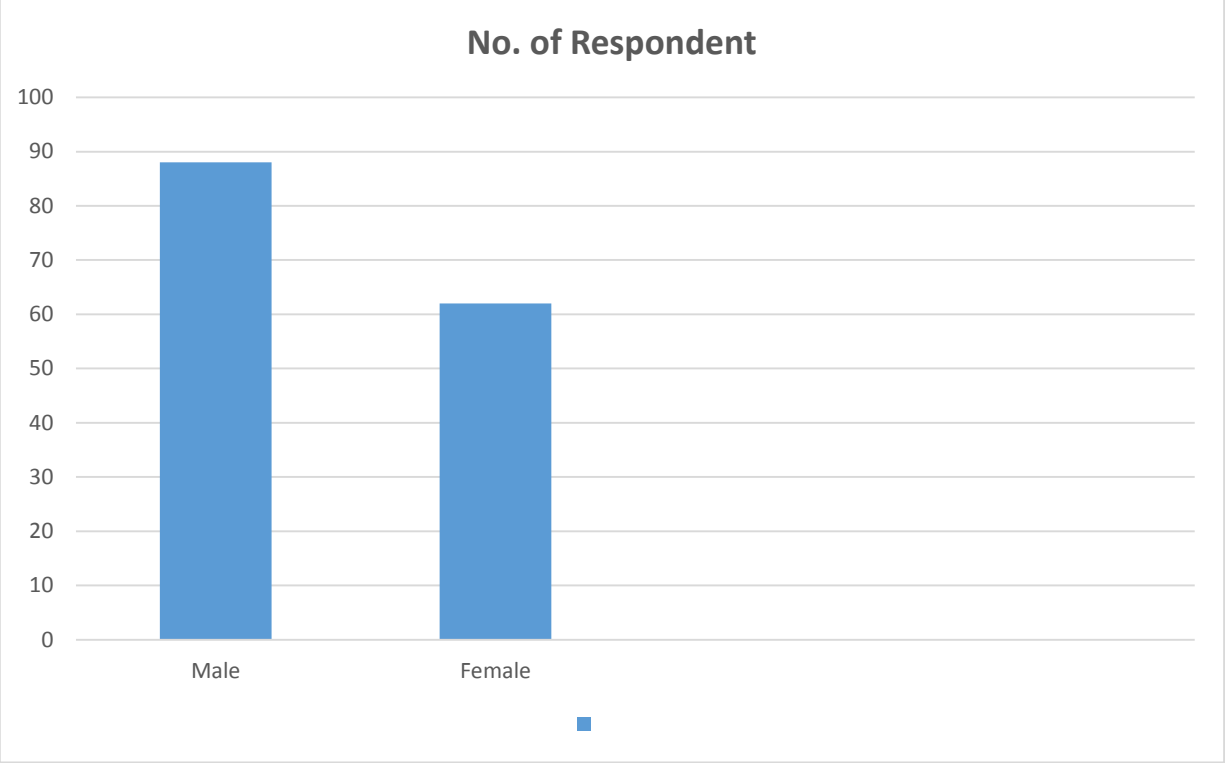

Table 1.2 shows the respondent's age distribution.

S.N.	Age (Year)	No. of Respondent	Average
1.	<20	23	15.33
2.	21 -30	33	22.00
3.	31 -40	47	31.33
4.	41 -50	19	12.67
5.	51-60	16	10.67
6.	>61	12	08.00
Total		**150**	**100.00**

Source: Analysis

Out of 150 respondents, 23 (15.33%) are under the age of 20, 33 (22.00%) are between the ages of 21 and 30, 47 (31.33%) are between the ages of 31 and 40, 19 (12.67%) are between the ages of 41 and 50, and 16 (10.67%) are between the ages of 51 and 60, according to table 1.2.

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Graph 1.2 Age-wise Distribution of the Respondent

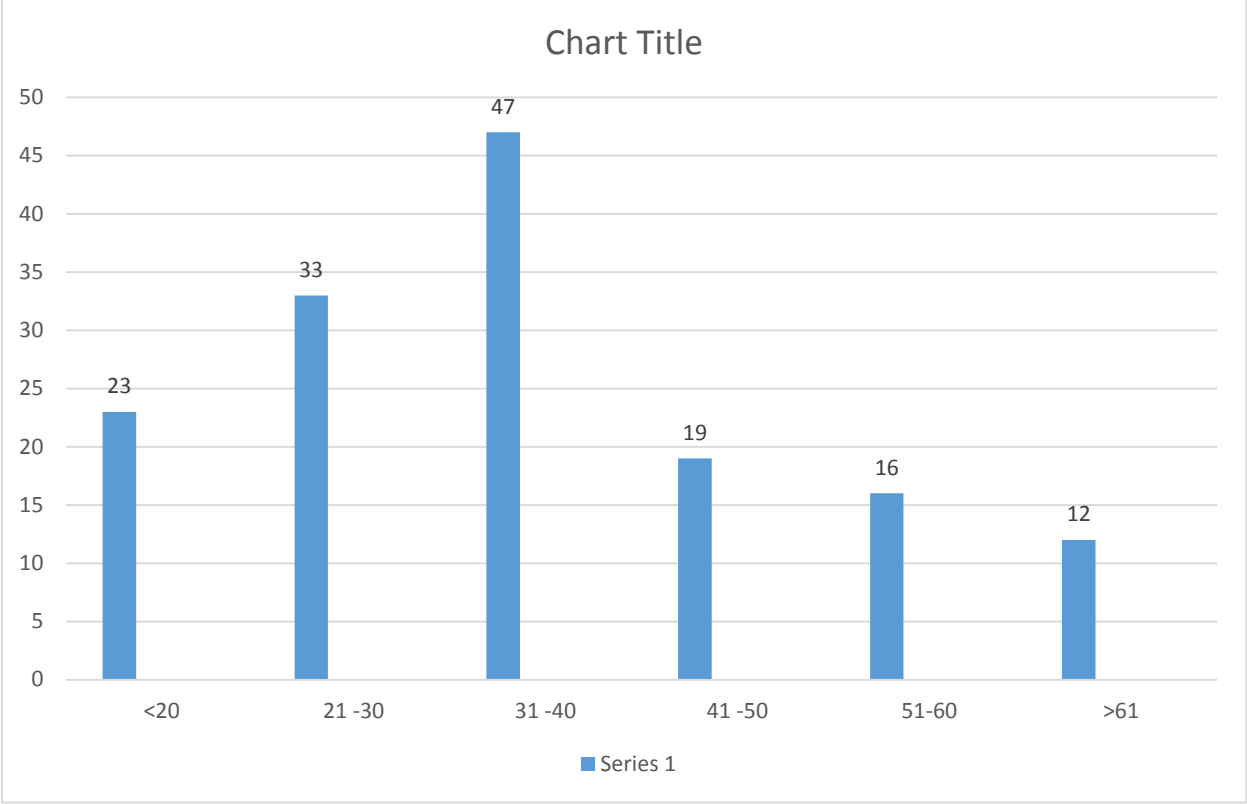

Table 1.3 Pesticides Uses in Farm

S.N.	Pesticides	No. of Respondent	Average
1.	Extreme Pesticide	09	06.00
2.	High Pesticides	15	10.00
3.	Moderate Pesticide	58	38.67
4.	Slight Pesticides	47	31.33
5.	Normal Pesticides	21	14.00
Total		150	100.00

Source: Analysis

The above table 1.3 describes pesticides uses by the farmers in their farm and it was observed that out of 150 respondents 9 (6.00%) of the respondents are using extreme pesticides on their farm, 15 (10.00%) of the respondents are using high pesticides in their farm, 58 (38.67%) of the respondents are using moderate pesticides in their farm, 47 (31.33%) of the respondents are using slight pesticides in their farm and remaining 21 (14.00%) of the respondents are using normal pesticides in their farm..

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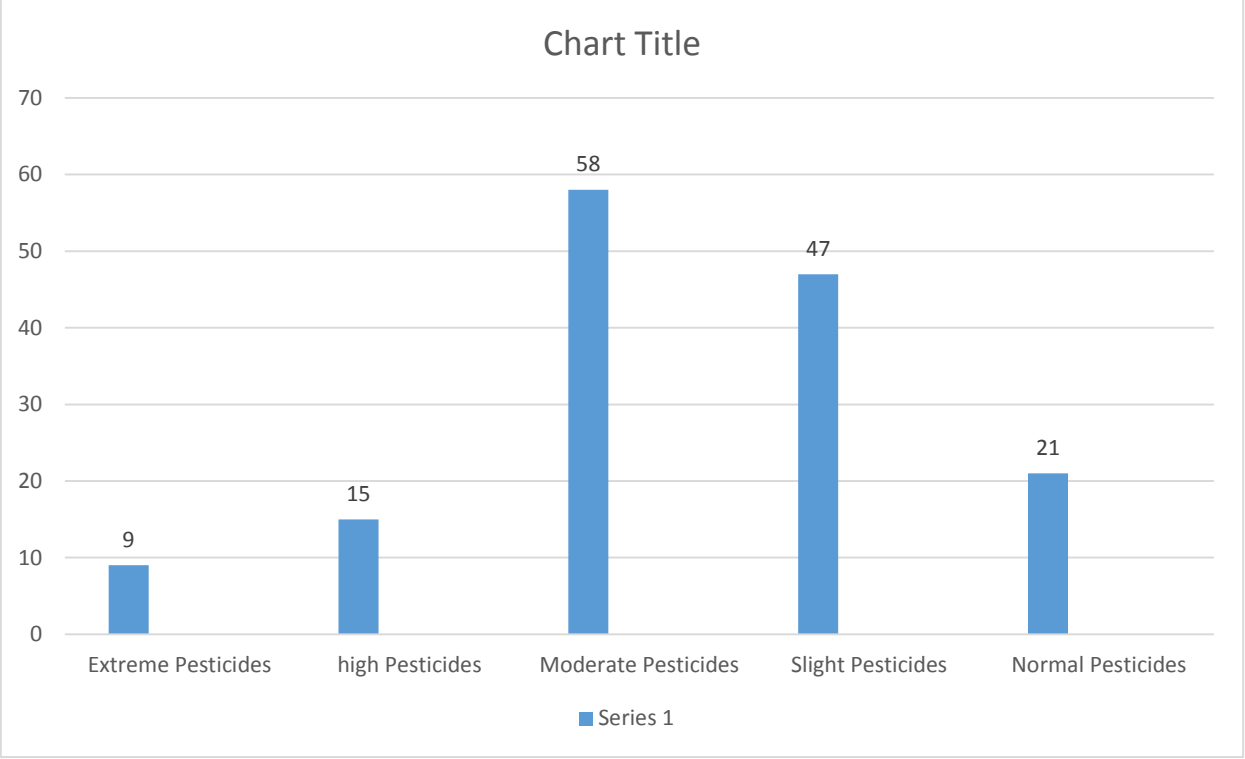
Graph 1.3 Pesticides Uses in Farm



Illness Signs and Symptoms:

Questions about pesticide-related signs and symptoms were included in the survey. Sprayers were asked if they would notice these signs and symptoms while spraying pesticides or just thereafter.

Table 1.4: Illness Signs and Symptoms Illness

S.N.	Illness Signs and Symptoms	No. of Respondent	Average
1.	Sweating	08	05.33
2.	Burning/Stinging/ Itching eyes	12	08.00
3.	Dry/Sore Threat	14	09.33
4.	Fatigue	08	05.33
5.	Dizziness	17	11.33
6.	Runny Nose	21	14.00
7.	Blurred Vision	27	18.00
8.	Burning Feeling	16	10.67
9.	Shortness of breath/cough	10	06.68
10.	Vomiting	11	07.33
11.	Wheezing	06	04.00
Total		**150**	**100.00**

Source: Analysis

The above table 1.4 describes the signs and symptoms of illness and it was observed that out of 150 respondents, 8 (5.33%) are having seating signs and symptoms, 12 (8.00%) are having burning/stinging/itching signs and symptoms, 14 (9.33%) of the respondents are having fatigue signs

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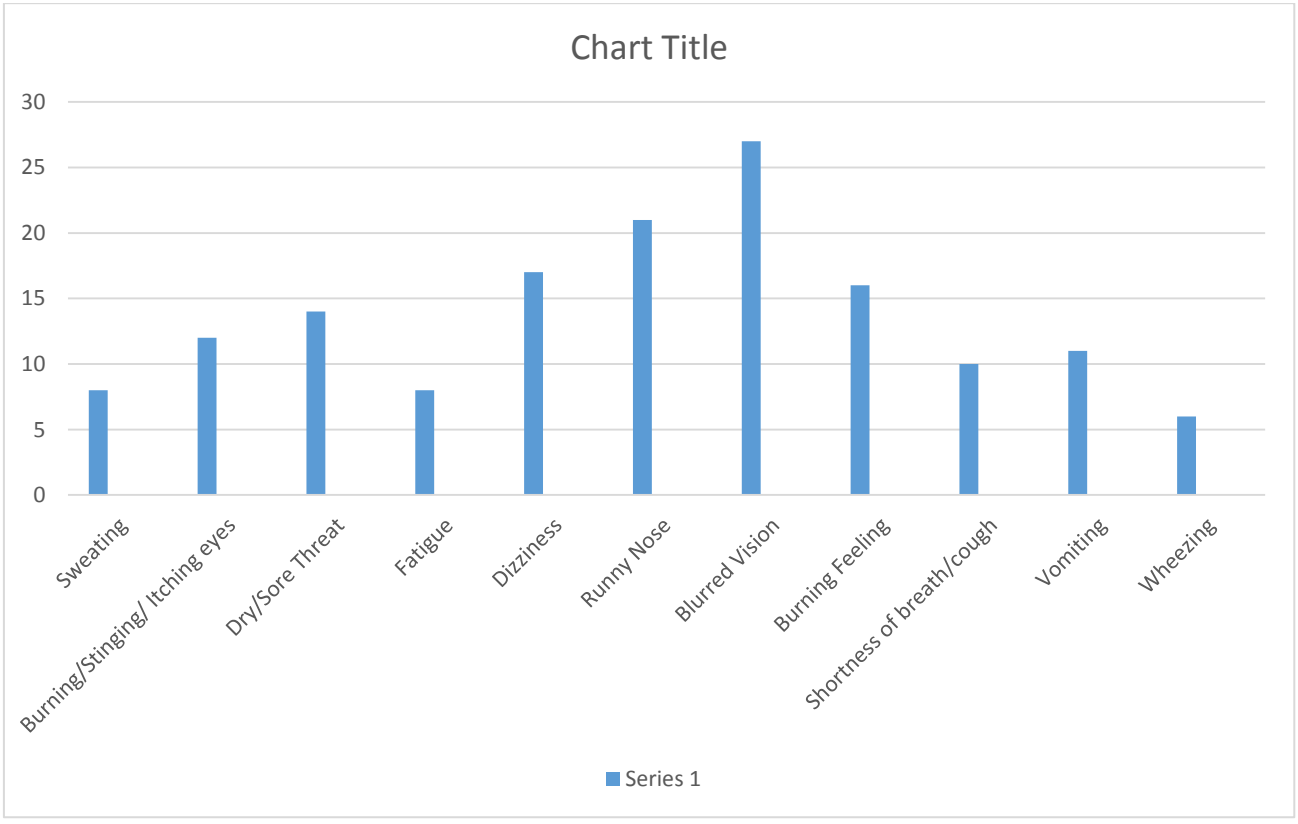
and symptoms problems, 17 (11.33%) of the respondents are having runny nose signs and symptoms, 27 (18.00%) of the respondent are having blurred vision signs and symptoms, 16 (10.67%) of the respondents are having burning signs and symptoms, 10 (6.68%) of the respondents are having Shortness of breath/cough signs and symptoms, (7.33%) of the respondents are having vomiting signs and symptoms and remaining 6 (4.00%) of the respondents are having wheezing signs and symptoms. [7,8]

Graph 1.4 Illness Signs and Symptoms



Conclusion

Following prior research, the farmers in this study discovered a variety of indicators and illnesses associated to pesticide exposure. Sprays have a higher prevalence of these indications and symptoms in men. Non-sprayers, on the other hand, may exhibit signs and symptoms as a result of direct or indirect pesticide exposure.[9]

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