



Opinion

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## Pesticide Use in Northern India



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### Opinion

Pesticides and chemical fertilizers have been used as part of the Green revolution in Northern India. There is no doubt that they have had many positive effects on India's self-sufficiency in food production, but their heavy usage has caused groundwater contamination and a number of health hazard issues. Pesticides are used in agriculture and forestry for controlling pests, diseases or weeds and as vector control agents in livestock production and public health programs. They have contributed significantly to agriculture and their use has been justified for increasing food production, reducing post-harvest losses, and alleviating human suffering through the control or suppression of dreaded diseases like malaria, dengue, etc. [1]. Advocates for pest control argue that the loss of food supply will be greater if it were not for pesticides and that food prices for consumers will rise. About fifty-five percent of the world's potential food supply is severely threatened by pests. Thirty five percent of this is lost before harvesting and twenty percent afterwards. This can result in a loss of more than \$20 billion a year, putting farmers in financial jeopardy [2].

Although there may be many advantages to pesticide usage, it is very important to remember that pesticide residue seeps into our food chain system and are found in animal feed, fruits and vegetables, cattle and human milk, drinking water, soil and other components of the environment. This is cause for serious health concern. Pesticides also affect non-target organisms, including beneficial insects like honeybees as well as birds, fish and other aquatic and wild life. This influences the food chain and disturbs our ecosystem [1].

The use of pesticides and their public health impact differs throughout Northern India according to the location of rural community settlements in relation to their agricultural fields. The risk of exposure is higher for those people who live in close proximity to fields in which pesticides are heavily used as compared to the people living at some distance away. Since a large percentage of the population is dependent on agriculture, increasing numbers of people are very much prone to exposure

hazards. The heavy use of pesticides on vegetables has also threatened consumer safety and environmental quality. Acute and long exposure to pesticides can result in loss of memory, cancer, miscarriage, and damage to the immune system and many other diseases. The immediate symptoms of acute pesticide poisoning include vomiting, abdominal cramps, diarrhea, allergic reactions, constricted breathing, coughing, headaches, and skin rashes [1].

Another serious disadvantage of using pesticides is genetic resistance. Many insects can slowly develop resistance to any chemical poison. This process causes pest control programs to become less effective and ultimately fail. As a result, this releases an even wider selection of pests into the environment [2]. The Malwa region of Punjab, India, has been described as the "cancer capital" due to a large number of cancer cases in this region. Many of these cases are linked to environmental health hazards due to excessive and unsafe use of pesticides, fertilizers, and poor groundwater quality. The most affected individuals are the agricultural workers who are directly exposed to pesticides. Although this region is less than 15% of the total area of Punjab (only 0.5% of the total geographical area of India), it consumes nearly 75% of the total pesticides used in the entire state [3].

The Tribune [4], reported that there were many deaths caused by the inhalation of pesticides. There were 64 deaths in 2017-18 and 57 in 2016-17. The use of heavy pesticide in current farming practices is on the rise in India and the pesticide industry is marketing their products heavily despite their ill effects on human health. There is no doubt that there is more consumer awareness of health hazards and diseases due to the heavy use of pesticides but studies have shown contradictory results. A number of studies about the Monitoring of Pesticide Residues limits at the national level (MPRNL) have been completed by the government and other private agencies but their results differ. The government studies show that only around 2 to 2.5 percent of samples have been found with residues above the Maximum Residue Limits (MRLs) which is significantly lower than the results of other studies. This is cause for serious public health concerns.

Since January 2018, a number of shipments of high quality long grained Basmati rice exported from Punjab, India to the United Kingdom, Finland, Norway, Sweden and Saudi Arabia were rejected due to the presence of higher traces of tricyclazole than the permissible accepted limit. In 2011-12, around 30% of this rice export to the United States was also rejected due to traces of pesticides beyond the acceptable limit. In addition, many fruits and vegetables, such as mangoes, grapes, okras, peanuts, chilies, and tamarind were also rejected from the United States, European Union, Japan, and Bhutan due to the presence of higher level of pesticides and chemical residues. The report published by the European Union Notification for Plant Health Interpretation (EUROPHYT) also confirms that "between 2005 and 31st May 2017, Indian export faced 1,324 interceptions as compared to 452 for Brazil, 602 for China, 114 for Turkey and 922 for Vietnam. However, these bans are generally temporary and lifted after some time but in many cases during the ban period, the market is captured by other countries and Indian exporters and farmers from the Northern India, especially Punjab lose their export market share. These issues need to be tackled comprehensively [4].

These problems should lead to a wakeup call to the state and central governments. They need to be seriously addressed otherwise there will be long lasting health hazards in the region. There is an urgent need to develop sustainable agriculture to

meet society's food demand for present and future generations. It must rest on three pillars of physical, economic and social environment. The first pillar of physical environment should help in creating a healthy environment for its population. It means that we need to grow our food in a harmful pesticide and fertilizer free environment. The second pillar should ensure economic profitability for farming communities where they do not have to use dangerous chemical and fertilizers to grow more food in order to make profit. The last or the third pillar should attempt in creating social and economic equity which means food prices should not only be affordable for everyone but also available to everyone throughout the region. To achieve the goal of sustainable agriculture, all the persons involved at the various stages of agriculture which includes farmers, distributors, transporters and retailers should play an active role in the process of developing sustainable agricultural policies.

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