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Pesticide Reduce in Food

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**Abstract**

This research paper emphasis the nature, background, types, impacts of pesticide; it also showcases the national and international efforts to reduce pesticides from the daily commodities. Pesticide residue refers to the pesticide that may remain on or in food after they are applied to food crops. The levels of these residues in food are often stipulated by regulatory bodies in many countries. Exposure of the general population to these residues most commonly occurs through consumption of treated food sources, or being in close contact to areas treated with pesticides such as farms or lawns around houses. Through this paper I tried to highlight the poor flight of modern food. Today we are producing food from factories in large quantity but this food contaminated with chemicals and other hazardous things. Even though the dirty dozen foods may have more pesticide residue than other produce, their level of residue is still very small compared to doses actually found to have an effect with chronic low-level exposure. A study calculated predicted long term consumer exposure to these pesticides; it was found exposure levels were 1000 times less than the lowest levels shown to have an effect. The scientific evidence shows that there is a very low risk associated with eating these foods despite their dubious label.

**Introduction**

This research paper emphasis the nature, background, types, impacts of pesticide; it also showcases the national and international efforts to reduce pesticides from the daily commodities. Pesticide residue refers to the pesticide that may remain on or in food after they are applied to food crops. The levels of these residues in food are often stipulated by regulatory bodies in many countries. Exposure of the general population to these residues most commonly occurs through consumption of treated food sources, or being in close contact to areas treated with pesticides such as farms or lawns around houses.

Many of these chemical residues, especially derivatives of chlorinated pesticides, exhibit bioaccumulation which could build up to harmful levels in the body as well as in the environment. Persistent chemicals can be magnified through the food chain and have been detected in products ranging from meat, poultry, and fish, to vegetable oils, nuts, and various fruits and vegetables.

A pesticide is a substance or a mixture of substances used for killing pests: organisms

dangerous to cultivated plants or to animals. The Term applies to various pesticides such as insecticide, fungicide, herbicide and nematocide. Applications of pesticides to crops and animals may leave residues in or on food when it is sold and those specified derivatives are considered to be of toxicological significance.

**Credentials and Background**

From post-Global War II era, Chemical pesticides have become the most important form of pest control. There are two categories of pesticides, first-generation pesticides and second-generation pesticide. The first-generation pesticides, which are used prior to 1940, consisted of compounds such as arsenic, mercury, and lead. These were soon abandoned because they were highly toxic and ineffective. The second-generation pesticides were composed of synthetic organic compounds. The growth in these pesticides accelerates in late 1940s after Paul Muller discovered DDT in 1939. The effects of pesticides such as aldrin, dieldrin, endrin, chlordane, parathion, captan and 2,4-D were also found at this time. Those pesticides were widely used due to its effective pest control. However, in 1946,

people started to resist to the widespread use of pesticides, especially DDT since it harms non-target plants and animals. People became aware of problems with residues and its potential health risks. In the 1960, Rachel Carson wrote. Silent spring to illustrate a risk of DDT and how it is threatening biodiversity.

Each country adopts their own agricultural policies and Maximum Residue Limits (MRL) and Acceptable Daily Intake (ADI). The level of food additive usage varies by country because forms of agriculture are different in regions according to their geographical or climatical factors.

#### **Efforts on International Scenario**

Some countries the International Maximum Residue Limits-Codex Alimentarius to define the residue limits; this was established by Food and Agriculture Organization of the United Nations and World Health Organization in 1963 to develop international food standards, guidelines codes of practices, and recommendation for food safety. Currently the CODEX has 185 Member countries and 1 member organization.

The following is the list of maximum residue limits for spices adopted by the commission.

#### **Miscellaneous Impacts**

##### **Health Impacts**

Pesticide exposures can produce two distinct types of adverse health effects-acute (short-term) effects and chronic (long-term) effects. The severity of adverse health effects are determined by following factors: the dose, the route of exposure, an individuals genetic vulnerability, age at the time of exposure and general health condition; the length of exposure, environmental factors and intakes with other chemicals through other factors.

##### **Chronic Impacts**

Many pesticides achieve their intended use of killing pests by disrupting the nervous system. Due to similarities in brain biochemistry among many different organisms, there is much speculation that these chemicals can have a negative impact on humans as well. There are also studies that show positive correlations between exposures to pesticides through occupational hazard, which tends to be significantly higher than that, ingested by the general population through food, and the occurrence of certain cancers. Although the most of the general population may not exposed to large portion of

pesticides, many of the pesticide residues that are attached tend to be lipophilic and can bioaccumulate in the body. Concerns have been raised about the possible role of continuous low-dosage exposure in causing certain cancers, on the other hand; pesticide use has proven to be a valuable tool in combating disease vectors that spread illness to millions of children and adults each year. They are used in many developing countries to prevent the spread of malaria, leishmaniasis, dengue, and Japanese encephalitis which are disease that have an enormous economical burden on society.

##### **Acute Impacts**

Some health effects from pesticide exposure may occur immediately following exposure. Symptoms of immediate body reaction against pesticide are as follows:

Acute poisoning can happen in various situations; by consuming food containing pesticide residue, including the accidental ingestion in the home, grade, farm or forest. Children are the most vulnerable to poisoning as they have not yet built up antibodies to certain toxicities. It may be called as Pesticide poisoning

In August 1994, a serious incident of pesticide poisoning of sweet potato crops occurred in Shandong province, China, because local farmers were not fully educated in the use of insecticides, they used the highly-toxic pesticide named parathion instead of trichlorhon. It resulted in over 300 cases of poisoning and 3 deaths. Also, there was a case where a large number of students were poisoned and 23 of them were hospitalized because the vegetables they consumed contained pesticide residues.

##### **Impact on Child Neurodevelopment**

Children are thought to be especially vulnerable to exposure to pesticide residues, especially if exposure occurs at critical windows of development. Infants and children consume higher amounts of food and water relative to their body-weight have higher surface area (i.e skin surface) relative to their volume, and have a more permeable blood-brain barrier, and engage in behaviors like crawling and putting objects in their mouths, all of which can contribute to increased risks from exposure to pesticide residues through food or environmental routes. Neurotoxins and other chemicals that originate from pesticides pose the biggest threat to the developing human brain and

nervous system. Presence of pesticide metabolites in urine samples have been implicated in disorders such as attention deficit hyperactivity disorder (ADHD), autism, behavioral and emotional problems, and delays in development. There is a lack of evidence of a direct cause-and-effect relationship between long-term, low-dose exposure to pesticide residues and neurological disease, partly because manufacturers are not always legally required to examine potential long-term threats.

### **The Monsters of Foods**

According to the Environmental Working Group choosing to buy certain organic food can significantly lower residue exposure by as much as about 90%. The group came up with a list of fruits and vegetables that are recommended to avoid as they are known to contain high levels of pesticide residues. Even though the dirty dozen foods may have more pesticide residue than other produce, their level of residue is still very small compared predicted long term

Consumer exposure to these pesticides; it was found exposure levels were 1000 times less than the lowest levels shown to have an effect. The scientific evidence shows that there is a very low risk associated with eating these foods despite their dubious label. These foods, referred to as they Dirty Dozen readily absorb pesticides and retain them, so even if washed, they will still have noticeable levels of residues. The ability of a fruit or vegetable to retain or repel pesticides is dependent on its outer shell or protective layer. Fruits such as strawberries are more likely to absorb and retain pesticides pineapples are.

### **Conclusion**

Through this paper I tried to highlight the poor flight of modern food. Today we are producing food from factories in large quantity but this food contaminated with chemicals and other hazardous things. Even though the dirty dozen foods may have more pesticide residue than other produce, their level of residue is still very small compared to doses actually found to have an effect with chronic low-level exposure. A study calculated long term

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Even though some organic foods contain significantly less amounts of pesticides than non-organically produced products, they still contain certain amounts of residue levels that are persistent in the environment. The methods of organic farming prohibit the use of many pesticides, however certain chemicals could be persistent in the soil, reach the organic produce via pesticide drift from nearby farms, or contaminate produce during transportation to the consumer. In addition to choosing to buy organic produce, there are certain measures that can be taken to minimize exposure to harmful residues: vegetables washes may help remove chemical residues, peeling fruits and vegetables that have high levels of pesticide residues, and growing your own essential produce.

### **References**

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