

# The importance of context and perception in silent spring



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During the 1920s in the United States, farmers were suffering a depression due to the debt caused by overproduction of many crops during World War I. This depression continued into the 1930s as the Great Depression destroyed America's economy and was eventually halted by World War II when the agriculture industry was heavily relied on again to supply for the war. It is during this time – in 1939 – that Dichlorodiphenyltrichloroethane or DDT was found to be an effective pesticide in preventing insect borne diseases and crop damage. Its use spread rapidly for several decades until it was found to be detrimental to the environment. Most of this knowledge came to light thanks to Rachel Carson's book, *Silent Spring*, released in 1962. Now, 55 years later, many people wonder what direct effects *Silent Spring* had on the growth of the environmental movement in the United States. It is commonly thought that *Silent Spring* led to concerns about the America's use of pesticides, especially DDT. It also helped to introduce the environmental movement to America by eliciting policy reform surrounding humans' interactions with the natural world.

Farmers have used different forms of pesticides to boost plant growth for centuries and they fall into four main categories: insecticides, herbicides, fungicides, and rodenticides. With the discovery of DDT as an insecticide in 1939, the use of pesticides in the US grew exponentially. DDT was first synthesized in 1873 but didn't have a use for almost 70 years until Swiss chemist Paul Hermann Müller realized that it could be an effective pesticide. For his accomplishments he was awarded the Nobel Prize in Medicine and DDT was available for sale in the United States starting in 1945.

By 1957, 4.9 million acres of land were being sprayed by DDT each year. It became integrated into the lives of Americans and no one suspected that any harm could come of it. Families would set off DDT bombs in their homes, children would run after machines spraying it in the streets and it was well loved for its effectiveness as well as its relatively low cost. Initially DDT was used to target gypsy moths but once its versatility was realized, it was commissioned for many other uses. It was especially popular during World War II to rid the Allies soldiers of lice. In its powder form, DDT is credited with saving millions of lives from typhus and other bacterial diseases. Its power was so widespread that it started becoming known as the “killer of all killers” and during its 30 years of production 1,350,000,000 pounds were used in America alone. The country also began exporting DDT across the world, especially to Africa to combat malaria. The Agency for International Development and the United Nations bought large quantities of DDT from the United States in an attempt to control insect-borne diseases. Exports of DDT rose from 12% in 1950 to 67% in 1969. Initially the benefits of pesticide use outweighed the problems but the opposite soon came to pass.

When Rachel Carson's *Silent Spring* was released in 1962, there was immediately an uproar about its implications. 500,000 people read the book and another 10-15 million watched a CBS broadcast of Carson explaining its meaning and connection to society as a whole. The first chapter, aptly named *A Fable for Tomorrow*, tells a tale of an American town that is like any other but pesticides have killed all of the people and animals living there. Carson admits that the effects of pesticides may not show up for several generations but emphasizes that the threat still exists. This silent town

described is the namesake of the book and also serves as the ultimate pathos as it taps into the emotions of readers imagining themselves and their children growing up in that world. In *Silent Spring* Carson references pesticide spraying as a “chain of evil” and explains that when plants are sprayed, anything other organism that eats those plants or the infected insects will also become poisoned. She expressed the belief that man-made chemicals and radiation were tampering with the natural state of the earth and that this human activity could have deadly consequences. These beliefs were backed by evidence suggesting that few tests had been done to discover the true effects of DDT in the environment despite the claims from the Stauffer Chemical Company (the nation’s largest producer of DDT in 1962).

Despite strong support of *Silent Spring* from environmentalists, others worried about the toxicity of pesticides in the human body, the book received national criticism for being very one-sided. Critics argued that Carson was ignoring the benefits of DDT and pesticides in general. The Manufacturing Chemists’ Association called the entire thing a “disappointment” and argued that Carson was misrepresenting their industry.

In defense of her ideas and the environment, Carson testified before Congress in 1963 that pesticides affected the air, soil, water, and vegetation of Earth and that it was humans’ duty to protect it. She acknowledged that pesticides had some benefits to humans but cautioned that they should be used in moderation. By this point there were numerous studies emerging that showed the negative effects of DDT and more people were speaking out for the protection of the environment. An especially disheartening discovery  
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was that of DDT-resistant mosquitoes in Greece in 1949, three years after spraying had started there. In 1956 there were five species of mosquito around the world that were resistant to DDT and by 1960 that number had risen to 28 species.

In response to growing public concern, Congress started a plan to phase out the use of DDT in agriculture. The 4.9 million acres sprayed in 1957 became just under 100,000 acres in 1967 and zero acres in 1968. To continue this regulation of pesticides, Congress established the Environmental Protection Agency (EPA). The EPA conducted thorough tests of common American pesticides and began their work of protecting the natural beauty and diversity of the country. As well as the enactment of the Clean Air Act in 1970 and the Clean Water Act in 1972, they launched an annual Earth Day, garnering the support of 20 million people in the first year alone. The creation and exportation of DDT was banned completely in the US in 1972 due to concern over its environmental impact, the existence of new, safer pesticides, and the increased resistance of insects to the toxins.

More controversy ensued following this ban as many people blamed Carson and *Silent Spring* for the deaths of millions of African children due to malaria. Without the American exports of DDT, there were increased outbreaks of insect-borne diseases, causing as many as 300 million illnesses and one million deaths each year. Counterarguments were formed citing evidence that pesticides themselves did as much damage, poisoning over a million people each year as well as millions of other species. New evidence supported these claims, showing a correlation between working with

pesticides and the development of acute toxicity or other nervous system  
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damage. It was also discovered that evidence of pesticides could even be found in the umbilical cord blood of newborn babies, and environmentalists blamed DDT use for up to 15% of the infant mortality rate during the years it was in use. Along with the discovery of toxic dumps from chemical companies in 1980, the EPA and the country as a whole began to see pesticides in a new, negative light.

The Stockholm Convention treaty was signed by 151 countries – not including the United States – in an attempt to eliminate the creation and use of persistent organic pollutants (POPs), leaving the Hindustan Insecticides Ltd. of India as the sole producer of DDT in the world (MacGillivray 2011, 116). They produce approximately 10, 000 tons per year for domestic use and exportation. While there may be efforts in place to limit pesticide use, there are still 17, 000 legal pesticide products registered in the US and 834 billion pounds are released into the environment each year. Three fourths of American households still use some type of pesticide and the US spends \$11 billion dollars each year on the manufacture and distribution of these products. After a 2003 study in the United Kingdom revealed that 99% of adults still contain traces of DDT or related chemicals in their bodies and that 192 different pesticides are used on 46 different types of fruit and vegetables, many consumers started searching for an alternative to pesticide use.

One popular option is organic farming – with product sales growing at a rate of 22% for ten years – but this method is not nearly as efficient as farming with chemicals. Crop losses due to pests and insects can be as high as 40% of the total production so it is not possible to sustain a country on the food

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produced organically. Another option comes in the form of recent scientific advances that have allowed for the development of genetically modified organisms (GMOs). Scientists have the ability to change the DNA of organisms to promote pest resistance, but many people believe that this method is unethical. This current farming debate will continue as the US population grows and requires higher amounts of produce to sustain it.

From the moment of its release in 1962, Rachel Carson's *Silent Spring* caused an uproar in society as it shifted the world's view of pesticides and caused major policy changes in America in response to the growing environmental movement. While *Silent Spring* may have initiated changes in the United States' view of DDT, it did not halt the growth of the pesticide industry. The controversy surrounding pesticides continues to this day as new positive and negative impacts are explored.

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