

Vertical Farming Abstract

There are numerous problems with the current way society produces food. The first of which is the mass use of pesticides. According to the United Nations, pesticides cause between 1 and 5 million people to get sick every year. Another study done by Cornell University has shown that over 99% of these pesticides don't even reach their targeted pest, and just end up polluting the environment and wreaking havoc on local ecosystems. Another problem with the current food production system is heavy environmental pollution. According to the Food and Agriculture Organization of America, current food infrastructure consisting of food production, processing, and transportation is also responsible for 30% of global energy consumption, as well as 20% of global greenhouse gas emissions. This is mainly due to factory farms, unregulated farming machinery, megafactories, and convoys that travel thousands of miles to distribute food to local markets. Another study shows that an average of 40% of all food delivered to supermarkets gets thrown away, even though there are almost 18 million American families living in food insecure households across the nation. The final problems to be discussed are overpopulation and land degradation. Based on medium fertility estimates, the United Nations projects the population to reach 9.2 billion people by the year 2050. With an increasing population comes an increased demand for food and the land required to grow it. However, the human population is destroying more farmable land every year. Leading experts say humans have destroyed one third of our farmable land over the last 40 years and there is no sign of slowing down. A possible solution to all of these problems is a technology known as Vertical Farming. Vertical farming is the practice of growing food indoors in vertically stacked layers to increase the surface area available for farming. The technologies that are incorporated into vertical farming are advanced LED lighting systems, industrial grade humidifiers, atmospheric regulators, hydroponic systems, and robust temperature controls. These technologies are the foundation on which vertical farms are built, and allow vertical farms use less energy, water, and land than traditional farms. These technologies also completely eliminate the need for pesticides and will pave the way for the future of sustainable food production.