**Precision Agriculture ---- ideation:**

Precision agriculture, often known as precision farming, is a method or an implementation that makes the overall farming process more precise and specific for putting up livestock and harvesting crops. Increased use of Information Technology and items like sensors, self-directed vehicles, automatic hardware, rheostat systems, robotics, and more, are prime components. In the last few years, precision farming has turned out to be one of the most well-known applications of IoT in the agricultural sphere, and an array of business ventures have started to use this technique across the world. The products and services propounded by IoT systems take in soil moisture reviews, variable rate irrigation (VRI) development, and more. VRI optimization is a procedure that capitalizes on the viability of wet crop fields with the variability of soil, thereby boosting production and reinforcing water use efficiency.

There are several reasons to implement a smart agriculture solution into local as well as commercial farming. The adoption of the IoT has become common in most industries; the agricultural sphere would certainly not be an exemption in this regard. Right from examining and gathering data for soil precipitation, air temperature, air moistness, and sunlight intensity across an array of different fields, integration of IoT can enhance the effectiveness of water usage and improve the production of large and local farms alike. With the growing population in the world, farming and food production should also continue to rise with the drift. Economical**sensors, data wavelength, and IoT platforms** will spur up this increase in terms of efficacy, proficiency, and production.

## **Benefits of IoT In Agriculture**

As in other industries, the application of the Internet of Things in agriculture promises previously unavailable efficiency, reduction of resources and cost, automation and data-driven processes. In agriculture, however, these benefits don’t act as improvements, but rather the solutions for the whole industry confronting a range of dangerous problems.

**Excelled efficiency:**Today’s agriculture is in a race. Farmers have to grow more products in deteriorating soil, declining land availability and increasing weather fluctuation. IoT-enabled agriculture allows farmers to monitor their product and conditions in real-time. They get insights fast, can predict issues before they happen and make informed decisions on how to avoid them. Additionally, IoT solutions in agriculture introduce automation, for example, demand-based irrigation, fertilizing and robot harvesting.

**Expansion.**By the time we have 9 billion people on the planet, 70% of them will live in urban areas. IoT-based greenhouses and hydroponic systems enable short food supply chains and should be able to feed the people. Smart closed-cycle agricultural systems allow growing food basically everywhere—in supermarkets, on skyscrapers’ walls and rooftops, in shipping containers and, of course, in the comfort of everyone’s home.

**Reduced resources:** Plenty of ag IoT solutions are focused on optimizing the use of resources—water, energy, land. Precision farming using IoT relies on the data collected from diverse sensors in the field which helps farmers accurately allocate just enough resources to within one plant.

**Cleaner process:** Not only do IoT-based systems for precision farming help producers save water and energy and, thus, make farming greener, but also significantly scale down on the use of pesticides and fertilizer. This approach allows getting a cleaner and more organic final product compared to traditional agricultural methods.

**Agility:** One of the benefits of using IoT in agriculture is the increased agility of the processes. Thanks to real-time monitoring and prediction systems, farmers can quickly respond to any significant change in weather, humidity, air quality as well as the health of each crop or soil in the field. In the conditions of extreme weather changes, new capabilities help agriculture professionals save the crops.

**Improved product quality:** Data-driven agriculture helps both grow more and better products. Using soil and crop sensors, aerial drone monitoring and farm mapping, farmers better understand detailed dependencies between the conditions and the quality of the crops. Using connected systems, they can recreate the best conditions and increase the nutritional value of the products.

As a result, all of these factors can eventually lead to higher revenue.