Agri JOURNAL WORLD
ONLINE ISSN: 2583-4339
www.journalworlds.com
VOLUME 2 ISSUE 10 OCTOBER, 2022

PRECISION FARMING: AN EYE OPENER FOR FUTURE FARMS

Debashree Baruah
M.Sc Scholar, Assam Agricultural University, Jorhat, Assam
Corresponding author email: 123debashree.baruah@gmail.com

ABSTRACT

Precision farming is about doing the right thing, at the right place, at the right way, at the right time. Managing crop production inputs such as water, seed, fertilizer, etc. increase yield, quality, and profit, reduce waste, and becomes eco-friendly. Precision farming aims to match agricultural inputs and practices per crop and agro-climatic conditions to improve the accuracy of their applications. Precision farming can be an eye-opener to modern-day farming not only in developing countries like India. In an era of climate change precise agriculture will help reduce resources used, which will help reduce global warming.

INTRODUCTION

We are all accustomed to "farming, " the backbone of our Indian economy. About 60 – 70 % of Indian households are financially dependent on agricultural activities. India dominates the world agriculturally. It is the world's largest milk producer, pulses, spices, etc. It is the second-largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables, and tea. Still, the condition of the farming class has not improved for decades. The question of the hour is WHY? Whenever we imagine a farmer in India, we always imagine a poor man with a 'gamcha' as his head turban, mud-cladded feet, hands, no smile on his face, and looking economically backward. After all these good yields and production still, we are somehow failing. Why is it so? What are the shortcomings? Where are we lacking? What improvements need to be done? Such type of questions lingers in our mind most often.

The reasons why I feel that Indian farmers are still lagging in the farming sector is maybe due to a few reasons. Gambling during monsoons is one of the big reasons for crop loss and property loss in the northeastern part of the country. Uncertain rains causing sudden floods

destroy a huge number of crops and livestock. The presence of the middleman spoils most of the chances of profit for the farmer. The lack of transport facilities makes it very difficult for the farmers in remote regions to make their products reach the market. As lack of good road conditions also hampers a lot. They are ready to sell the produce at a much lower price as they do not have a proper mode of transportation. Improper implementation of schemes: There are too many schemes to help the farmer, but not all are implemented properly. This also deprives the farmer of the basic profit they may get benefitted. Then they use fertilizers which also degrades fertility to another level. Frequent power cuts hamper the irrigation facilities and slow down the pace of the work on the fields. Unaware farmer: The less educated farmer is unaware of all the facilities, policies, and provisions meant for them. Lack of modern equipment-Affordability remains a problem. Moreover, this, inturn, contributes to the vicious cycle of poverty.

So, is there any solution to all of these problems? Well, maybe yes!

In the wake of climate change leading to unprecedented rains in the country, depletion of natural resources, and an imminent food crisis, India must move beyond conventional and aggressive farming and towards precision farming. Precision farming, although at a budding stage in India, can help the country become the top agricultural producer globally if every state comes forward.

WHAT IS THIS PRECISION FARMING?

Precision farming can be defined as a farm management system that harnesses information and communications technology (ICT), the Internet of Things (IoT), artificial intelligence (AI), data analytics, and other advanced technologies to minimize production costs and maximize farm productivity, profitability, and sustainability. Precision farming focuses on deploying the right inputs at the right time and the right place in the right manner. Furthermore, it undertakes a comprehensive approach to maintaining field and soil wellbeing in a way that elevates the Q2 aspect of agriculture, i.e., quality and quantity while minimizing environmental harm.

The concept of precision farming is strictly based on the Global Positioning System (GPS), which was initially developed by US (United States of America) defence scientists for the exclusive use of the US Defense Department. The unique characteristic of GPS is precision in time and space. Precision farming, as the name implies, refers to the application of precise and correct amounts of inputs, like water, fertilizers, pesticides, etc., at the correct time to the

Agri JOURNAL WORLD
ONLINE ISSN: 2583-4339
www.journalworlds.com
VOLUME 2 ISSUE 10 OCTOBER, 2022

crop to increase its productivity and maximize its yields. The use of inputs (i.e. chemical fertilizers and pesticides) is based on the right quantity, time, and place. Precision Farming is a combination of an application of different technologies. All these combinations are mutually interrelated and responsible for developments. The components primarily include Global Positioning System (GPS), Geographic Information System (GIS), Grid Sampling, Variable Rate Technology (VRT), Yield Maps, Remote Sensors, Proximate Sensors, Computer Hardware and Software, Precision irrigation systems.

A file pic of need-based precision nutrient application

SCOPE AND ADOPTION OF PRECISION FARMING IN INDIA

Precision farming for small farms can use small farm machinery and robots which will not compact the soil and may also run-on renewable fuels like bio-oil, compressed biogas, and electricity produced on farms by agricultural residues. For small farms, precision farming may include sub-surface drip irrigation for precise water and fertilizer application, weed removal, harvesting, and other cultural operations. Similarly, drones have also been introduced to map farms, identify diseases, and so on. Most robotic machines and drones are compact and thus suitable for small farms. India's small farms, therefore, are ideal for the large-scale application of precision farming.

The most important component in moving to precision farming will be creating a huge resource of engineers, scientists, and agriculturists to develop various technology components. Without an excellent workforce, even good research and development of precision farming will not succeed. Unfortunately, most good students want to get into engineering and medical streams, and ignorantly, agriculture becomes an afterthought. We should encourage our students to pursue agriculture, as it is our backbone, powerhouse, and roots. It is high time that

Industries and farmers work together, interact and collaborate to develop intelligent systems for precision farming. This will attract students to pursue agriculture, which will help develop our nation's future farms. High-tech precision farming therefore can help in bringing the next green revolution in India and can produce tremendous rural wealth in a sustainable and environmentally sound way by minimizing water loss, reduction of chemical fertilizers, reduction in the use of electricity which is climate-friendly this will help India reach its goal of Net zero 2070 emissions target. Thus, precision farming is a boon to our modern-day agriculture and will help build our future farms in a greener way. As responsible fellow beings, we need to care for our planet and help stop the climate change phenomena through clean and green agriculture.

ADVANTAGES

Agronomical Perspective	Use agronomical practices by looking at the specific requirements of a crop
Technical Perspective	Allows efficient time management
Environmental perspective	Eco-friendly practices in crop
Economical perspective	Increases crop yield and quality and reduces production costs by efficiently using farm inputs, labor, water, etc.

CONCLUSION

Precision farming is about doing the right thing, in the right place, in the right way, at the right time. Managing crop production inputs such as water, seed, fertilizer, etc. increase yield, quality, and profit, reduce waste, and becomes eco-friendly. Precision farming aims to match agricultural inputs and practices per crop and agro-climatic conditions to improve the accuracy of their applications. Precision farming can be considered an eye-opener to modern-day farming not only in developed countries but also in developing countries like India. In an era of climate change and global warming, precise agriculture will help reduce resources used, which will help reduce global warming.

****