Management of crop protection from pests and diseases.

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Abstract

Plant health is preserved and sustainable harvests are maintained thanks to crop protection. The type of cultures grown and the threat determine the best plant protection technique. It might be weeds, pests, or illnesses. Nevertheless, actions must be prompt and, whenever possible, preventative. Digital solutions are widely used in contemporary crop protection chemicals. They allow for the accurate examination of soil and plant conditions and offer precise data on outside variables like the weather. Additionally, they enable resource usage to be optimised. Farmers may therefore safeguard their crops, boost their earnings, and lessen environmental harm.

Keywords: Environmental harm, Pests, Illnesses, Crop protection.

Introduction

Crop protection involves tactics, equipment, and goods that defend against a variety of pests. These consist of ailments, viruses, weeds, and pests. They can all substantially weaken or perhaps completely destroy plants. Controlling the situation by lowering the risks is preferable to dealing with the problem's effects. Farmers can monitor climate change and catch the emergence of harmful weeds, pests, or illnesses early on thanks to culture protection. It is one of the most complex crop protection practices because various factors can influence diseases: plant age, genetics, environmental conditions, weather, etc. Consequently, it can be challenging to diagnose a disease, especially in the early stages of infection. It is, therefore, crucial to monitor the health of the plants regularly and analyze symptoms that occur sooner rather than later. [1].

The agricultural ecology contains a wide variety of creatures that can harm plants. They impair yields by delaying plant development, reducing plant thickness, and other factors. Dangers are reduced by taking prompt preventive action. Additionally, crop protection is crucial to agriculture because it preserves biodiversity and nutrient levels in the soil, makes the best use of the land, water, and labour available, and ultimately improves food quality and lowers food costs [2].

The health of the ecosystem and the production of high-quality food depend on agricultural practises. Consequently, agricultural plant protection is a crucial instrument along with the introduction of contemporary advances into the industry. The technique offers precise mechanisms for maintaining the health of plants and is constantly developing. Farmers' top benefits from crop protection. Biological control techniques for crop protection include a variety of items made from living things. They are a great addition to chemicals and offer better defence against weeds, diseases, and pests. Although they can be chemically synthesized, biological plant protection products have a formulation that is similar to that of natural products [3].

Pest activity can be effectively reduced through cultural management. One of the most popular strategies is switching out vulnerable plants and using modern, precise irrigation techniques (e.g., reducing irrigation can deprive weeds of sufficient moisture and promote root health). Farmers can physically get rid of pests with the use of mechanical crop protection systems. They include of barriers, traps, mulching, and steam sterilising procedures that keep pests and animals out of the field [4].

One of the main threats to plants is weeds. For food, water, and space, they are in competition with each other. Weeds can stifle and even kill young plants since they are frequently aggressively growing and dispersing plants. In order to effectively defend crops from weeds, it is necessary to recognise the threat as soon as possible and to comprehend the underlying biological factors. To find an afflicted area and send scouts to assess the situation, use EOSDA Crop Monitoring [5].

Conclusion

Chemical products for culture protection can be harmful for the environment, so governments regulate their use at a legal level. For example, the U.S. Environmental Protection Agency has developed federal regulations based on an environmental risk analysis. The incorrect use of pesticides can cause severe damage to the environment. Sustainable crop protection is, therefore, the best solution to ensure nature conservation, resource-saving, and high yields. Modern technologies allow achieving these goals most effectively.

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