

Commentary

Management of crop protection and its methods

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ABOUT THE STUDY

Crop protection is a growth strategy and technique for defending crop yields against a variety of species, such as pests, weeds, plant diseases, and other life forms that harm agricultural crops. They consist of ailments, viruses, weeds, and pests. They can all substantially weaken or perhaps completely destroy plants. Managing the situation by reducing the risks is preferable to managing with the problem's effects. Farmers can monitor climate change and detect the emergence of harmful weeds, pests, or diseases earlier on due to crop control. The agricultural ecology contains a wide variety of creatures that can harm plants. They impair yields by inhibiting plant development, decreasing plant thickness, and other factors. Risks are reduced by taking early preventive action. Additionally, crop protection is important to agriculture because it maintains biodiversity and nutrient levels in the soil, makes the most efficient use of the land, water, and labour available, and ultimately improves food quality and reduces production costs.

Inorganic herbicides for crop protection

The one of the most financially efficient methods of protecting plants is chemical crop protection. Additionally, it facilitates harvesting yields and maintains sustained growth throughout the year. Herbicides these are frequently used by farmers to control weeds. Plants that are actively growing can be killed with pesticides. Farmers use them prior to sowing or to ward off new pests, but they cannot effectively eradicate weeds (Adams, et al., 2014). The purpose of insecticides is to control bugs. Certain crop protection chemicals are used to treat plants, while others are sprayed to the soil (e.g., to combat worms) (e.g., against moths and aphids). Insecticides must be administered at the right time, that's why farmers inspect fields before applying them (Aneja, et al., 2008). Fungicides are utilized in crop protection to control fungi that spread the disease. During in the growing season (Kitchen, et al., 2008), it allows rising yield and maintains stored products. It is essential to segment the field into zones based on the severity of plant damage in order to apply pesticides for crop protection to the maximum potential. By utilizing the appropriate quantity of chemicals, it enables the wise use of resources (Mishima, et al., 2006).

Biological crop protection

Many products are made from living organisms are included in biological control methods for crop protection. They provide stronger defence against pests, diseases, and weeds and are a great addition to chemicals (Mosier, et al., 2004). Biological plant protection agents are chemically synthesized with a similar formulation to natural products.

Mechanical and cultural crop protection

Pest activities can be effectively reduced through cultural management. One of the most key techniques is changing out susceptible plants and using modern (Mir, et al., 2002), precise of irrigation techniques (e.g., reducing irrigation can deprive weeds of sufficient moisture and promote root health). Farmers will actively get rid of pests with the use of mechanical crop protection systems. These consist of barriers, traps, mulching, soil solarization, and sanitization procedures that keep pests and animals out of the field.

Disease management

It is one of the most complex crop protective measures since a variety of variables, such plant age, genetics, environmental factors, weather, and others, can affect disease. Consequently, diagnosing a disease can be difficult (Sramkova, et al., 2002), it is particularly in the initial phases of infection. Therefore, it is essential to regularly monitor on the condition of the plants and evaluate any early-on indications.

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