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Usage of Organic Substances in Pest Control Techniques

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DESCRIPTION

Pest control is the prevention of their growth, development or migration of pests. The entire economy is significantly impacted by pest control. Agriculture pests destroy millions acres of crops every year even with the best pest-control techniques worldwide. Rats have been found to destroy rice crops up to 50% in Southeast Asia. Infestations of stored grains and foods by insects and rodents cost the US economy more than \$500 million each year. Pest management is used in agriculture to protect farm crops and forests that are harvested for their wood.

Chemical control method

The usages of pesticides are substances that either kill bugs or prevent their growth. Pesticides are frequently categorised based on the pests they are meant to control. Examples include the application of insecticides to control insects, herbicides to control plants, fungicides to treat fungus, rodenticides to handle rodents, avicides to management birds and bactericides to treat bacteria. Additionally, chemosterilants and growth regulators are types of pesticides that are utilized to obstruct a pest's normal reproductive or developmental processes.

Poisonous plant chemicals were probably the first to be used in chemical pest management. Farmers throughout the 18th and 19th centuries ground up plants like chrysanthemums or tobacco that were poisonous to insects or rats either the crops or the pests were treated directly with the plant "soup". Later, chemists extracted the dangerous components from these poisonous plants and used them as liquid sprays. At some point, substances including pyrethrum (obtained from a type of chrysanthemum) and coal tar as well as nicotine, petroleum, creosote and turpentine were extracted for use as sprays.

These organic substances were subsequently replaced by more efficient inorganic substances including strychnine, arsenic, lime, sulphur and cyanide. For many agricultural pests, the alternative approach of integrated pest management was developed. This strategy uses biological control, crop rotation, crop exclusion, sanitation and other non-chemical pest management techniques. These techniques supplement other pest management plans intended to reduce the use of pesticides.

During World War II, synthetic organic chemicals became available, which had a significant impact on pest management. Synthetic chemicals like DDT (dichlorodiphenyltrichloroethane) and BHC (benzene hexachloride) which was extensively used against disease-spreading insects during the war. Other selective herbicides were produced as a result of the invention of the selective herbicide 2,4-D (2,4-dichlorophenoxyacetic acid), a synthetic organic molecule.

Biological control method

Exposing pests to parasites or predators is a key component of biological pest control. Predators and parasites are typically used to identify the pest-damaged fields and calculate the pest population. Later, millions of predators and parasites are introduced to secure control of the intended pest.

Pests have been managed since the 18th century through the breeding of hosts for pest resistance. The most substantial study on plant resistance has concentrated on wheat. The creation of new wheat varieties that are resistant to rusts; a variety of parasitic fungus that infect the plants leaves, stems. Corn breeding has produced variants that are resistant to smut and leaf blight along with other fungal diseases. The suppression of phylloxera, insects that attacked the root stock of the European wine grape but destroyed the European wine industry and this is a famous illustration of this plant-resistance strategy to pest control.