



Importance of Beneficial Insects in Agriculture- Examine How Insects Contributes to Agriculture

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Abstract

Agriculture is the cornerstone of human civilization, providing food, fiber, and fuel for sustenance and economic growth. It supports livelihoods, ensures food security, fosters rural development, and contributes to environmental sustainability. As a fundamental sector, agriculture plays a crucial role in shaping economies, cultures, and societies worldwide.

Introduction

Beneficial insects play a vital role in agriculture and ecosystem management. These insects are considered "good bugs" because of the positive impact they have on various aspects of the environment, particularly in pest control, pollination, and nutrient cycling.

Importance

1. **Pest Control:** Beneficial insects are natural predators or parasites of pests that can damage crops and plants. They help maintain a balanced ecosystem by controlling the population of harmful pests. By preying on or parasitizing pests, beneficial insects reduce the need for chemical pesticides, which can harm the environment, non-target species, and human health.
2. **Pollination:** Many beneficial insects, such as bees, butterflies, and some species of flies, play a crucial role in pollination. Pollinators transfer pollen from one flower to another, enabling fertilization and the production of fruits and seeds. This process is essential for the reproduction of numerous plant species, including many fruits and vegetables that are crucial for human and animal diets.
3. **Biodiversity and Ecosystem Services:** Beneficial insects contribute to the overall biodiversity of ecosystems. A diverse range of insect Biodiversity species is necessary for ecosystem resilience and stability. By maintaining balanced populations of insect species, beneficial insects help prevent outbreaks of pests and diseases that can disrupt ecological balance.
4. **Nutrient Cycling:** Certain beneficial insects, like dung beetles, carrion beetles, and soil-dwelling insects, play a role in nutrient cycling. They help break down organic matter, such as dead animals and plant debris, into simpler components, releasing nutrients back into the soil. This process is essential for soil fertility and the overall health of terrestrial ecosystems.
5. **Biological Control in Agriculture:** Beneficial insects are a crucial component of agricultural integrated pest management (IPM) strategies. IPM combines various methods to control pests sustainably, including biological control using beneficial insects. By releasing or conserving natural enemies of pests, farmers can reduce their reliance on chemical pesticides, leading to safer and more environmentally friendly agricultural

practices. Some beneficial insects are: beetles, flies, ants, moths, butterflies, bumble bees, honey bees, solitary bees, and wasps.

Conclusion

Organic livestock farming isn't a one-size-fits-all solution to all livestock-related issues. It is primarily a production method for a niche premium market with stringent quality standards for the manufacturing process and a high level of managerial competence. It is critical for the growth of organic livestock farming to ensure consumer confidence in organic products by meeting self-created demands to a great degree. Organic livestock production is difficult not just for farmers, but also for agricultural research and interdisciplinary collaboration. Animal raisers should have detailed methodologies and indicators for assessing animal welfare on the farm. Farmers should also have a support structure in place to help them enhance the quality of their output. The most important component is that socioeconomic studies on the adoption of organic animal husbandry should be conducted.

References

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