



Pests and Pesticides

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On behalf of Sedgefield Ratepayers Association.

During the 1950s, marine biologist Rachel Carson conducted research on the effects of pesticides on the food chain. Her findings were published in her book *Silent Spring* (1962), which discussed the widespread use of pesticides, particularly DDT, which was later banned internationally. The book led to a presidential commission that supported her research, raising environmental awareness. Chemical manufacturers criticised the book, considering it harmful to the pesticide industry. Some critique also questioned Carson's capability in handling scientific and technical topics due to her gender. Carson passed away from cancer in 1964 and is recognised as an early advocate for environmental issues and awareness.

A pest is any species that competes with us for food, invades lawns and gardens, spreads disease, disrupts ecosystems, or is a nuisance. In natural ecosystems, and some polyculture agricultural systems, pests are controlled by natural enemies like parasites, predators, and fungi. However, our gardening and agricultural methods disrupt these balances, leading us to use chemical pesticides as a primary solution. Pesticides are crucial in managing pests in agriculture and horticulture, but over and above the benefits, they do have severe negative impacts as well, when not correctly applied. Recently, bee farmers in Riversdale faced significant challenges when 242 hives were poisoned over four months by unscrupulous farmers and/or wrong application methods. This affected between 20,000 and 50,000 bees per hive. This

incident underscores the impact of pesticides on beneficial insects like bees. It is vital to read and follow pesticide usage instructions, just as we do with medication.

Advantages of Pesticides

- Increase crop yield as they protect crops from pests, diseases, and weeds, boosting agricultural productivity.
- Ensure food security by preventing crop losses, pesticides contribute to a stable and abundant food supply.
- They have economic benefits as they reduced pest damage, help farmers save money and increase profits.
- They protect public health as pesticides control vectors such as mosquitoes which spread diseases like malaria.
- They are an efficient pest control method, they are often fast-acting and can cover large areas effectively.

Disadvantages of Pesticides

- As an environmental pollutant, pesticides contaminate soil, water, and air, leading to long-term ecological damage.
- Exposure to pesticides can lead to severe health issues in humans.
- Over time, pests can develop resistance to pesticides, reducing their effectiveness.
- Harmful to beneficial insects, birds, and aquatic life, disrupting ecosystems.
- Pesticides can leave harmful residues on food, raising concerns about food safety.

The ongoing challenge lies in balancing these advantages while minimising the negative impacts. Integrated Pest Management (IPM) uses both chemical and non-chemical methods as sustainable alternatives. There are several natural alternatives to synthetic pesticides that can manage pests

without impacting the environment or human health. Effective options include:

Biological Controls where predatory, beneficial insects like ladybugs, lacewings, or praying mantises in your garden, can help control pests like aphids and caterpillars. Parasitic wasps attack and control pest populations, such as caterpillars and beetles.

Botanical Pesticides such as Neem oil, extracted from the neem tree, disrupt the life cycle of pests, and act as a deterrent. Pyrethrin, derived from chrysanthemum flowers, targets a range of insects, but should be used carefully to avoid harm to beneficial species. Both these insecticides are available in our stores.

Natural Sprays such as a homemade mixture of garlic and water can repel pests like aphids and whiteflies. Mixing liquid soap with vinegar and water creates a solution that suffocates soft-bodied pests such as spider mites and mealybugs.

Companion Planting is where specific plants, planted together can deter pests. For example, Marigolds repel nematodes while basil deters flies, mosquitoes, and aphids. Mint discourages ants and aphids. Marigolds are great companions for tomatoes, peppers, and beans. Basil also pairs perfectly with tomatoes. Chives deter aphids and improve the flavour of carrots and tomatoes.

Lavender attracts beneficial pollinators, like bees, while repelling moths and pairs well with cabbages and other leafy greens. Any ground cover or mulch suppresses weeds while improving soil fertility. While the low-growing and aromatic thyme also deters pests. Nasturtiums attract aphids and cabbage worms, protecting your tomatoes, cucumbers, and cabbages.

Physical Barriers such as covers, and netting protect plants from pests by physically preventing them from reaching crops. Mulches, such as straw or wood chips, can deter insects and weeds while at the same time keeping your soil cool and moist.

Cultural Practices. Rotating your crops can disrupt pest life cycles and prevent infestations. Manually removing pests like caterpillars or beetles can be effective for smaller gardens.

These methods are sustainable, environmentally friendly, and safer for humans and animals. Companion planting is a wonderful way to naturally deter pests, improve soil health, and encourage the growth of your garden. Trying to balance the economic and environmental advantages and disadvantages of pesticides is not easy and presents scientists, environmentalists, and farmers with serious dilemmas.

As users of chemical pesticides, I think we should ask ourselves: **Is it the right thing to do?**