



Highly Commended

Science Writing

Year 5 - 6

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Girls**



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My backyard biosphere

Hoverflies to the rescue – can catnip protect roses from aphids?

Last summer, aphids were attacking our roses. My mum tried to kill them with chemicals, but that didn't work. We looked for a better solution that did not use chemicals, because chemicals harm the environment and aphids become resistant to them. A better approach is companion planting, which is easier and more environmentally friendly. In this article I will explain how aphids hurt roses, problems with the chemicals, how companion planting works, and I will describe how hoverflies and catnip can protect roses from aphids.



*Figure 1 Aphids close up
(Boeckmann, 2026)*

Aphids are common garden pests that damage roses by rapidly multiplying and sucking nutrient-rich sap from new growth. Aphids usually begin as eggs that survive winter and hatch in spring as nymphs. These moult into adults and reproduce quickly by giving birth to live young without mating. When giving birth to nymphs, aphids can reproduce up to 12 offspring a day! If food becomes scarce or the plant is overcrowded, aphids will develop wings to fly to other plants.

Aphids feed on sap in new growth. This weakens the plant, damages leaves and buds, leaves sticky honeydew on the leaves, and can encourage black mould. Black mould is a fungal disease that thrives in warm and humid places. The black mould grows when airborne fungal spores get stuck in honeydew. Because aphids multiply quickly, they can overwhelm a rose bush in as little time as 7 days.



*Figure 2 Aphids infesting a rose
(Van Pelt, 2024)*



Figure 3 Trifend container
(Searles, 2026)

When we saw the aphids, we decided to go to the nursery and ask for a spray that kills aphids and stops black mould. We got Trifend which contains the chemicals tau-fluvalinate and myclobutanil. These chemicals are used to control insects and fungal diseases on roses and ornamental plants. Trifend kills aphids by disrupting their nervous system, causing paralysis and death. However, it can also harm the environment by affecting pollinators such as bees, butterflies, and hoverflies, and it may pollute waterways if it enters drains or soil. The Trifend Safety Data Sheet also talks about how Trifend can be harmful to humans. In our garden, we noticed that the Trifend eventually stopped working - the aphids gradually became resistant. As the aphids remained, black mould grew, and the roses could not recover between infestations. This showed that chemical control was not a reliable long-term solution.

Then we thought, “is there another way to do it?” While researching we came across companion planting, the practice of growing different plants together, so they benefit one another. It is a better option than chemical sprays because it supports biodiversity, reduces repeated chemical use, and may attract beneficial insects that naturally control pests. For example, tomatoes and basil are often planted as companions.



Figure 4 Catnip in flower
(Sustainable Gardening Australia, 2026)

The science behind companion planting is promising but not perfect. Studies show that some companion plants can reduce aphids by attracting natural enemies, confusing pests, or increasing plant diversity - results vary depending on the plants used and local conditions. Companion planting is most effective when it is chosen carefully and used as part of a broader pest-control approach. In our garden, we tried planting catnip near roses. The catnip flowers attracted hoverflies, which lay eggs near aphids because their larvae feed on aphids. As a result, we controlled aphids without chemicals.

Hoverflies are a natural predator to soft bodied insects. They have a four-stage life cycle: egg, larvae, pupa, and adult. Adult females lay small white eggs on leaves near aphid colonies, so the larvae have food when they hatch. The eggs hatch after a few days. The larvae are slug-like maggots that feed on aphids and other soft-bodied insects, making them useful predators in gardens. A single hoverfly larva can consume up to 500 aphids during its developmental phase, eating around 40 aphids per day! Eventually, the larvae form a small protective case on a leaf where they develop into adults. Adults feed on nectar and pollen, which is why they are attracted to flowering plants.

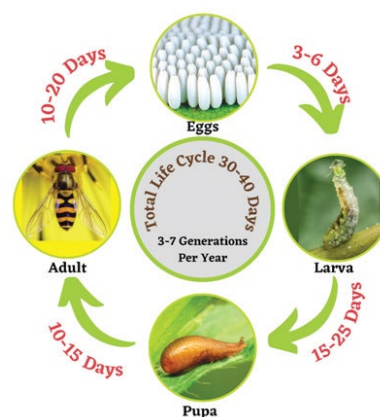


Figure 5 Hoverfly life cycle
(Kumar et al, 2023)

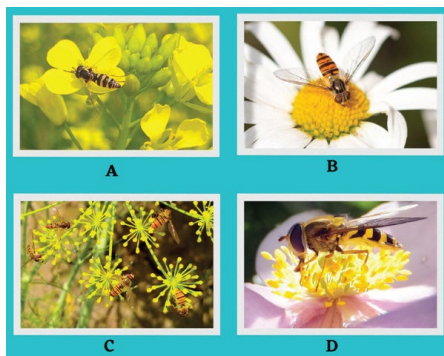


Figure 6 Hoverflies attracted to flowers (Kumar et al, 2023)

In our garden, we observed the catnip flowering, hoverflies visiting the area, and eggs appearing near the aphids. Soon after, aphid numbers dropped. This suggests hoverflies helped control the infestation naturally and reduced the need for chemical spraying. Best of all if aphids come back the hoverflies will swoop in and lay more eggs. This means the aphids can be sustainably controlled.

The aphids started off as horrible pests that we couldn't control and our roses were dying. We tried using chemicals to control aphids but that didn't work, it also can cause problems for people and the environment. Instead, we tried using catnip to attract hoverflies to eat the aphids – this worked! This is the reason why I think that instead of using harmful chemicals you should try companion planting because I observed firsthand that it works better than chemicals, it's lots less effort to do, and if we had used companion planting a bit earlier, our roses may have had more flowers. Given how successful we were with catnip and roses, next I'm going to research about how to sustainably stop conifer beetles hurting our hedges.

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