

Flonicamid

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Flonicamid is a synthetic insecticide that was discovered in 1992 by the Ishihara Sangyo Kaisha Ltd. company. Its discovery occurred when it was noticed that some derivatives of trifluoromethylpyridine would kill aphids. Flonicamid is a chordotonal organ modulator in the insecticide resistance action committee group 29. Chordotonal organs are stretch receptors that allow arthropods and insects to detect the position of their antennae. Disruption of these organs interferes with movement, hearing and balance, causing the insect to stop feeding. Initially, flonicamid was put in insecticide resistance action committee group 9C. However, it was found that flonicamid acts on a different protein than the insecticides in group 9C. Thus, it was placed in its own group. The protein that flonicamid works on is unknown. The flow of potassium into cells is blocked.

After exposure to flonicamid, insects are killed by starvation and dehydration. The insect attaches its head to the plant but is unable to feed on the sap or secrete saliva. Feeding may end in as little as one hour after the insecticide is eaten and death will occur in two to five days depending on environmental conditions, amount of insecticide eaten and the plant fed on. Honeydew production is reduced and some aphids stagger in an hour after eating the insecticide.

Flonicamid kills nymphs and adults, is systemic and transported in the xylem and translaminar (moving through leaf tissue). Foliage growing after application of flonicamid will not have insecticide in it and is not protected. This insecticide may kill insects as a stomach or contact insecticide but works faster when it is eaten by the insect.

Flonicamid works on sucking insects including aphids, thrips, mealybugs, whiteflies, leafhoppers, plant bugs and plant hoppers. It is not known to kill pollinators, bees, caterpillars, predators or parasites but will kill predatory thrips. It is not effective on chewing insects or mites.

Plants should be sprayed to wetness, and the residual is two to three weeks. This insecticide is not rainfast and should be applied when there is no forecast of rain for 24 to 48 hours, the longer period without rain the better. The preharvest interval ranges from zero to 40 days depending on the plant to which application is made. Read the label for restricted entry interval, but it may be at least 12 hours. Read the label to determine distances to maintain away from waterways. Cross resistance to other classes of insecticides and phytotoxicity has not been reported, and it is not rapidly degraded by UV sunlight. A small number of plants should be sprayed to test for phytotoxicity before applications are made to a large number of plants. Flonicamid is stable at pH levels ranging from 4 to 7 but breaks down when pH is greater than 7.5.

Flonicamid should not be exposed to high temperatures and should be stored at room temperatures. It has a long shelf life and may be stored for a long time under cool, dry conditions. The following products contain flonicamid: Aria, Beleaf, Carbine, and Turbine.