



Worried about what's happening to our Bee population?

Greyhound Chromatography and Allied Chemicals provide a wide range of certified reference standards for the testing and analysis of samples related to Environmental and Agricultural issues.

The European Commission will restrict the use of pesticides linked to bee deaths by researchers, despite a split among EU states on the issue. There is great concern across Europe about the collapse of bee populations. Neonicotinoid chemicals in pesticides are believed to harm bees and the European Commission says they should be restricted to crops not attractive to bees and other pollinators.

More testing needed to establish the effect of neonicotinoids on the world's bee population.

Greyhound Chromatography and Allied Chemicals provide a wide range of certified reference standards for the testing and analysis of samples related to Environmental and Agricultural issues.

Greyhound Chromatography and Allied Chemicals provide a wide range of certified reference standards for the testing and analysis of samples related to Environmental and Agricultural issues.

When the first neonicotinoid insecticide was introduced in 1991, there was a general welcome from scientists because it provided an improved method of tackling some of the world's most destructive crop pests while being safer for humans and the general environment.

Neonicotinoid chemicals are usually applied to seeds, entering every part of a growing plant so all of it becomes poisonous to threats like beetles and aphids. And they are widely used around the world - In the US it's estimated that 94% of corn seed is treated with these chemicals.

Recently, the use of some members of this class has been restricted in some countries due to evidence of a [connection](#) to honey-bee [colony collapse disorder](#).^{[4][5]} In January 2013, the [European Food Safety Authority](#) stated that neonicotinoids pose an unacceptably high risk to bees, and that the industry-sponsored science upon which regulatory agencies' claims of safety have relied may be flawed.

Given their prevalence in farming it is little wonder that scientists have [sought](#) to establish if they have played a role in the decline of bee populations widely seen around the world over the last 10 years. Studies carried out to date have not reached a clear conclusion on the impacts of neonicotinoid chemicals. [Some](#) have shown significant effects. Others have not.

"We're not making this stuff up, we have reason to think this is a problem," Dr Geraldine Wright from Newcastle University told BBC News.

If you ban the neonicotinoids, farmers are going to be compelled to use products that are much more harmful to the environment and to a wider range of animals"

Dr Adam Vanbergen Centre for Ecology & Hydrology

"I think there is an effect of neonicotinoids and I think that based on research I've done in my own lab. Before that I was fairly doubtful, but I do actually think there is an influence."

There are far more research papers that show an effect than don't, says Dr Wright.

However, Dr Julian Little from Bayer in the UK draws a big distinction between studies conducted in the laboratory and those carried out in the field.

"We have never argued about the science, what we have been upset about is how that research has been put into policy. Because when you repeat it with real bees, real colonies in real fields, you don't see any effect."

But Dr Wright says it is wrong to dismiss the research carried out in the laboratory. She says the work is done there precisely because it is possible to control the variables such as the doses of the chemicals the animals are exposed to, and thereby establish cause and effect.

What exactly are Neonicotinoids?

- Nicotine is not just lethal to humans in the form of cigarettes, but the chemical is also extremely toxic to insects
- Neonicotinoid pesticides are new nicotine-like chemicals and act on the nervous systems of insects, with a lower threat to mammals and the environment than many older sprays

- Pesticides made in this way are water soluble, which means they can be applied to the soil and taken up by the whole plant - they are called "systemic", meaning they turn the plant itself into a poison factory, with toxins coming from roots, leaves, stems and pollen
- Neonicotinoids are often applied as seed treatments, which means coating the seeds before planting.

Neonicotinoids are a class of neuro-active [insecticides](#) chemically related to [nicotine](#). The development of this class of insecticides began with work in the 1980s by [Shell](#) and the 1990s by [Bayer](#).^[1] The neonicotinoids were developed in large part because they show reduced toxicity compared to previously used [organophosphate](#) and [carbamate](#) insecticides. Most neonicotinoids show much lower toxicity in mammals than insects, but some breakdown products are toxic.^[2] Neonicotinoids are the first new class of insecticides introduced in the last 50 years, and the neonicotinoid [imidacloprid](#) is currently the most widely used insecticide in the world.^[3]

A [report published by the European Food Safety Agency \(EFSA\)](#) in January concluded that the pesticides posed a "high acute risk" to pollinators, including honeybees.

However, it added that in some cases it was "unable to finalise the assessments due to shortcomings in the available data".

The three neonicotinoids are:

Clothianidin; supplied as a neat product or in solution.



S-11493A1-1ML

[Clothianidin Solution 100ug/ml in Acetonitrile; PS-2261AJS](#)

[MSDS](#)



N-11493

[Clothianidin:\(E\)-1-\(2-Chloro-1:3-thiazol-5-ylmethyl\)-3-methyl-2-nitroguanidin; PS-2261](#)

[MSDS](#)

Imidacloprid;



[Imidacloprid ; Admire®; Confidor®; Gaucho®; Merit®; 1-\[\(6-Chloro-3-pyridinyl\)methyl\]-N-nitro-2-imidazolidinimine; PS-2086](#)

[MSDS](#)



[Imidacloprid Solution 100ug/ml in Methanol; PS-2086JS](#)

[MSDS](#)

[Imidacloprid olefin](#)

[MSDS](#)

[Imidacloprid urea](#)

[MSDS](#)

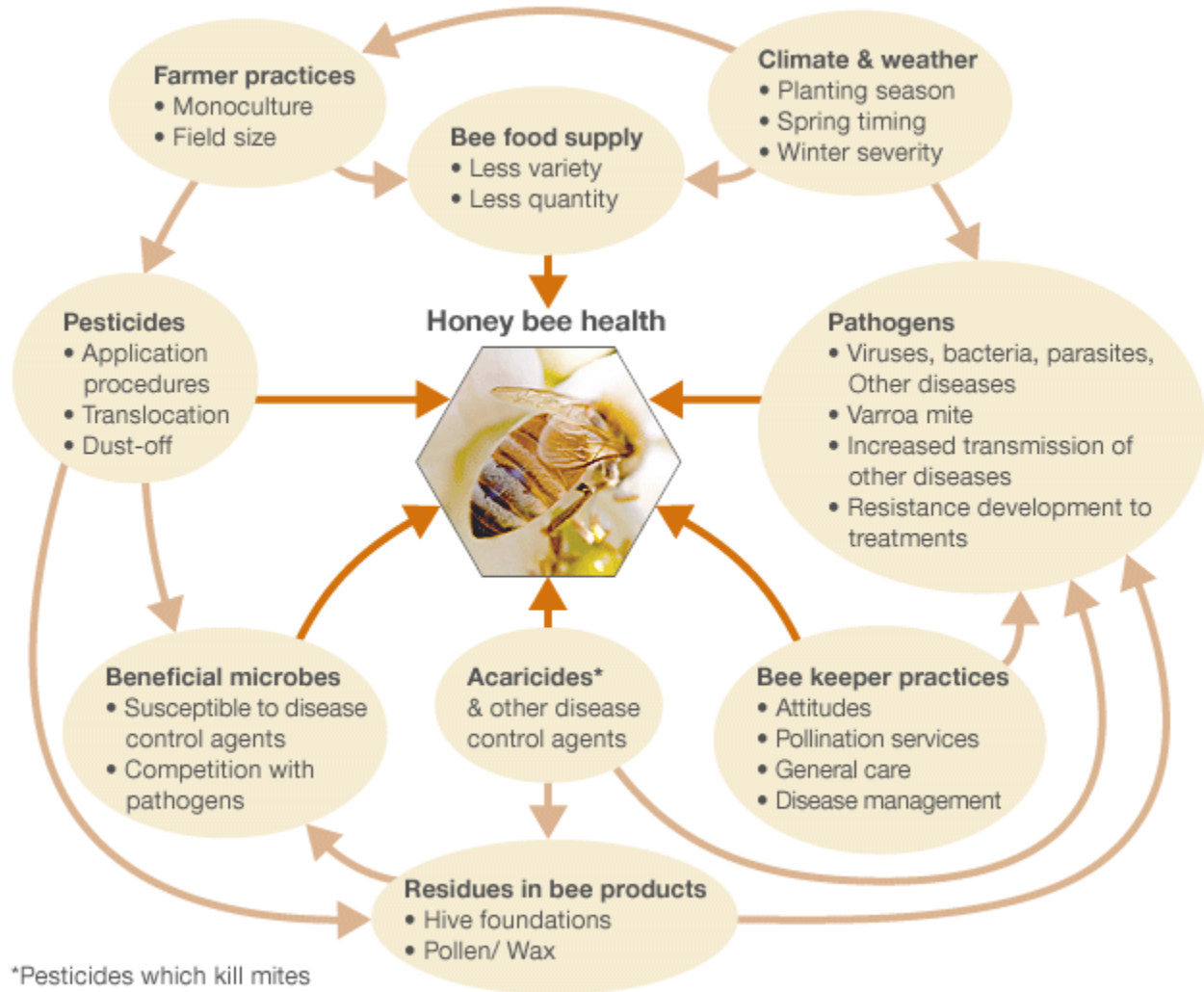
Thiametoxam

SIGMA-ALDRICH®

[37924 PESTANAL® , analytical standard \(Fluka\)](#)

[MSDS](#)

Stress factors in honey bee populations



*Pesticides which kill mites

Source: OPERA Bee health in Europe, 2013