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MEDIA STATEMENT

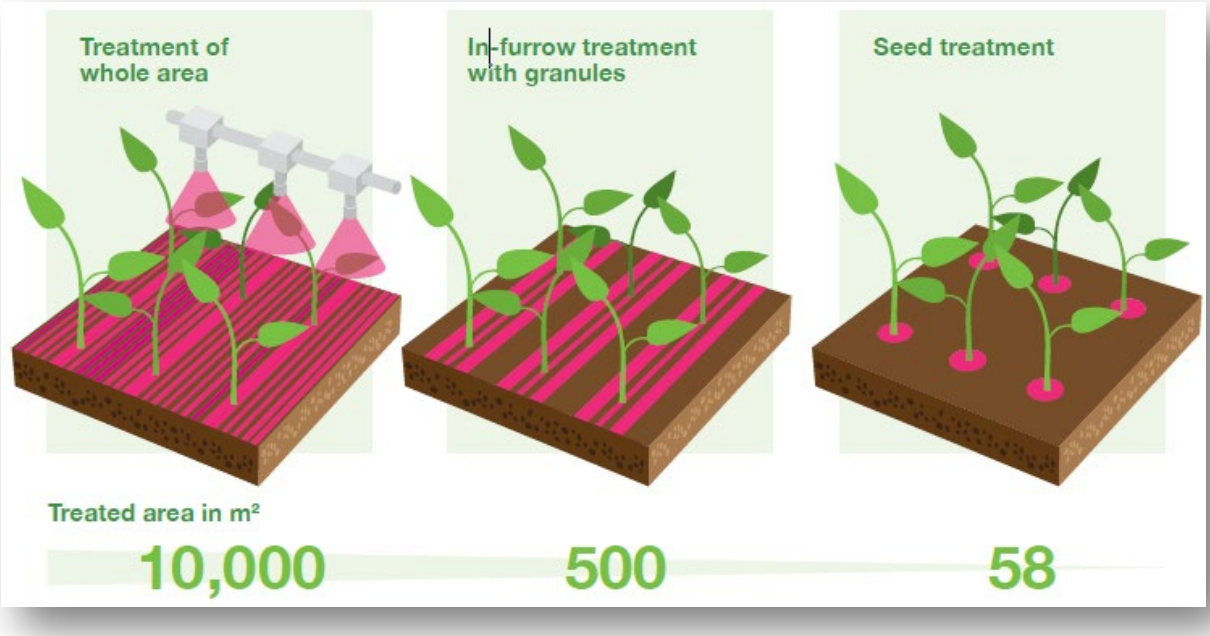
COMMENTARY ON NEONICOTINOIDS

27 January 2020

Neonicotinoids (neonics) are a group of modern insecticides noted for their excellent insect control but low toxicity in humans and other mammals. They have been on the market in New Zealand for more than 25 years and been applied to protect many hundreds of thousands of hectares of crops and pasture.

For crops, neonics are used in three ways – as a seed treatment – used to coat seeds prior to planting; as a soil drench applied to the roots; and as a foliar spray. Neonics are systemic and, when applied to the seed or the roots protect the plant from insect attack, minimising or eliminating the need to spray crops as they grow.

Seed treatment application is highly targeted and is one of the most environmentally-friendly means of crop protection product application. This has largely displaced older and less effective organophosphate and carbamate insecticides which were more toxic to humans. Modern silage maize production in New Zealand would almost be impossible without neonics. One of the unique characteristics of neonics is that, when used as seed treatments, they can be applied at very low rates of active ingredient per hectare, reducing the number of insecticide applications in comparison to spray treatments. This is illustrated in the graphic below.



Trade names of the main neonics available in New Zealand

Seed treatment application:

- Cruiser (active ingredient: thiamethoxam) for maize/sweetcorn and forage brassicas.
- Gaucho (active ingredient: imidacloprid) for cereals, forage brassicas, grass seed, maize/sweetcorn, potatoes and winter squash/pumpkins.
- Poncho (active ingredient: clothianidin) for cereals, maize/sweetcorn, forage brassicas and grass seed.

There are several neonic insecticides which can be used as foliar sprays, in-furrow or seedling tray drench, but their use is limited:

- Actara (active ingredient: thiamethoxam) for kiwifruit, pipfruit and in-furrow application on potatoes.
- Calypso (active ingredient: thiacloprid) for avocados, kiwifruit, pipfruit and stonefruit.
- Confidor (active ingredient: imidacloprid) for application on onions, as a transplant tray treatment of vegetable brassicas and lettuce, and as a soil drench in grapes.
- Durivo (active ingredient: thiamethoxam + chlorantraniliprole) for leafy vegetables, brassica leafy vegetables and vegetable brassicas as pre-transplant seedling drench.
- Solvigo (active ingredient: thiamethoxam + abamectin) for bulb onions.

This is not an exhaustive list as there are a number of generic products based on some of the above active ingredients.

Imidacloprid use for animals and controlling ants

The active ingredient imidacloprid is used in flea control for cats and dogs and pour-on fly and lice treatment for sheep. It's also used for ant control.

Neonics and bees

Some groups have claimed that neonics are responsible for Colony Collapse Disorder (CCD), reported in the United States, and severe winter colony losses in Europe. However, independent scientific research has concluded that the varroa mite is the main cause, amongst others, for these losses.

Honey bee hive numbers in Europe have been increasing for years. The European Commission's own data[1] shows a steady evolution of the number of beehives in the European Union from 11.6 million in 2004-2006 to 15.7 million in 2014-2016. The same upward trend is also visible in the FAO data for Europe[2]. In fact, managed honey bee colony numbers across the globe have been continuously increasing on most continents, even in regions with an intensive use of neonicotinoids.

In Australia, neonics have been used for around 25 years but, because it has no varroa, it is said to have the healthiest bees in the world.

In New Zealand neonics have been used since 1992, well before the varroa mite was first identified in 2000. The varroa mite has since decimated feral honeybees. It is now widely

[1] European Commission Report (2016) on the implementation of the measures concerning the apiculture sector of Regulation (EU) No 1308/2013 of the European Parliament and of the Council establishing a common organisation of the markets in agricultural products. COM (2016) 776 final.
[2] FAO Statistics, 2017: http://www.fao.org/faostat/en/#search/Beehives.

accepted that honeybees cannot survive in New Zealand without human intervention because of the impact of this mite.

Meanwhile, the number of managed beehives in New Zealand has increased astronomically from 300,000 in the year 2000 to more than 800,000 by 2017, despite the ongoing use of neonicotinoids since 1992.

It is important to ensure that bees are not exposed to neonics. This is achieved by carefully managing/controlling the main potential exposure pathways as follows:

1. Dust off during the drilling/planting process.
   This is managed by the use of film coats (stickers) which assist with adhesion of the seed treatment to the seed, reducing dust.

2. Systemic residues in pollen/nectar.
   Applied at labelled rates, neonic residues are either non-existent or well below the no observable adverse effect level.

3. Residues of neonics in guttation fluid (water droplets exuded by some plants along the edges of their leaves when humidity is high, soil moisture is very high and the soil is warmer than the air).
   Although residue levels in guttation fluid may be toxic to bees, guttation and collection of guttation fluid by honey bees are very rare and therefore not considered as an unacceptable risk to bee colonies.

4. Residues on flowers following foliar application of neonics
   Foliar applications of neonics are limited to plants that are not in flower to avoid the risk of bee exposure.

The media frequently refers to sub-lethal effects caused by neonics, what does this mean and is it important?

Sub-lethal effects are effects which do not directly cause mortality but may impair normal functioning by affecting foraging activity, orientation and homing behaviour, etc. Some studies claim to have found sub-lethal effects. However, most have been done in laboratory studies or using otherwise artificial design conditions, the relevance of which is questionable. When alleged effects have been tested under realistic field conditions, they could no longer be found as a factor posing any damage to bee colonies. For these reasons, sub-lethal effects are not considered an important determinant of bee health.

Neonics have been widely used in New Zealand for over 25 years and there is no evidence that they have any adverse impacts on the health of our bee populations. False claims about neonics pose a serious threat to the environment. Banning them would set New Zealand agriculture back 30 years and leave farmers with no choice but to use more harmful older technology.

The regulatory authority, the Environmental Protection Authority (EPA), operates under a robust science and evidence-based risk assessment system. The EPA has assessed neonics and concluded that their use according to label instructions does not pose unacceptable risks to the environment.

Agcarm welcomes the opportunity to provide further information to the EPA and other stakeholders on the properties of these invaluable products, current use practices and the significant benefits neonics bring to the New Zealand economy.

ENDS

About Agcarm

Agcarm is the industry association which represents crop protection, animal health and rural supplier businesses. Agcarm members distribute and sell the majority of veterinary medicines and crop protection products in New Zealand. Agcarm members promote responsible use of products right through the product life cycle, from research to disposal.

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