

# Ban Neonicotinoids

EU approves complete ban on bee-killing insecticides



| ENVIRONMENT |

## Huge decline in songbirds linked to common insecticide

Neonics—pesticides introduced to plants at the seed stage—act like an appetite suppressant for birds, making them lose weight within hours.



*“We cannot continue to focus on increasing production and productivity based on the widespread use of pesticides and chemicals that are threatening crops and pollinators”*

Director-General José Graziano da Silva, Food & Agricultural Organization, United Nations, World Bee Day 2018.<sup>(1)</sup>

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Neonicotinoids are the most often used class of pesticides in the United States, despite the US EPA finding that “...neonicotinoid seed treatments likely provide \$0 in benefits to growers and at most \$6/acre in benefits (i.e., 0%-1.7% difference in net operating revenue).”<sup>(20)</sup>

The UN warned in 2017 that 40% of invertebrate pollinators (bees, butterflies) are at risk of global extinction.<sup>(2)</sup> Bees and other pollinators (birds, butterflies, bats, beetles) are responsible for greater than 75% of the yield and quality of the world’s food crops.<sup>(1)</sup> The use of synthetic pesticides, climate change, loss of biodiversity, pollution and intensive agricultural production have contributed to a loss of up to 90% of the bee population through “colony collapse disorder.” While western honey bee populations are relatively stable in the US, they and 20,000 wild bee species and other pollinators remain at risk globally.<sup>(3,4)</sup>

Birds and other animals that rely on affected and dead insects for their diet are also being impacted by neonicotinoids: affecting fat stores through appetite suppression, migration patterns required for survivability, and reproductive capability, High doses of neonicotinoid exposure, the equivalent of 1/10 of a sunflower seed, has been shown to result in a 6% loss in body mass within 6 hours in birds.

Despite manufacturer claims of “...relatively soft on beneficial species and can be used in harmony with honey bee pollination programs,”<sup>(5)</sup> these chemicals induce a high level of addiction in bees, like nicotine addiction as expressed in the name of the class of these pesticides. It has been shown they they reduce bee sperm count and quality and negatively impact their memory and homing ability, contributing to colony collapse disorder.<sup>(6)</sup>

Neonicotinoids are widely used to control Aphids, Pollen beetles, Blossom Midge, Codling Moth, Wireworm, and Fruit fly. Coated on seeds or poured around plant bases, they are systemic toxins affecting leaves, flowers, roots and stems, as well as pollen and nectar and cannot be washed off fruits and vegetables. They persist in the soil for years after application and run off into waterways and oceans.<sup>(12,13)</sup> Even when low levels are detected, their effects can be cumulative, affecting crops, humans, other mammals and aquatic life. Developing fetuses and children are disproportionately affected because of their immature systems and size.

Loss of pollinators has a direct impact on crops that include (partial list):

Coffee, Apples, Pears, Some citrus and avocado crops, Brussel sprouts, Cabbage, Cauliflower, Carrot, Parsnip, Peas, Potato, Oilseed rape, Tomato, Table & Wine Grapes, Chilis, Cucumbers, Mango, Almonds.

Neonicotinoids are also used on cotton, sorghum, sugar beet, corn, soybean, canola, grains, rice and nut crops.<sup>(21)</sup>

A recently released report on the detection frequency of neonicotinoids in both domestic and imported crops from 1999-2015 revealed:<sup>(11)</sup>

Acetamiprid-  
cherries (45.9%), apples (29.5%), pears (24.1%), strawberries (21.3%)

Imidacloprid-  
cauliflower (57.5%), celery (20.9%), cherries (26.3%), cilantro (30.6%), grapes (28.9%), collard greens (24.9%), kale (31.4%), lettuce (45.6%), potatoes (31.2%), spinach (38.7%)

Neonicotinoids were also detected in organic commodities, (<6%).

Birds and other animals that rely on affected and dead insects for their diet are also being impacted by neonicotinoids: affecting fat stores through appetite suppression, migration patterns required for survivability, and reproductive capability. High doses of neonicotinoid exposure, the equivalent of 1/10 of a sunflower seed, has been shown to result in a 6% loss in body mass within 6 hours in birds and a total net loss of 17%. Studies have shown that birds that ingested neonicotinoid coated seeds required more 3 days to recover from lethargy and regain weight, delaying migration and potentially missing the opportunity for reproduction. Birds can be exposed at additional way points during migration, as well. A lethal dose of neonicotinoid is the equivalent of Many small birds only reproduce once or twice in their lifetime and their populations are plummeting.<sup>(17,18)</sup>

In humans, neonicotinoid pesticides have been shown to have endocrine disrupting and reproductive effects,<sup>(7,8)</sup> including congenital anomalies, spontaneous abortions, preterm birth,<sup>(8,9)</sup> low birth weight<sup>(10)</sup> and prolonged gestation, all of which can have long term health implications. Low level and chronic exposures can result in neurotoxicity, immunotoxicity, genotoxicity and endocrine toxicity. Acute toxic exposures can be lethal. They are toxic to both vertebrate and invertebrate aquatic organisms, have a long term effect on the aquatic environment,<sup>(10)</sup> and impact the food you eat and the water you drink.

In Sept. 2018, a ban on five bee killing neonicotinoids went into effect in France.<sup>(14)</sup> The ban includes both indoor and outdoor use of: clothianidin, imidacloprid, thiamethoxam, thiacloprid and acetamiprid. Acetamiprid has been on OEHA Prop.65 list, CHEMICALS KNOWN TO THE STATE TO CAUSE CANCER OR REPRODUCTIVE TOXICITY, since 1 Jan 1990.<sup>(15)</sup>

A wide reaching ban on 3 of the neonicotinoids goes into effect in the European Union in April of 2020, banning them from outdoor use on crops. Applications for renewal of approval for clothianidin and thiamethoxam were withdrawn and they can no longer be used in greenhouse applications since 2019. The renewal application for imidacloprid was due 31 January 2020. If not renewed, the application for greenhouse use only will expire 31 July 2022.<sup>(16)</sup>

Manufacturers of neonicotinoids:<sup>(19, 21)</sup>  
Bayer CropScience, Scotts, Standon, Syngenta

Products with neonicotinoids<sup>(19)</sup>  
Biscaya, Calypso, Exemptor, Topstar, Sonido

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