

Orchard ID = “B”

A honey bee LD₅₀ is the lethal dose for 50% of bees 48 hours post-exposure. The U.S. Environmental Protection Agency (EPA) considers pollinator exposures that are >40% of a honey bee LD₅₀ to be an acute contact exposure level of concern. The European Food Safety Authority (EFSA) considers exposures that are >20% of a honey bee LD₅₀ to be an acute contact exposure level of concern. Below is an overall summary of exposures that bees experience at flowers and in wax that they construct in their hives while conducting pollination at your orchard.

Hazard Quotient (% of honey bee LD₅₀) at Orchard “B”

Apple flowers: **29.8% of honey bee LD₅₀** – above EFSA acute contact exposure level of concern
Honey bee wax: **42.4% of honey bee LD₅₀** – above EPA and EFSA acute contact exposure levels of concern

The tables below provide detailed pesticide residue results for apple flowers and honey bee wax taken from hives at Orchard “B”. Residues are expressed in parts per billion (ppb), which is equivalent to ng/g of material. Residues that are particularly concerning for pollinators because they constitute a substantial fraction of a honey bee LD₅₀ are highlighted in yellow.

Apple flowers			
Product names	Pesticide active ingredient	Pesticide type	Residue (ppb)
Difenoconazole 3L, Amistar Top, Quadris Top	Difenoconazole	Fungicide	>10000.00
Vanguard WG, Vango WG	Cyprodinil	Fungicide	>1000.00
Sercadis	Fluxapyroxad	Fungicide	196.85
Pristine, Cabrio EG, Empress, Intrinsic	Pyraclostrobin	Fungicide	192.71
Lorsban-4E, Lorsban Advanced	Chlorpyrifos	Insecticide	185.29
Frontelis	Penthiopyrad	Fungicide	80.70
Exirel	Cyantraniliprole	Insecticide	74.20
Altacor	Chlorantraniliprole	Insecticide	4.12
Atrazine 4L	Atrazine	Herbicide	2.45
Indar 2F	Fenbuconazole	Fungicide	1.00
Flint, Flint Extra, Gem 500SC	Trifloxystrobin	Fungicide	0.94
Decco Pyr 400 SC, Scala	Pyrimethanil	Fungicide	0.50
Metolachlor 8E	Metolachlor	Herbicide	0.50
Quadris F, Abound, Acadia, Aframe, Heritage	Azoxystrobin	Fungicide	0.20

Honey bee wax			
Product names	Pesticide	Pesticide type	Residue (ppb)
Difenoconazole 3L, Amistar Top, Quadris Top	Difenoconazole	Fungicide	121.86
Sevin Carbaryl, Drexel, Carbaryl, Carbaryl 4L	Carbaryl	Insecticide	88.08
Avaunt	Indoxacarb	Insecticide	87.25
Lorsban-4E, Lorsban Advanced	Chlorpyrifos	Insecticide	30.54
Vanguard WG, Vango WG	Cyprodinil	Fungicide	20.12
Altacor	Chlorantraniliprole	Insecticide	11.48
Flint, Flint Extra, Gem 500SC	Trifloxystrobin	Fungicide	9.91
Pristine, Cabrio EG, Empress, Intrinsic	Pyraclostrobin	Fungicide	5.54
Sercadis	Fluxapyroxad	Fungicide	4.88
Metolachlor 8E	Metolachlor	Herbicide	3.25
Exirel	Cyantraniliprole	Insecticide	2.41
Atrazine 4L	Atrazine	Herbicide	2.21
Elite, Orius	Tebuconazole	Fungicide	2.00
Frontelis	Penthiopyrad	Fungicide	1.83
Ambush Butacide, Exponent, PBO-8	Piperonyl butoxide	Synergist	0.65
Actara, Flagship 25 WG, Cruiser 5FS	Thiamethoxam	Insecticide	0.59
Intrepid	Methoxyfenozide	Insecticide	0.42
Decco Pyr 400 SC, Scala	Pyrimethanil	Fungicide	0.34
Revus Top	Mandipropamid	Fungicide	0.33
Aproach Prima,	Picoxystrobin	Fungicide	0.29
Quadris F, Abound, Acadia, Aframe, Heritage	Azoxystrobin	Fungicide	0.26
Brush, Bullet, Bushwhacker	Tebuthiuron	Herbicide	0.23
Gesamil, Milocep, Milogard	Propazine	Herbicide	0.20
Velum Prime, Broadform	Fluopyram	Fungicide	0.10