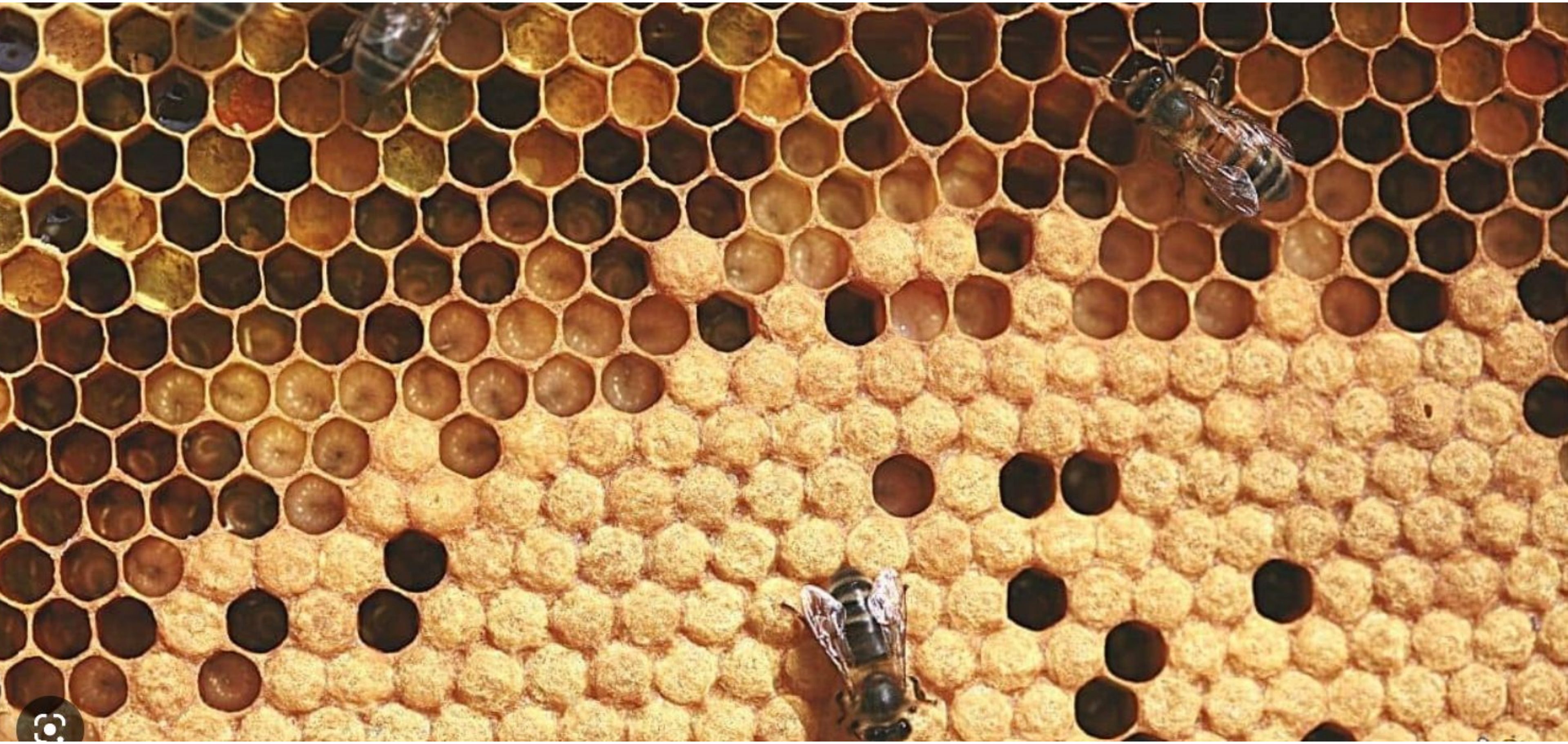
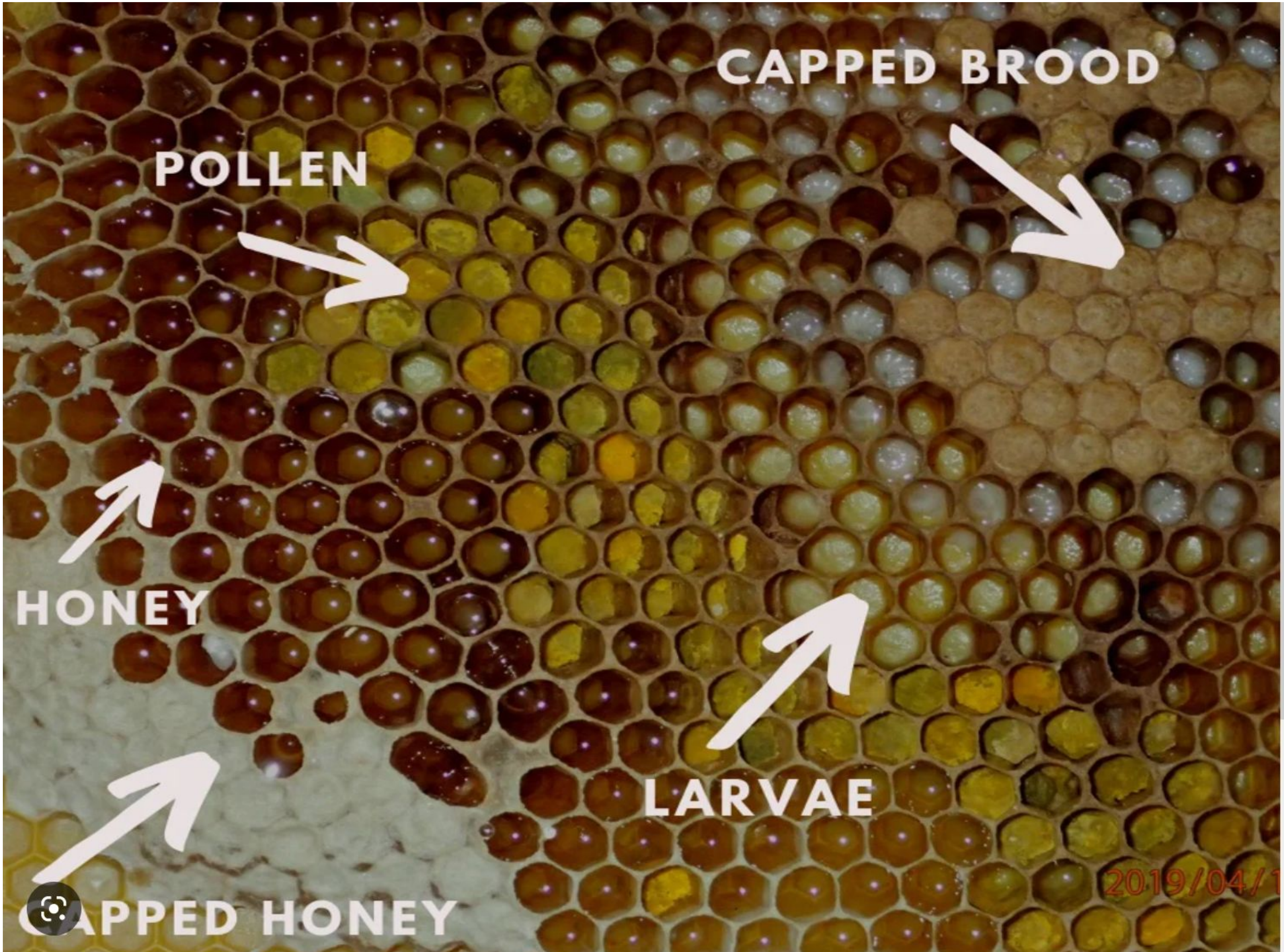
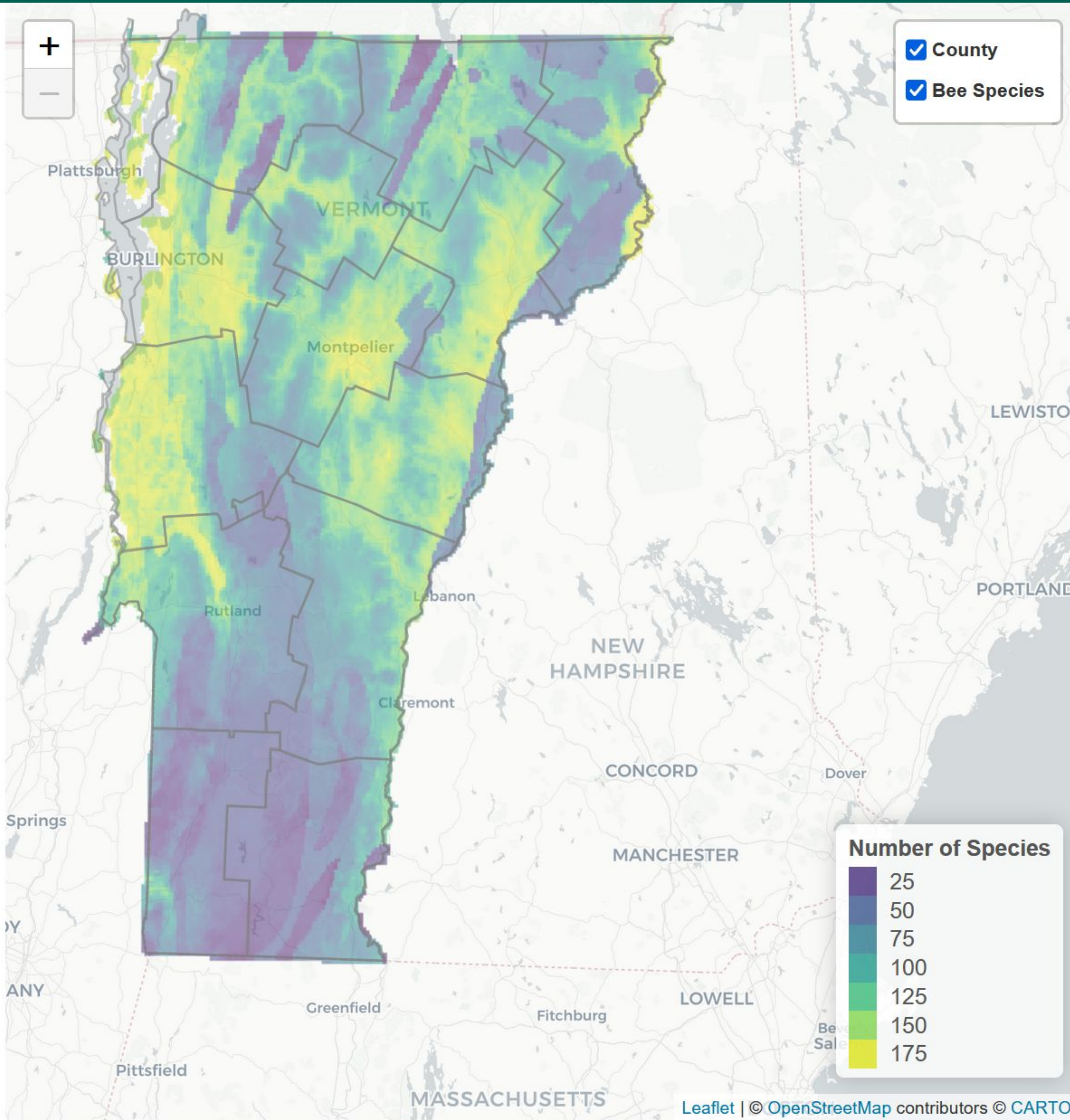
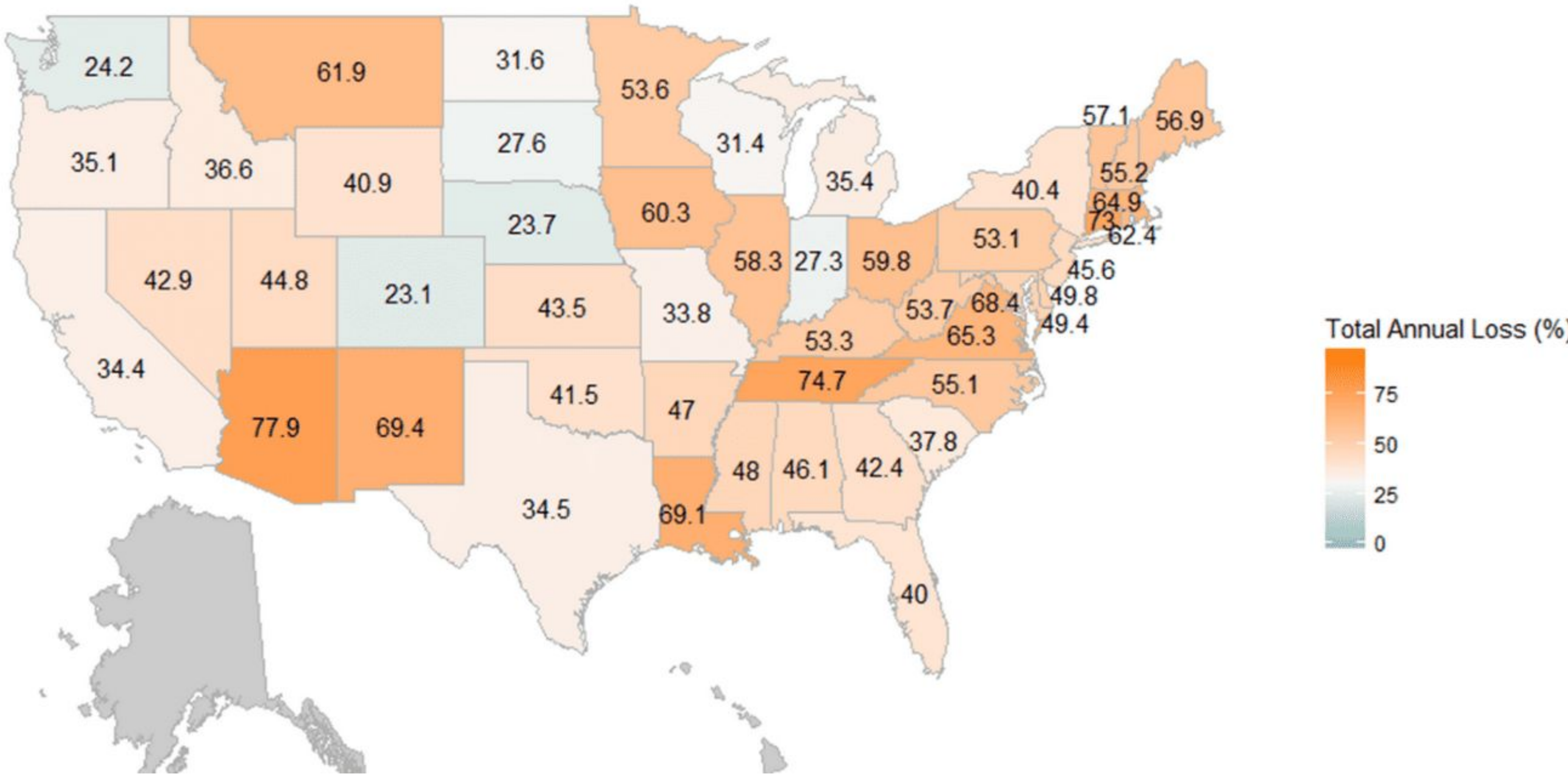



CAPPED BROOD
POLLEN
HONEY
LARVAE
CAPPED HONEY
2019/04/1


County
Bee Species
Plattsburgh
VERMONT
BURLINGTON
Montpelier
LEWISTON
PORTLAND
Lebanon
Rutland
NEW
HAMPSHIRE
Claremont
CONCORD
Dover
Springs
MANCHESTER
ANY
LOWELL
Greenfield
Fitchburg
Pittsfield
MASSACHUSETTS
Number of Species
25
50
75
100
125
150
175
Leaflet | © OpenStreetMap contributors © CARTO

Bee Informed Partnership



Replacing colony losses

1000 colony loss at 50%:

With nucleus colonies:$100,000

With Packages:$75,000

Or equivalent lost income

Climate Change
Habitat Loss
Parasites and Pathogens
Pesticides

APHIS National Honey Bee Survey
Lab Diagnostic Results

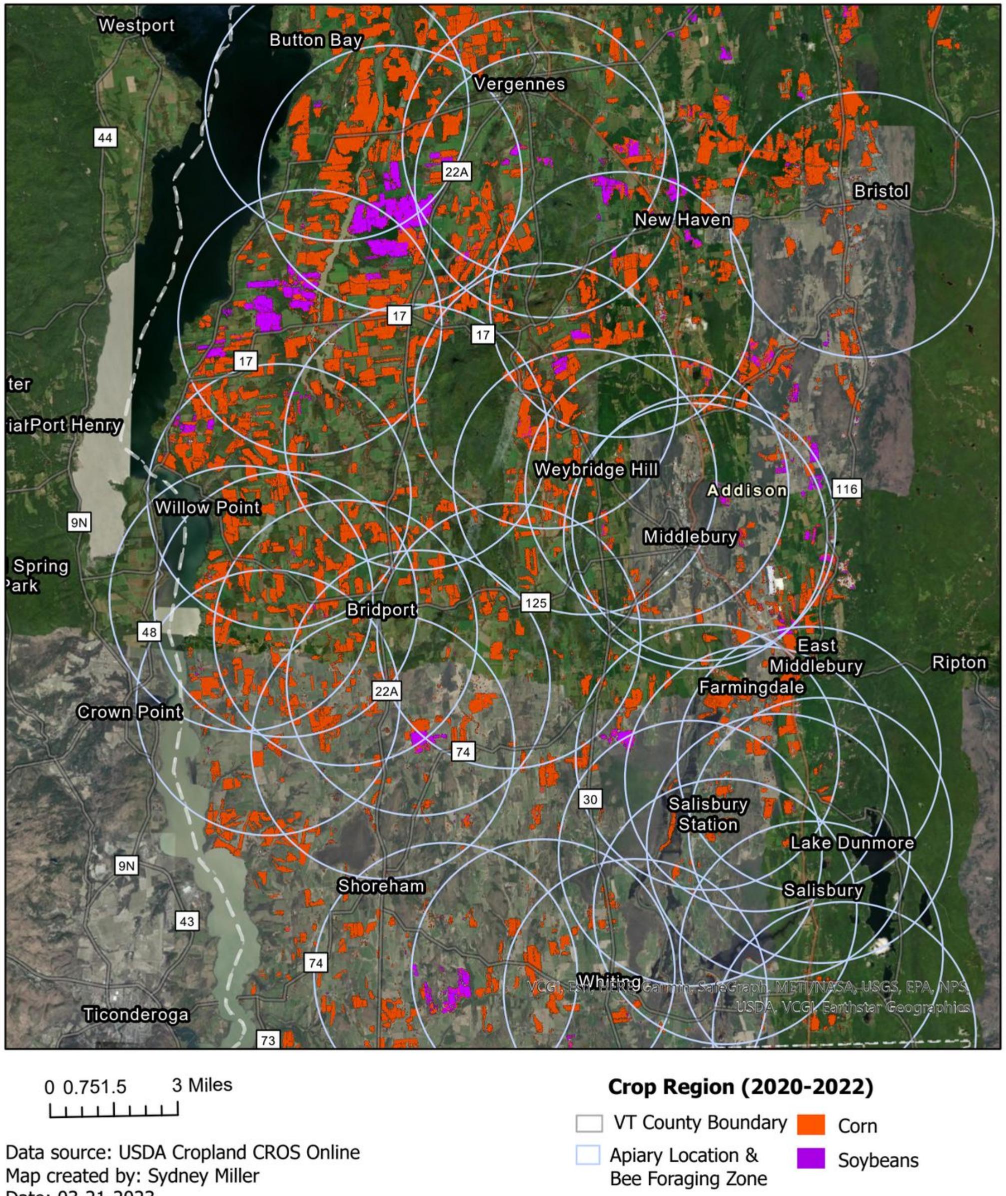
Table 2: Pest Results

Your Value	Pest	Notes
1021	Sample size (# of bees)	Total number of bees in alcohol sample
4	Total *Varroa* mites counted	Total number of *Varroa* mites counted in entire sample.
0.4	*Varroa* load (mites per 100 bees)	A frequently occuring external parasite that reproduces in brood cells and vectors viruses
0.8	*Nosema* load (millions of spores per bee)	*Nosema* spore count is determined by microscopy; *Nosema* is a unicellular gut parasite that produces spores
-	*Apis cerana*	Asian honey bee that can be an invasive pest. They are not known to be in the U.S.
-	*Tropilaelaps spp.* mites	*Tropilaelaps* mites are parasitic mites native to Asia. They are not known to be in the U.S.

The table above indicates the results of your colonies' in-lab microscopic and visual inspections conducted at the University of Maryland. This report summarizes the alcohol sample size, the *Varroa* mite count, the *Nosema* spore load, and any *Apis cerana* and *Tropilaelaps spp*. mites found. *Varroa* mite counts that exceed 3 mites per 100 bees are thought to cause damage, and colonies exceeding this threshold should be treated to reduce mite loads as soon as possible. *Nosema* spore counts in excess of 1 million spores per bee are thought to cause damage, and colonies with infection levels above this threshold should be considered for treatment depending on the season. For the most updated seasonal threshold monitoring and treatment options, see: honeybeehealthcoalition.org

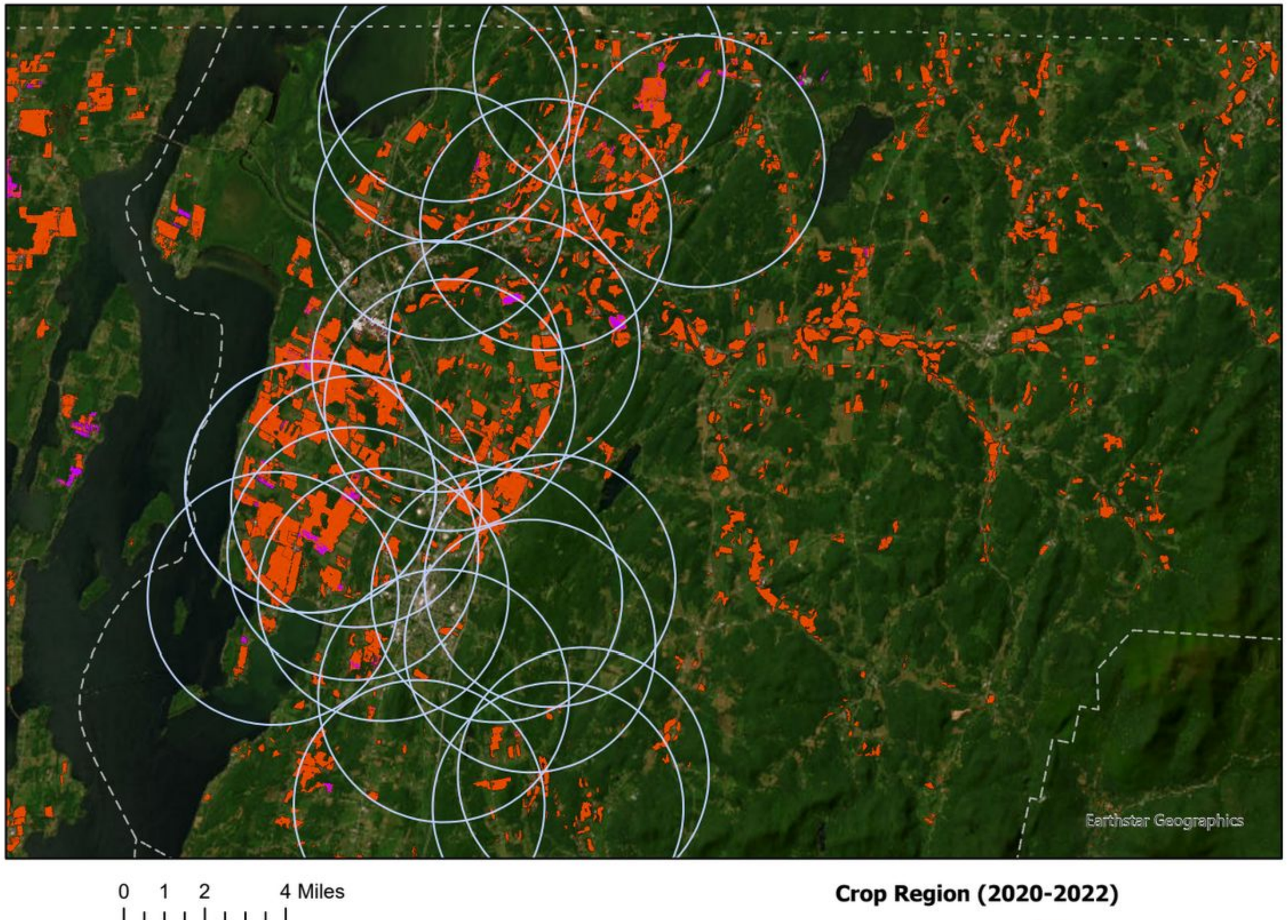
Pathogen	Notes	Present (+) Not detected (-)	Pathogen target copies	Your Percentile
Acute Bee Paralysis Virus (ABPV)	Rare, horizontal transmission, ***Varroa* parasitism** Trembling, inability to fly, darkening and hair loss on thorax and abdomen	-	0	0
Black Queen Cell Virus (BQCV)	Very common, horizontal transmission, ***Varroa* parasitism** Dead queen larvae sealed in queen cells with darkened walls	n/a	n/a	
Chronic Bee Paralysis Virus (CBPV)	Rare, horizontal transmission Trembling, inability to fly, bloated abdomens, black hairless bees	-	0	0
Deformed Wing Virus (DWV)	Very common, horizontal and vertical transmission, ***Varroa* parasitism** Deformed wings in emergent bees	-	0	0
Israeli Acute Paralysis Virus (IAPV)	Rare, horizontal transmission, ***Varroa* parasitism** Trembling, inability to fly, darkening and hair loss on thorax and abdomen	-	0	0
Kashmir Bee Virus (KBV)	Very rare, horizontal transmission, ***Varroa* parasitism** Weakened colonies, no obvious visual signs	-	0	0
Slow Paralysis Virus (SBPV)	Not known to be in the U.S.	-	0	0
Lake Sinai Virus-2 (LSV-2)	Common, horizontal and vertical transmission, ***Varroa* parasitism** Weakened colonies, no obvious visual signs	-	0	0

Addison Co. Vermont Corn & Soybean Crop Land Cover (2020-2022) ; Potential Neonicotinoid Pesticide Exposure Zones for Honey Bees



Data source: USDA Cropland CROS Online
Map created by: Sydney Miller
Date: 03-21-2023

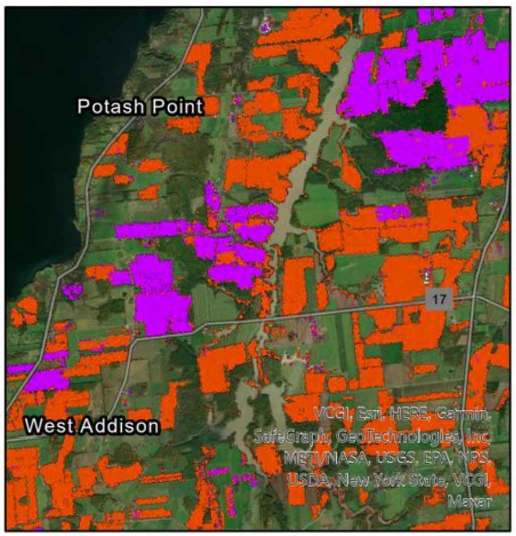
Franklin Co. Vermont Corn & Soybean Crop Land Cover (2020-2022) ; Potential Neonicotinoid Pesticide Exposure Zones for Honey Bees



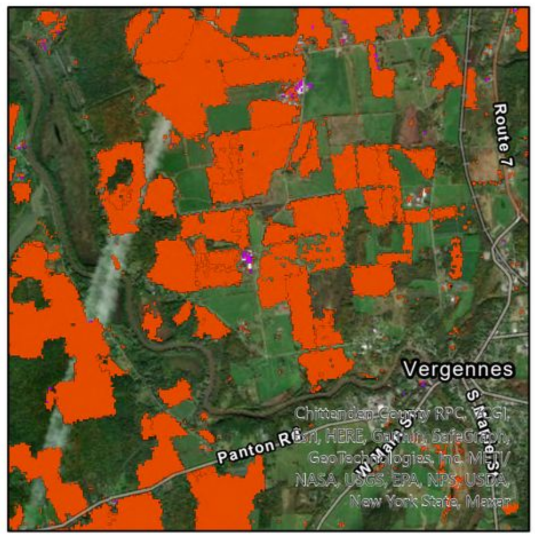
Data source: USDA Cropland CROS Online
Map created by: Sydney Miller
Date: 03-21-2023

Vermont Corn & Soybean Crop Land Cover (2020-2022) ; Potential Neonicotinoid Pesticide Exposure Zones for Honey Bees

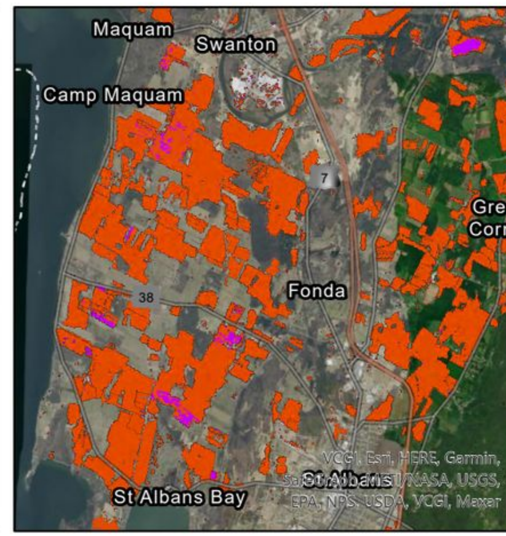
Addison, VT



Vergennes, VT



Swanton, VT



0 0.5 1 2 Miles

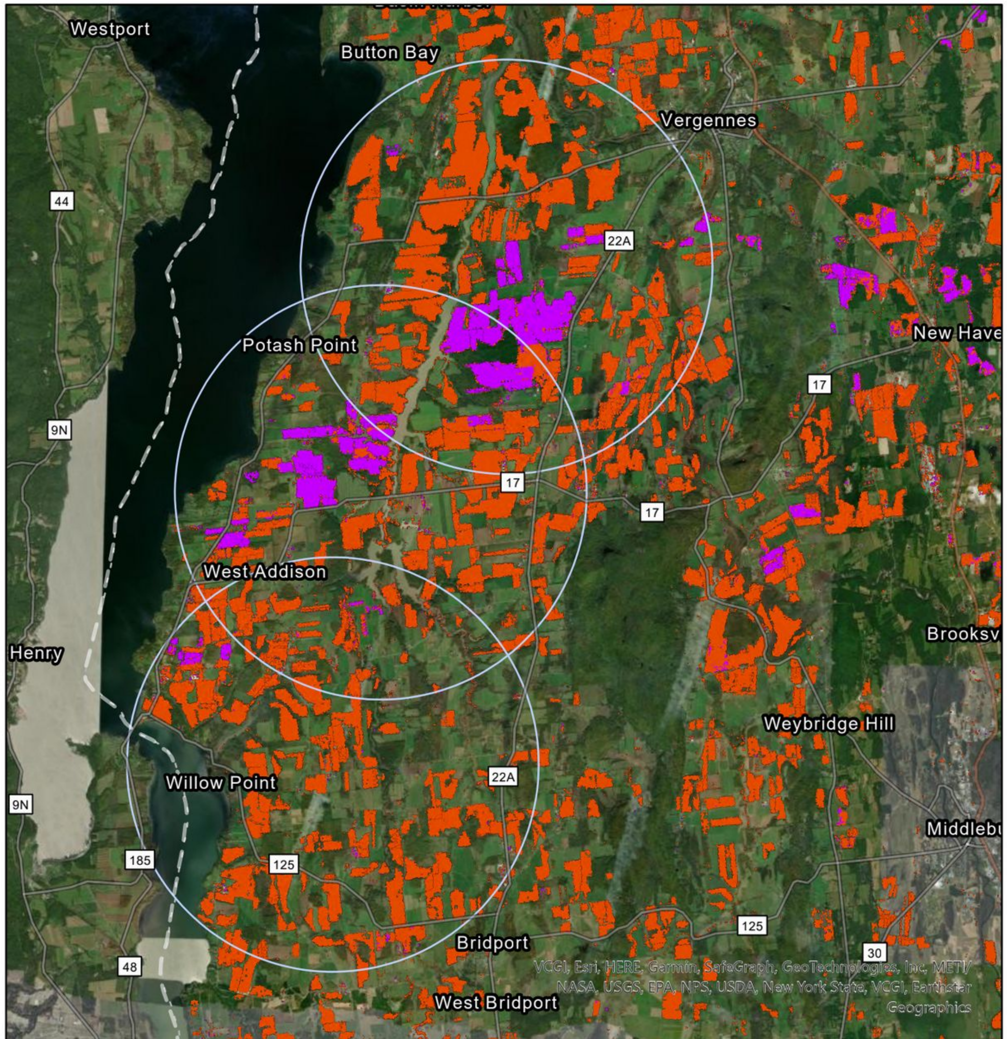
Crop Region (2020-2022)

- Corn
- Soybeans

N

Data source: USDA Cropland CROS Online
Map created by: Sydney Miller
Date: 03-23-2023

Addison Co. Vermont Corn & Soybean Crop Land Cover (2020-2022) ; Potential Neonicotinoid Pesticide Exposure Zones for Honey Bees



0 0.5 1 2 Miles

Crop Region (2020-2022)

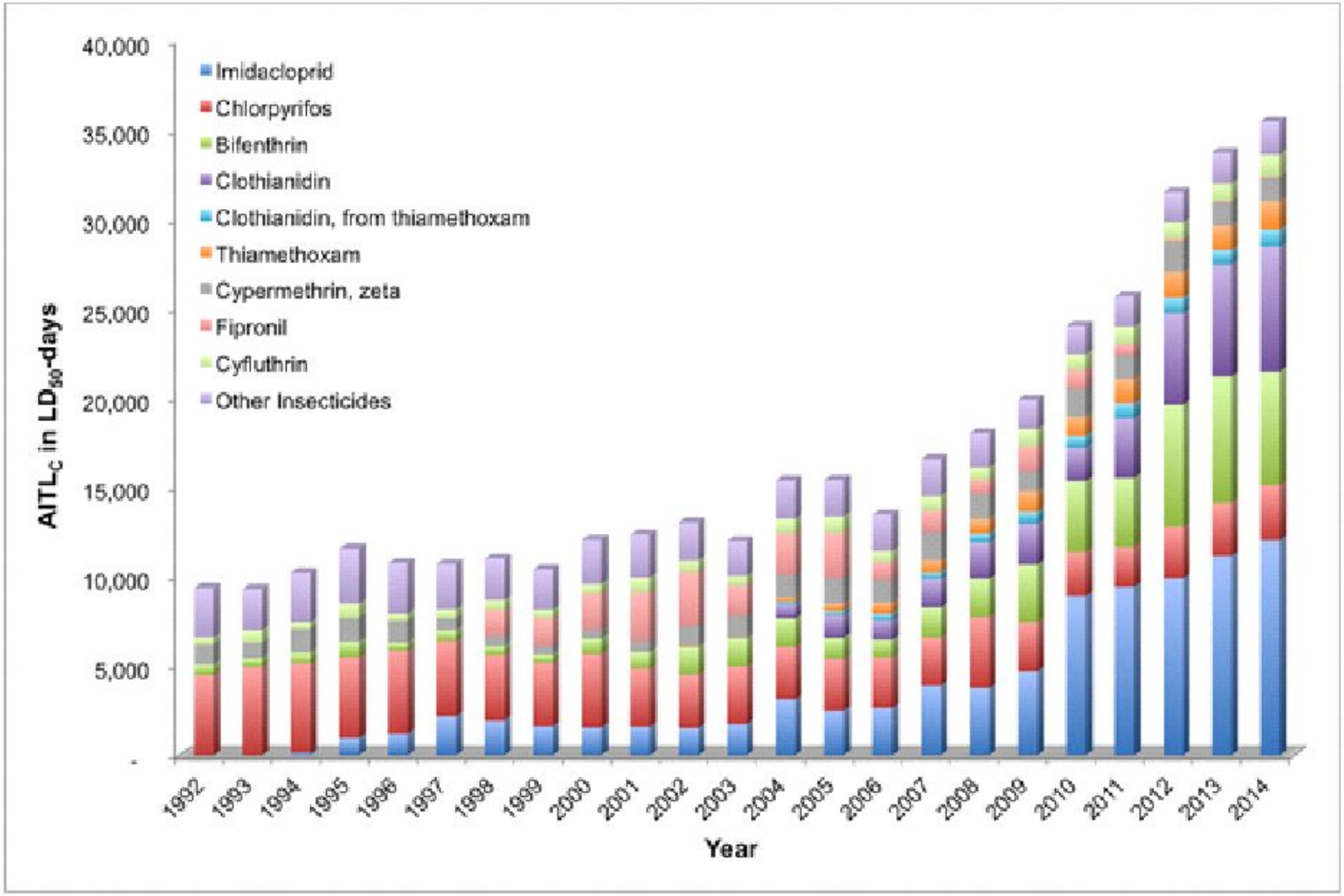
VT County Boundary

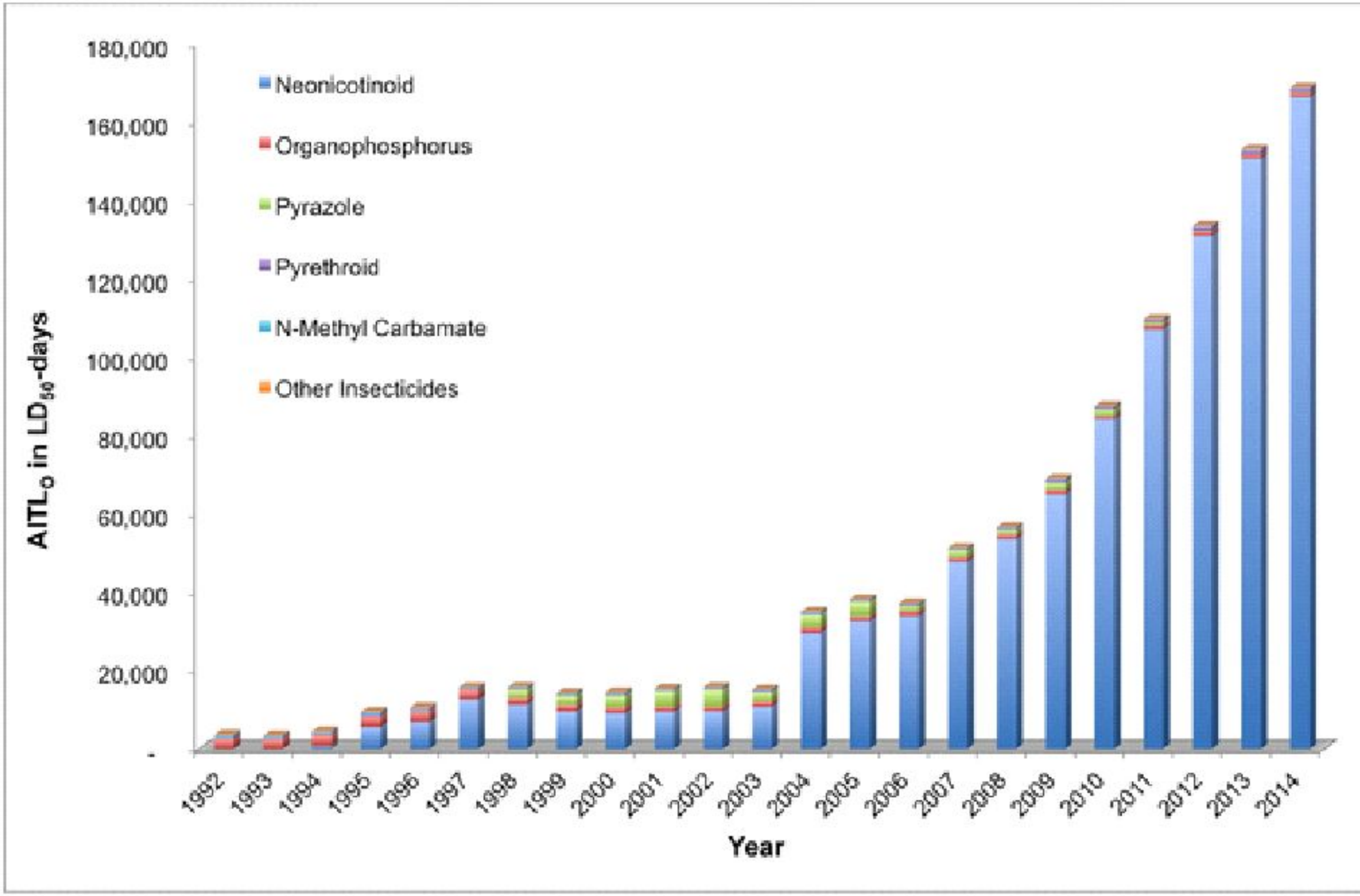
Apiary Location & Bee Foraging Zone

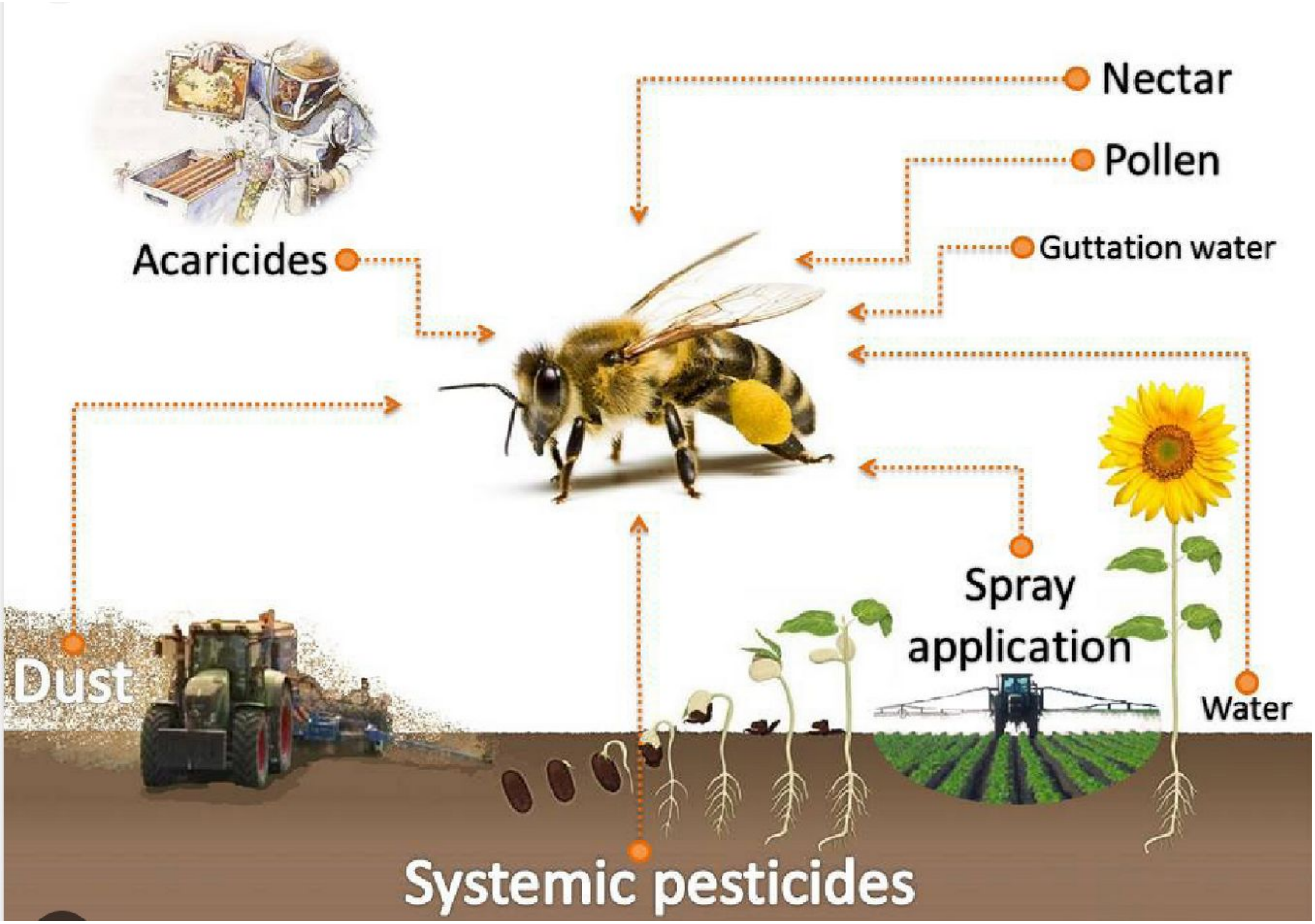
Corn

Soybeans

Data source: USDA Cropland CROS Online
Map created by: Sydney Miller
Date: 03-21-2023


Imidacloprid
Chlorpyrifos
Bifenthrin
Clothianidin
Clothianidin, from thiamethoxam
Thiamethoxam
Cypermethrin, zeta
Fipronil
Cyfluthrin
Other Insecticides
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
$AITL_C$ in LD_{50}-days
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year


180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
-
AITLO in LD50-days
Neonicotinoid
Organophosphorus
Pyrazole
Pyrethroid
N-Methyl Carbamate
Other Insecticides
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year


Nectar
Pollen
Guttation water
Acaricides
Spray
application
Water
Dust
Systemic pesticides

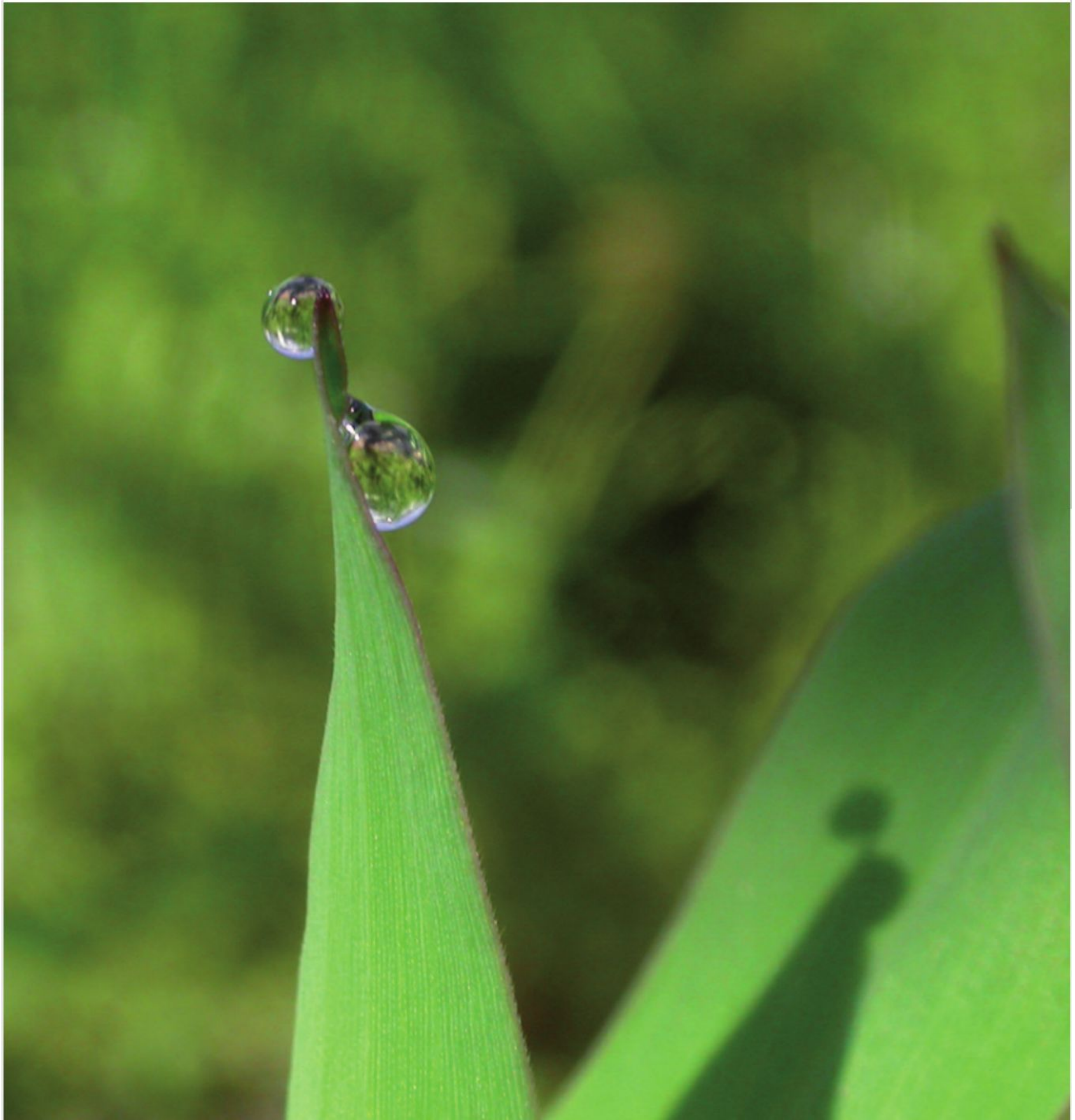
Acute Exposure


KUHN
PLANTER 3
INSECTICIDE

Acute exposure to dust

Exposure to dust on field adjacent plants up to 9 ppb

Guttation fluid



Equal to: IMD 47,000 ppb; CLO 23,300 ppb; TMX 11,900 ppb

Insecticide Content in Guttation. Chemical analyses of the guttation water from laboratory-grown corn plants during 3 wk of growth showed the presence of the corresponding seed coating neonicotinoids in all samples. Guttation drops collected on plants from neonicotinoid-coated seeds contained concentrations of each respective active ingredient of (mean ± SE) 47 ± 9.96 mg/liter for imidacloprid, 23.3 ± 4.2 mg/liter for clothianidin, and 11.9 ± 3.32 mg/liter for thiamethoxam with statistically significant differences (ANOVA: $F = 7.51$; df = 2, 15; $P = 0.005$). The amount

Always higher than 10,000ppb up to 200,000ppb

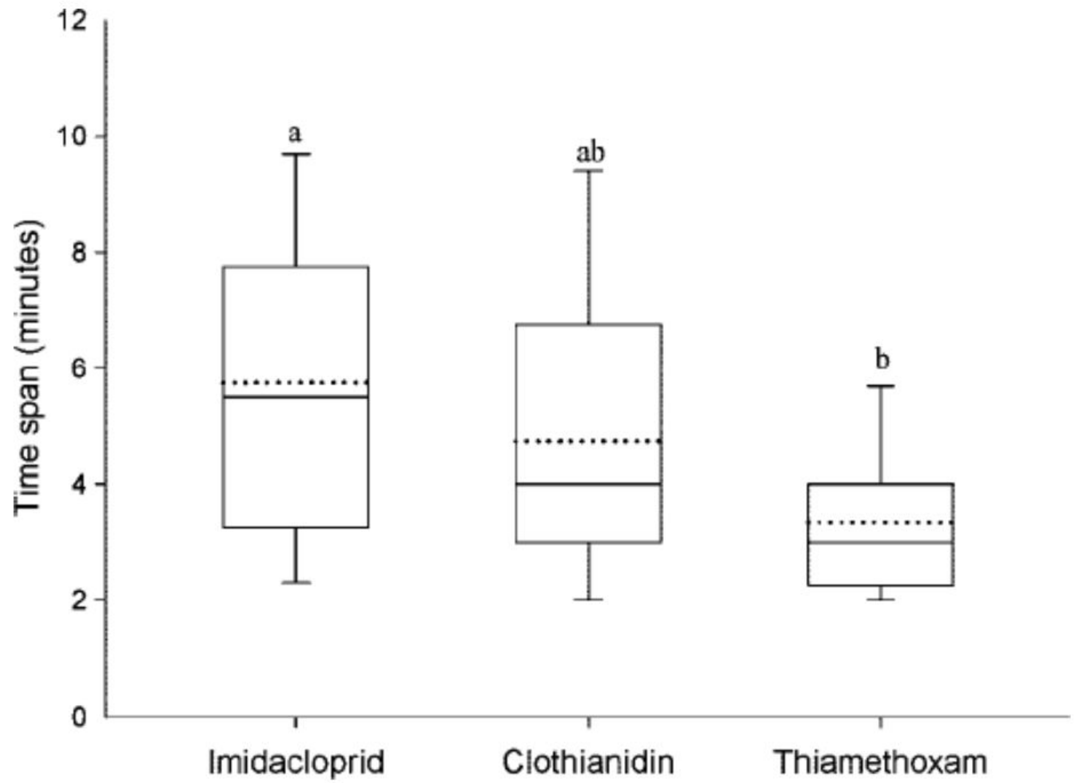
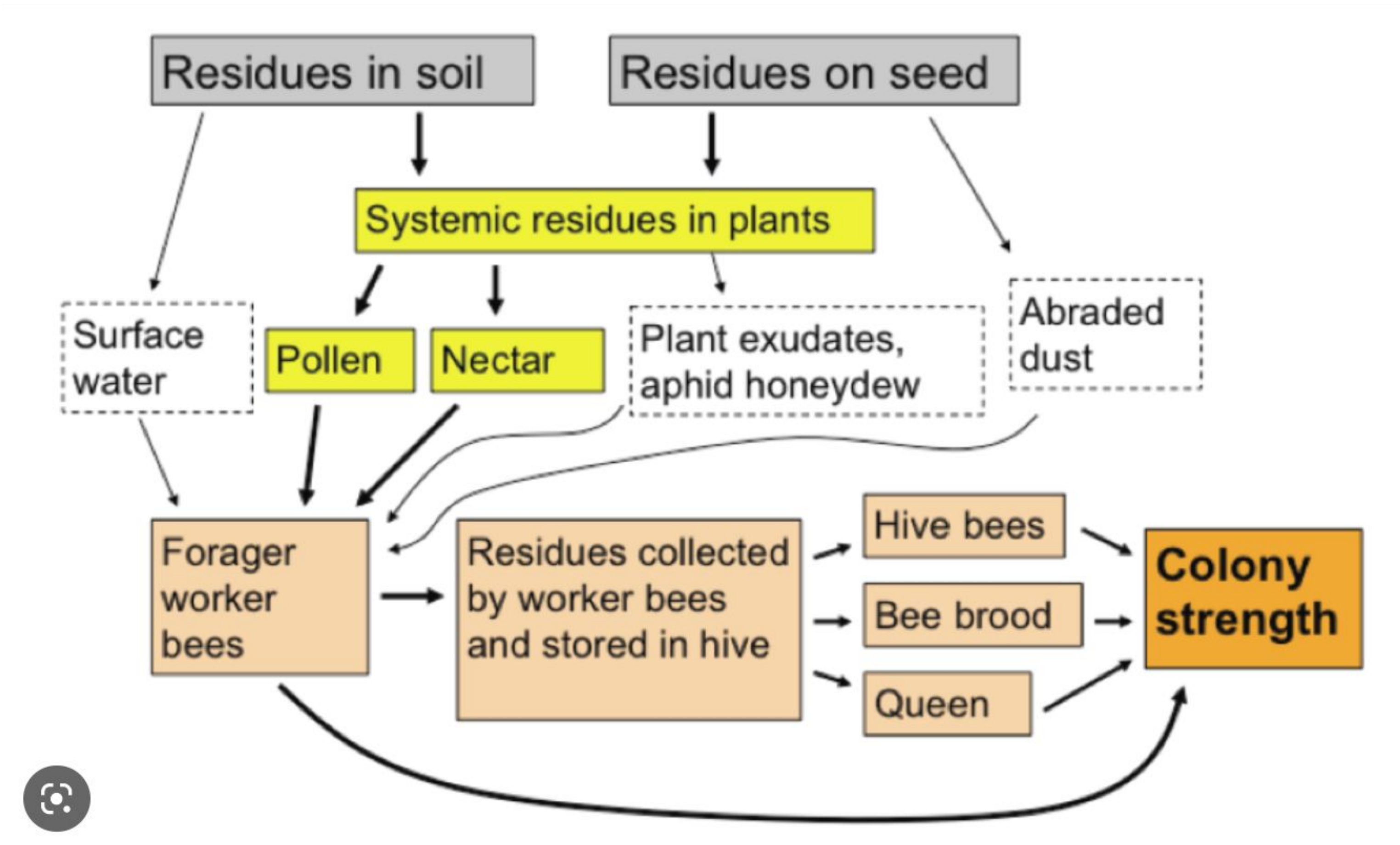


Fig. 2. Time between appearance irreversible wing-block and drinking of guttation drops collected on leaves of field corn crops, from three marketed neonicotinoid-coated. Guttation sampled on plants germinated from untreated seeds did not show any toxicity. The whisker represents the maximum and the minimum of the recorded time; the dotted line indicates the average; the upper, middle, and lower lines of the box indicate the 75, 50, and 25% of the time, respectively. Bars marked with different letters indicate significant differences ($P < 0.05$; Tukey–Kramer test).

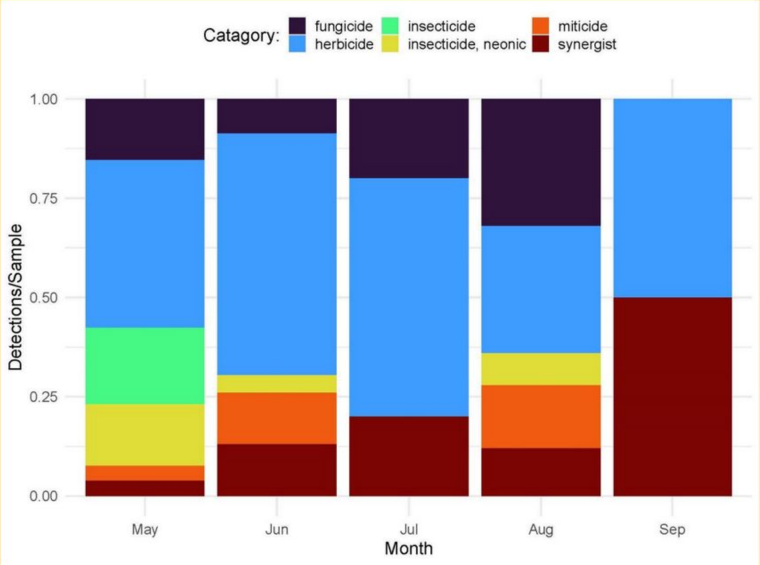
Chronic exposure



Neonic levels in surface water from agricultural watersheds averaged 0.012 ppb

Pollen exposure

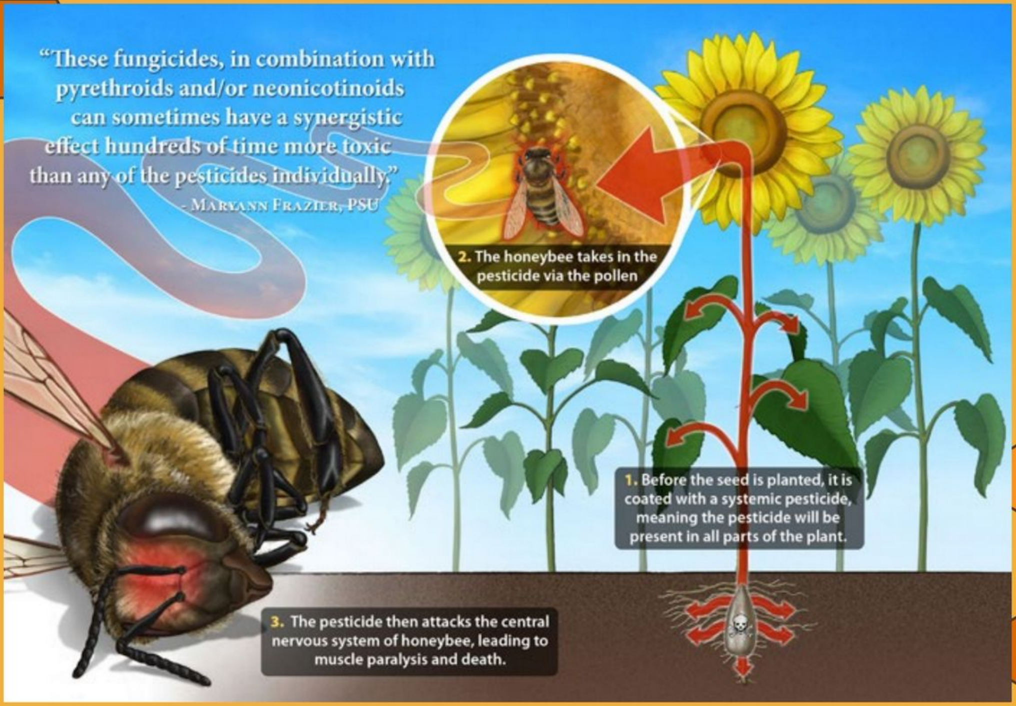
Pesticide Results



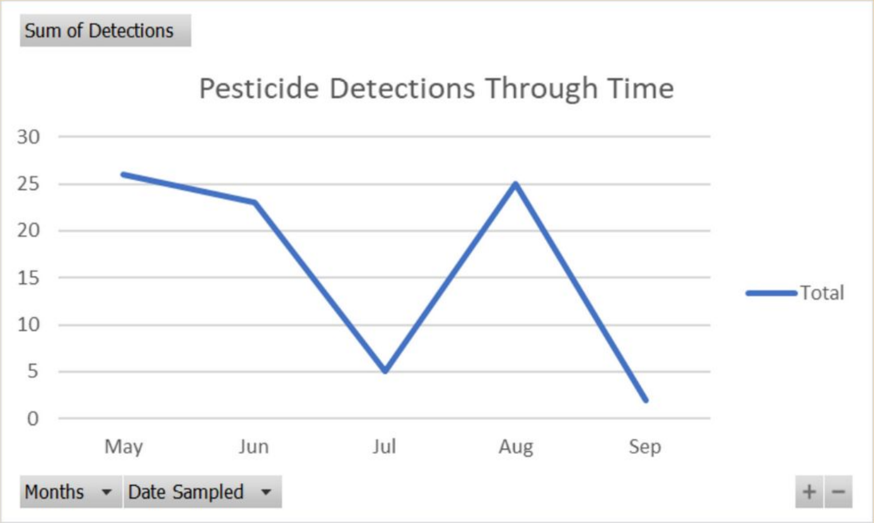
Pesticide Results

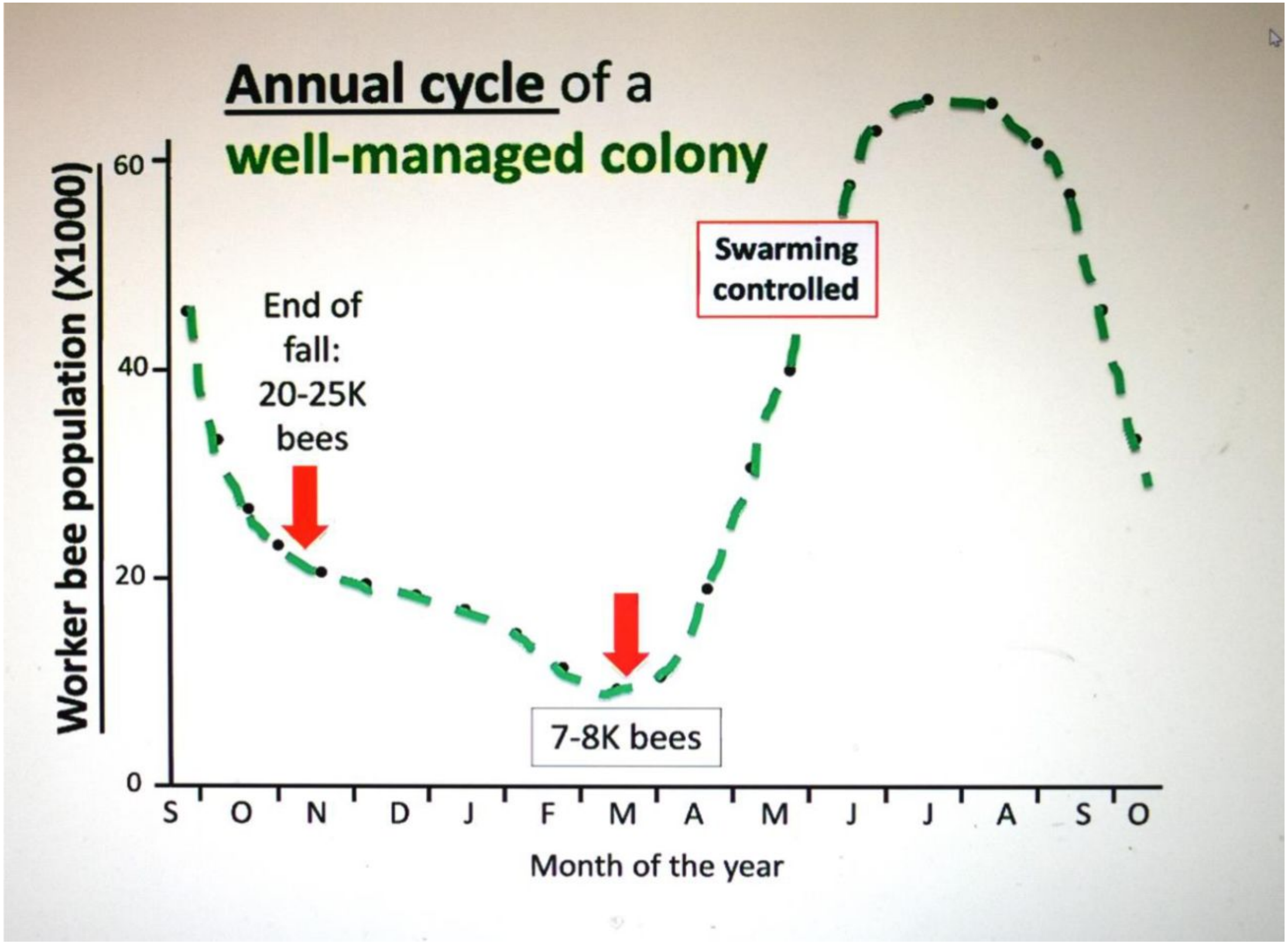
Pesticide	Detections	Group
Carbaryl	2	insecticide
Chlorantraniliprole	1	insecticide
Tebufenozide	1	insecticide
Indoxacarb	1	insecticide
Thiamethoxam	3	insecticide, neonic
Clothianidin	1	insecticide, neonic
Imidacloprid	2	insecticide, neonic
Thiacloprid	1	insecticide, neonic
2,4-DMPF	8	miticide
Piperonyl butoxide	9	synergist

Pesticide	Detections	Group
Thiabendazole	1	fungicide
Azoxystrobin	8	fungicide
Picoxystrobin	3	fungicide
Trifloxystrobin	3	fungicide
Tebuthiuron	8	herbicide
Thiophanate-methyl	2	herbicide
Atrazine	6	herbicide
Diuron	8	herbicide
Propazine	4	herbicide
Metolachlor	9	herbicide



Pesticide Results





Annual cycle of a
well-managed colony
Worker bee population (X1000)
60
40
20
0
End of
fall:
20-25K
bees
Swarming
controlled
7-8K bees
S O N D J F M A M J J A S O
Month of the year

sample_type	File.Name	Client.ID2	Mass..g.	Thiamethoxam	Clothianidin	Imidacloprid	Acetamiprid	Thiacloprid
Pollen (trap)	2022-04-13_040	S041706	5.05	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_041	S041707	4.93	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_042	S041708	5.04	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_043	S041709	5	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_044	S041710	4.95	0.202020202	0.606060606	NA	NA	NA
Pollen (trap)	2022-04-13_045	S041711	4.62	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_046	S041712	5.07	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_047	S041713	5.06	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_048	S041714	5.03	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_049	S041715	5.02	0.199203187	NA	NA	NA	0.133466135
Pollen (trap)	2022-04-13_050	S041716	5	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_051	S041717	4.97	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_052	S041718	4.96	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_053	S041719	0.2591	0.270165959	NA	NA	NA	NA
Pollen (trap)	2022-04-13_054	S041720	4.98	NA	NA	0.602409639	NA	NA
Pollen (trap)	2022-04-13_055	S041721	5.04	NA	NA	0.595238095	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_001	4.8132	NA	5.31	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_010	4.7057	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_011	4.821	NA	NA	NA	1.18	NA
Pollen (trap)	2023-04-10_SM_I	SM_012	5.0375	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_013	5.0648	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_014	4.5683	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_015	4.7021	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_016	4.6379	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_017	4.5091	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_018	7.4533	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_019	6.9484	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_002	4.9198	NA	1.361843977	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_020	6.5574	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_021	5.2068	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_022	7.6986	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_023	6.2717	NA	1.068290894	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_024	8.8519	NA	NA	NA	NA	NA

2022 Testing

- 24% of pollen samples contained significant levels of neonics.
- 14% of plant tissue samples contained significant levels of neonics.

Active Ingredient	Field/Soil Half-life (days)	LD50 Contact (μg/bee)	LD50 Oral (μg/bee)	LOEC Contact (μg/bee)	LOEC Oral (μg/bee)
Acetamiprid	3	8.1	15	0.1*	0.1*
Clothianidin	121	0.044	0.0079	0.0022*	0.0005–0.0009
Dinotefuran	75	0.03	0.04	0.0075*	NA
Imidacloprid	174	0.032	0.0037	0.0001*	0.0001–0.0015
Sulfoxaflor	2.2	0.38	0.15	NA	NA
Thiacloprid	18	26	18	NA	0.0013*
Thiamethoxam	39	0.02	0.005	0.0001–0.004	0.0004–0.002

Half-life and LD_{50} data transferred from S1 Appendix, and LOEC data from S2 Appendix.

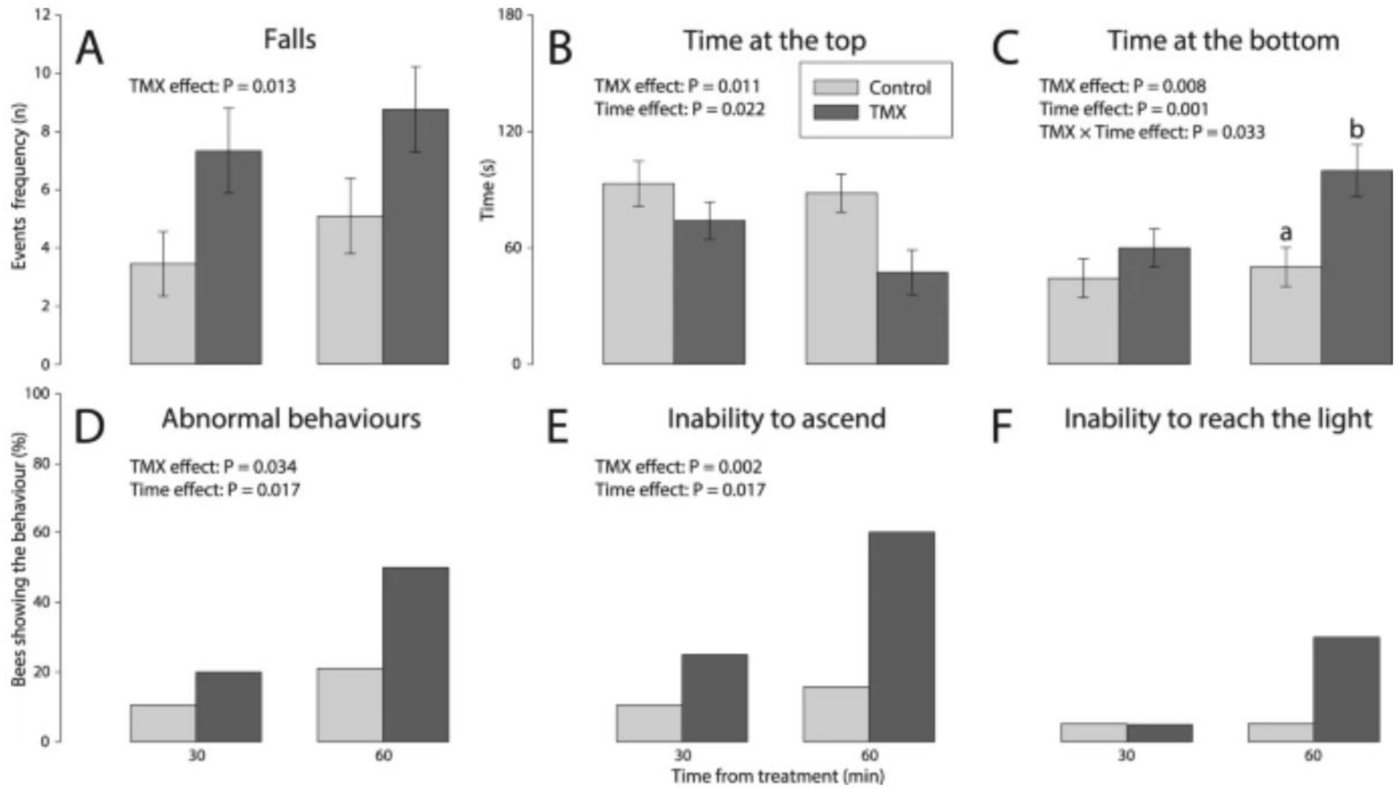
* No range available.

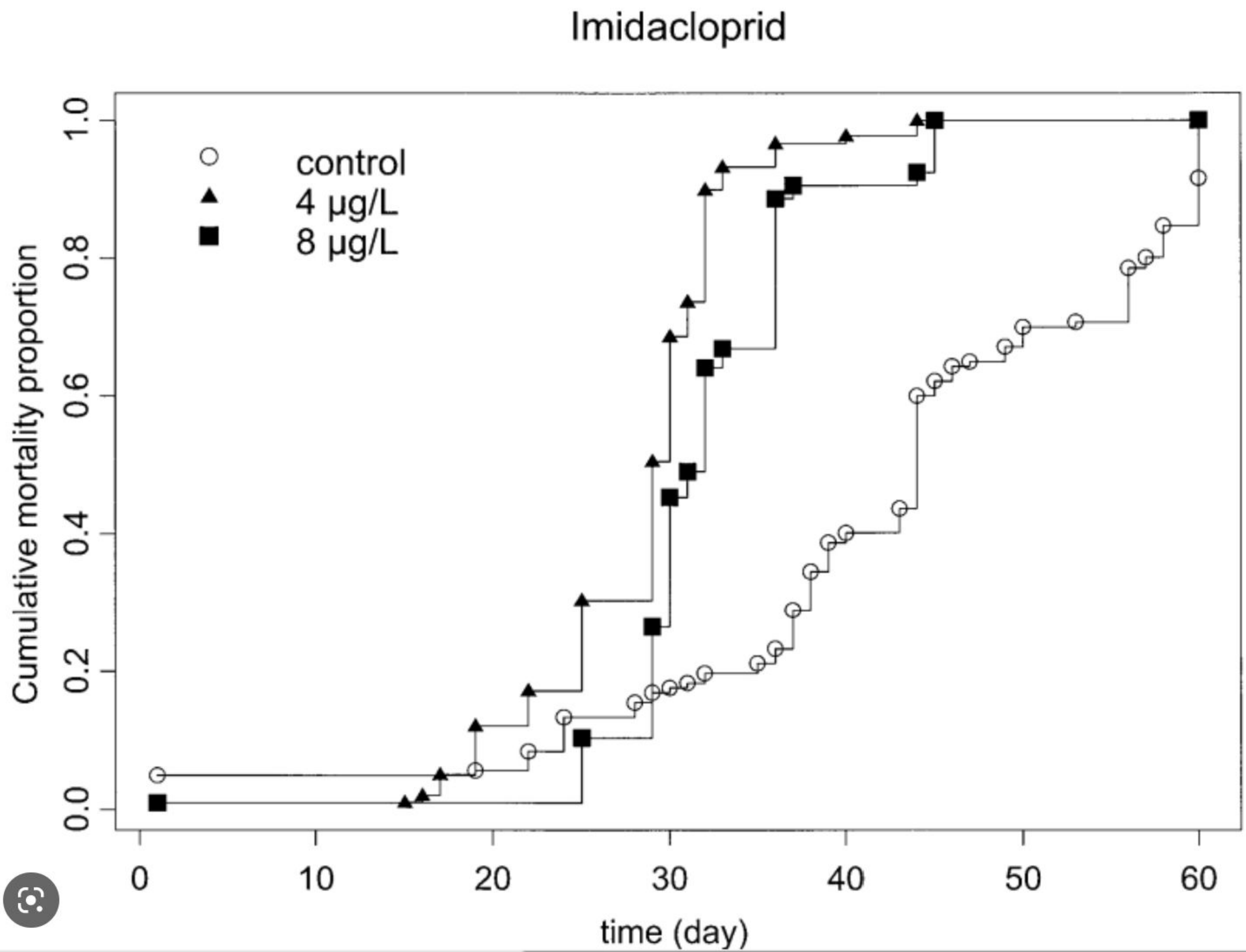
NA Not available

https://doi.org/10.1371/journal.pone.0220029.t003

Sublethal effects

Figure 3


A
Falls
TMX effect: P = 0.013
Events frequency (n)
B
Time at the top
TMX effect: P = 0.011
Time effect: P = 0.022
Control
TMX
Time (s)
C
Time at the bottom
TMX effect: P = 0.008
Time effect: P = 0.001
TMX × Time effect: P = 0.033
a
b
D
Abnormal behaviours
TMX effect: P = 0.034
Time effect: P = 0.017
Bees showing the behaviour (%)
E
Inability to ascend
TMX effect: P = 0.002
Time effect: P = 0.017
F
Inability to reach the light
30
60
Time from treatment (min)


Imidacloprid
control
4 µg/L
8 µg/L
Cumulative mortality proportion
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
time (day)

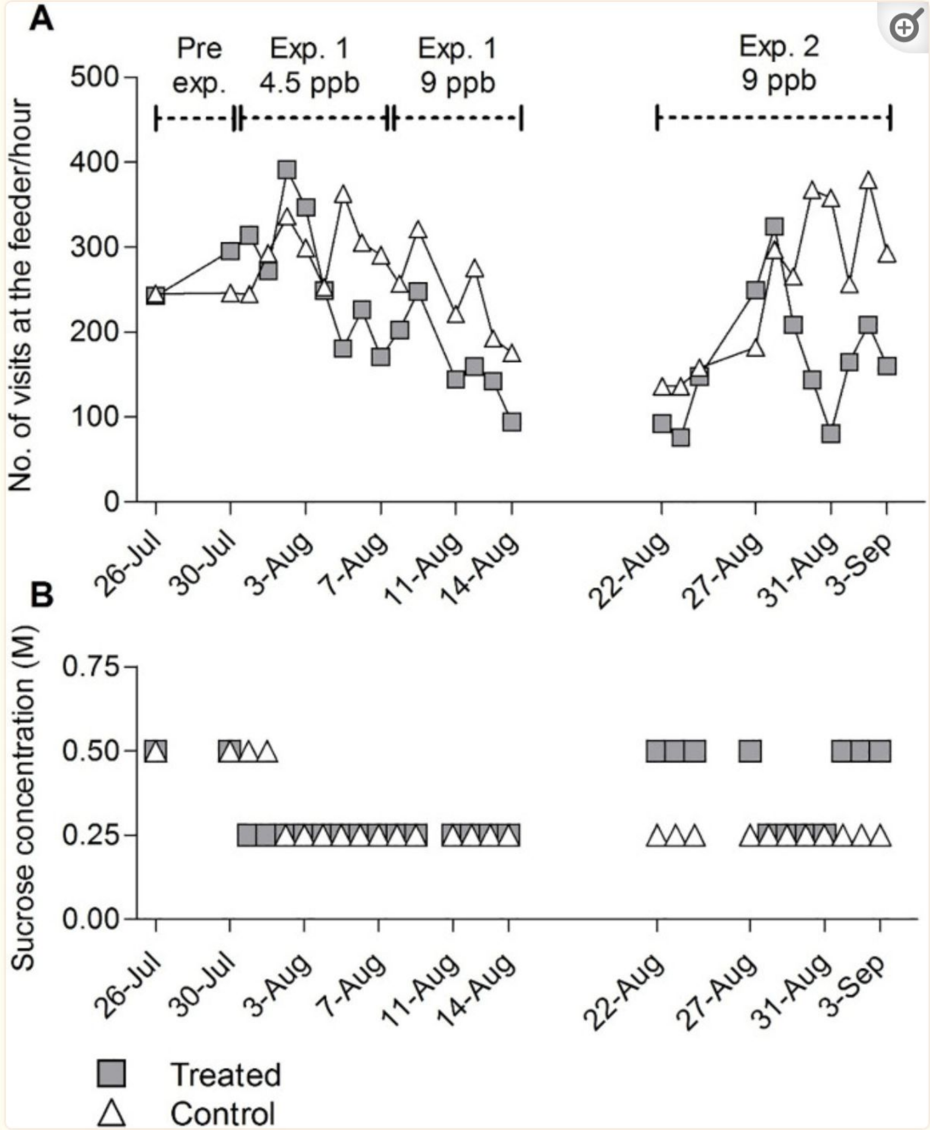
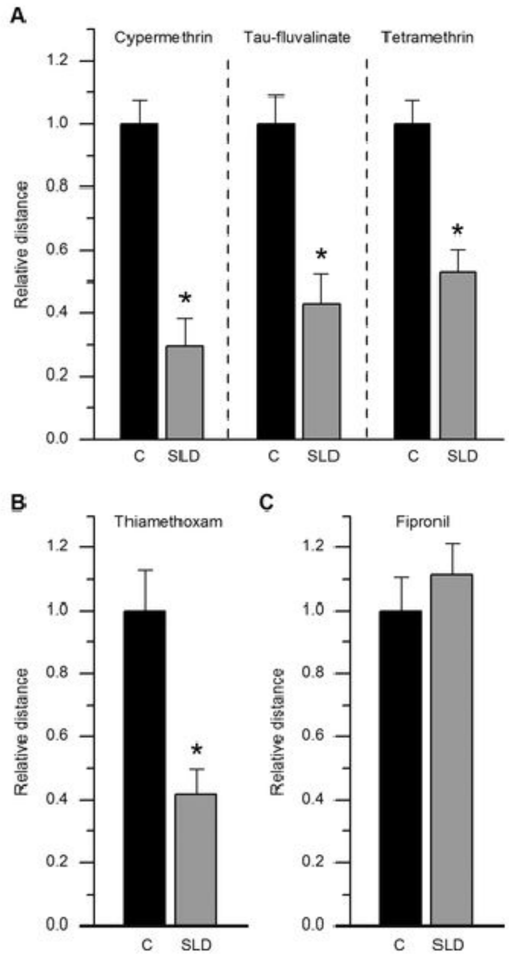
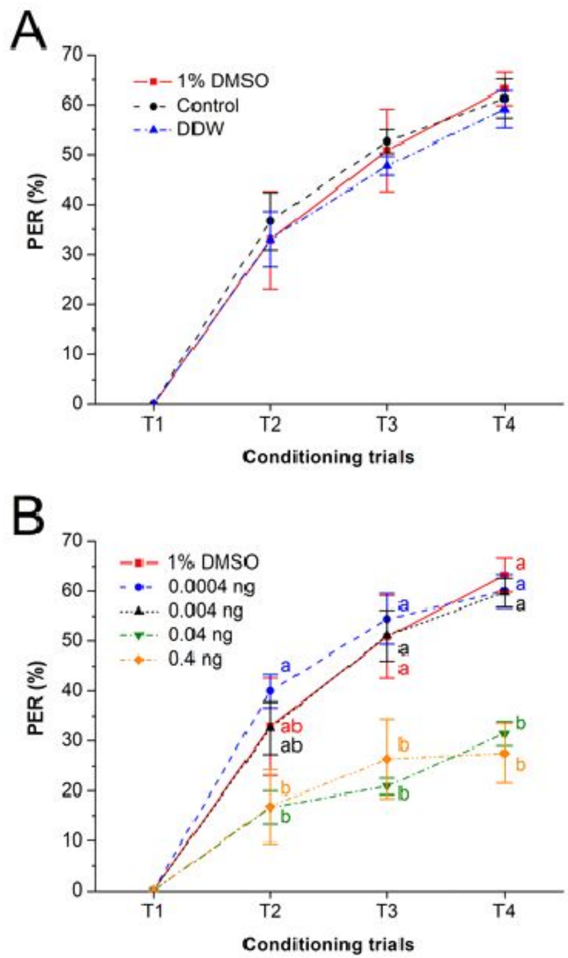


Fig 3

Foraging activity and required sucrose concentrations at the control and treated feeders.

(A) Number of visits per hour recorded on the same days (n = 27 days) during the pre-exposure time in experiment 1 (4.5 ppb and 9 ppb) and experiment 2 (9 ppb) at both control (triangles) and treated feeders (squares). The foraging activity of the treated bees is significantly reduced by exposure to clothianidin (ANOVA of lm, $P < 0.05$). (B) Sucrose concentrations used in order to keep a similar number of foragers coming regularly to the control and treated


A
Cypermethrin
Tau-fluvalinate
Tetramethrin
Relative distance
1.2
1.0
0.8
0.6
0.4
0.2
0.0
*
C
SLD
B
Thiamethoxam
C
Fipronil



A
1% DMSO
Control
DDW
PER (%)
Conditioning trials
T1
T2
T3
T4
B
1% DMSO
0.0004 ng
0.004 ng
0.04 ng
0.4 ng
PER (%)
Conditioning trials

Synergistic effects

APHIS National Honey Bee Survey
Lab Diagnostic Results

Table 2: Pest Results

Your Value	Pest	Notes
1021	Sample size (# of bees)	Total number of bees in alcohol sample
4	Total *Varroa* mites counted	Total number of *Varroa* mites counted in entire sample.
0.4	*Varroa* load (mites per 100 bees)	A frequently occuring external parasite that reproduces in brood cells and vectors viruses
0.8	*Nosema* load (millions of spores per bee)	*Nosema* spore count is determined by microscopy; *Nosema* is a unicellular gut parasite that produces spores
-	*Apis cerana*	Asian honey bee that can be an invasive pest. They are not known to be in the U.S.
-	*Tropilaelaps spp.* mites	*Tropilaelaps* mites are parasitic mites native to Asia. They are not known to be in the U.S.

The table above indicates the results of your colonies' in-lab microscopic and visual inspections conducted at the University of Maryland. This report summarizes the alcohol sample size, the *Varroa* mite count, the *Nosema* spore load, and any *Apis cerana* and *Tropilaelaps spp*. mites found. *Varroa* mite counts that exceed 3 mites per 100 bees are thought to cause damage, and colonies exceeding this threshold should be treated to reduce mite loads as soon as possible. *Nosema* spore counts in excess of 1 million spores per bee are thought to cause damage, and colonies with infection levels above this threshold should be considered for treatment depending on the season. For the most updated seasonal threshold monitoring and treatment options, see: honeybeehealthcoalition.org

Deformed wing virus

Figure 1

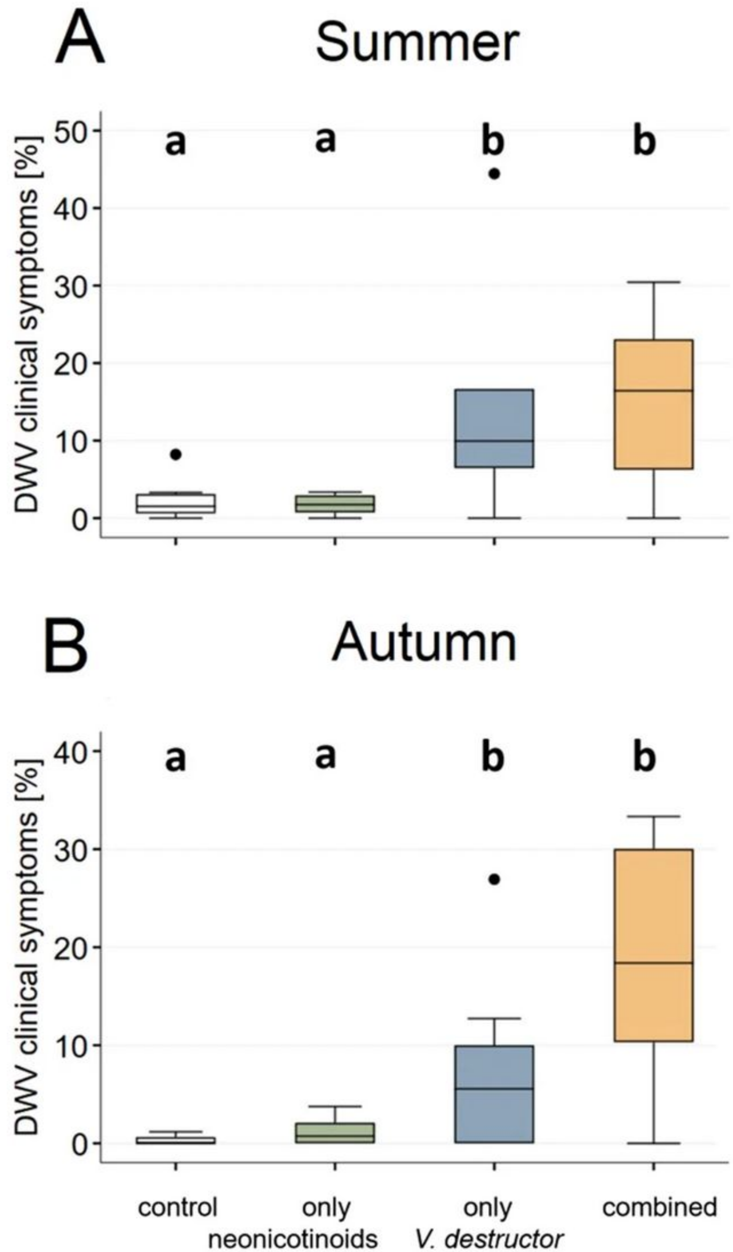
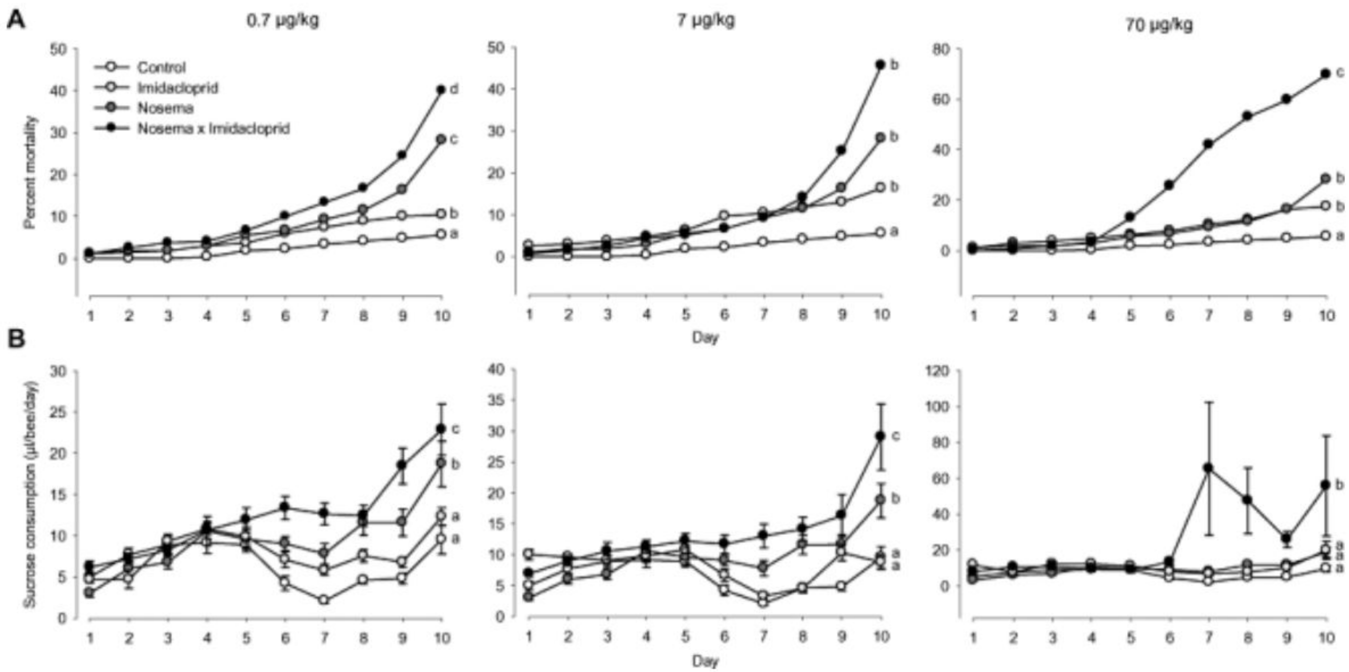
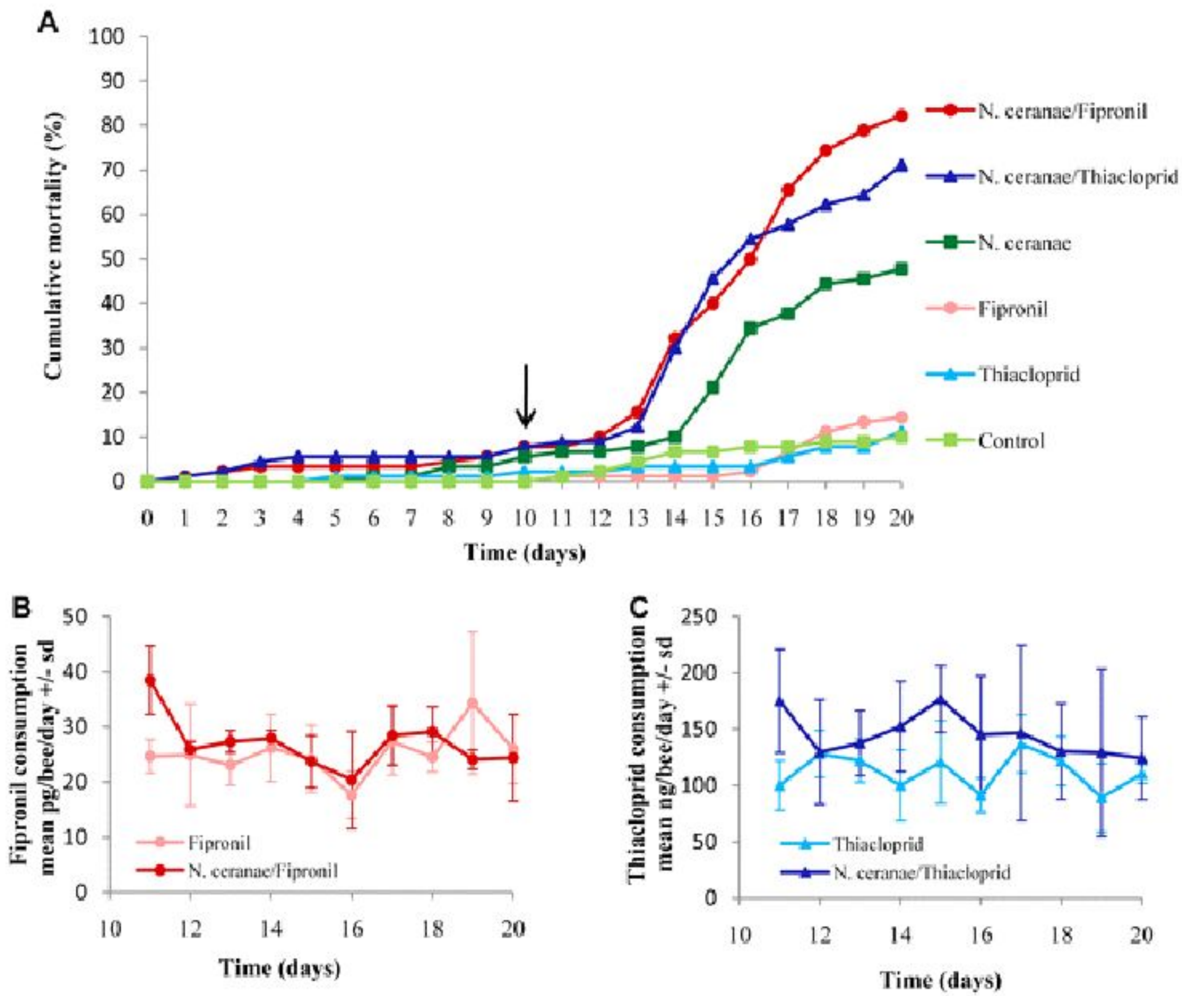

A
Summer
DWV clinical symptoms [%]
50
40
30
20
10
0
a
a
b
b
B
Autumn
DWV clinical symptoms [%]
40
30
20
10
0
a
a
b
b
control
only
neonicotinoids
only
V. destructor
combined

Fig. 1



Effect of *Nosema* infection and/or exposure to imidacloprid on bee mortality and energetic demands. A. Effect on mortality. Mortality is expressed as the percentage of cumulated number of dead bees per cage and per day (*n* = 270 bees). Three colonies were analysed, with three cage replicates for each colony (*n* = 30 bees per cage). Each letter indicates significant differences between treatments ($P < 0.05$). B. Effect on energetic demand. Sucrose consumption is expressed as the amount of sucrose solution (50% w/v, *ad libitum* delivery) consumed per day and per bee (*n* = 30 bees per cage) during the 10 h of treatment. The same cages as in A were analysed. Each letter indicates significant differences between treatments ($P < 0.05$).


A
B
C
Cumulative mortality (%)
Time (days)
N. ceranae/Fipronil
N. ceranae/Thiacloprid
N. ceranae
Fipronil
Thiacloprid
Control
Fipronil consumption
mean pg/bee/day +/- sd
Thiacloprid consumption
mean ng/bee/day +/- sd

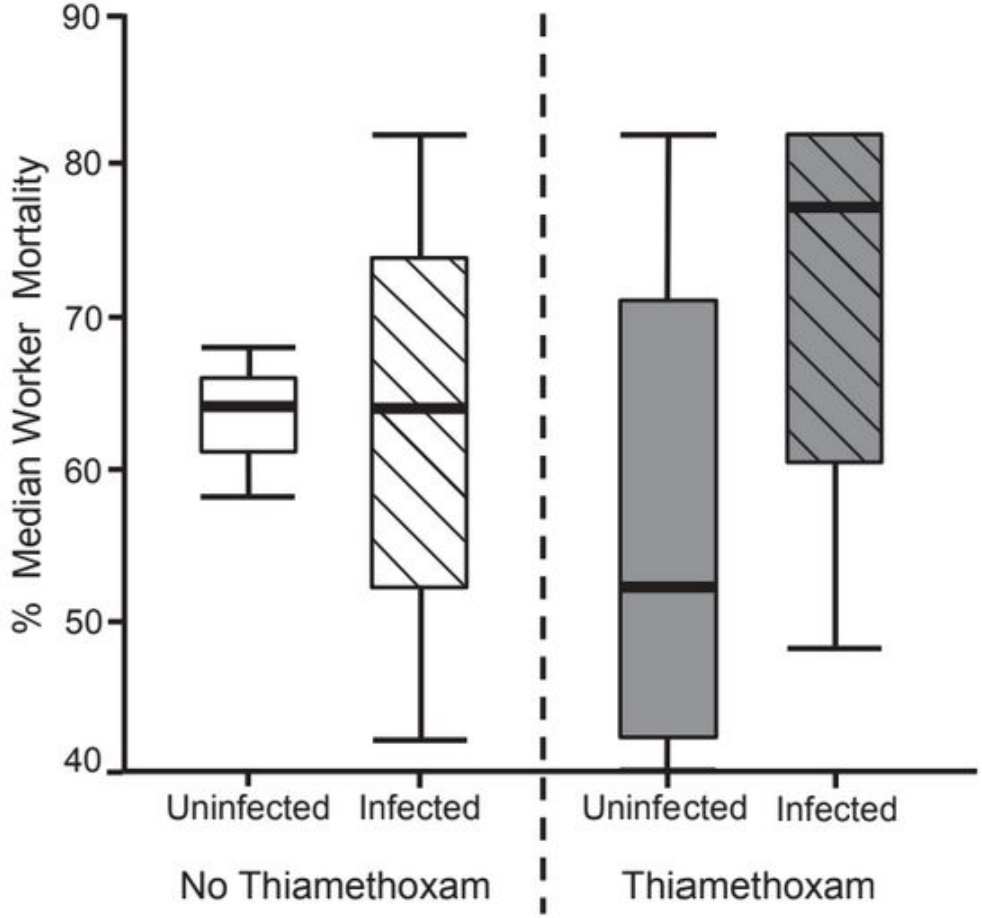


Fig. 2. Worker mortality was higher in individuals exposed to the pathogen *N. apis* and the neonicotinoid Thiamethoxam than in bees exposed to a single stressor or controls. For statistical details see Table 2, bars show median average mortalities (%) ± quartiles.

Queens and colony strength

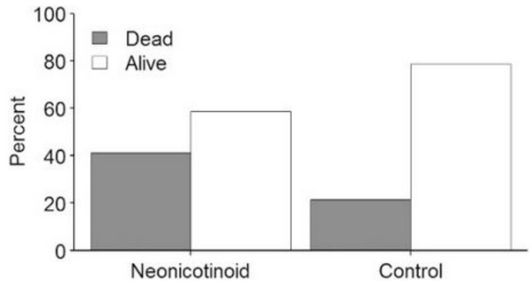


Figure 1. Queen survival after 4 weeks. Percent honey bee queens that were alive after 4 weeks. No significant difference was observed between treatments. $^{*}P \leq 0.1$, $^{**}P \leq 0.05$, $^{***}P \leq 0.01$ (comparison with Controls).

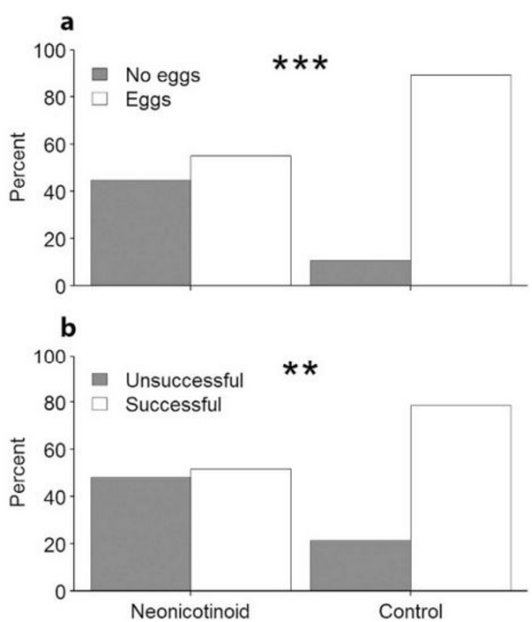


Figure 2. Queen oviposition and survival after 4 weeks. (**a**) Percent of honey bee queens that oviposited (*i.e.* laid worker eggs). (**b**) Percent of honey bee queens that were alive and had produced diploid offspring by the end of the experiment (= Successful). Significant differences between treatments denoted by $^{*}P \leq 0.1$, $^{**}P \leq 0.05$, $^{***}P \leq 0.01$.

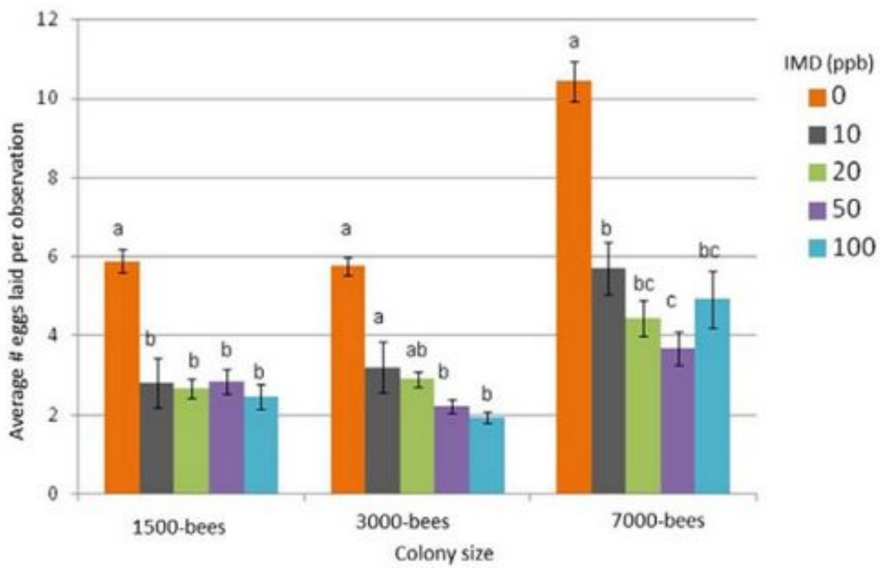


Figure 1. Average (SE) number of eggs laid by queens per 15 minute observation period pooled over three week chronic exposure of imidacloprid (IMD) (0, 10, 20 50, and 100 ppb) in 1500-, 3000-, and 7000-bee colonies ((dose*size*week) interaction: $F_{16,1053} = 0.93$; $p = 0.54$; (dose*size) interaction: $F_{8,1053} = 6.17$; $p < 0.0001$). Different letters denotes significant statistical differences among treatment levels within each colony size at $\alpha < 0.05$. Results indicate that queens in untreated colonies laid significantly more eggs than queens in treated colonies at all colony sizes.

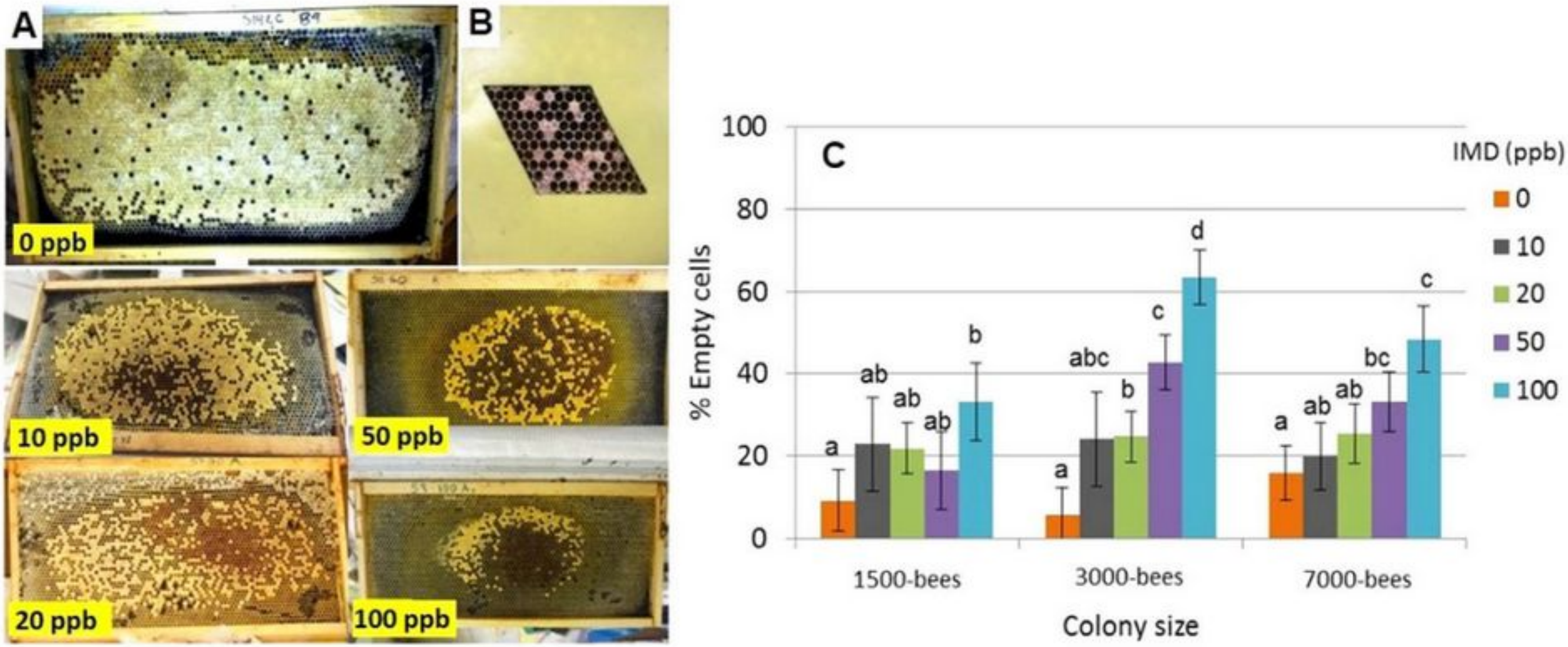
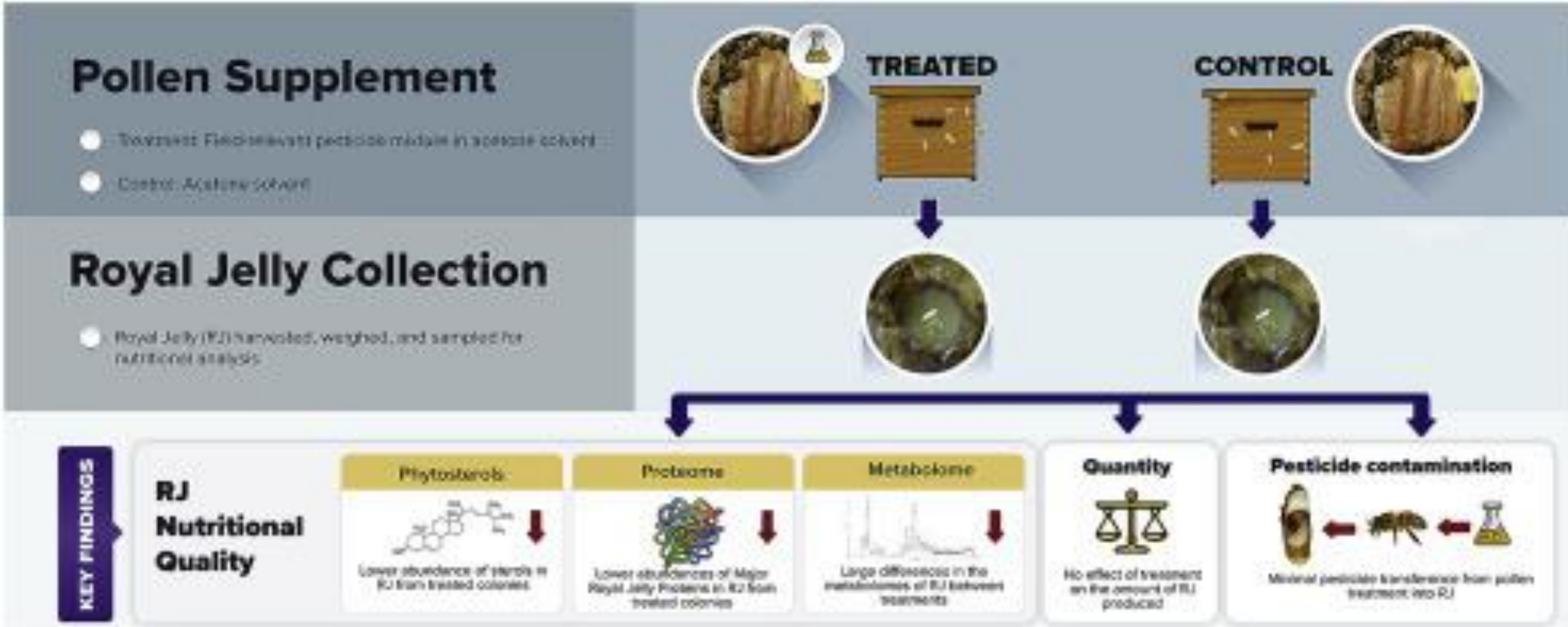
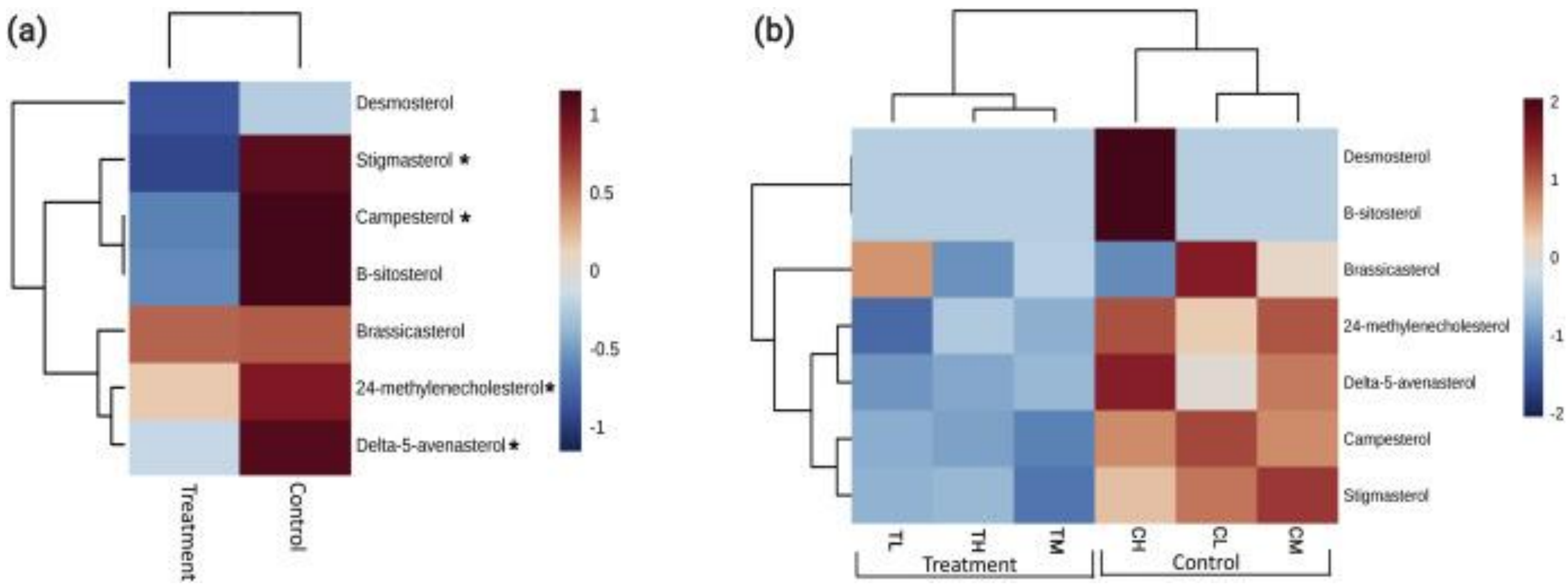


Figure 3. Examples of brood patterns from colonies chronically exposed to imidacloprid (0, 10, 20, 50 and 100 ppb) during brood rearing illustrating a dose-dependent effect where the amount of empty cells in a given brood area increases with treatment concentration (**A**); parallelogram containing 100 cells used to standardize brood pattern measures (**B**); and the average percentage (SE) of cells not containing pupae (empty) in a brood area of 100 cells separated by colony size (1500, 3000, and 7000 bees) and imidacloprid (IMD) dose (0, 10, 20, 50 and 100 ppb) (dose: $F_{4,39} = 10.9$; $p < 0.0001$; colony size: $F_{2,39} = 2.1$; $p = 0.14$; interaction effect: $F_{8,39} = 1.3$; $p = 0.3$). Greater % of empty cells indicates worse brood patterns and overall brood health (**C**). Letters denote statistically significant differences among treatment levels within each colony size at $\alpha < 0.05$. Results indicate significantly worse brood pattern (more empty cells), particularly at higher treatments (50 and 100 ppb), compared to untreated colonies.

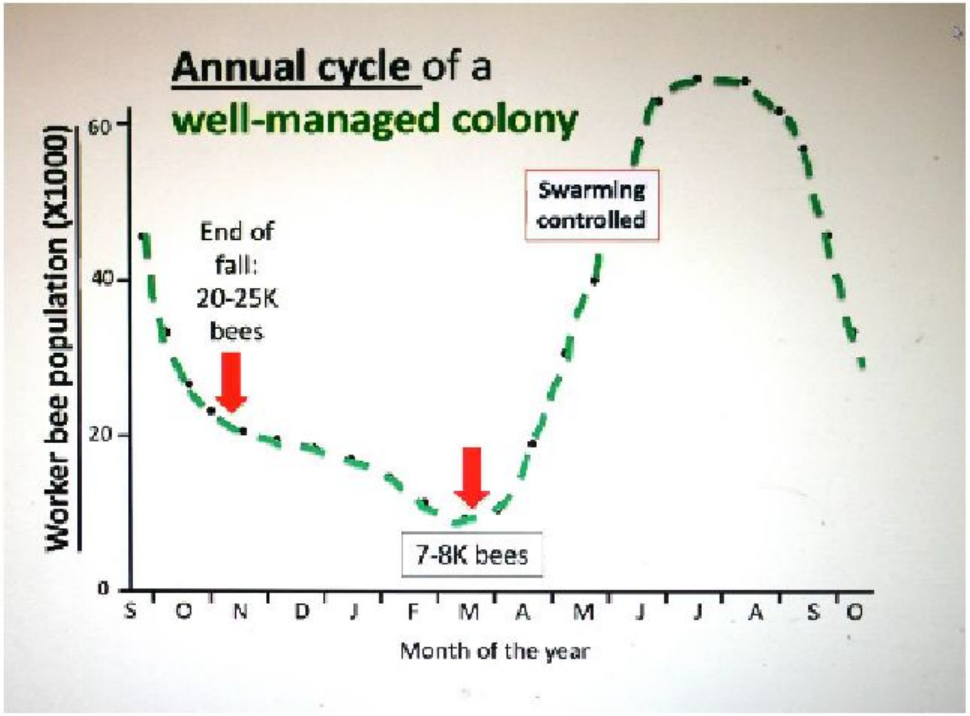

Pollen Supplement
Control: Acetone solvent
TREATED
CONTROL
Royal Jelly Collection
Royal Jelly (RJ) harvested, weighed, and sampled for nutritional analysis
KEY FINDINGS
RJ Nutritional Quality
Phytosterols
Lower abundance of sterols in RJ from treated colonies
Proteome
Lower abundances of Major Royal Jelly Proteins in RJ from treated colonies
Metabolome
Large differences in the metabolomes of RJ between treatments
Quantity
No effect of treatment on the amount of RJ produced
Pesticide contamination
Minimal pesticide transference from pollen treatment into RJ



(a)
Desmosterol
Stigmasterol ★
Campesterol ★
B-sitosterol
Brassicasterol
24-methylenecholesterol★
Delta-5-avenasterol★
1
0.5
0
-0.5
-1
Treatment
Control
(b)
Desmosterol
B-sitosterol
Brassicasterol
24-methylenecholesterol
Delta-5-avenasterol
Campesterol
Stigmasterol
2
1
0
-1
-2
TL
TH
TM
CH
CL
CM
Treatment
Control

Population data and normal dwindling calculations from Gard Otis, University of Guelph Graph below

	Normal summer dwindling in healthy colony ave (8,750 bees per month)	Colony population w/ dwindling rate increased + 3% or reduction in queen productivity - 3%	Colony population w/ dwindling rate increased + 2% or reduction in queen productivity - 2%	Colony population w/ dwindling rate increased + 1% or reduction in queen productivity - 1%
Starting ave peak population Jul 15	60,000	60,000	60,000	60,000
Aug 15	51,250	49,713	50,225	50,738
Sept 15	42,500	39,734	40,646	41,568
Oct 15	33,750	30,054	31,258	32,489
Starting Population at the "end of Fall" (~Nov 15) (Gard Otis data)	25,000	20,665	22,057	23,502
	Normal Dwindling Nov-Mar in healthy colony ave (4,375 bees per month)			
Dec 15	20,625	15,801	17,329	18,936
Jan 15	16,250	11,084	12,695	14,415
Feb 15	11,875	6,507	8,153	9,940
Ending population ~March 15	**7,500**	**2,068**	**3,703**	**5,509**



VBA recommends:

- Eliminate prophylactic use of systemic pesticide treated seed.
- Only plant pesticide coated seed when IPM testing reveals a pest problem.
- Choose the least toxic pesticide for the application.
- Phase out Nitroguanidine Neonics completely within 2-3 years.

sample_type	File.Name	Client.ID2	Mass..g.	Thiamethoxam	Clothianidin	Imidacloprid	Acetamiprid	Thiacloprid
Pollen (trap)	2022-04-13_040	S041706	5.05	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_041	S041707	4.93	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_042	S041708	5.04	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_043	S041709	5	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_044	S041710	4.95	0.202020202	0.606060606	NA	NA	NA
Pollen (trap)	2022-04-13_045	S041711	4.62	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_046	S041712	5.07	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_047	S041713	5.06	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_048	S041714	5.03	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_049	S041715	5.02	0.199203187	NA	NA	NA	0.133466135
Pollen (trap)	2022-04-13_050	S041716	5	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_051	S041717	4.97	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_052	S041718	4.96	NA	NA	NA	NA	NA
Pollen (trap)	2022-04-13_053	S041719	0.2591	0.270165959	NA	NA	NA	NA
Pollen (trap)	2022-04-13_054	S041720	4.98	NA	NA	0.602409639	NA	NA
Pollen (trap)	2022-04-13_055	S041721	5.04	NA	NA	0.595238095	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_001	4.8132	NA	5.31	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_010	4.7057	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_011	4.821	NA	NA	NA	1.18	NA
Pollen (trap)	2023-04-10_SM_I	SM_012	5.0375	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_013	5.0648	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_014	4.5683	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_015	4.7021	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_016	4.6379	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_017	4.5091	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_018	7.4533	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_019	6.9484	NA	NA	NA	NA	NA
Pollen (trap)	2023-04-10_SM_I	SM_002	4.9198	NA	1.361843977	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_020	6.5574	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_021	5.2068	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_022	7.6986	NA	NA	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_023	6.2717	NA	1.068290894	NA	NA	NA
Plant Tissue	2023-04-10_SM_I	SM_024	8.8519	NA	NA	NA	NA	NA

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