Apiary Program 2019

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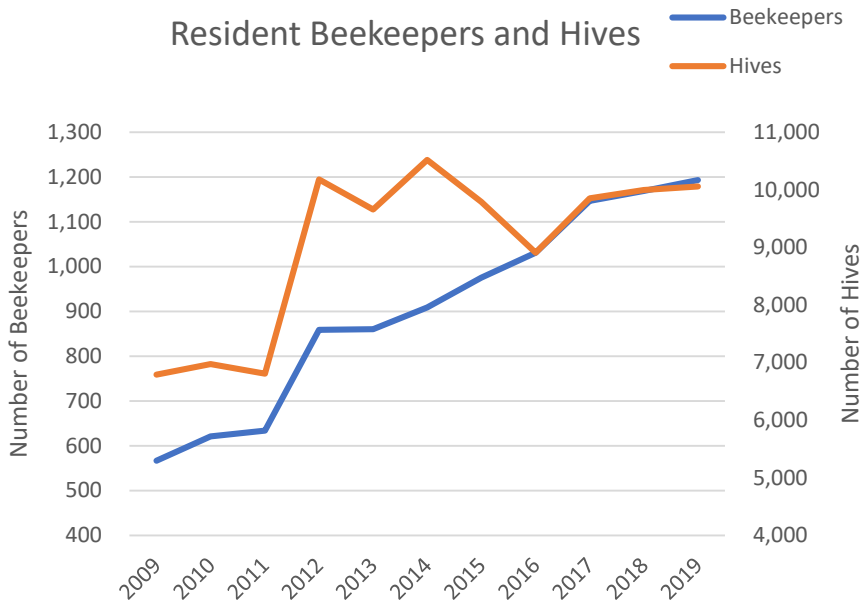
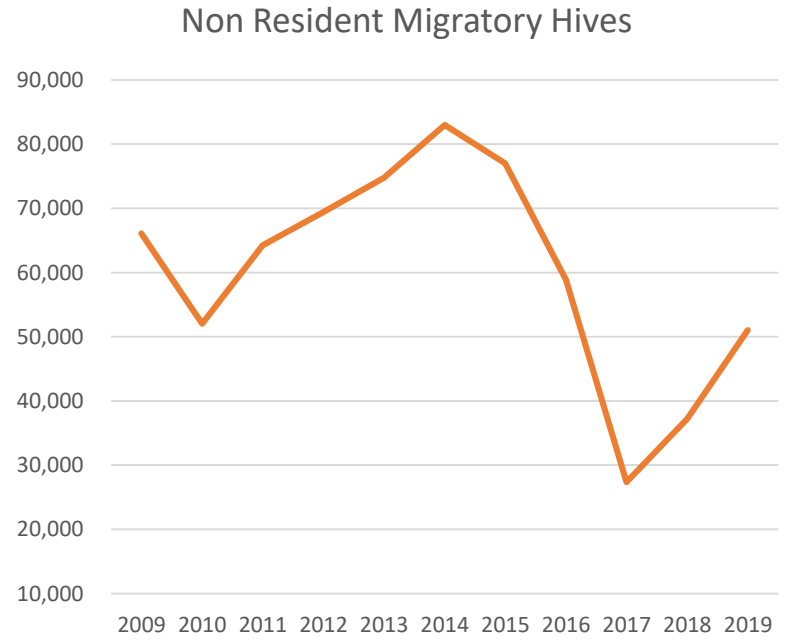
Apiary Program

- Department of Agriculture, Conservation and Forestry (1983)
- Prevent the introduction and spread
  - regulated honey bee diseases and parasites
  - undesirable genetic material
- Facilitate the movement of honey bees for crop pollination and honey production

Apiarist's Roles

- License resident beekeepers
  - 1,193 beekeepers owning 10,058 hives
- Issue permits for the entry of migratory bees from other states
  - 50,030 hives in 2019
- Inspect resident and migratory honey bee colonies for regulated diseases and parasites
- Educating beekeepers, growers, and the general public about bee keeping techniques and the value of honey bees to Maine agriculture (and non-managed bees)





Inspections

26 migratory beekeepers (all)

2658 hives visited

~161 resident beekeepers

~1440 hives

Package/nucs/used equipment

15 Samples to Beltsville Bee Diagnostic Lab

1 case American Foulbrood

Autopsies

25% queen loss, starvation, poor winter

70% varroa mites and viruses

5% everything else

Demographics 2018/2019

- 360 beekeepers, 1915 hives
- 96.9% hobby beekeepers (<30hives)
- 95.3% are registered with the DACF
- 73.9% are members of a beekeeping organization
  - MSBA, local MSBA chapters, EAS, etc.
- Average number years beekeeping was 7.3 years (range: 1-70)

Losses 2018/2019

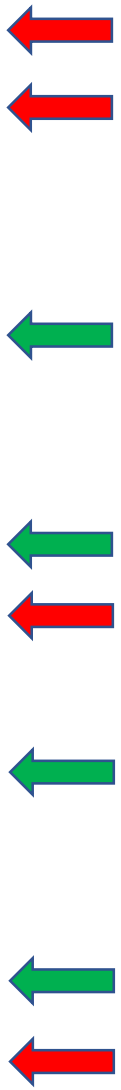
2018/2019 Loss: 45.2%
- Summer:6.2%
- Winter: 39.0%

2017/2018 Loss: 43.4%
- Summer: 7.0%
- Winter: 36.4%

2016/2017 Loss: 45.0 %
- Summer: 5.9%
- Winter: 39.1%

County	N	Summer Loss (%)	Winter Loss (%)	Total Loss (%)
Androscoggin	13	3.1	85.5	88.7
Aroostook	7	12.2	65.3	77.6
Cumberland	94	8.1	46.5	54.6
Franklin	4	14.3	57.1	71.4
Hancock	16	3.0	23.0	25.9
Kennebec	26	2.9	27.5	30.4
Knox	20	18.4	19.7	38.2
Lincoln	34	4.0	22.2	26.2
Oxford	21	8.8	43.4	52.2
Penobscot	36	2.2	28.8	31.0
Piscataquis	4	11.1	33.3	44.4
Sagadahoc	10	6.4	21.3	27.7
Somerset	13	0.0	36.4	36.4
Waldo	15	7.0	16.9	23.9
Washington	9	10.0	50.0	60.0
York	38	6.6	32.0	38.6

		2016-2019		
County	N	Summer Loss (%)	Winter Loss (%)	Total Loss (%)
Androscoggin	29	6.3	54.5	60.7
Aroostook	13	12.7	67.1	79.7
Cumberland	208	7.4	39.1	46.4
Franklin	11	5.6	28.9	34.4
Hancock	34	2.7	25.7	28.4
Kennebec	58	5.1	31.6	36.8
Knox	35	13.4	22.8	36.2
Lincoln	47	3.8	26.9	30.6
Oxford	39	7.1	47.3	54.3
Penobscot	80	3.4	37.3	40.8
Piscataquis	6	7.4	22.2	29.6
Sagadahoc	25	9.6	27.9	37.5
Somerset	20	0.0	46.0	46.0
Waldo	32	6.3	17.6	23.9
Washington	15	11.3	67.0	78.3
York	92	7.4	35.4	42.8



Average highest losses

Aroostook (79.7%)

Washington (78.3%)

Androscoggin (60.7%)

Oxford (54.3%)

Lowest average losses

Waldo (23.9%)

Hancock (28.4%)

Piscataquis (29.6%)

Lincoln (30.6%)

Losses 2018/2019

Summer:

- Queen loss/failure (11.9%)
- Varroa mites/viruses (8.6%)
- Unknown (7.2%)
- Environmental factors (4.2%)

- 68.9% no summer loss (248)

Winter:

- Varroa mites/viruses (26.7%)
- Unknown (19.4%)
- Environmental factors (18.3%)
- Queen loss/failure (13.1%)

- 31.9% no winter loss (115)

Losses 2018/2019

Summer:

- Queen loss/failure (11.9%)
- Varroa mites/viruses (8.6%)
- Unknown (7.2%) ←
- Environmental factors (4.2%)

- 68.9% no summer loss (248)

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- Varroa mites/viruses (26.7%)
- Unknown (19.4%) ←
- Environmental factors (18.3%)
- Queen loss/failure (13.1%)

- 31.9% no winter loss (115)

Losses 2017/2018

Summer:

- Queen loss/failure (13.2%)
- Unknown (11.8%)
- Varroa mites/viruses (8.5%)
- Environmental factors (8.0%)

- 65.6% no summer loss (139)

Winter:

- Environmental factors (33.9%)
- Weak going into winter (29.2%)
- Varroa mites/viruses (21.7%)
- Unknown (17.5%)

- 26.4% no winter loss (56)

Losses 2017/2018

Summer:

- Queen loss/failure (13.2%)
- Unknown (11.8%)
- Varroa mites/viruses (8.5%)
- Environmental factors (8.0%)

- 65.6% no summer loss (139)

Winter:

- Environmental factors (33.9%)
- Weak going into winter (29.2%)
- Varroa mites/viruses (21.7%)
- Unknown (17.5%)

- 26.4% no winter loss (56)

	Overall		No Varroa Monitoring		Varroa Monitoring		Alcohol Wash		Other Monitoring Method	
Year	n	%	n	%	n	%	n	%	n	%
2016/2017	172	45.0	77	45.8	95	44.6	19	39.0	76	49.7
2017/2018	212	43.4	74	59.9	136	38.8	40	28.0	96	47.5
2018/2019	360	45.2	119	47.1	236	44.6	112	38.0	124	51.0

Mite Wash Jar Grant

MDAR
MASSACHUSETTS DEPARTMENT OF AGRICULTURAL RESOURCES

Northeastern IPM Center

Varroa Mites/Viruses

	2017/2018	2016/2017
65.6% monitor for Varroa	64.2%	50.6%
• 31.9% sticky board	33.0%	31%
• 18.8% sugar roll	26.4%	23%
• 31.1% alcohol roll	19.3%	11%

Varroa Mites/Viruses 2018/2019

Prevention:

- Screen bottom boards (27.7%)
- Brood disruption (5.9%)

Intervention:

- Oxalic acid (vaporization, 48.0%)
- Mite-Away-Quick-Strips (formic acid, 26.5%)
- Formic Pro (formic acid, 23.7%)

No varroa management

was reported by 9.7%

	Treated for Varroa		Did not Treat for Varroa		Prevention Only		Intervention Only		Prevention and Intervention	
Year	n	%	n	%	n	%	n	%	n	%
2016/2017	137	40.3	30	76.2	5	81.5	99	39.1	38	40.6
2017/2018	187	41.6	25	77.6	3	83.3	140	42.3	44	38.9
2018/2019	314	43.9	35	76.3	7	86.7	227	47.0	87	37.5

Prevention:

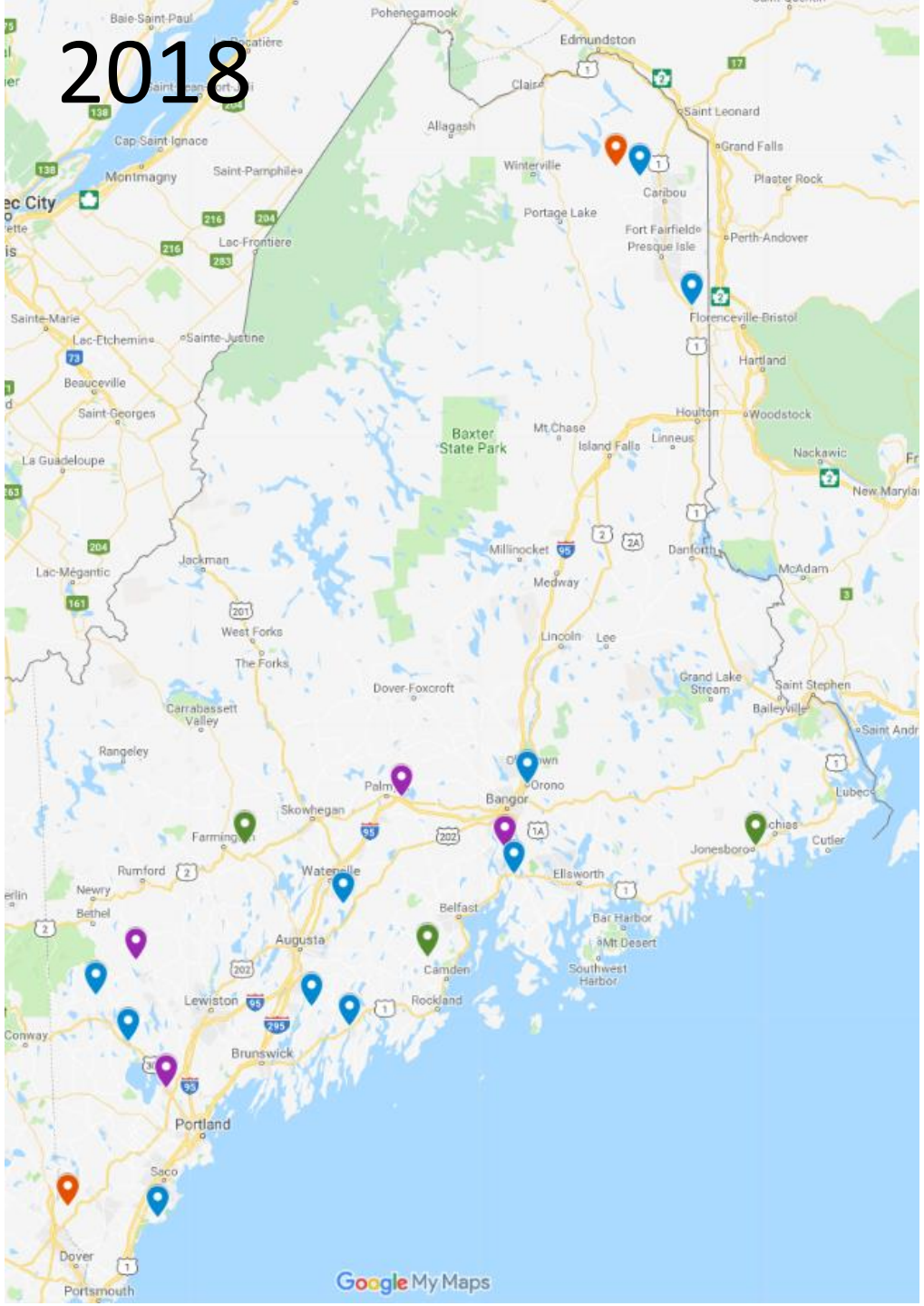
Drone brood removal
Screen bottom board
Brood cycle disruption

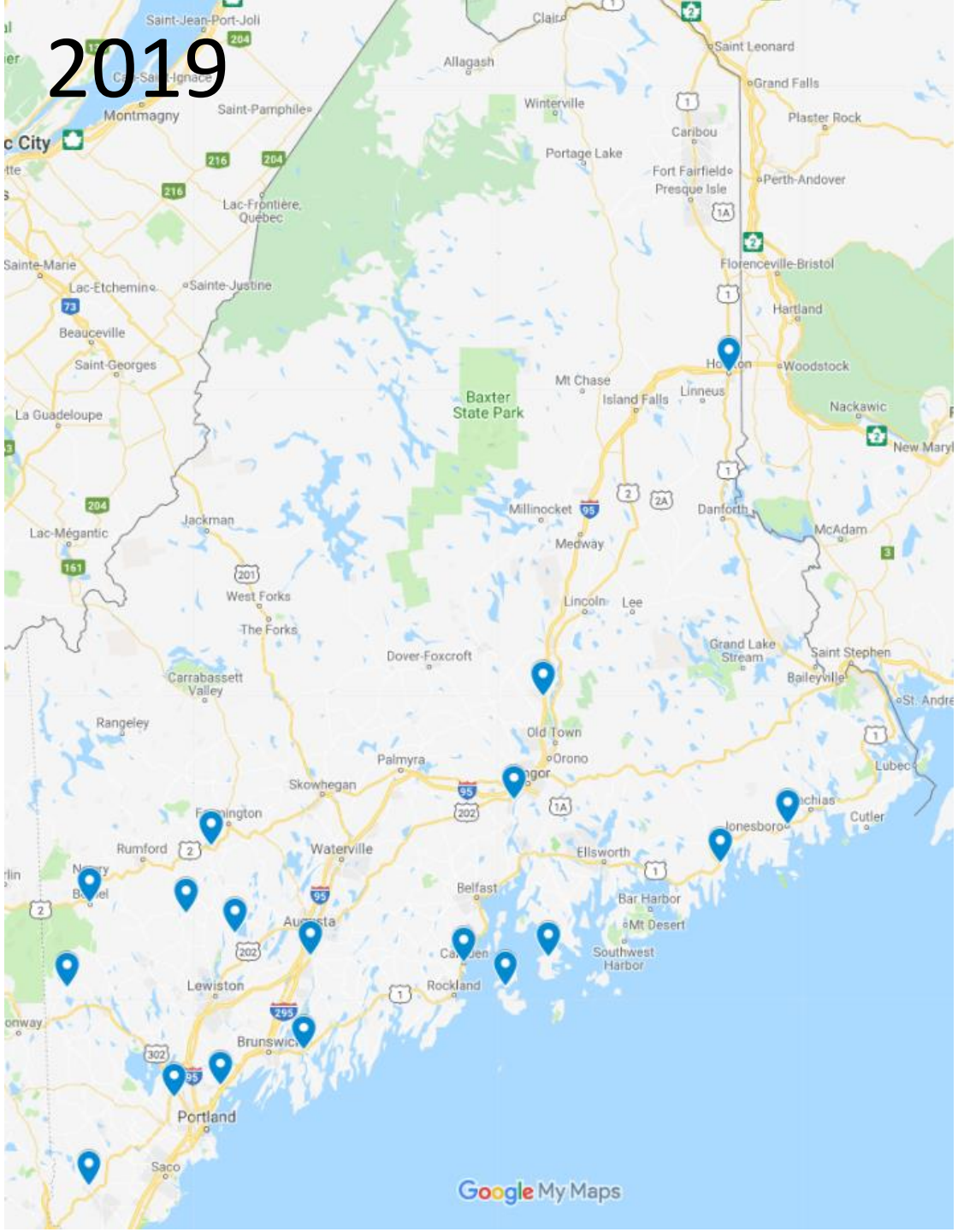
Intervention:

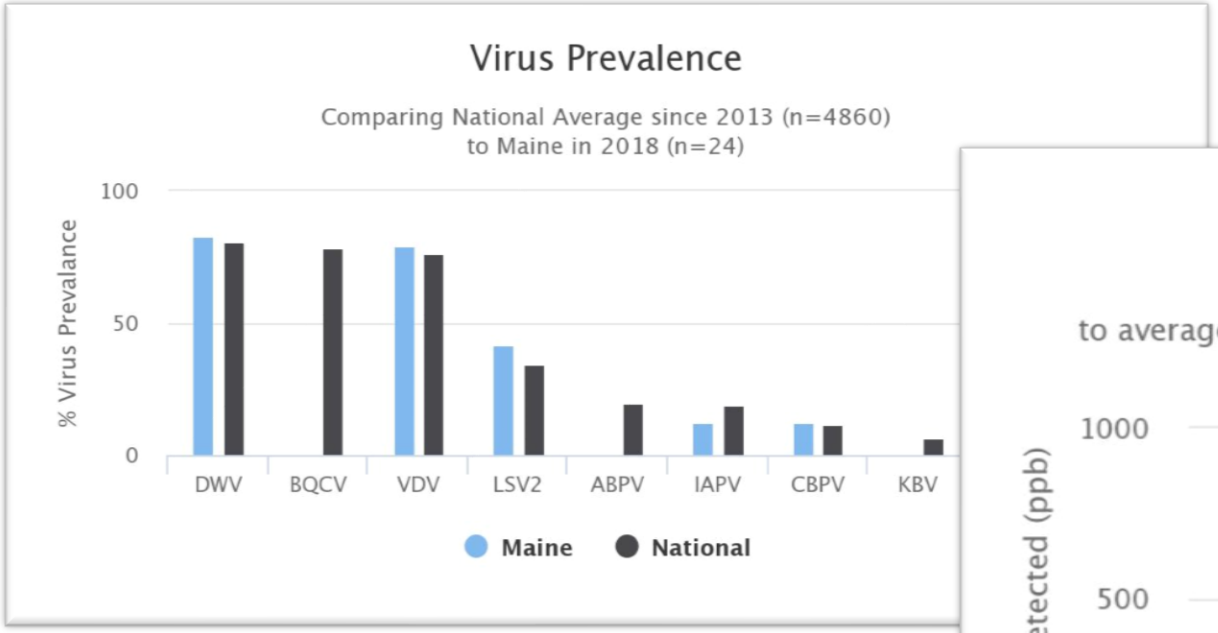
Apiguard
Formic Pro
Oxalic Acid
Hop Guard II
Apivar
etc.

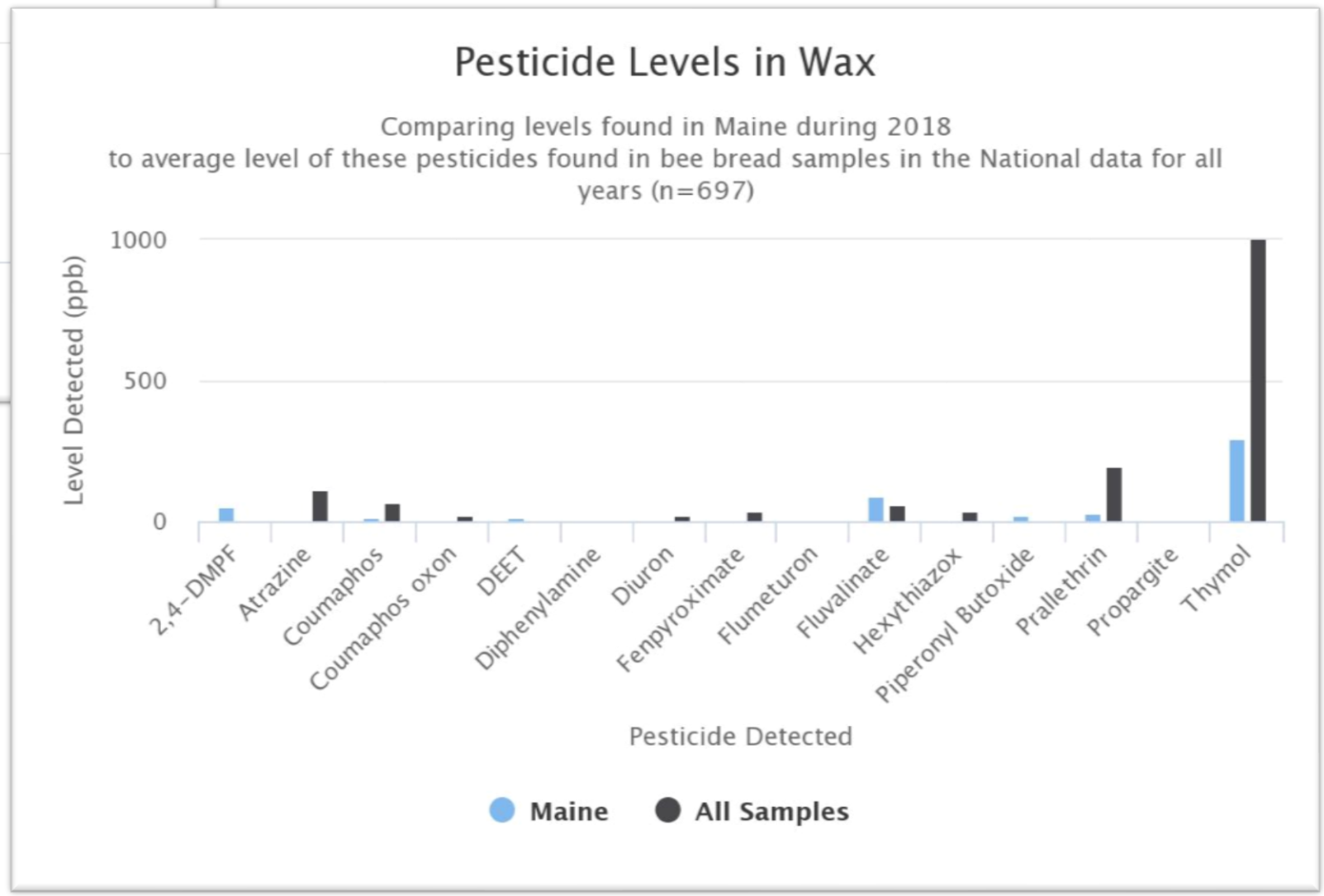
USDA APHIS Honey Bee Pests and Disease Health Survey

- 14 beekeepers sampled once
- 5 beekeepers sampled twice (longitudinal)
- Alcohol
  - *Apis cerana*
  - *Varroa*
  - *Nosema*
- Live Bees
  - Viruses (7-9)
- Bump Test for *Tropilaelaps*
- Wax sample for pesticides
  - (longitudinal, 200+)


2018
Edmundston
Saint Leonard
Grand Falls
Caribou
Plaster Rock
Portage Lake
Fort Fairfield
Presque Isle
Perth-Andover
Florenceville-Bristol
Hartland
Houlton
Woodstock
Baxter State Park
Mt Chase
Island Falls
Linneus
Nackawic
Millinocket
Medway
Danforth
McAdam
Jackman
Lac-Mégantic
West Forks
The Forks
Dover-Foxcroft
Grand Lake Stream
Saint Stephen
Baileyville
Carrabassett Valley
Rangeley
Orono
Bangor
Skowhegan
Waterville
Ellsworth
Belfast
Bar Harbor
Mt Desert
Southwest Harbor
Camden
Rockland
Augusta
Lewiston
Brunswick
Portland
Saco
Google My Maps


2019
Saint-Jean-Port-Joli
Allagash
Saint Leonard
Grand Falls
Winterville
Caribou
Plaster Rock
Portage Lake
Fort Fairfield
Presque Isle
Perth-Andover
Lac-Frontière
Québec
Florenceville-Bristol
Hartland
Woodstock
Baxter State Park
Mt Chase
Island Falls
Linneus
Nackawic
Millinocket
Medway
Danforth
McAdam
Jackman
Lac-Mégantic
West Forks
The Forks
Dover-Foxcroft
Grand Lake Stream
Saint Stephen
Baileyville
Carrabassett Valley
Rangeley
Old Town
Orono
Palmyra
Skowhegan
Waterville
Ellsworth
Belfast
Bar Harbor
Mt Desert
Southwest Harbor
Rockland
Augusta
Lewiston
Brunswick
Portland
Saco
Google My Maps





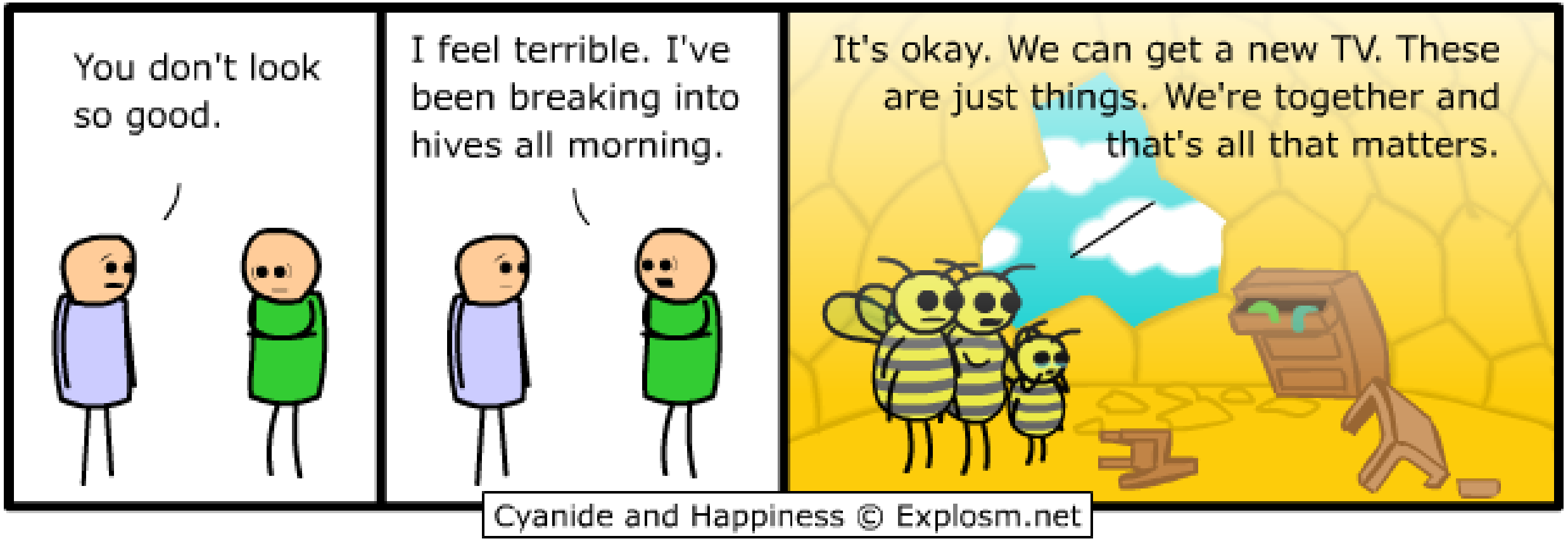
Data: https://bip2.beeinformed.org/state_reports/

Outreach

46 in 2019 (so far)

56 in 2018

New beekeeper classes, extension workshops, open hives, monthly beekeeper club meetings, conservation groups, land trusts, schools, libraries, rotary clubs, state beekeeping meetings, national meetings, international meetings, etc.



Questions?

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