



Bee Industry Overview

Annual Beekeeper Symposium

Jason Sproule

February 21, 2020

novascotia.ca/bee-industry

New Location

74 Research Dr, Bible Hill, B6L 2R2



Role of Provincial Apiculturist

1. Administer the Honey Bee *Industry Act & Regulations*

- Maintain a registry of beekeepers
- Draft the annual Import Protocol and permits
- Conduct hive health inspections & surveys

2. Extension and Outreach

- Disseminate: factsheets, BMPs, industry news, regulatory notices
- Demonstrate BMPs during farm visits
- Assist with delivery of bee courses – Dalhousie and NSCC
- Assist with development and delivery of programming

3. Coordinate with various Agencies & NGOs

- NS Beekeepers Association,
- Canadian Association of Professional Apiculturists,
- CFIA, PMRA, Health Canada (other branches), Stats Canada, Provincial Agriculture Departments



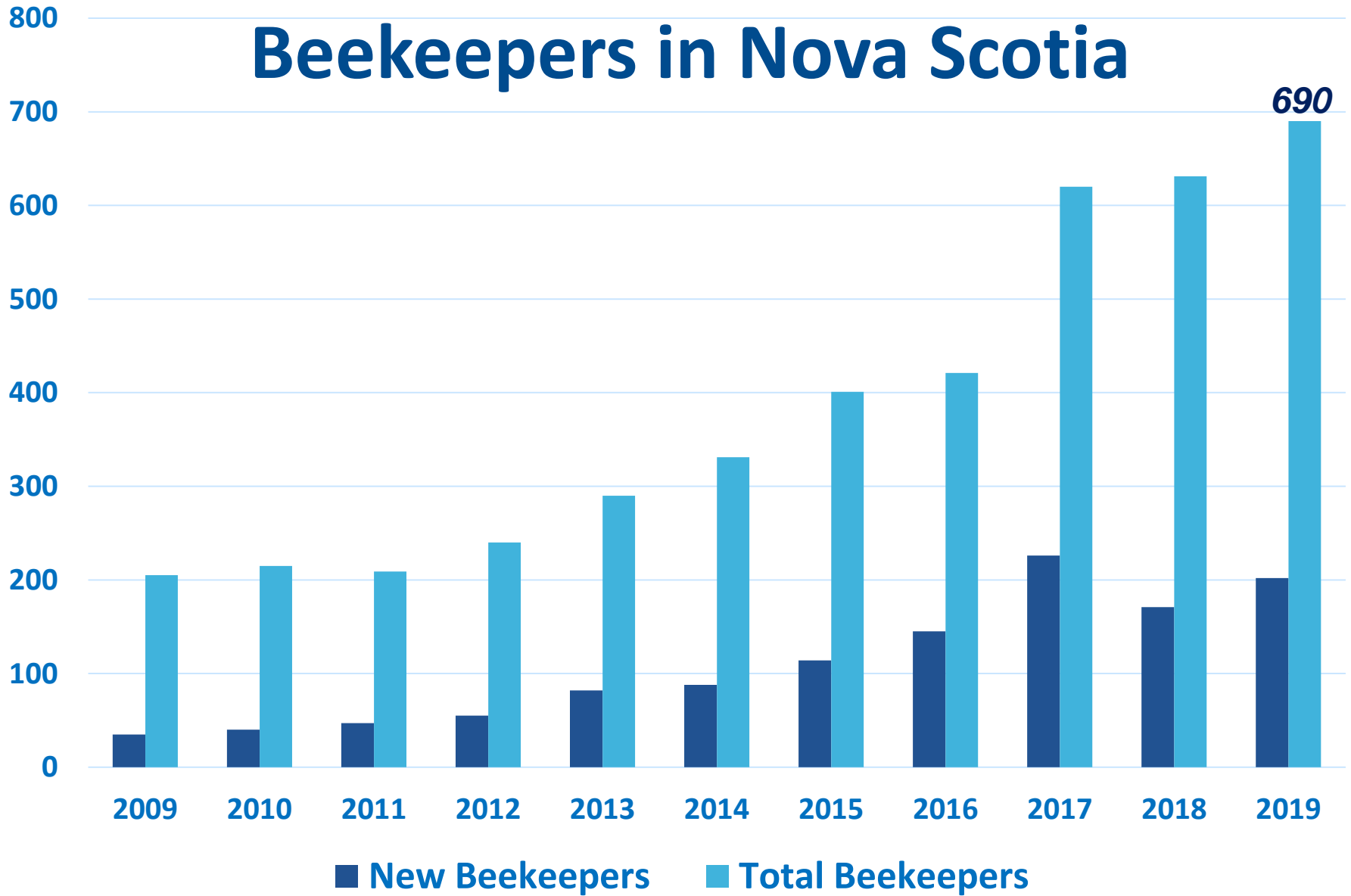
The Provincial Apiculturist inspecting a hive for diseases



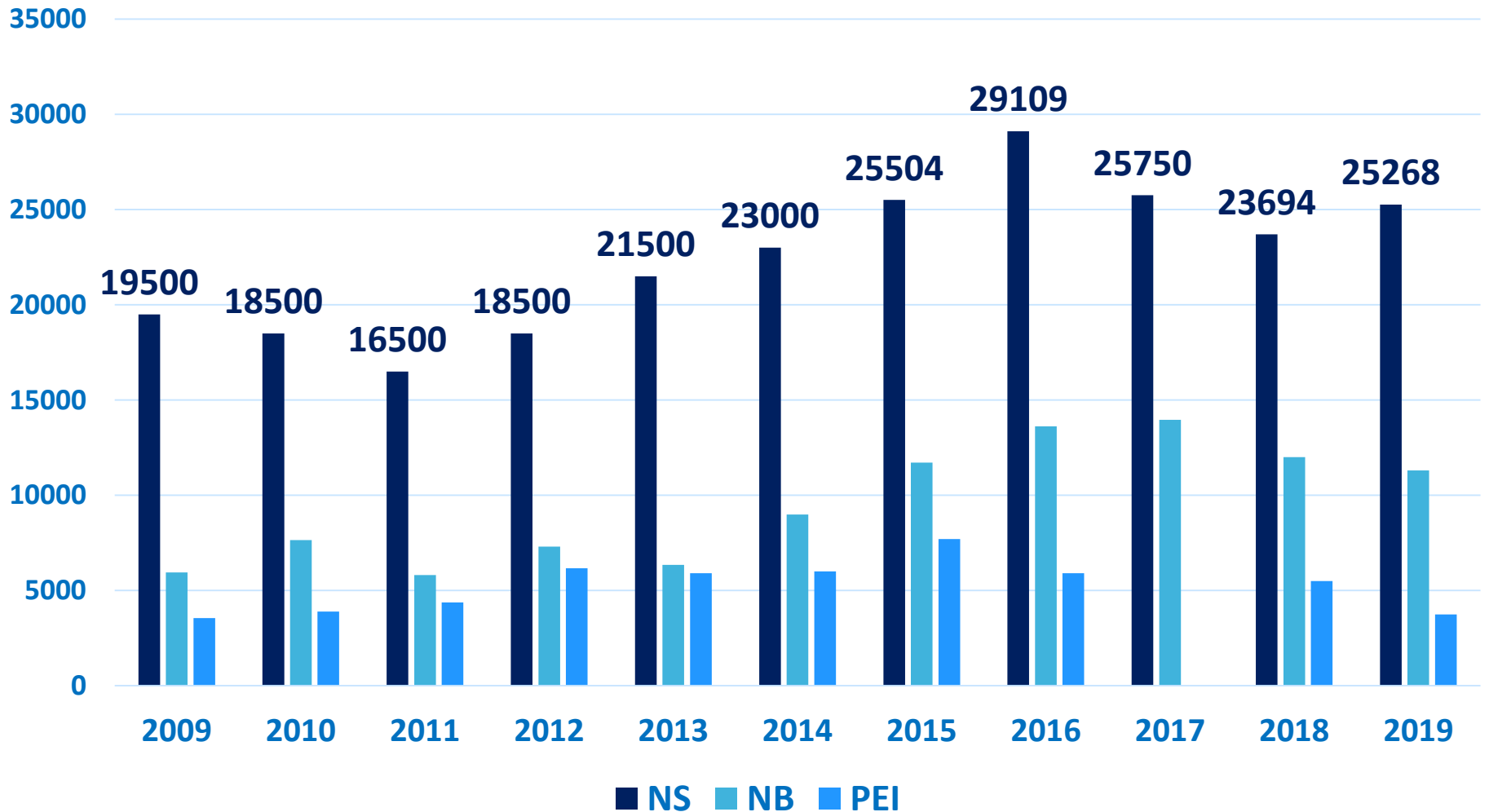
Cages of honey bee queens from Hawaii being inspected at the airport

Industry Statistics

Beekeepers in Nova Scotia

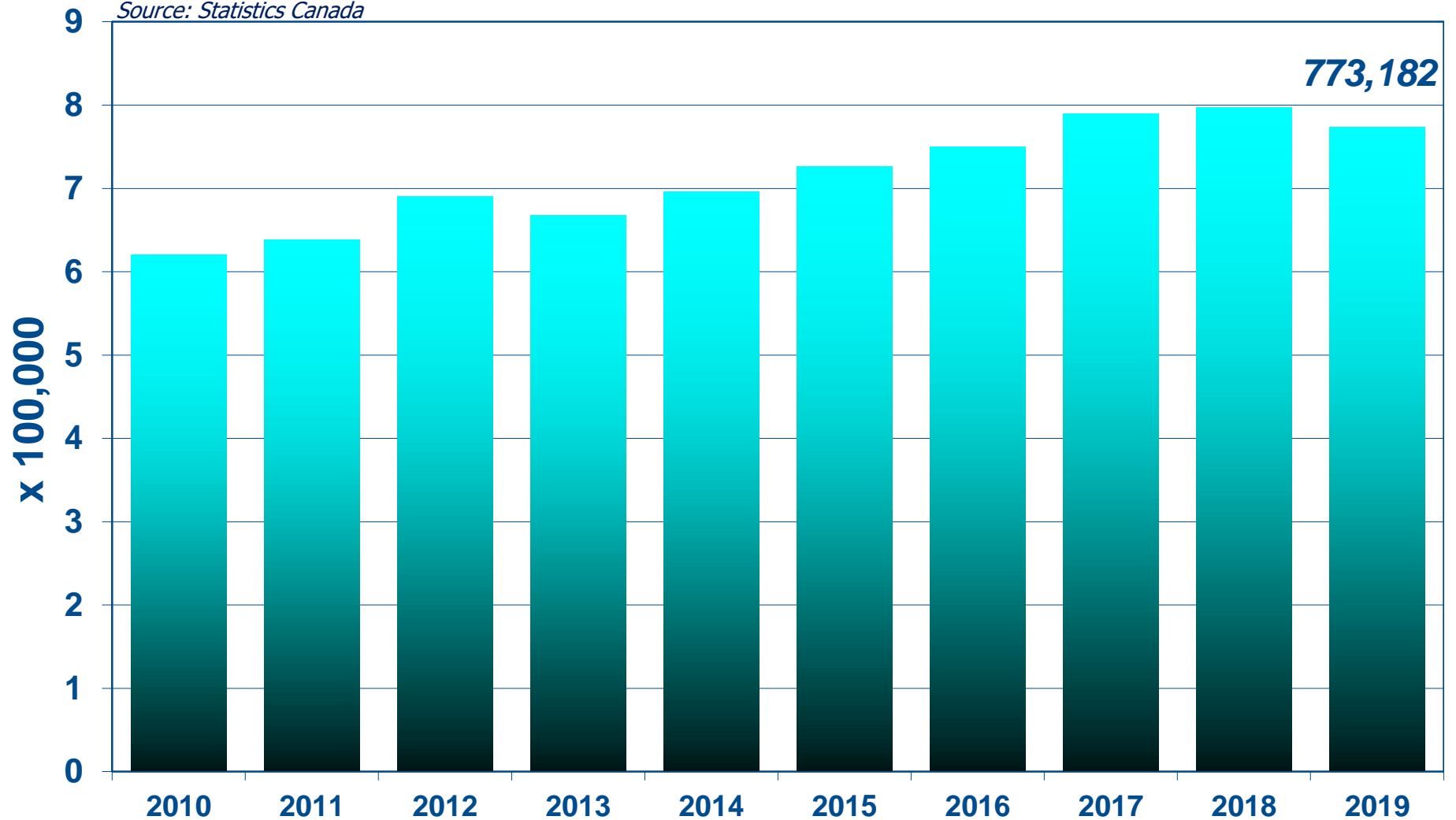


Maritime Colonies

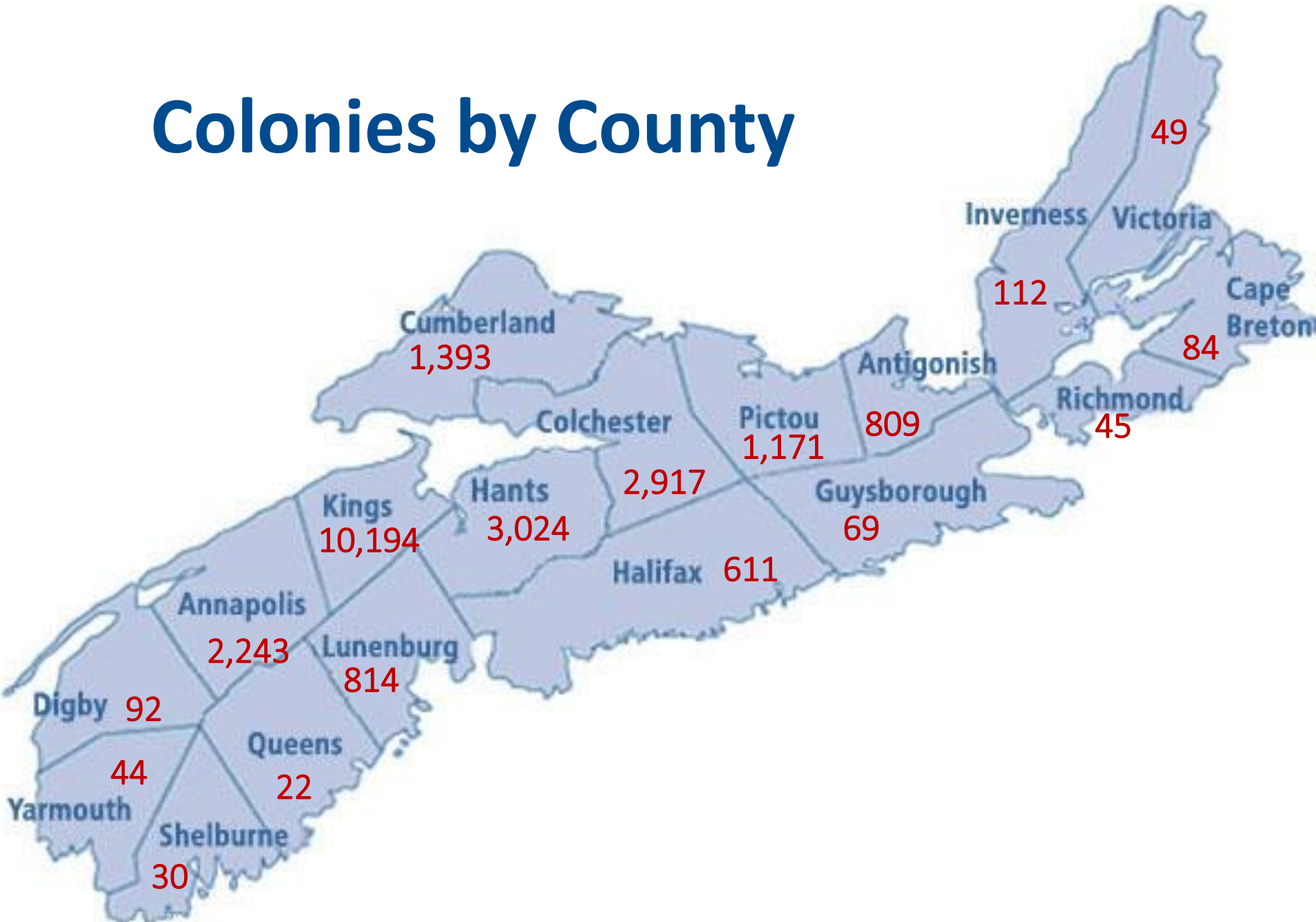


Colonies in Canada

Source: Statistics Canada



Colonies by County



Operations by Hive #'s

>50 hives = Commercial beekeeper

<50 hives = Small-scale beekeeper

Farm size	Beekeepers	Bee yards	No. of hives (July)	% of Total NS hives	Hives for pollination	% of Total NS hives for pollination
50+ hives (Commercial)	40	762	22,942	90.79%	16,641	98.35%
25-49 hives	18	53	659	2.61%	190	1.12%
10-24 hives	44	76	630	2.49%	78	0.46%
1-9 hives	391	380	1,037	4.10%	11	0.07%
Total	483	1,379	25,268		16,920	

Winter Mortality (CAPA Report)

Province	Total number of colonies operated in 2018	Estimated number of colony lost based on the estimated provincial winter loss	Type of data collection	Number of beekeepers targeted by survey	Number of respondents (% of participation)	Size of beekeeping operations targeted by survey	Number of respondents' colonies that were wintered in fall 2018	Number of respondents' colonies that were alive and viable in spring 2019	Percentage of surveyed colonies to the total number of colonies in the province	Provincial Winter Loss including Non-viable Colonies
Newfoundland and Labrador	425	127	Email, Telephone, Text message	9	9 (100%)	20 col. and more	426	299	100%	29.8%
Prince Edward Island	6 000	3 246	Email, Telephone	50	17 (34%)	All sizes	5 330	2 448	89%	54.1%
Nova Scotia	25 210	4 992	Email	41	20 (49%)	50 col. and more	16 058	12 877	64%	19.8%
New Brunswick	11 998	3 155	Email, Telephone, Postal	30	16 (53%)	50 col. and more	8 628	6 360	72%	26.3%
Quebec	65 128	16 282	Email, Telephone, Postal	137	108 (79%)	50 col. and more	50 198	37 669	77%	25.0%
Ontario	100 413	22 693	Email, Telephone, Postal, Online	218	87 (40%)	50 col. and more	48 418	37 469	48%	22.6%
Manitoba	114 098	24 417	Email	112	34 (30%)	100 col. and more	46 091	36 249	40%	21.4%
Saskatchewan	114 000	24 396	Online	120	47 (39%)	100 col. and more	47 087	36 999	41%	21.4%
Alberta	311 374	89 676	Online	111	43 (39%)	400 col. and more	121 786	86 680	39%	28.8%
British Columbia	54 706	17 451	Online	403	155 (39%)	10 col. and more	54 706	37 242	100%	31.9%
Canada	803 352	206 435		1231	536 (44%)		398 728	294 292	50%	25.7%

Queen & Nuc Production



	2018	2019
Queens	15,341	13,697
Beekeepers	30	40
Nucs	769	790
Beekeepers	21	19



Honey

- Honey producing colonies = 8,981
- Reported 417,687 lbs.
- Based on 54 survey respondents.
- Total Revenue = \$1.1 M (65/35% split).



Pollination

	# beekeepers	# colonies	Avg fee (\$)	Polln Value (\$M)
2019	50	16,920	139.49	2.36
2018	114	17,240	123.84	2.14
2017	77	18,851 + 432	138.16	2.66



Joint Pollination Committee

Bi-annual meetings with NSBA, WBPANS, ATTTA, NSDA to discuss issues & forecast pollination demand/availability.

2019 issues: dearth and ↓ honey yield,

- late season brood break
- Swarm prevention
- EFB after pollination

2020 Forecast: est. ~20% ↑ in demand → 20,304 hives.

- 22,827 hives were put into 2019/2020 winter.
- Est. 15% loss → 19,403 available in spring.
- 80-93% 3 year use rate → 15,522 – 18,044 for 2020 pollination.
- Shortfall: 2,260 - 4,782 hives.

Ongoing communication between individual growers and beekeepers better enables expansion for future pollination needs.

Colony Inspections

Anyone **selling, transferring ownership** or exporting bees and/or used equipment is required to arrange for inspection with the Provincial Apiculturist.

Also prompted by:

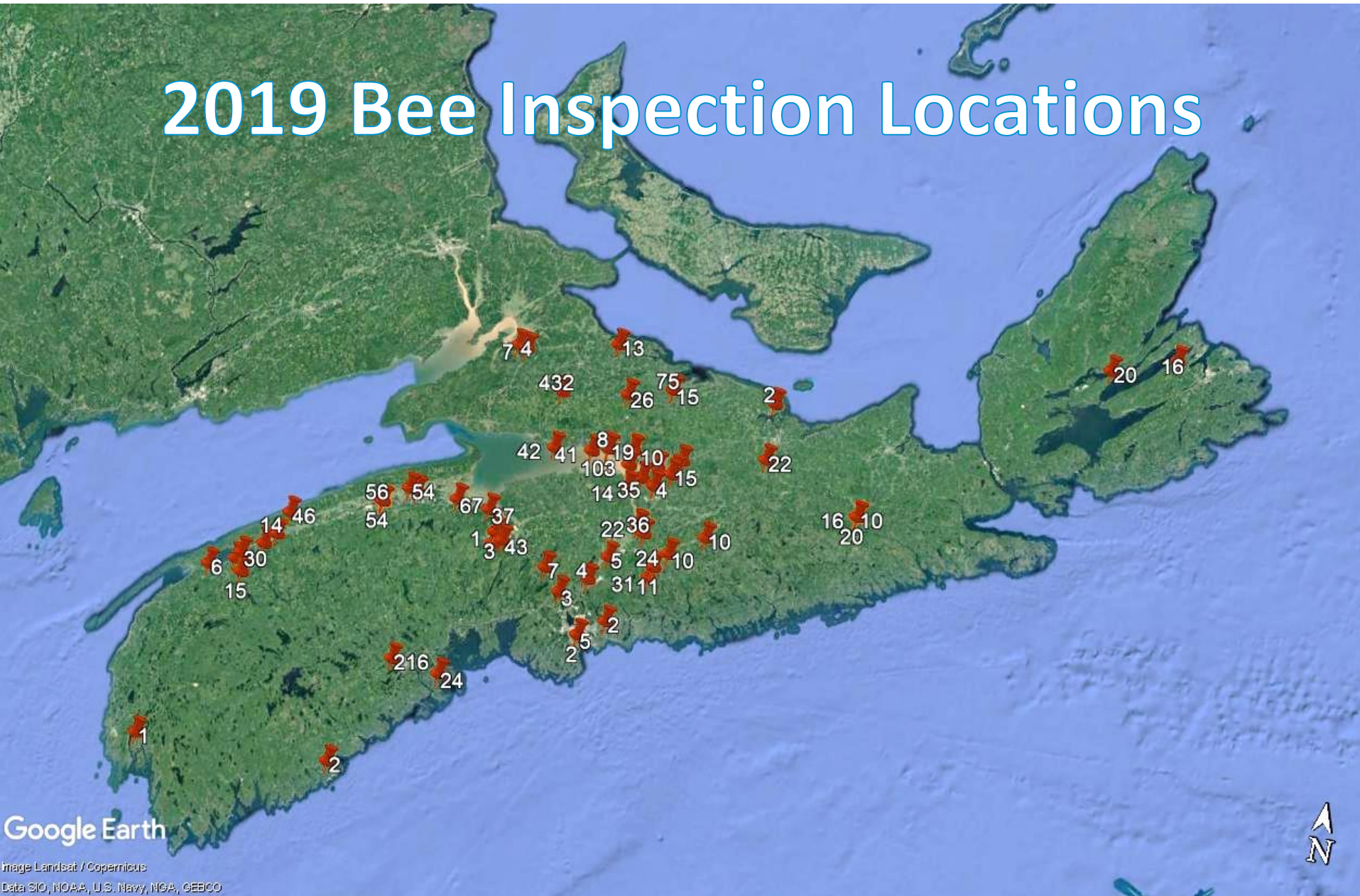
- Complaint,
- Haphazard (compliance check)
- Random,
- Reportable pest/disease,
- Nearby biosecurity threat.

Hive inspection rate usually 10%.
Equipment inspection rate variable.
Inspections are not guarantees.



	Beekeepers Inspected	Yards	Colonies in yards	Colonies inspected	Chalkbrood	DFW	EFB	AFB
2019	51	79	2716	822 (30.3%)	21 (2.55%)	5 (0.61%)	2 (0.24%)	0
2018	45	59	1365	672 (49.2%)	93 (13.8%)	3 (0.02%)	0 (0%)	7 (0.005%)

2019 Bee Inspection Locations



Google Earth

Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, MGA, GEBCO



Meadery Certification

Certification Committee conducts annual inspections and provided report with recommendations to the board.

- Small farm winery: min. 25 hives.
- Farm winery: 50 hives.
- Hiveware must be...in accordance with the Nova Scotia *Bee Industry Act & Regulations* and have moveable frames with dated top frames.
- Must have effective biosecurity and colony health programs and practices in place.
- Feeders are not to be present at the same time as honey supers and bees are not to be fed extracted honey.
- Must demonstrate effective honey sanitation practices, including no access to neighboring apiaries where open feeding is practiced.
- Must have no more than 50 hives in an apiary.
- Must have extraction equipment appropriate to the size of farm.

Beekeeper Responsibilities

Beekeeper Registration

- Required by anyone keeping bees in Nova Scotia.
- Annual renewals are due **November 1st**.
- Not to be confused with Association membership.
- One registration per adult.
 - No couples.
 - Farm / business name is only supplementary.
- No fee for registration.
- Continued improvements to streamline registration and communication.
- Much thanks to Marlene Blauwendraat!
- Contact acs@novascotia.ca for registration questions (include BK code)

Reportable Diseases and Pests

Common Name	Scientific Name or Abbreviation
Diseases:	
American foulbrood	<i>Paenibacillus larvae</i>
American foulbrood resistant oxytet	rAFB
Pests:	
Varroa mite resistant fluvalinate	rVMf
Varroa mite resistant coumaphous	rVMc
Asian mite	<i>Tropilaelaps clareae</i>
Honey bee tracheal mite	<i>Acarapis woodi</i>
Small hive beetle	<i>Aethina tumida</i>
Africanized bees of the African races and hybrids of European and African races	<i>Apis mellifera scutellata</i>
Cape honey bee	<i>Apis mellifera capensis</i>
Asian honey bee	<i>Apis cerana</i>
Asian Nosema	<i>Nosema ceranae</i>
Asian giant hornet	<i>Vespa mandarinia</i>

Buying & Selling Bees (equipment too)

Buyers

- Register with NSDA.
- Buy local or get Import Permit.
- Verify NSDA inspection. Review results & comments.
- *Caveat emptor* – know what you are buying.

Sellers

- Obtain NSDA certificate of inspection.
- Comply with orders (treatment, quarantine, destruction, etc).
- Provide inspection report to buyers.
- Verify buyer registration.
- Keep records of buyer's name, address, BK code, quantities, origins for 2 years.

Preparing for an Inspection

- Contact Provincial Apiculturist: jason.sproule@novascotia.ca; (902) 890-1565
- Inspection announcements are sent March – April.
- Provide details: location(s), quantities, time preferences, your attendance.
- Explain the reason for inspection eg, transfer of ownership, reportable pest/disease, **export**.
- Peak Season May – end of June, give sufficient lead time.
- Notify property owners.
- Remove strapping in advance.
- Go through hives and equipment – cull in advance.
- Ensure equipment is accessible and inspector has adequate working room.
- Ensure a minimum 6 ½ ft clearance.

During an inspection

- Inspector may enter any non-dwelling location to inspect, hives, equipment, records.
- Inspector may perform alcohol wash on select hives – sacrifice of approx. 300 bees.
- Samples of comb, swabs, bees may be collected for lab tests.
- Inspections stickers may be applied (especially, for export).
- If present, be prepared to assist – bring appropriate tools and PPE.
- Care will be taken to protect queens.
- You may receive orders from inspectors to treat, sanitize, tidy up yards, or destroy.
- A report will be sent within 2 workdays, indicating approval for sale.

****Inspectors may abandon inspection if they feel it is unsafe or beyond reasonable expectation of labour or preparedness****



Bee Industry Act & Regs

- A review of the *Bee Industry Act & Regulations* was initiated Fall 2019.
- Initial review has identified various areas in the legislation that require updating to address issues related to bee health and various administrative improvements.
- The Act was last amended in 2008 and the Regulations in 2012.
- Requested input from the NSBA.

Honey Bee Imports & Exports

Honey Bee Imports

	NZ packages	Australia Packages	Australia Queens	NZ Queens	Hawaii Queens	California Queens	Chile Queens	Canadian Queens	Total queens
2019	341	0	0	10	2076	1186	750	222	4256
2018	704	0	150	0	1456	1225	400	231	3462
2017	704	0	0	1408	1470	725	935	356	4894
2016	2816	400	100	3050	2300	665	100	435	6650





DRAFT DOCUMENT
Version 1

Risk Assessment on the Importation of Honeybee Queens from Italy and Malta

(2018057)

Italy / Malta

Potential hazards: SHB & amitraz resistance

Calabria low risk

Italy (except Calabria) negligible risk

Malta negligible risk

October 2019

(Disponible en français sur demande)

Animal Health Risk Assessment
Animal Health Science Division
Science Branch

Canada

2020 Import Protocol

Available at: novascotia.ca/bee-industry

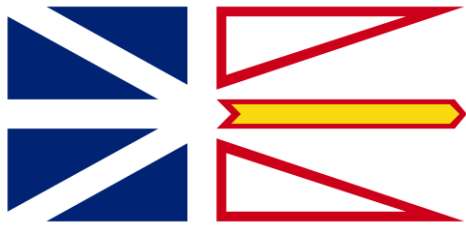
- **No import of colonies (hives, nucs, pkgs) from other Provinces is permitted.**
- Importation of queens from Provinces is permitted from select sources.
- Package bees and queens from outside Canada require CFIA permits.
- Packaging must be frozen ≥ 48 h before disposal.
- All queens must be inspected upon arrival, before release to beekeeper.
- Delivery date and arrival times must be communicated to the P.A. ≥ 48 h in advance.
- Attendant workers must be destroyed.
- **Bring spare queen cages to pickup in case transfer is required.**
- Import of used equipment is permitted under stringent treatment conditions.

To obtain an Import Permit or for more information please contact:

Provincial Apiculturist

Nova Scotia Department of Agriculture
74 Research Dr.
Bible Hill, NS, B6L 2R2

ACS@novascotia.ca
jason.sproule@novascotia.ca
(902) 890-1565



Exports to NFLD

Prohibition of the importation of honey bees

Under the authority of the *Animal Health and Protection Act*, a person shall not bring honey bees (*Apis mellifera*) or honey bee hives into the Province of Newfoundland and Labrador unless accompanied by a certificate signed by an official veterinarian or licensed veterinarian in the place of origin.

The honeybees and hives must be free from the following pests:

- honey bee tracheal mite (*Acarapis woodi*)
- varroa mite (*Varroa destructor*)
- greater wax moth (*Galleria mellonella*); and
- small hive beetle (*Aethina tumida*)

Newfoundland
Labrador

Forestry and Agrifoods Agency

For more information, please contact
ocvo@gov.nl.ca | 709.637.2046

Please do not import honey bees, used equipment, pollen, beeswax, etc!!!! It is illegal to import bees or used equipment without a permit from the Government of Newfoundland & Labrador.

No *Bombus quads* either!!

NFLD maintains freedom from:

- Varroa mites
- Small Hive Beetle
- Wax moth
- Tracheal mite
- American foulbrood

<http://www.nlbeekeeping.ca/our-bees-nl/>



Exports to the USA

- August 2019: ON queen shipment rejected at border.
- September: CFIA confirms US border officially closed to honey bee exports.
- Perceived risk from Canadian imports from Denmark, Chile, Australia.
- CAPA coordinated collection of inspection, regulation, apiary statistics and pest and disease data from the provinces + 2 years of National surveys and a provincial questionnaire for CFIA to send to USDA / APHIS.
- APHIS are expected to conduct a risk assessment and intend to make a ruling by March 2020.

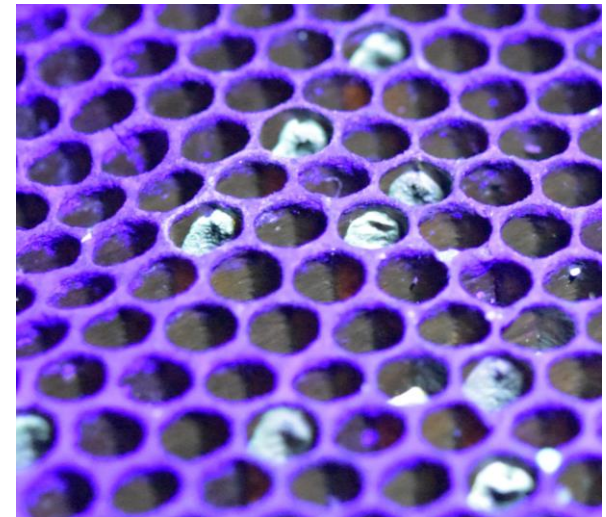
Major Pest and Disease Updates

American foulbrood

(*Paenibacillus larvae*)

- AFB is reportable.
- In 2019 Diagnostic kits were made available in Canada and supported by the Bee Biosecurity Program.
- 0 cases identified in NS 2019.
- “+” cases require destruction & disposal (burning is best).
- 20 VCPRs identified in registration survey.

Oxytetracycline treatments		
	# hives	# beekeepers
Spring	11,355	28
Fall	12,390	37



Requirements for Veterinary Client (Beekeeper) Patient Relationship

Veterinarian must document:

- Producer name, address and location of production sites
- Confirmation of registration of operation with the province (BK Code)
- Annual production
- Reasonableness of access to production units by vet
- Evidence of in person consultation - visits to site or real time video
- History of health management practices of the operation

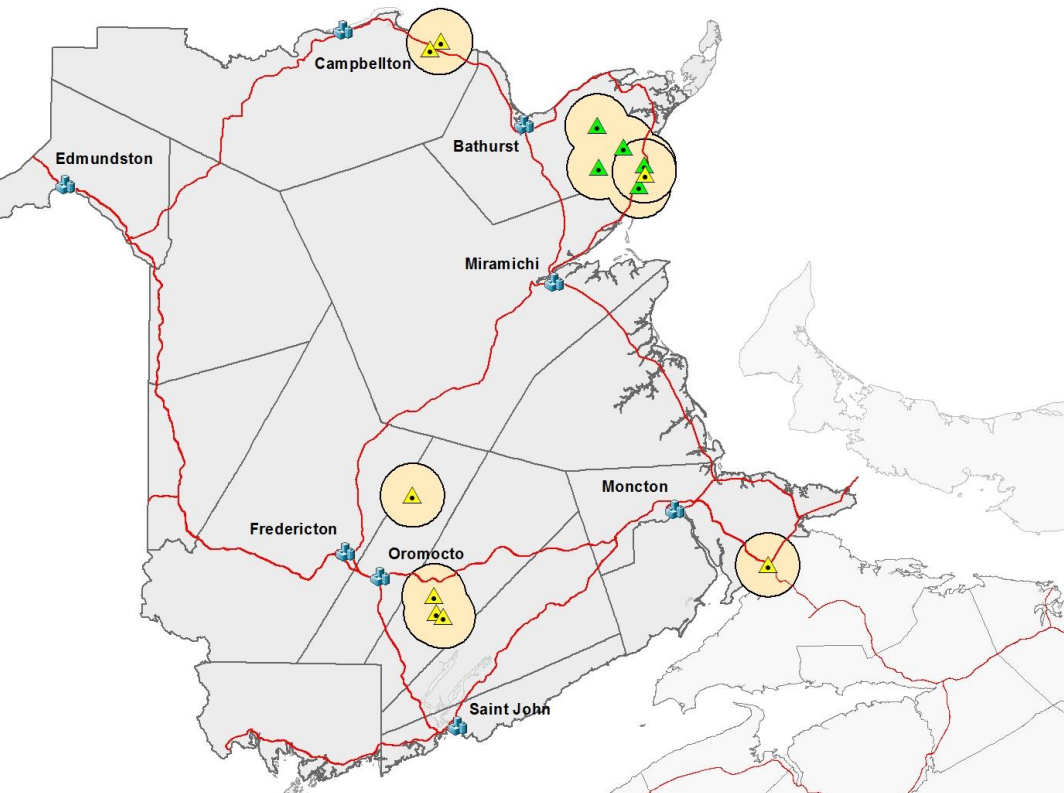
Records of colony health

- Previous disease history and treatments for all diseases
- Documentation of site visits by provincial apiculturists
- Clinical evidence of disease based on visual inspection by the Vet or P.A.
- Lab reports confirming presence of disease
- Culture results regarding resistance to American Foulbrood
- Results of antibiotic residue testing

Veterinarian must be available or have arranged for follow-up evaluation



SHB Distribution in New Brunswick



2017 NB Inspection Statistics

Beekeepers initially quarantined	12
Beekeepers with SHB+ colonies	7
Apiaries inspected	81
Colonies inspected	856
SHB+ apiaries	21
SHB+ colonies	25
Avg. adults per (+) colony	1.10
Colonies with larvae	4

2018 NB Spring Inspections

Beekeepers monitored	5/7
Apiaries with SHB+ colonies	4
Total SHB adults found	12

2018 NB Summer (July) Inspections

Beekeepers monitored	12
Apiaries with SHB+ colonies	1/34
Total SHB adults found	1

From Agriculture, Aquaculture and Fisheries, NB. Reports submitted to CAPA Nov 2018

Introduced *Vespa spp.* (British Columbia)



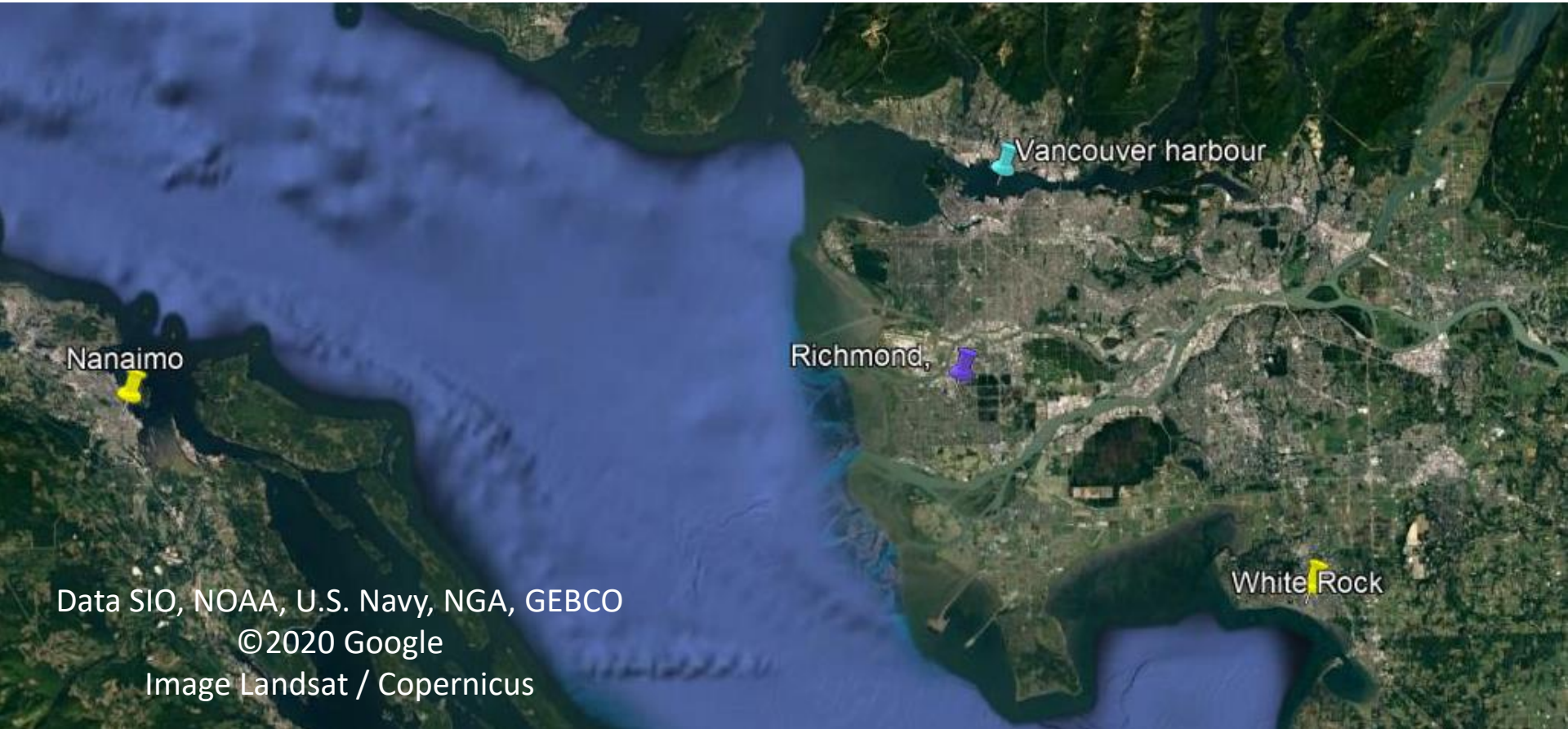
V. mandarina



V. basalis



V. soror



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
©2020 Google
Image Landsat / Copernicus

BC Response to *Vespa* ID

Monitoring:

- Feeding station(s) with bait set up at locations where hornets have been sighted.
- Feeding stations must be manned to catch any visiting Asian Giant Hornets (AGH).

Locating nests:

- AGH will be cooled, tagged with a 'streamer' ribbon, released and followed. New feeding station will be set up and process repeated.
- Captured AGH will be cooled and equipped with a radio tag. Receiver will be employed to locate the tagged hornet.
- Public submission of images of AGH with detailed description of location(s).

Nest eradication via CO₂ and iso-propyl alcohol.

Asian Giant Hornets



SATOSHI KURIBAYASHI/MINDEN PICTURES

Thank you,



Keep up the super work!