Perspective on Blueberry Opportunity

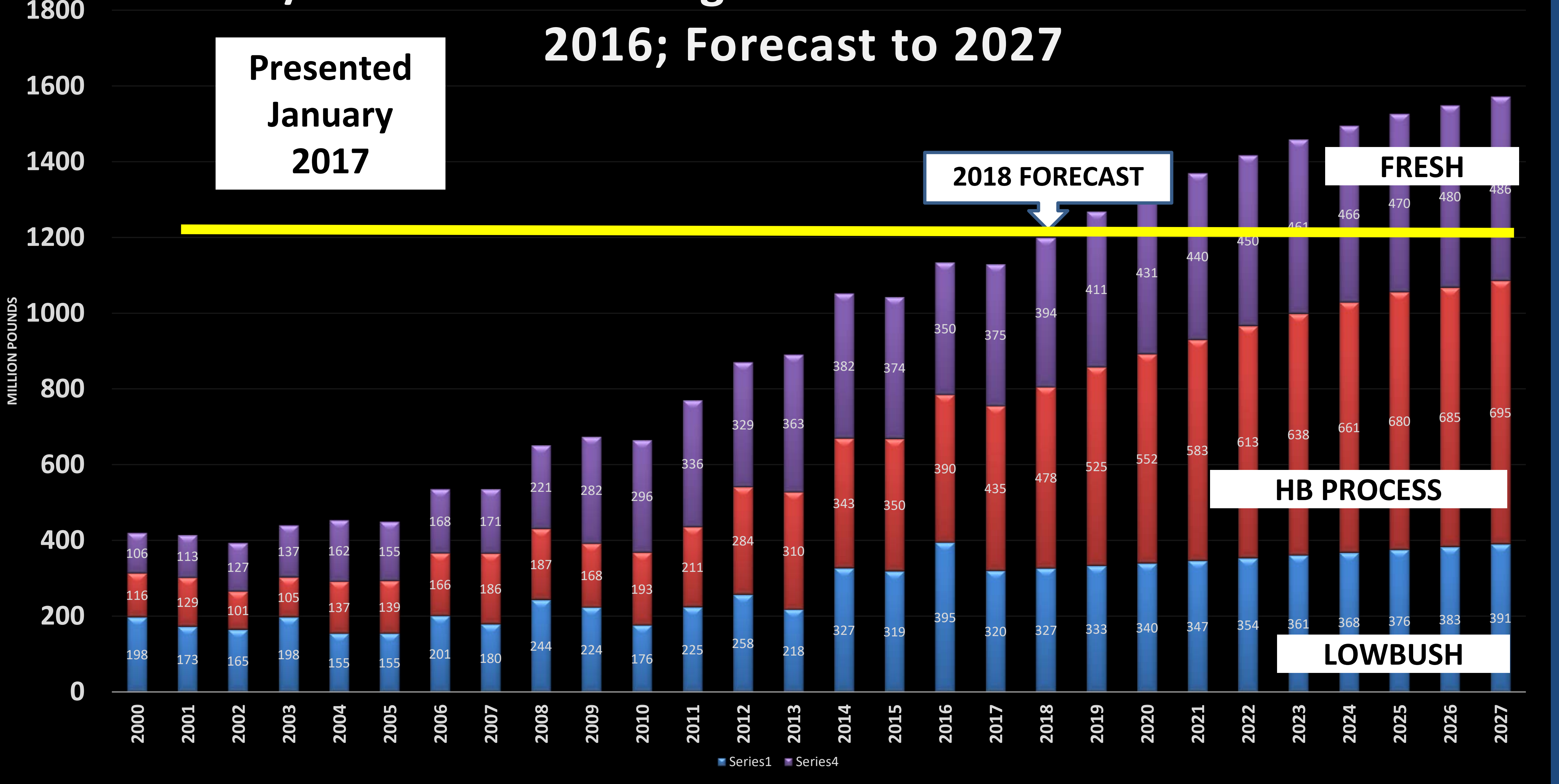
December 5 2019

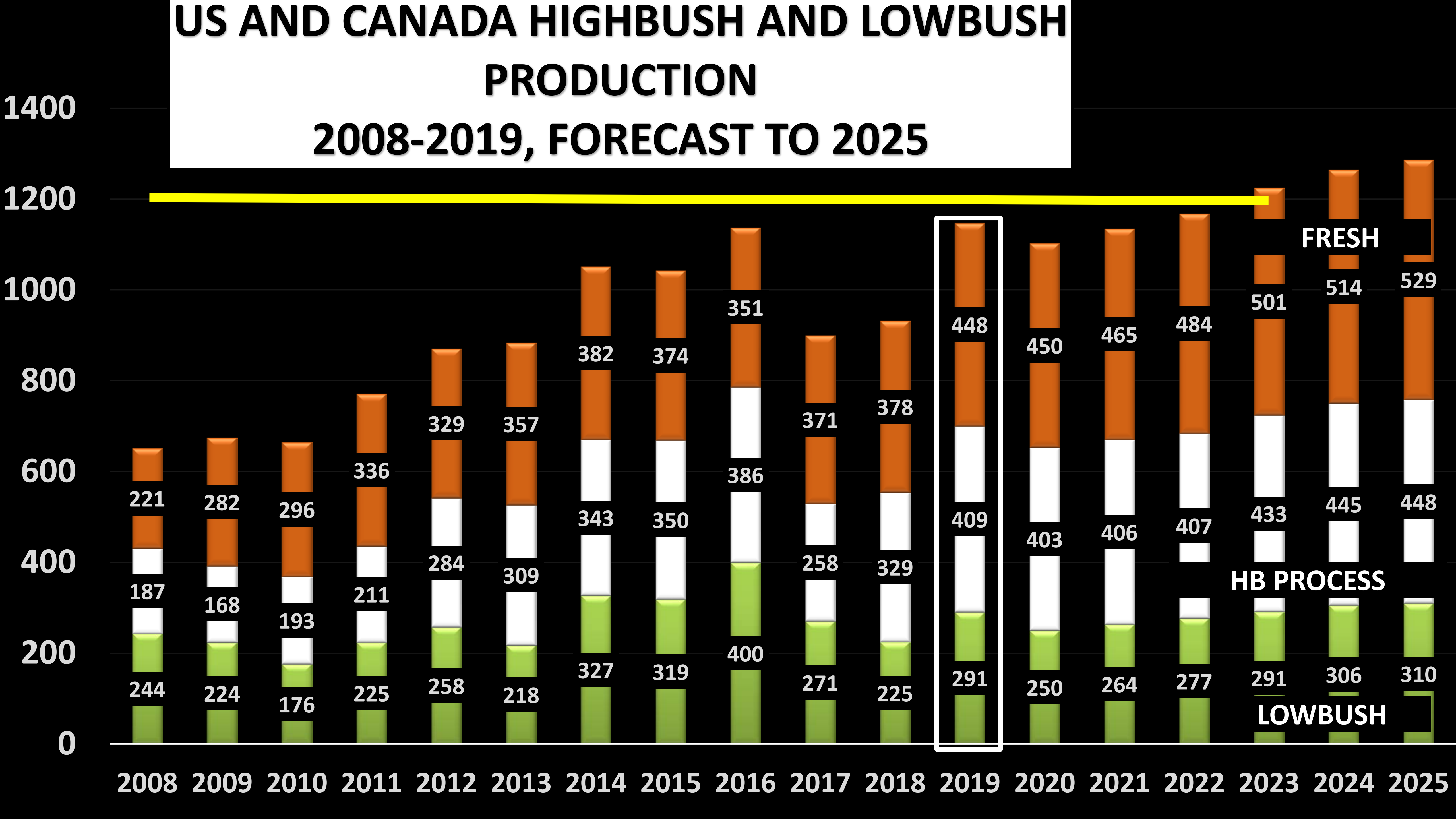
John Shelford ©

Agenda/Topics

- **2019 Production Update – Implications**
- **Utilization by source**
- **Fresh Blueberry market channel**
- **Frozen Blueberry Utilization**
- **A look ahead**

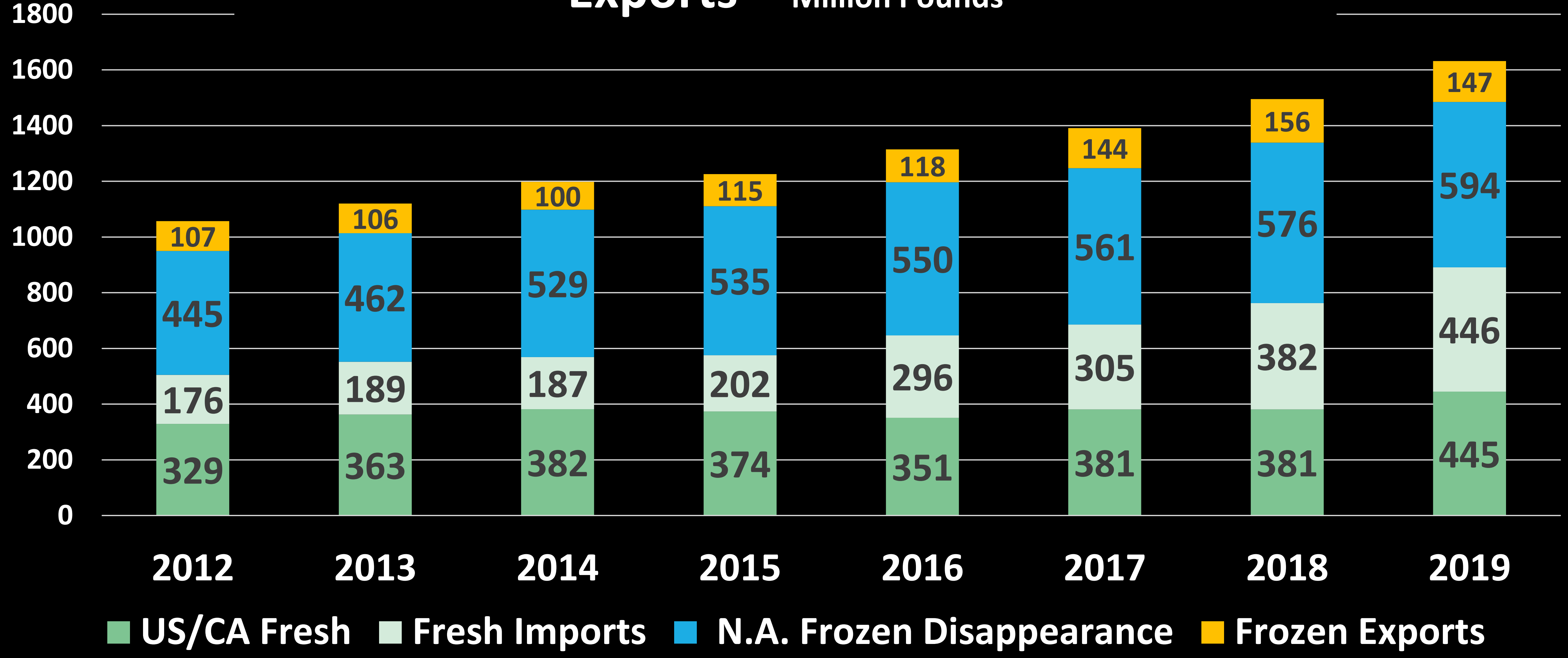
US/CA Production Highbush and Lowbush 2000 to 2016; Forecast to 2027

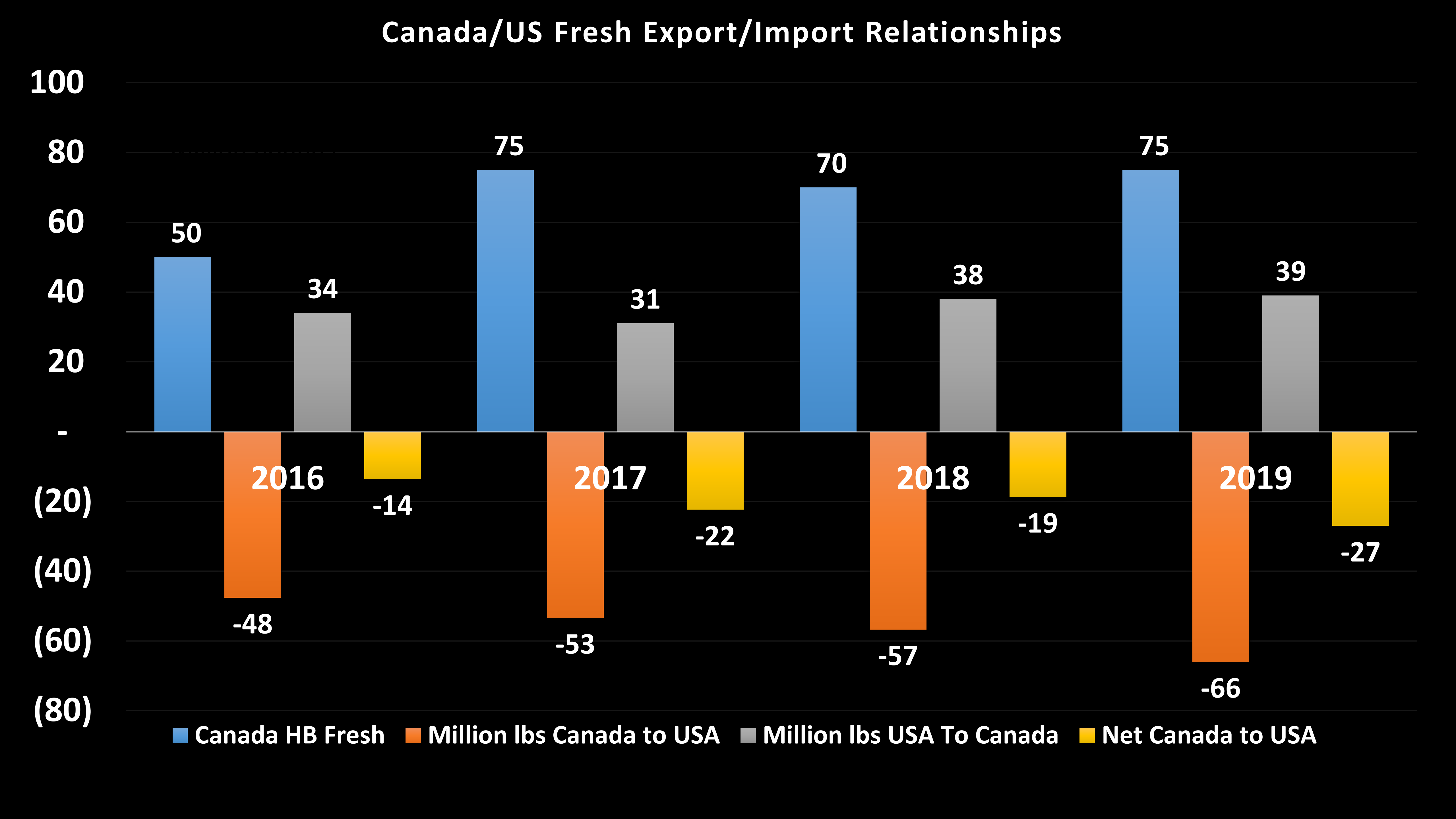




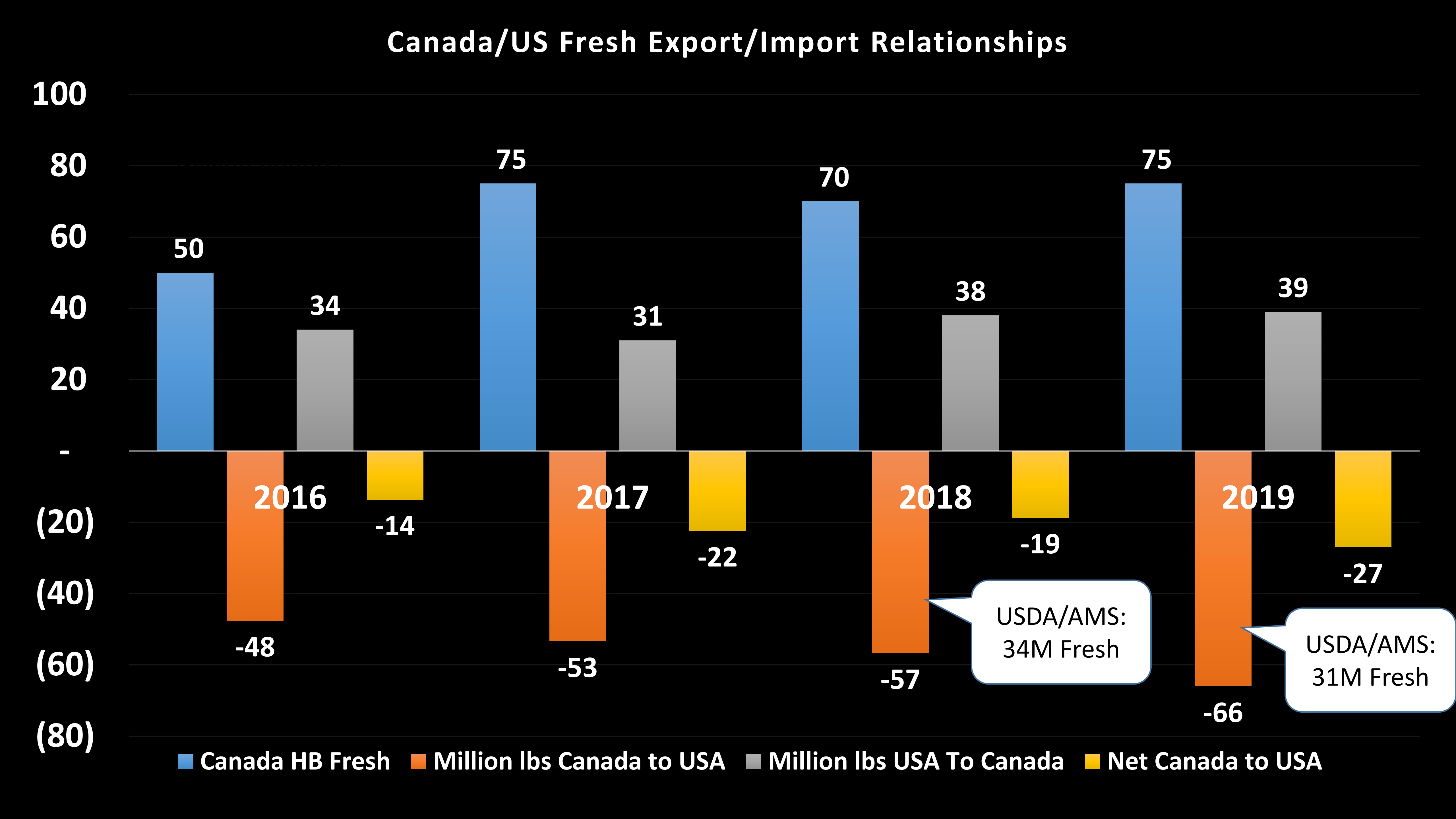
US AND CANADA HIGHBUSH AND LOWBUSH PRODUCTION
2008-2019, FORECAST TO 2025
1400
1200
1000
800
600
400
200
0
FRESH
HB PROCESS
LOWBUSH
2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
221 282 296 336 329 357 382 374 351 371 378 448 450 465 484 501 514 529
187 168 193 211 284 309 343 350 386 258 329 409 403 406 407 433 445 448
244 224 176 225 258 218 327 319 400 271 225 291 250 264 277 291 306 310

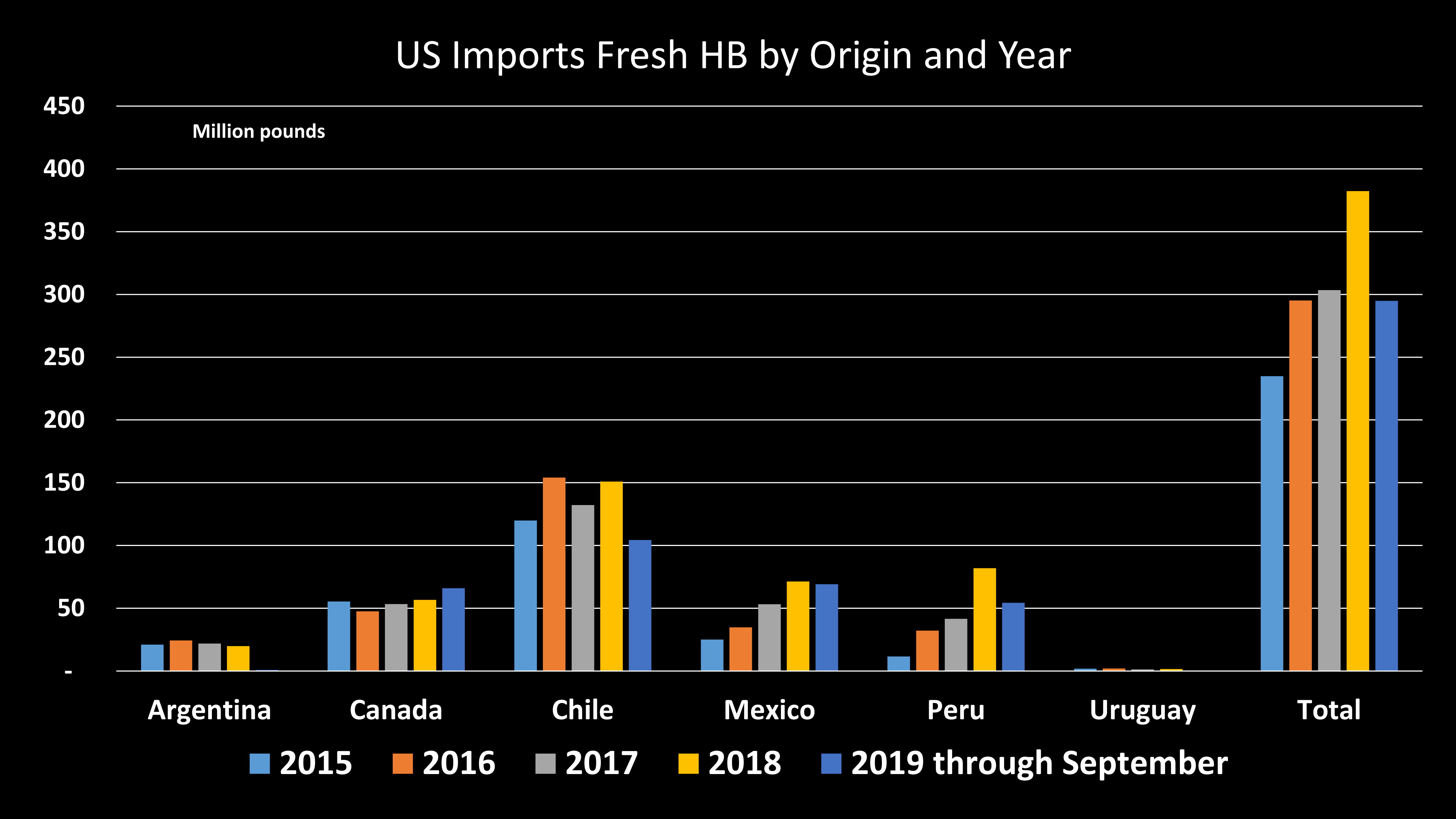
Annual Blueberry Disappearance in US/Canada Fresh, Fresh Imports, Frozen HB and LB & Frozen Exports - Million Pounds

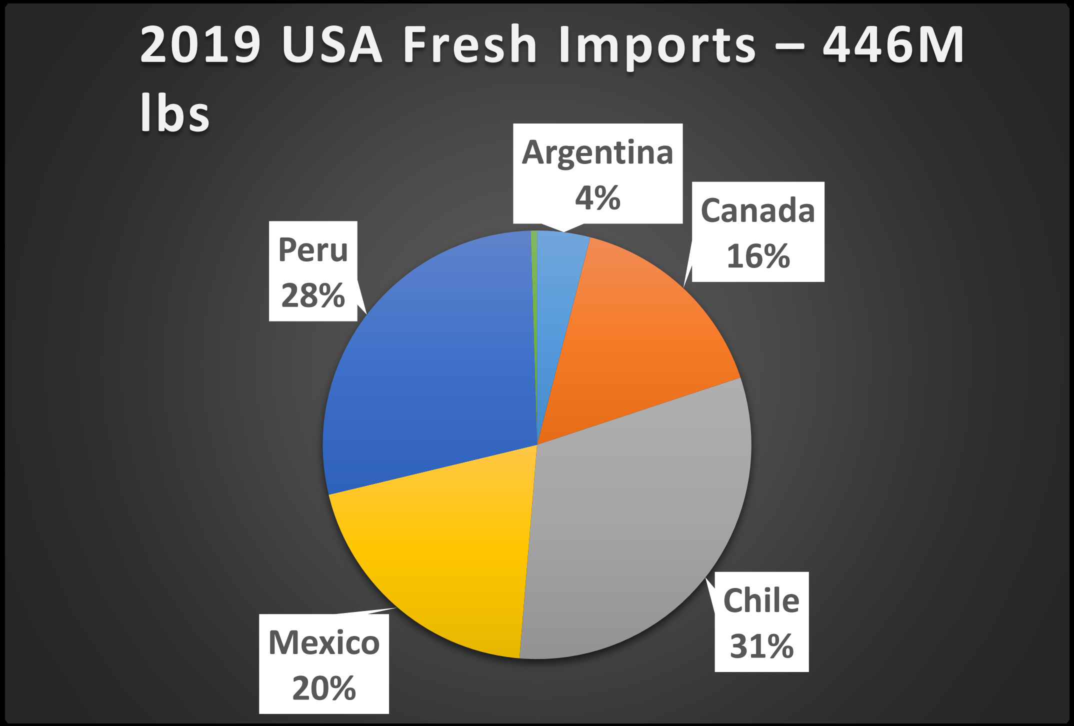


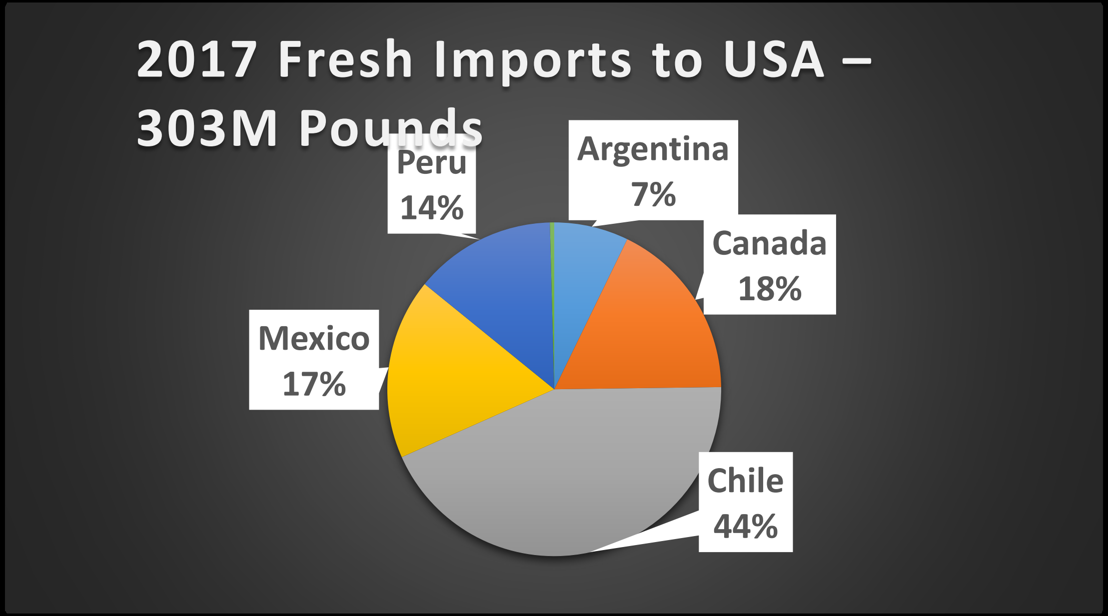


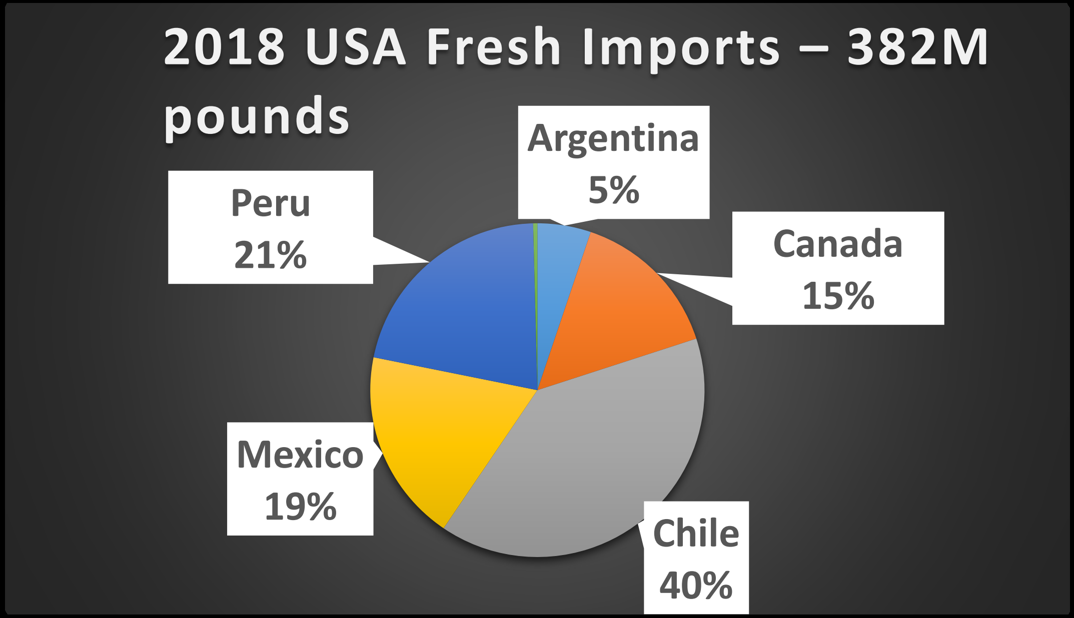
Canada/US Fresh Export/Import Relationships
100
80
60
40
20
-
(20)
(40)
(60)
(80)
50
34
-48
-14
2016
75
31
-53
-22
2017
70
38
-57
-19
2018
75
39
-66
-27
2019
Canada HB Fresh
Million lbs Canada to USA
Million lbs USA To Canada
Net Canada to USA


Canada/US Fresh Export/Import Relationships
100
80
60
40
20
-
(20)
(40)
(60)
(80)
50
34
-48
-14
2016
75
31
-53
-22
2017
70
38
-57
-19
2018
75
39
-66
-27
2019
USDA/AMS: 34M Fresh
USDA/AMS: 31M Fresh
Canada HB Fresh
Million lbs Canada to USA
Million lbs USA To Canada
Net Canada to USA

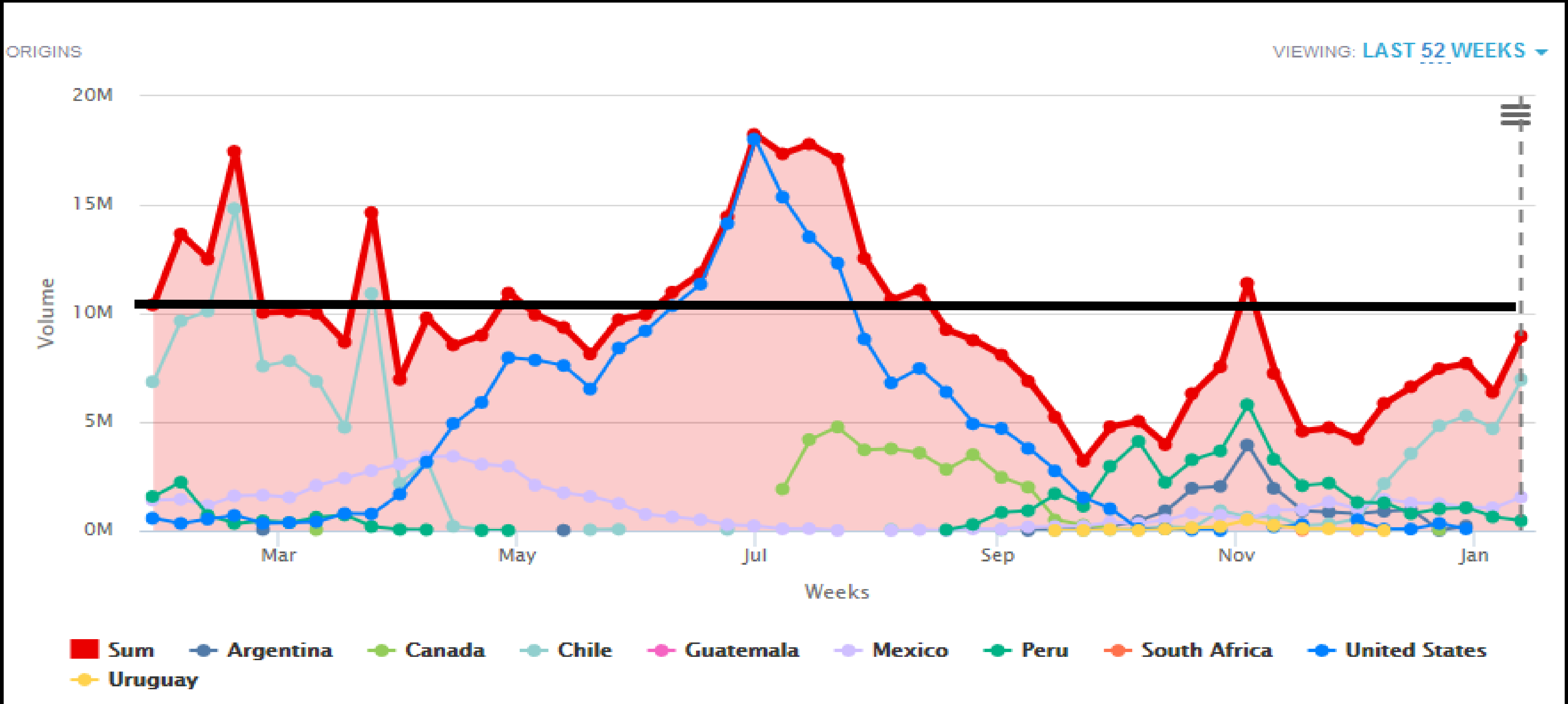

US Imports Fresh HB by Origin and Year
Million pounds
450
400
350
300
250
200
150
100
50
-
Argentina
Canada
Chile
Mexico
Peru
Uruguay
Total
2015
2016
2017
2018
2019 through September


2019 USA Fresh Imports – 446M lbs
Argentina 4%
Canada 16%
Peru 28%
Chile 31%
Mexico 20%


2017 Fresh Imports to USA – 303M Pounds
Peru 14%
Argentina 7%
Canada 18%
Mexico 17%
Chile 44%

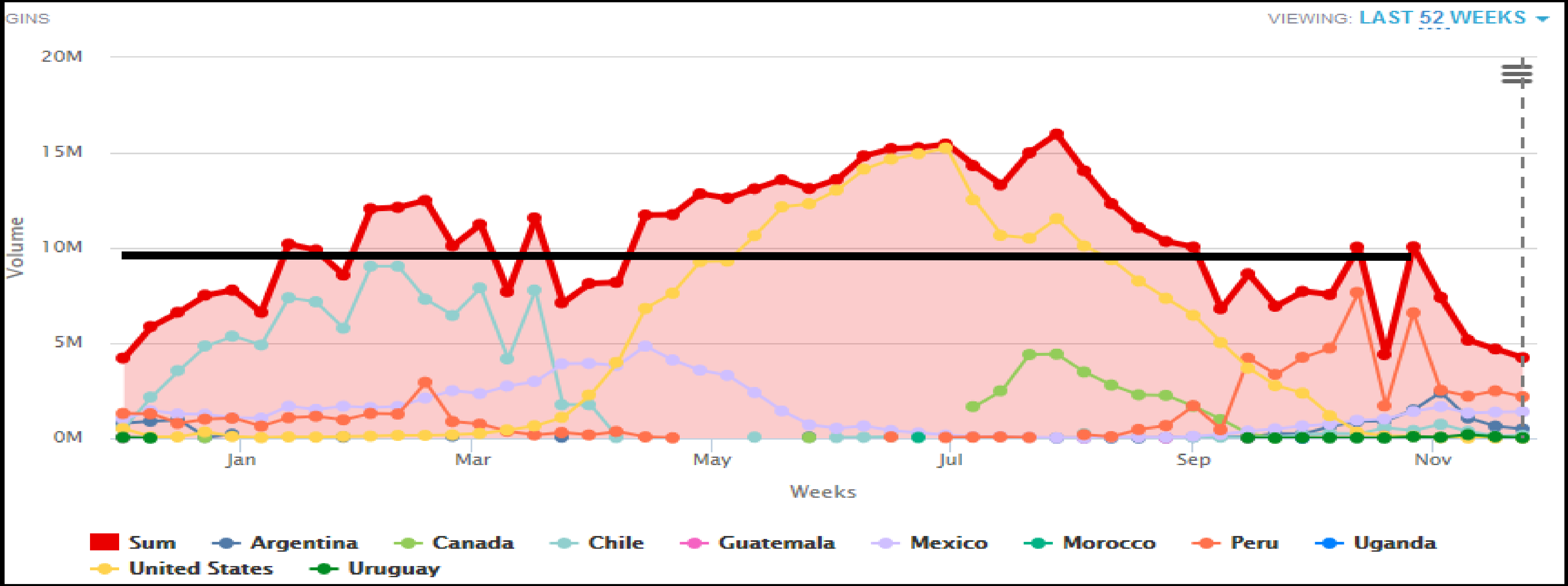

2018 USA Fresh Imports – 382M pounds
Argentina 5%
Peru 21%
Canada 15%
Mexico 19%
Chile 40%

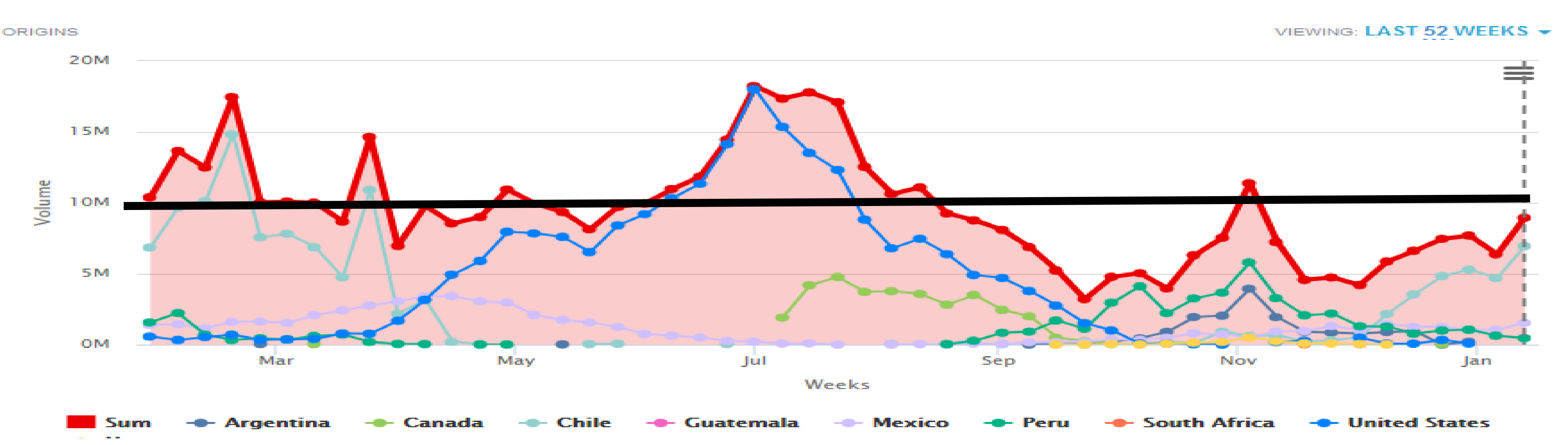
Weekly Fresh Volumes in USA (lbs) Jan 2019

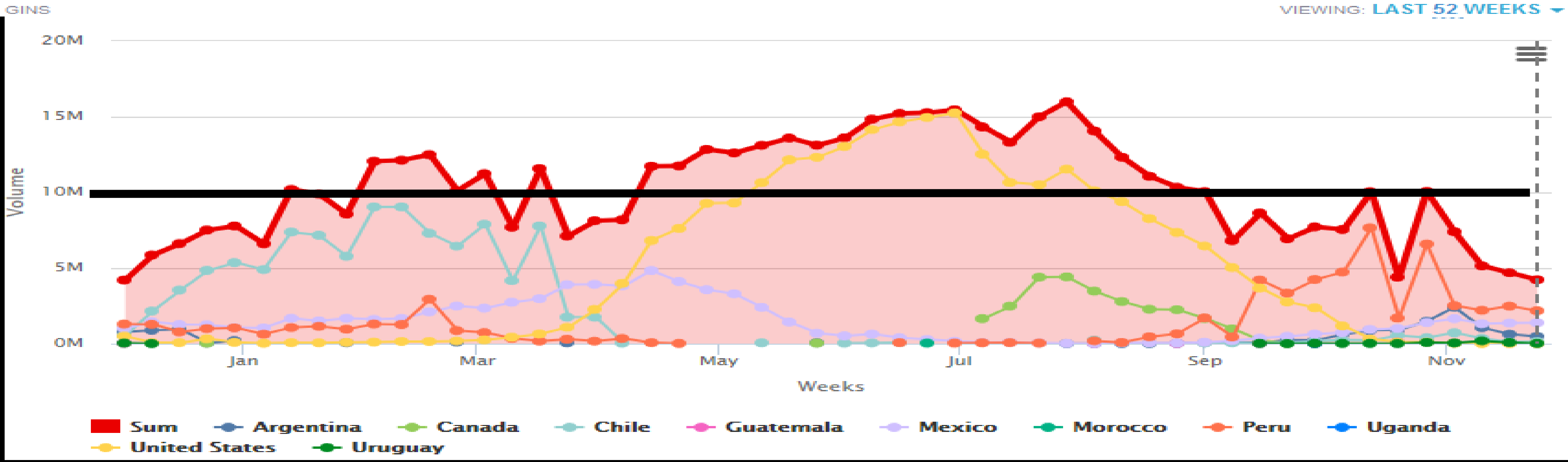


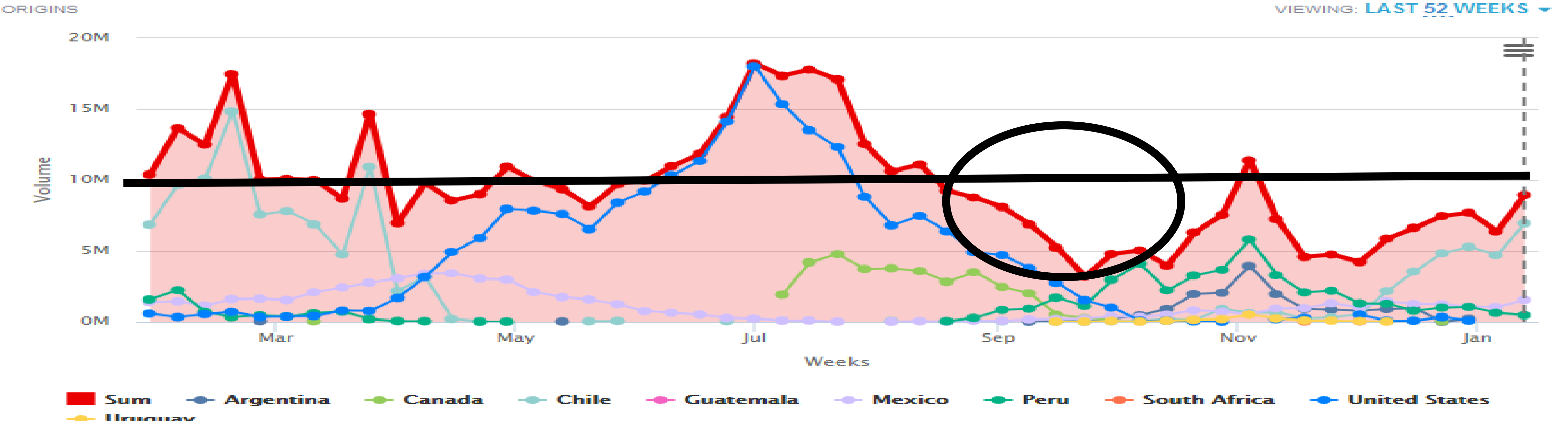
https://www.internationalblueberry.org/live-stats/

Weekly Fresh Volumes in USA (lbs) to Nov 19

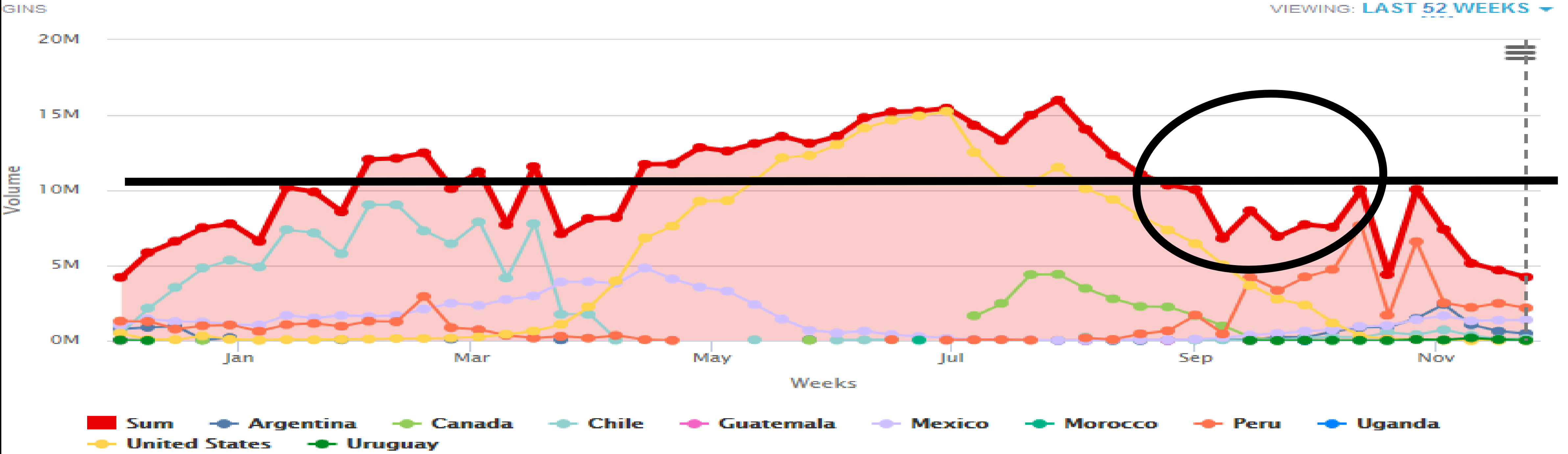



ORIGINS
VIEWING: LAST 52 WEEKS
20M
15M
10M
5M
0M
Volume
Mar
May
Jul
Sep
Nov
Jan
Weeks
Sum
Argentina
Canada
Chile
Guatemala
Mexico
Peru
South Africa
United States


GINS
VIEWING: LAST 52 WEEKS
20M
15M
10M
5M
0M
Volume
Jan
Mar
May
Jul
Sep
Nov
Weeks
Sum
Argentina
Canada
Chile
Guatemala
Mexico
Morocco
Peru
Uganda
United States
Uruguay

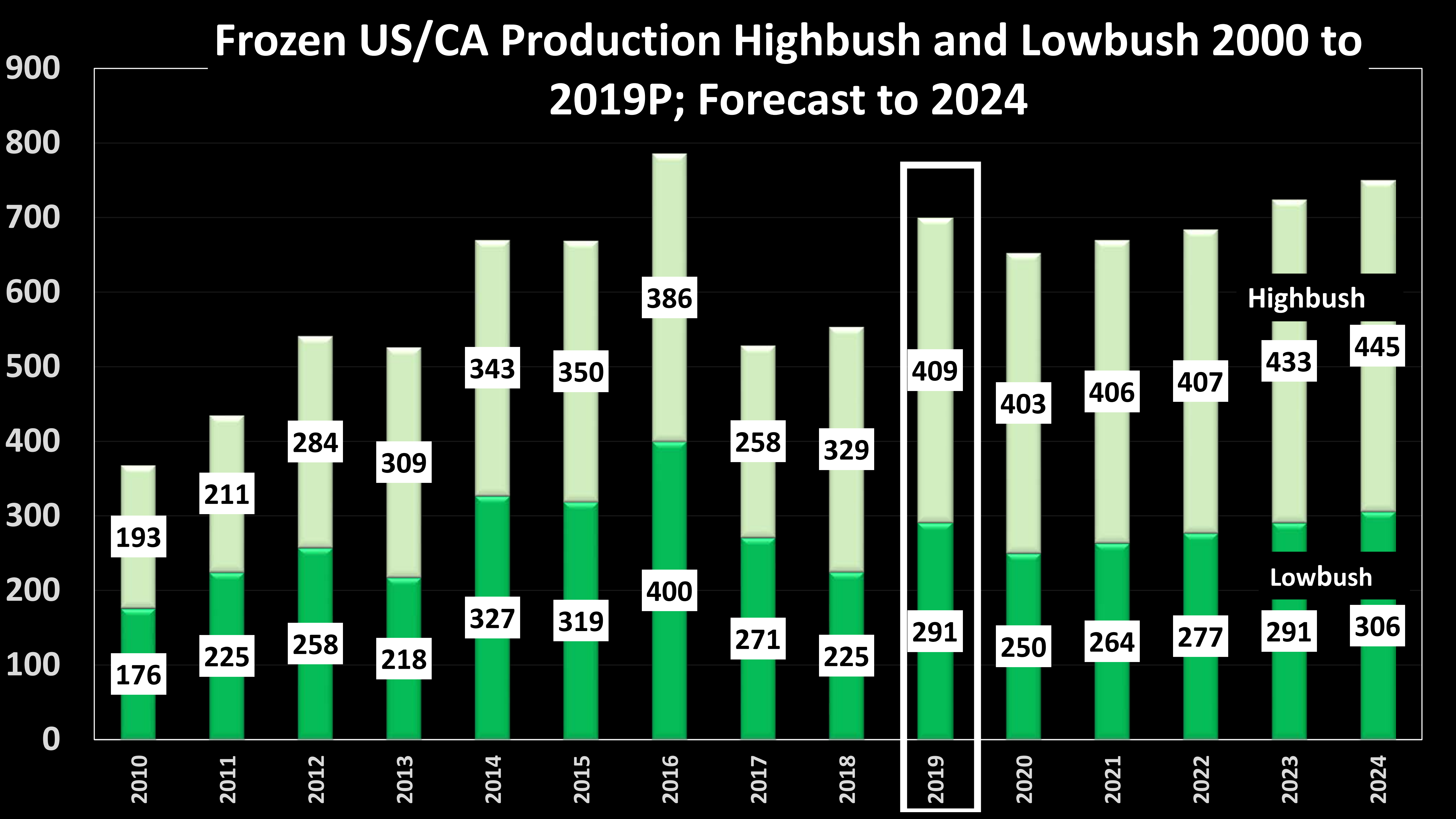


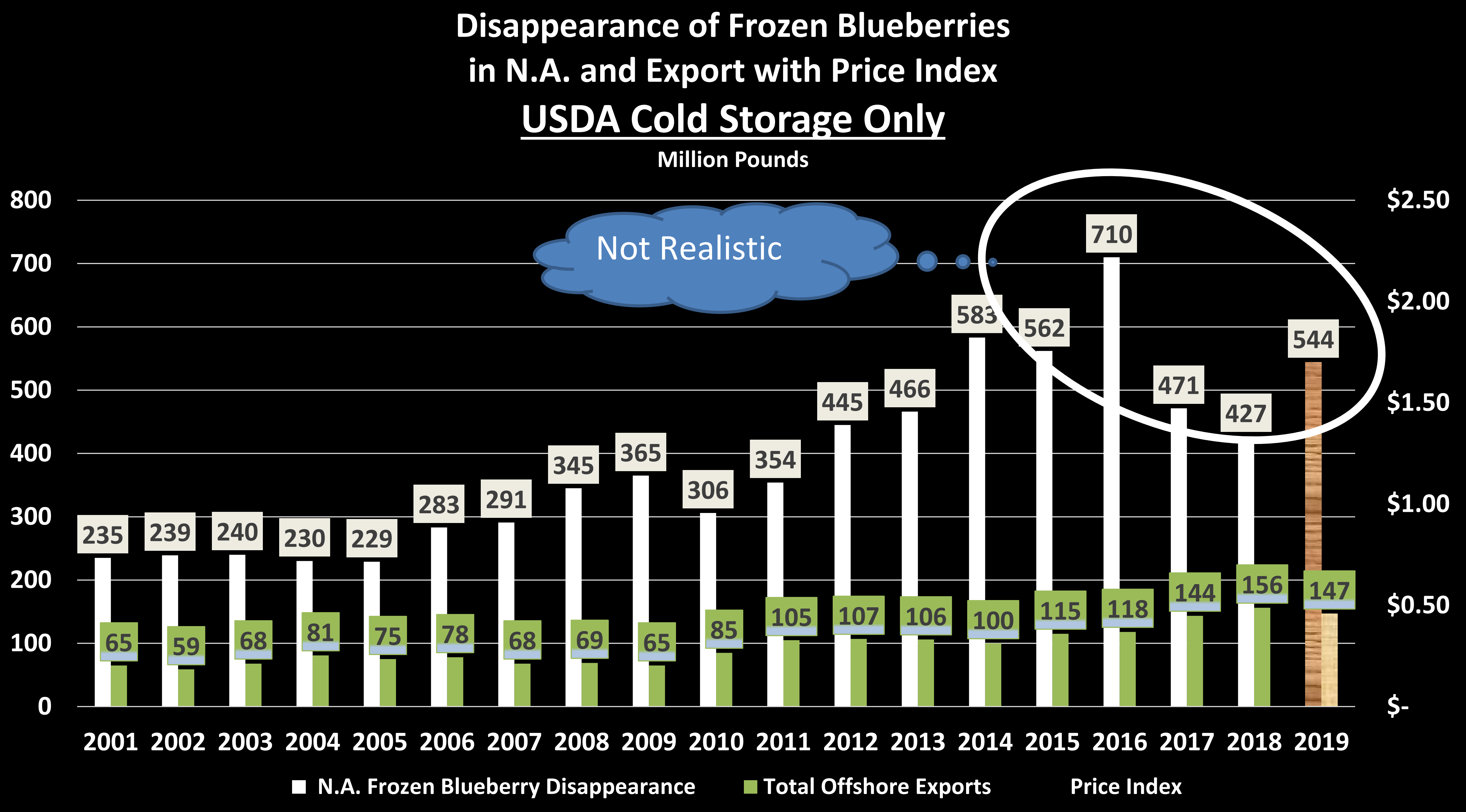
ORIGINS
VIEWING: LAST 52 WEEKS
20M
15M
10M
5M
0M
Volume
Mar
May
Jul
Sep
Nov
Jan
Weeks
Sum
Argentina
Canada
Chile
Guatemala
Mexico
Peru
South Africa
United States
Uruguay



GINS
VIEWING: LAST 52 WEEKS
20M
15M
10M
5M
0M
Volume
Jan
Mar
May
Jul
Sep
Nov
Weeks
Sum
Argentina
Canada
Chile
Guatemala
Mexico
Morocco
Peru
Uganda
United States
Uruguay

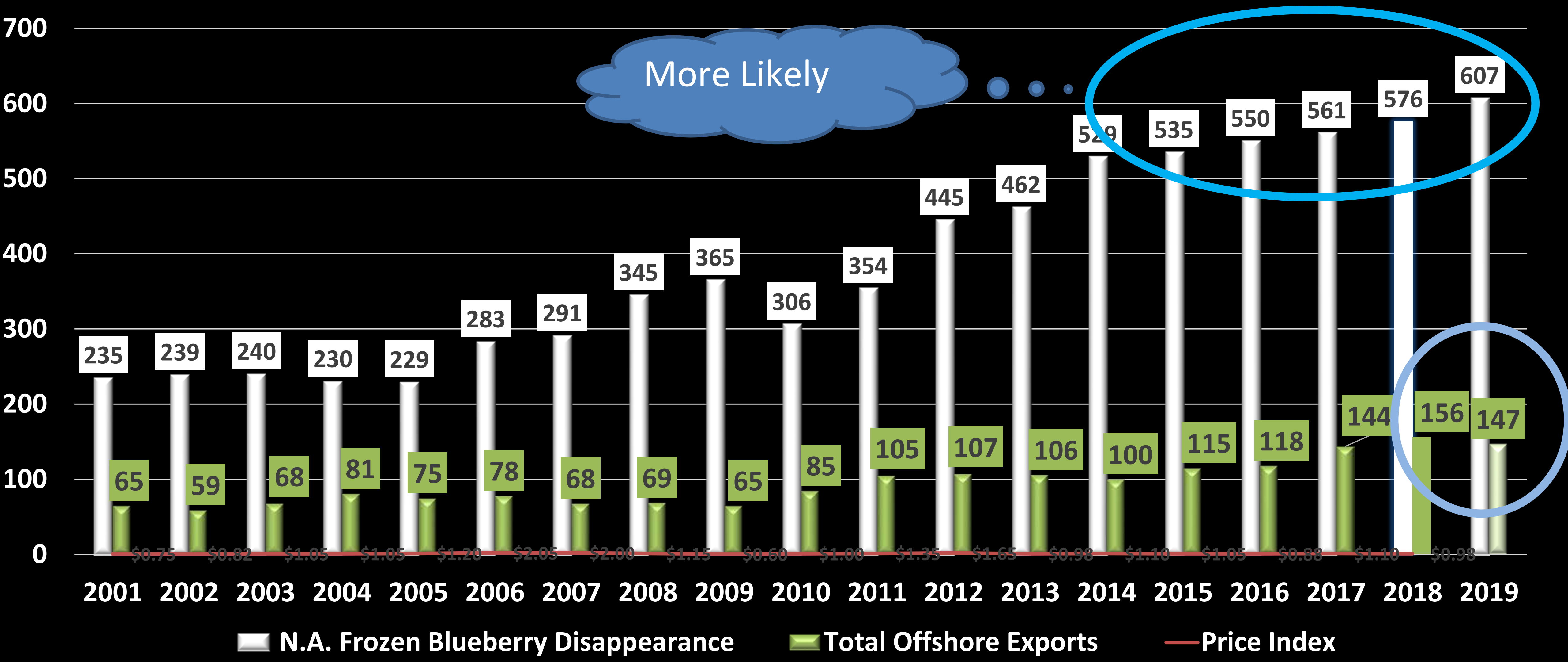
Frozen Pack Considerations

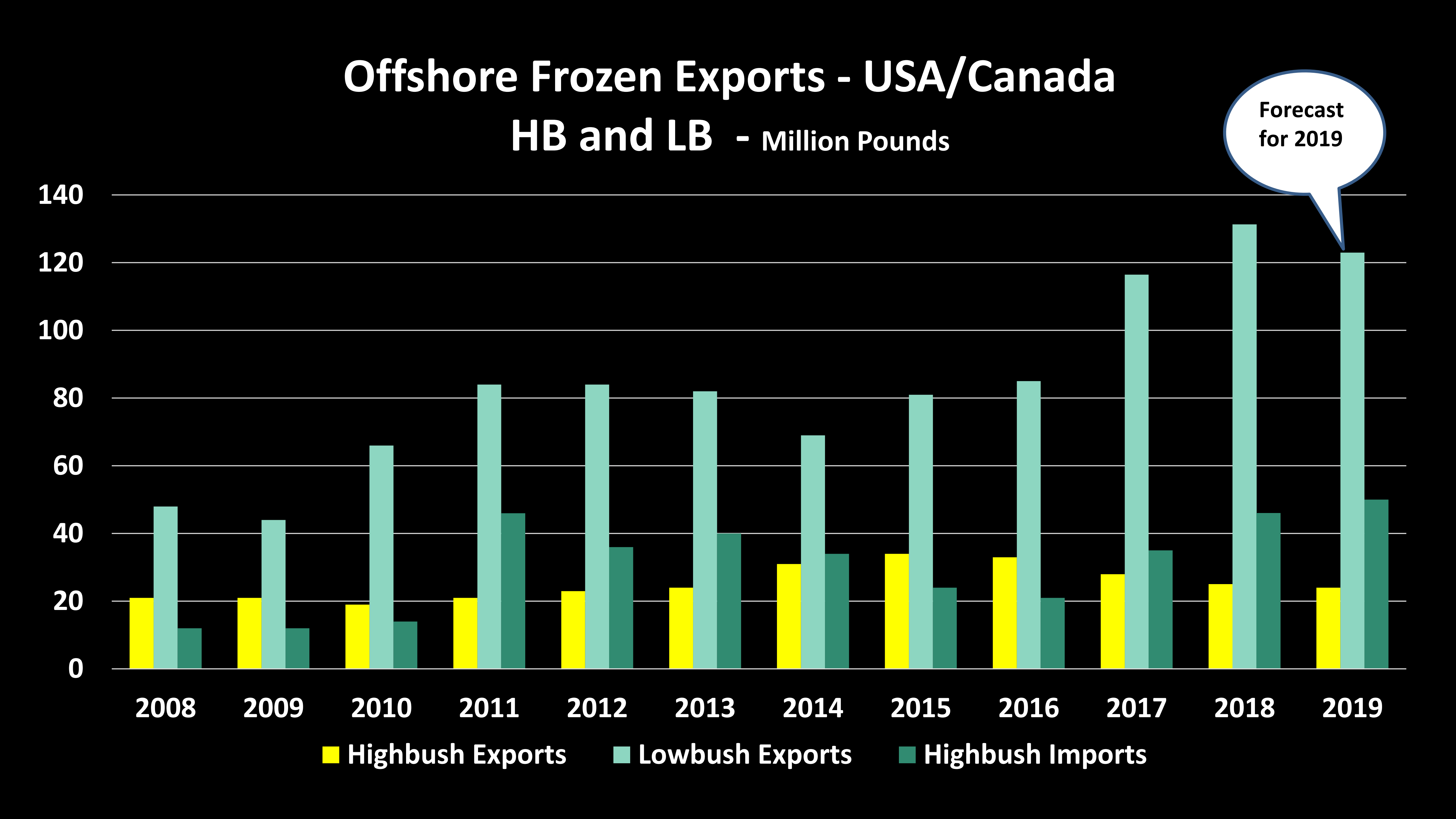

Frozen US/CA Production Highbush and Lowbush 2000 to 2019P; Forecast to 2024
0
100
200
300
400
500
600
700
800
900
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
176
193
225
211
258
284
218
309
327
343
319
350
400
386
271
258
225
329
291
409
250
403
264
406
277
407
291
433
306
445
Highbush
Lowbush


Disappearance of Frozen Blueberries
in N.A. and Export with Price Index
USDA Cold Storage Only
Million Pounds
Not Realistic
800
700
600
500
400
300
200
100
0
$2.50
$2.00
$1.50
$1.00
$0.50
$-
235 239 240 230 229 283 291 345 365 306 354 445 466 583 562 710 471 427 544
65 59 68 81 75 78 68 69 65 85 105 107 106 100 115 118 144 156 147
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
N.A. Frozen Blueberry Disappearance
Total Offshore Exports
Price Index

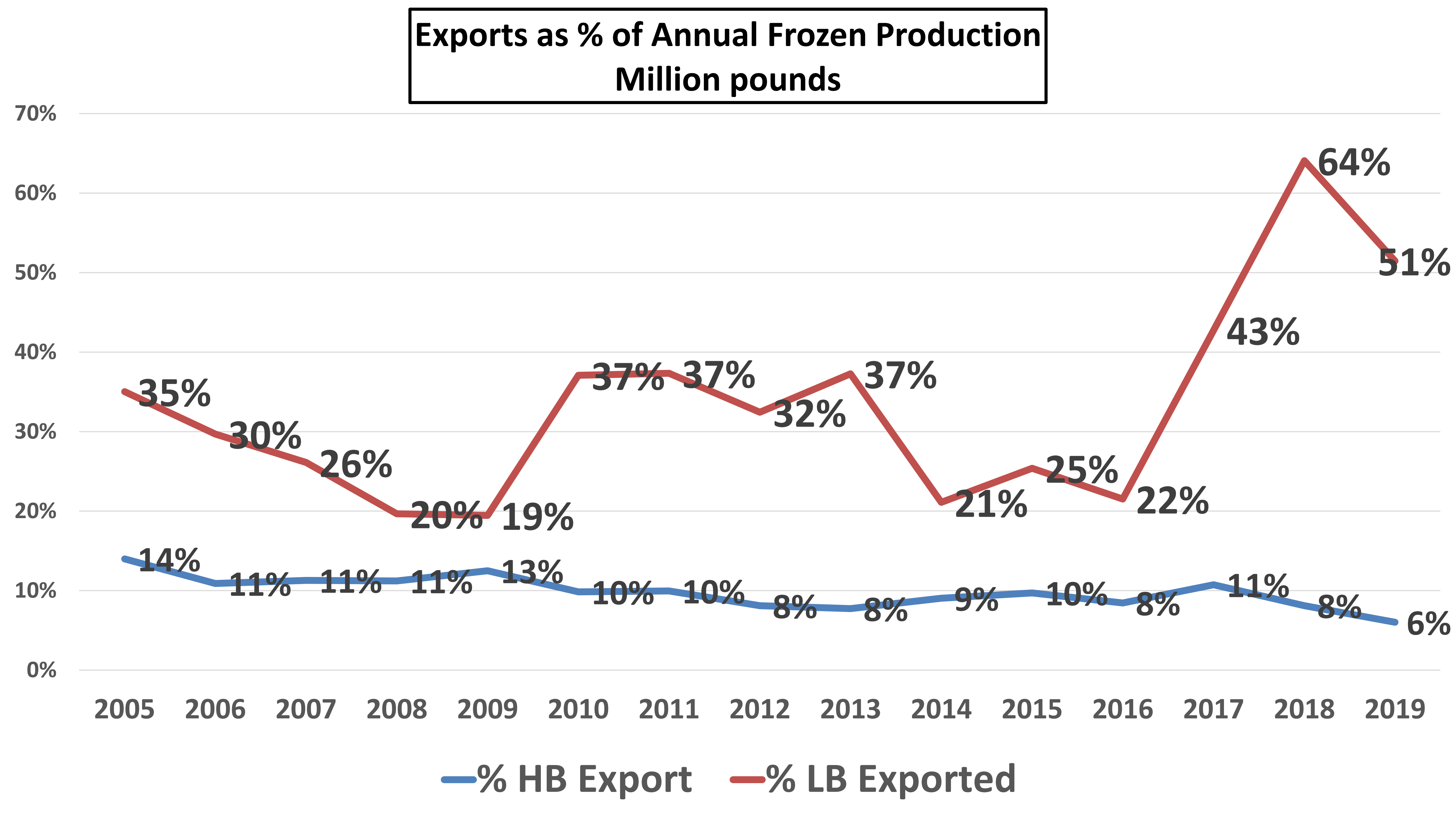
Disappearance of Frozen Blueberries in N.A. including Export
USDA Cold Storage and Estimate of Private Cold Storage

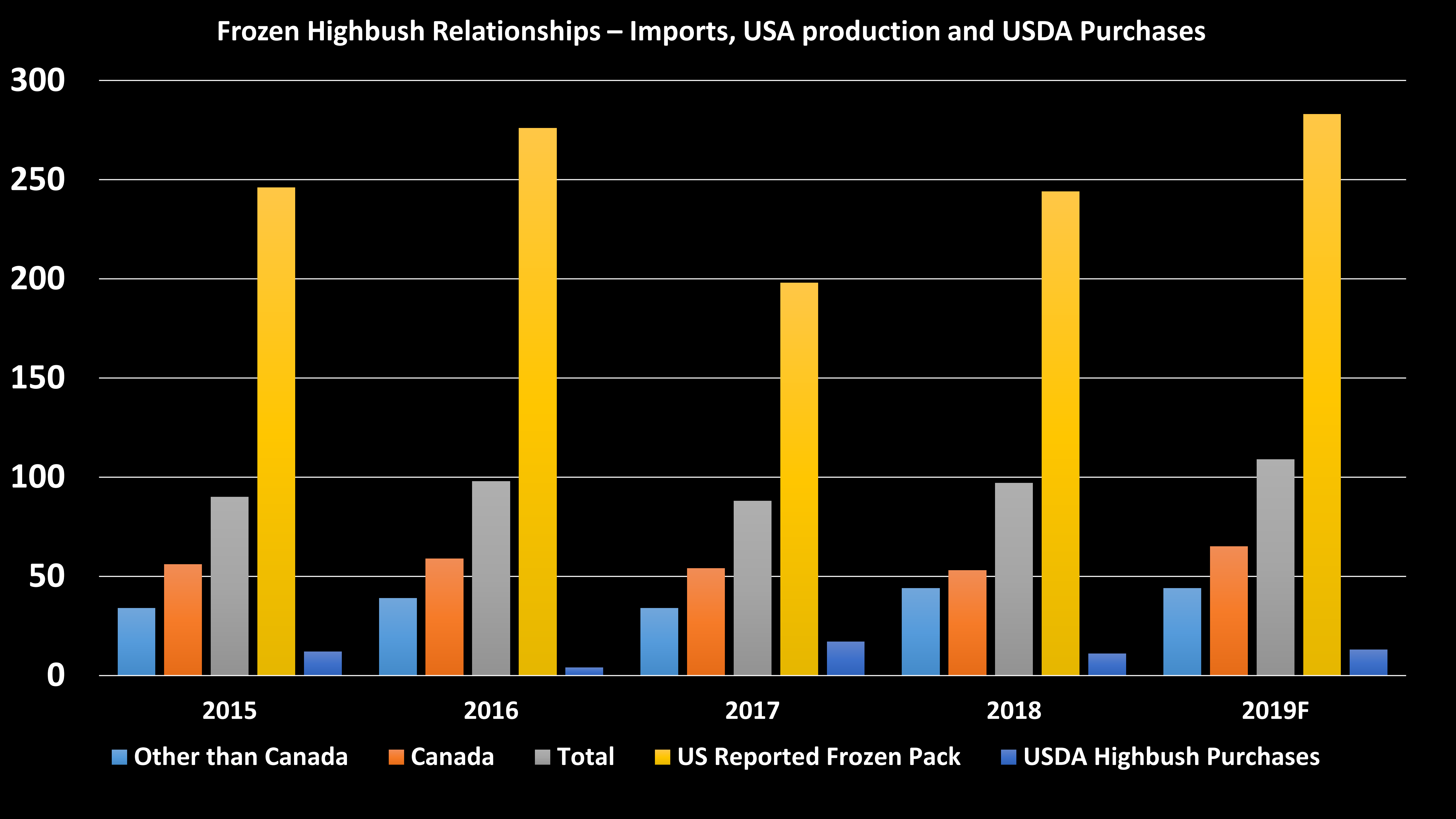
Million Pounds

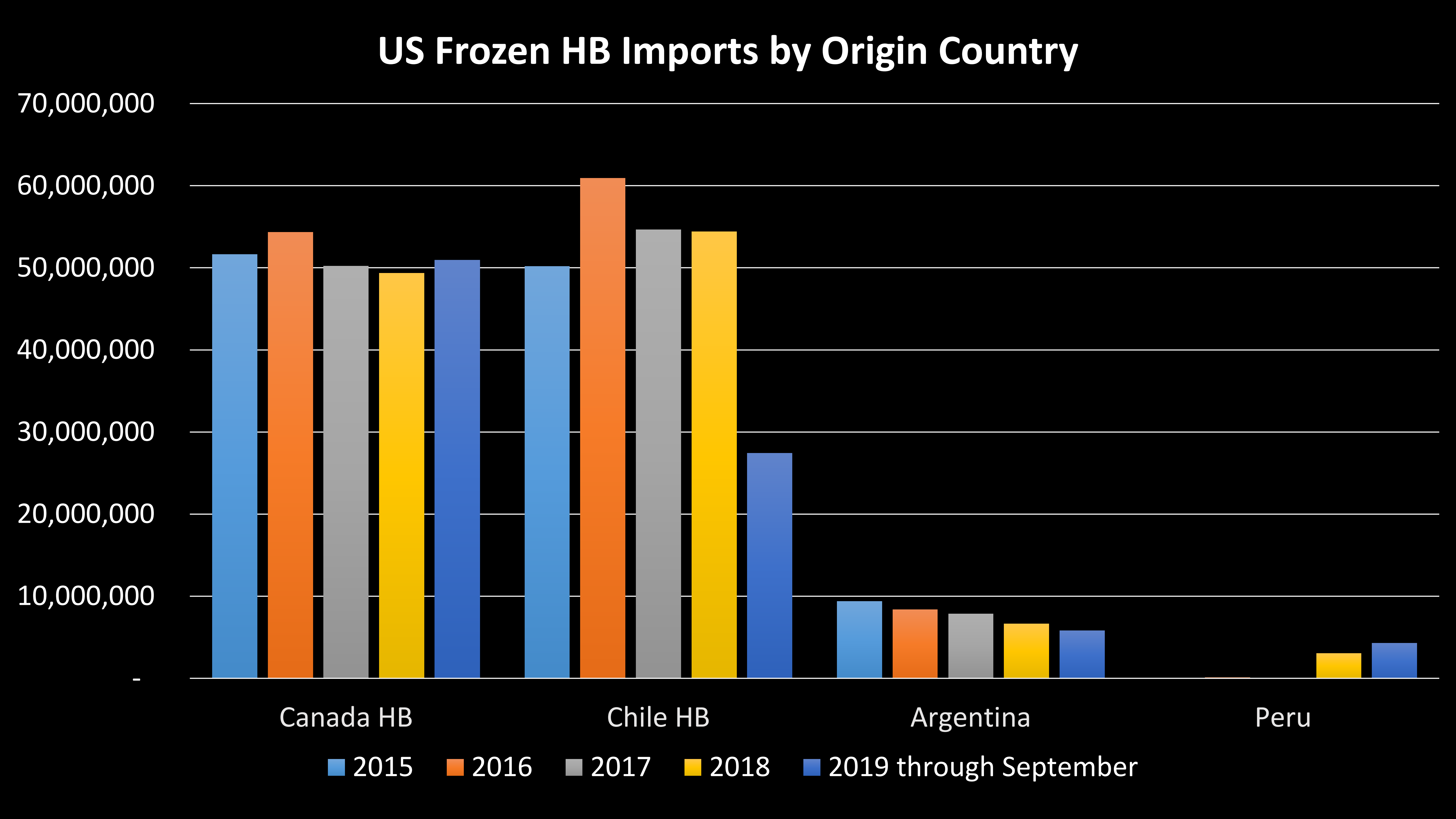


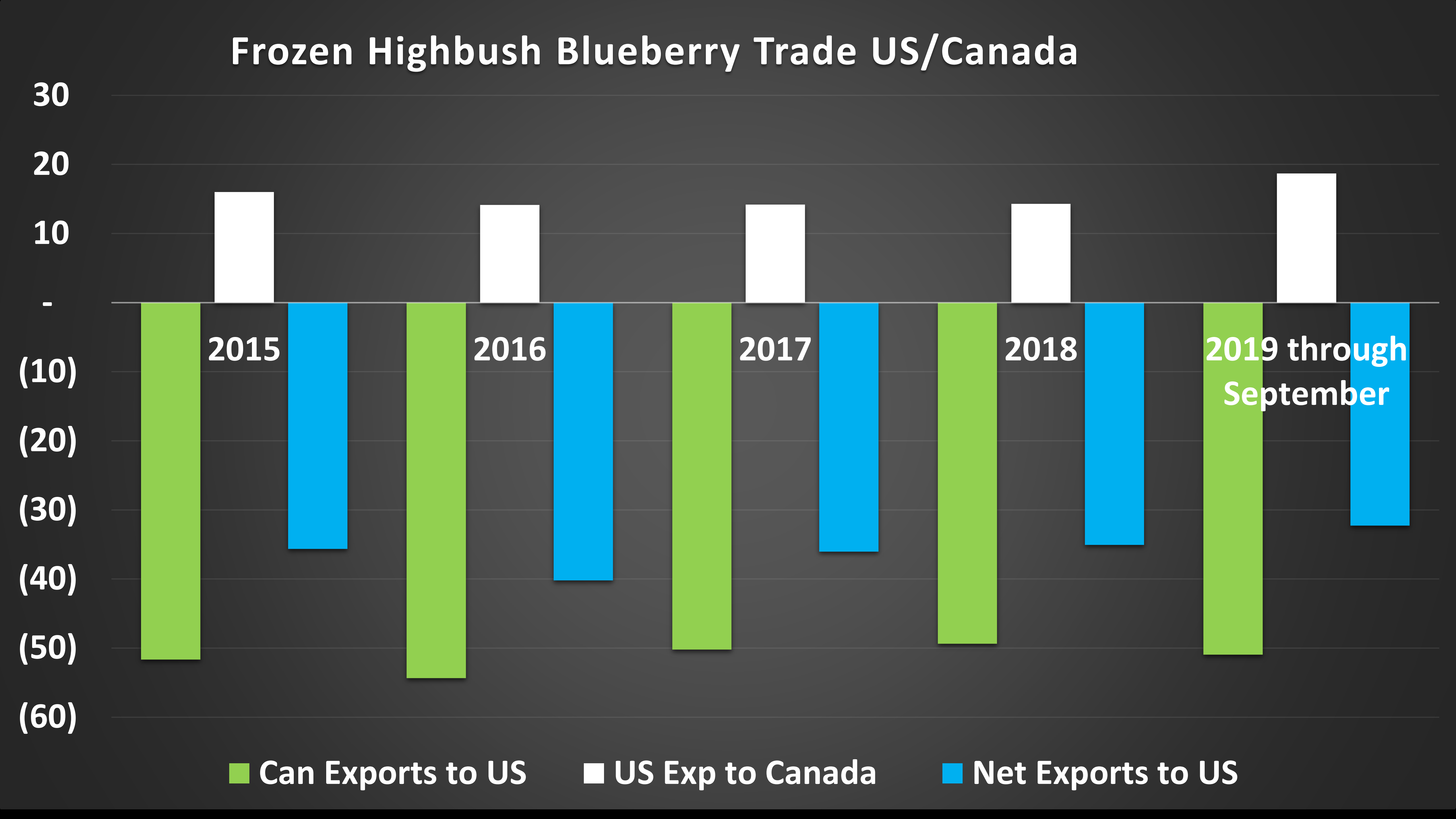


Offshore Frozen Exports - USA/Canada
HB and LB - Million Pounds
Forecast for 2019
140
120
100
80
60
40
20
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Highbush Exports
Lowbush Exports
Highbush Imports

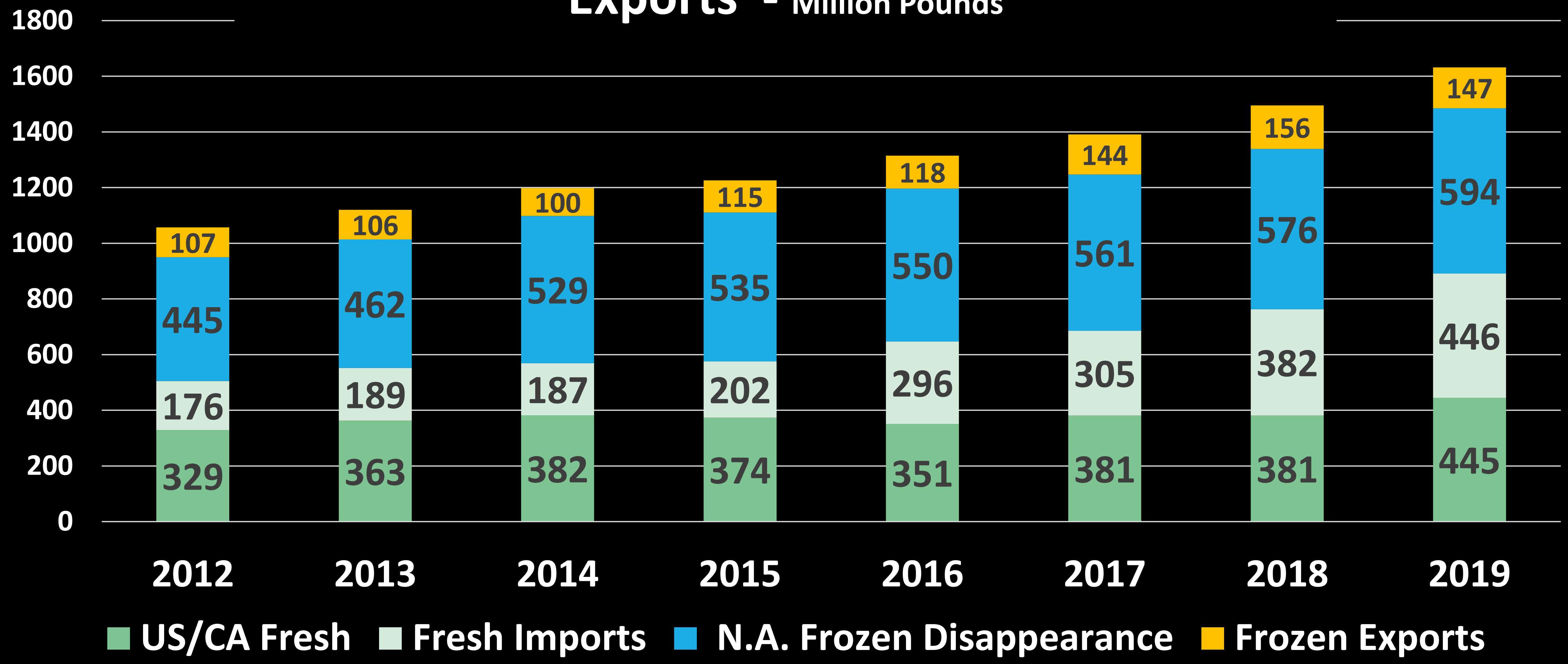

Exports as % of Annual Frozen Production
Million pounds
70%
60%
50%
40%
30%
20%
10%
0%
35%
30%
26%
20%
19%
37%
37%
32%
37%
21%
25%
22%
43%
64%
51%
14%
11%
11%
11%
13%
10%
10%
8%
8%
9%
10%
8%
11%
8%
6%
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
% HB Export
% LB Exported


Frozen Highbush Relationships – Imports, USA production and USDA Purchases
300
250
200
150
100
50
0
2015
2016
2017
2018
2019F
Other than Canada
Canada
Total
US Reported Frozen Pack
USDA Highbush Purchases


US Frozen HB Imports by Origin Country
70,000,000
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
-
Canada HB
Chile HB
Argentina
Peru
2015
2016
2017
2018
2019 through September

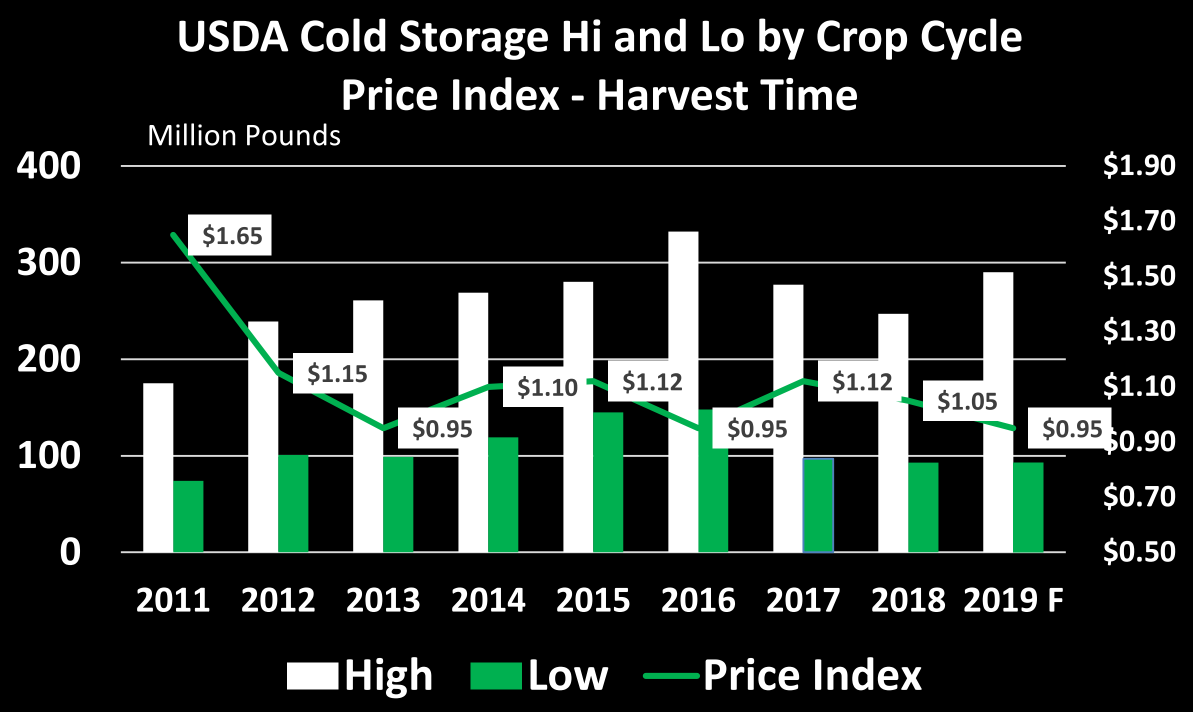

Frozen Highbush Blueberry Trade US/Canada
30
20
10
-
(10)
(20)
(30)
(40)
(50)
(60)
2015
2016
2017
2018
2019 through September
Can Exports to US
US Exp to Canada
Net Exports to US

Annual Blueberry Disappearance in US/Canada Fresh, Fresh Imports, Frozen HB and LB & Frozen Exports - Million Pounds

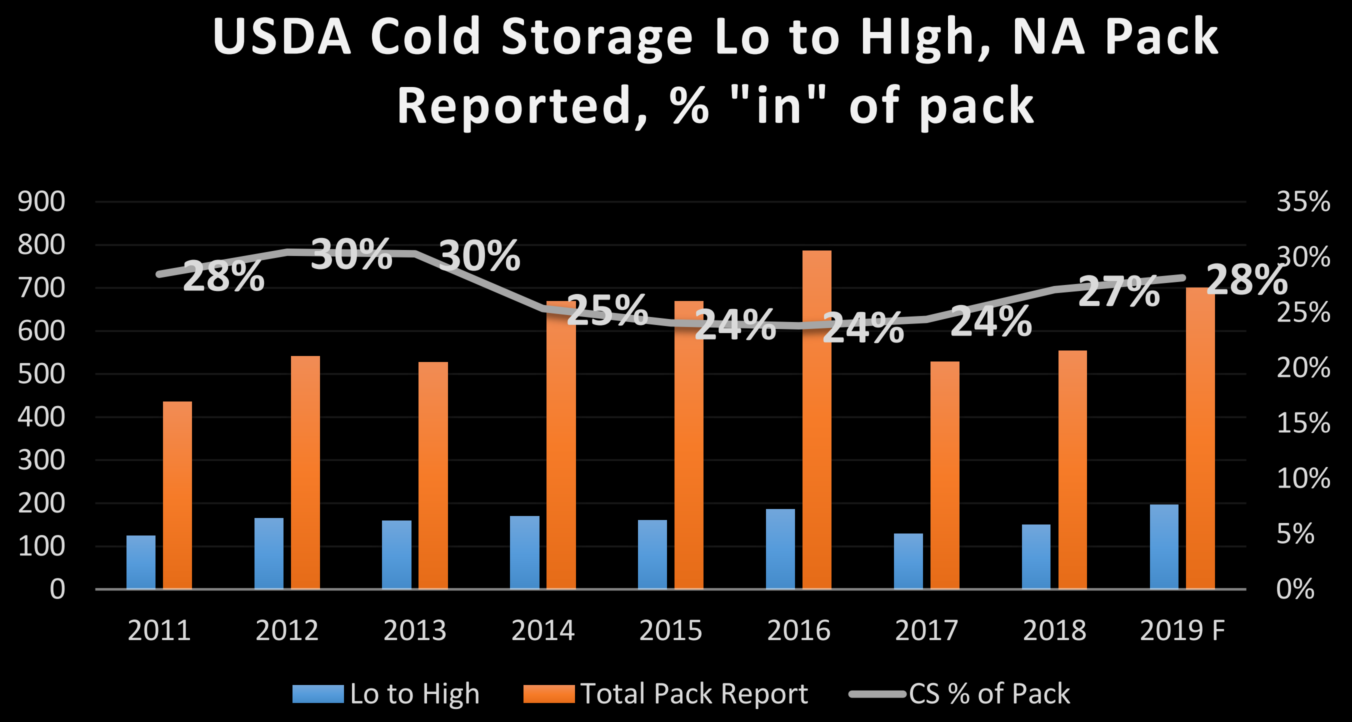


Let's do the Math – US and Canada combined

- Frozen Utilized 600M
- Frozen Exported 150M - This is a key
- Total 750M
  - Source
- N.A Production 700M
- Imports, Chile, etc 65M
- Total 765M
- Increase Cold Storage 15M - Forecast June 2020 at 110M +/-

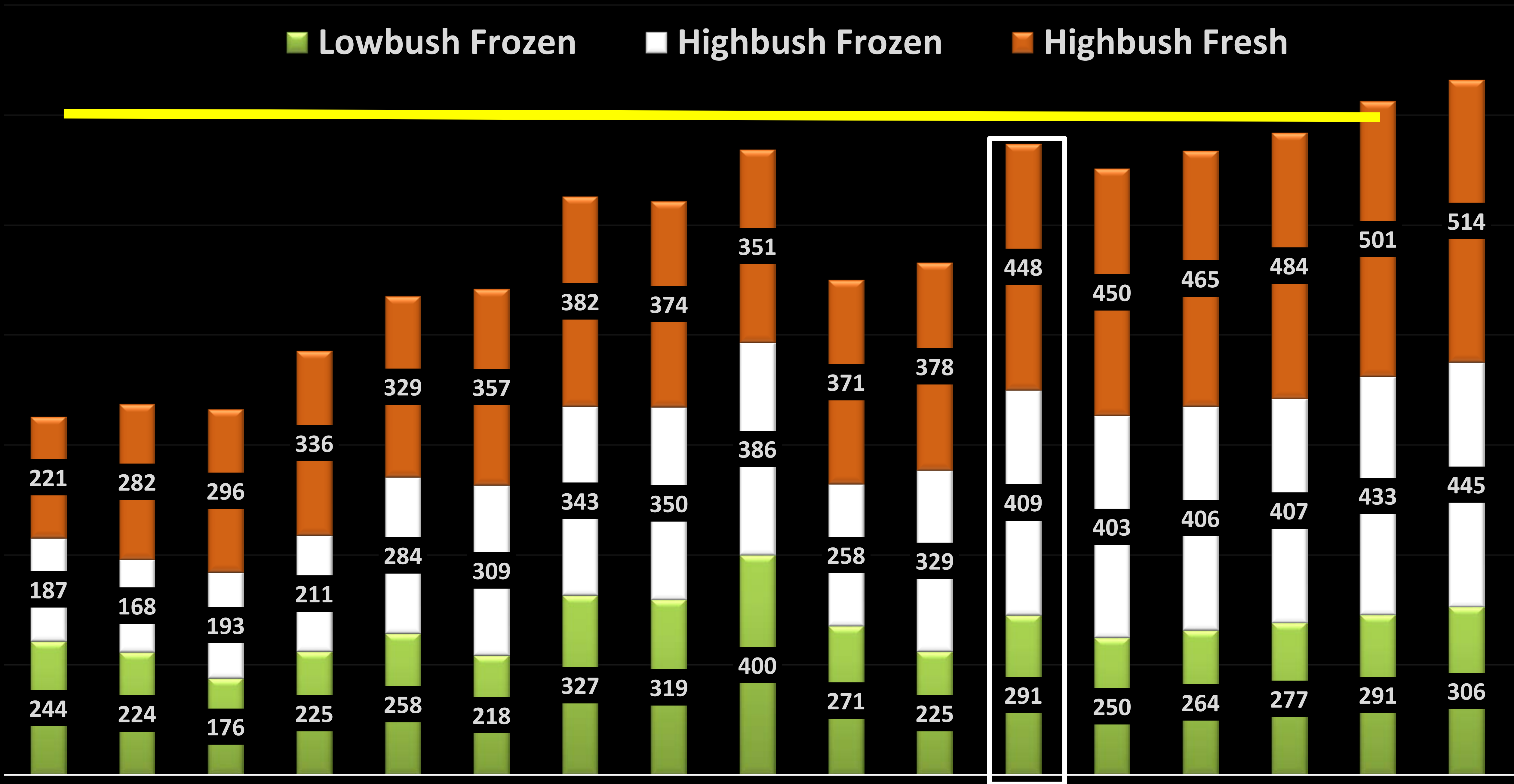


USDA Cold Storage Hi and Lo by Crop Cycle
Price Index - Harvest Time
Million Pounds
400
300
200
100
0
$1.90
$1.70
$1.50
$1.30
$1.10
$0.90
$0.70
$0.50
$1.65
$1.15
$0.95
$1.10
$1.12
$0.95
$1.12
$1.05
$0.95
2011
2012
2013
2014
2015
2016
2017
2018
2019 F
High
Low
Price Index



USDA Cold Storage Lo to HIgh, NA Pack
Reported, % "in" of pack
900
800
700
600
500
400
300
200
100
0
35%
30%
25%
20%
15%
10%
5%
0%
28%
30%
30%
25%
24%
24%
24%
27%
28%
2011
2012
2013
2014
2015
2016
2017
2018
2019 F
Lo to High
Total Pack Report
CS % of Pack

2008-2019, FORECAST TO 2025



Chile Frozen Blueberry Shipments

Twelve Months: Jan - Dec

(Million Pounds)				% OR/Total		$/pound	
All Destinations	**2017**	**2018**	**CY % of PY**	**2017**	**2018**	**2017**	**2018**
Conv	53.8	56.9	106%			**$ 1.08**	**$ 1.12**
Organic	22.8	26.1	115%	30%	31%	**$ 1.81**	**$ 1.67**
Total	**76.6**	**83.0**	108%				
Selected Destinations - Conventional				**% to US/CA**			
USA/Canada	8.2	8.5	104%	**15%**	**15%**	$ 1.14	$ 1.10
SoKorea	3.8	**7.8**	**204%**			$ 1.19	$ 1.29
Holland/N Euro	9.6	9.5	99%			$ 0.85	$ 0.92
Australia/NZ	12.6	11.1	88%			$ 1.32	$ 1.37
UK	5.0	4.7	94%			$ 0.96	$ 1.23
Japan	2.1	1.9	92%			$ 1.26	$ 1.39
China	**10.8**	**11.2**	**104%**			$ 0.83	$ 0.94
Russia	0.2	0.2					
Other	1.5	1.9	125%				
Selected Destinations - Organic							
USA/Canada	**20.6**	**24.3**	**118%**	**91%**	**93%**	$ 1.81	$ 1.69
S Korea	0.5	0.1	11%			$ 2.60	$ 2.29
Australia	0.8	**1.0**	131%			$ 2.30	$ 2.20
UK	0.0	0.0					
New Zealand	0.6	0.4	69%			$ 1.83	$ 2.11
Holl/Bel/Poland	0.3	0.3	106%				
Other	0.0	0.1					
Total Conv and Organics - Selected Destinations							
USA/Canada	28.8	32.8	114%	**38%**	**40%**		
S Korea	4.3	7.9	183%				
Holland/N Euro	9.6	9.5	99%				
Australia	13.3	12.1	91%				
UK	5.0	4.7	94%				
China	10.8	**11.2**	104%				
Other	4.4	4.5	102%				

Source: PriComReit Ltda

Chile Frozen Blueberry Shipments

Nine Months: Jan - Sept

				% OR/Total	
All Destinations	**2018**	**2019**	**CY % of PY**	**2018**	**2019**
Conv	49.0	45.8	93%		
Organic	23.0	21.3	93%	32%	32%
Total	**72.0**	**67.1**	93%		
Selected Destinations - Conventional				**% to US/CA**	
USA/Canada	7.1	7.4	104%	**14%**	**16%**
SoKorea	6.6	**5.0**	**76%**		
Holland/N Euro	9.0	6.2	68%		
Australia/NZ	8.4	9.7	116%		
UK	4.4	6.2	142%		
Japan	1.4	1.8	127%		
China	**10.7**	**8.4**	**78%**		
Brazil	0.3	0.5			
Other	1.1	0.6	54%		
Selected Destinations - Organic					
USA/Canada	**21.6**	**19.7**	**91%**	**94%**	**92%**
S Korea	0.05	0.1	257%		
Australia	0.8	**1.0**	137%		
UK	0.0	0.0			
New Zealand	0.3	0.2	88%		
Poland/Belgium	0.3	0.2	75%		
Other	0.0	0.0			
Total Conv and Organics - Selected Destinations					
USA/Canada	28.7	27.1	95%	**40%**	**40%**
S Korea	6.6	5.1	77%		
Holland/N Euro	9.0	6.2	68%		
Australia	9.1	10.8	118%		
UK	4.4	6.2	142%		
China	10.7	**8.4**	78%		
Other	3.2	3.2	100%		

Source: PriComReit Ltda

2017 & 2018 US/Canada Export Offshore – Highbush and Lowbush

TOTAL U.S. and CANADA Highbush					
12 Months					
Million Pounds	2017	2018	% Change	2017	2018
TOTAL	94,810	92,123	-3%	% of Total HB Exports	
U.S. + Canada	67,082	67,141	0%	71%	73%
Balance-other US/Canada	27,728	24,983	**-10%**	29%	27%
				% of Offshore Export	
Korea, South	6,613	6,735	2%	24%	27%
Japan	10,194	8,899	-13%	37%	36%
Australia	2,486	3,264	31%	9%	13%
Hong Kong + China	809	872	8%	3%	3%
New Zealand	1,493	972	-35%	5%	4%
United Kingdom	1,113	643	-42%	4%	3%
OTHERS	5,019	3,598	-28%	18%	14%

Record Total Exports at 156M, up 12M pounds from 2017. Lowbush share increased from 81% to 84%, a 16M pound increase vs 2017. Highbush declined 3M pounds.

- >67% of Wild/lowbush frozen exports are to Europe. Japan combined HB and LB total 28M pounds is a strong market paying premium prices.

TOTAL U.S. and CANADA Wild					
12 Months					
Million Pounds	**2017**	**2018**	**% Change**	**2017**	**2018**
TOTAL	176,197	197,541	12%	% of Total LB Exports	
U.S. + Canada	59,723	66,289	11%	34%	34%
Balance	116,474	131,252	13%	66%	66%
				% of Offshore Export	
Germany	30,874	33,392	8%	27%	25%
Japan	16,215	18,905	17%	14%	14%
Poland	9,046	9,862	9%	8%	8%
Belgium	9,933	12,885	30%	9%	10%
Switzerland	5,176	6,705	30%	4%	5%
Hong Kong + China	10,793	10,322	-4%	9%	8%
France	6,776	5,327	-21%	6%	4%
Netherlands	8,733	10,575	21%	7%	8%
United Kingdom	2,600	3,891	50%	2%	3%
Italy	2,120	2,733	29%	2%	2%
Austria	2,302	2,396	4%	2%	2%
South Korea	1,987	1,372	-31%	2%	1%
OTHERS	9,919	12,888	30%	9%	10%
Total NA HB and Wild exported offshore					
	144,202	**156,235**	**8%**		
% Highbush	19%	16%			

Nine Months 2018 & 2019 US/Canada Export Offshore – Highbush and Lowbush

TOTAL U.S. and CANADA Highbush					
9 Months - Jan- Sept					
000 Pounds	2018	2019	% Change	2018	2019
TOTAL	68,318	89,830	31%	% of Total HB Exports	
Canada to US	38,014	55,419	46%	56%	62%
US to Canada	10,608	17,973	69%		
Balance Offshore	19,696	16,440	-17%	29%	18%
Korea, South	5,570	4,328	-22%	28%	26%
Japan	7,246	4,970	-31%	37%	30%
Australia	1,722	2,427	41%	9%	15%
Hong Kong + China	731	844	15%	4%	5%
New Zealand	919	1,047	14%	5%	6%
United Kingdom	496	625	26%	3%	4%
Netherlands	496	625		3%	4%
Mexico	255	40	-84%	1%	0%
Chile	145	315	117%	1%	2%
Poland	595	203	-66%	3%	1%
OTHERS	1,504	1,522	1%	8%	9%

TOTAL U.S. and CANADA Wild Exports					
9 Months - Jan- Sept					
000 Pounds	2018	2019	% Change	2018	2019
TOTAL	154,522	173,278	12%	% of Total LB Exports	
U.S. + Canada	54,208	73,764	36%	35%	43%
Balance Offshore	100,313	99,514	-1%	65%	57%
				% of Offshore Export	
Germany	26,071	26,940	3%	26%	27%
Japan	14,411	15,449	7%	14%	16%
Belgium	7,251	6,803	-6%	7%	7%
Poland	10,915	7,055	-35%	11%	7%
Switzerland	5,904	5,797	-2%	6%	6%
Hong Kong + China	7,424	7,774	5%	7%	8%
France	3,804	6,788	78%	4%	7%
Netherlands	7,326	7,301	0%	7%	7%
United Kingdom	2,642	2,804	6%	3%	3%
Italy	2,240	1,595	-29%	2%	2%
Austria	5,432	6,518	20%		
South Korea	852	282	-67%		
OTHERS	6,041	4,409	-27%	6%	4%
Total NA HB and Wild exported offshore					
	120,009	115,954	-3%		
% Highbush	16%	14%			

Looking Forward Five Years

- **Supply growth exceeding 3% annually – Highbush, Lowbush, Fresh and Frozen**
- **Price stagnation – Supply growing more rapidly than demand**
- **Fresh Import – Rapid growth continue – Mexico – Peru**
    - **Chile less**
- **Exit of high cost acreage and operators**
- **Consolidation – increasing number of large acreage operations**
- **Venture Capital equity funding interest remains, particularly for vertical – growing, processing and distribution**
- **Labor scarce and more costly**

Looking Forward Five Years

- **Robots and technical advance in all segments**
- **Food safety protocol validation and transparent**
- **More regulation, SLO – “Social License to Operate”**
- **HB Export Growth – Fresh or Frozen – will be painfully slow**
- **Export of Wild to Europe – must be retained and grow**
- **Organic Production – Fresh and frozen market channels**
  - **Supply growing MUCH more rapidly than demand**
  - **Price premium sharply narrowing.**

US Highbush Blueberry Council

- **President Kasey Cronquist**
  - **Energized**
  - **Evaluation of spend and outcome**
  - **Agency relationships under intense review**
  - **Just announced new agency to drive Food Service sales**
    - **SRG – Boulder CO**
    - **Mission – to drive volume sales timed to peak supply periods**
- **Encourage to participate – Great meeting in Pasco in October, see you in Washington DC in March**

Credits and Thank you!!

- **Naturipe Value Added Foods LLC**
- **USDA Cold Storage Reports**
- **Statistics Canada**
- **US Bureau of Census – USA Trade Online**
- **Agronometrics.com – Colin Fain**
- **Many industry colleagues willing to share**

Annual Disappearance of Frozen Blueberries

- **Disappearance – the quantity no longer apparent in the supply pipeline**
- **Calculation: Carry-in + Production + Imports – Exports – Carry-out = disappearance**
- **Will look at**
  - **Frozen utilized in US/Canada**
  - **Frozen exported offshore – Lowbush and highbush**
  - **Fresh and Frozen in US/Canada**

2019 Frozen Prices (Feb 2019)

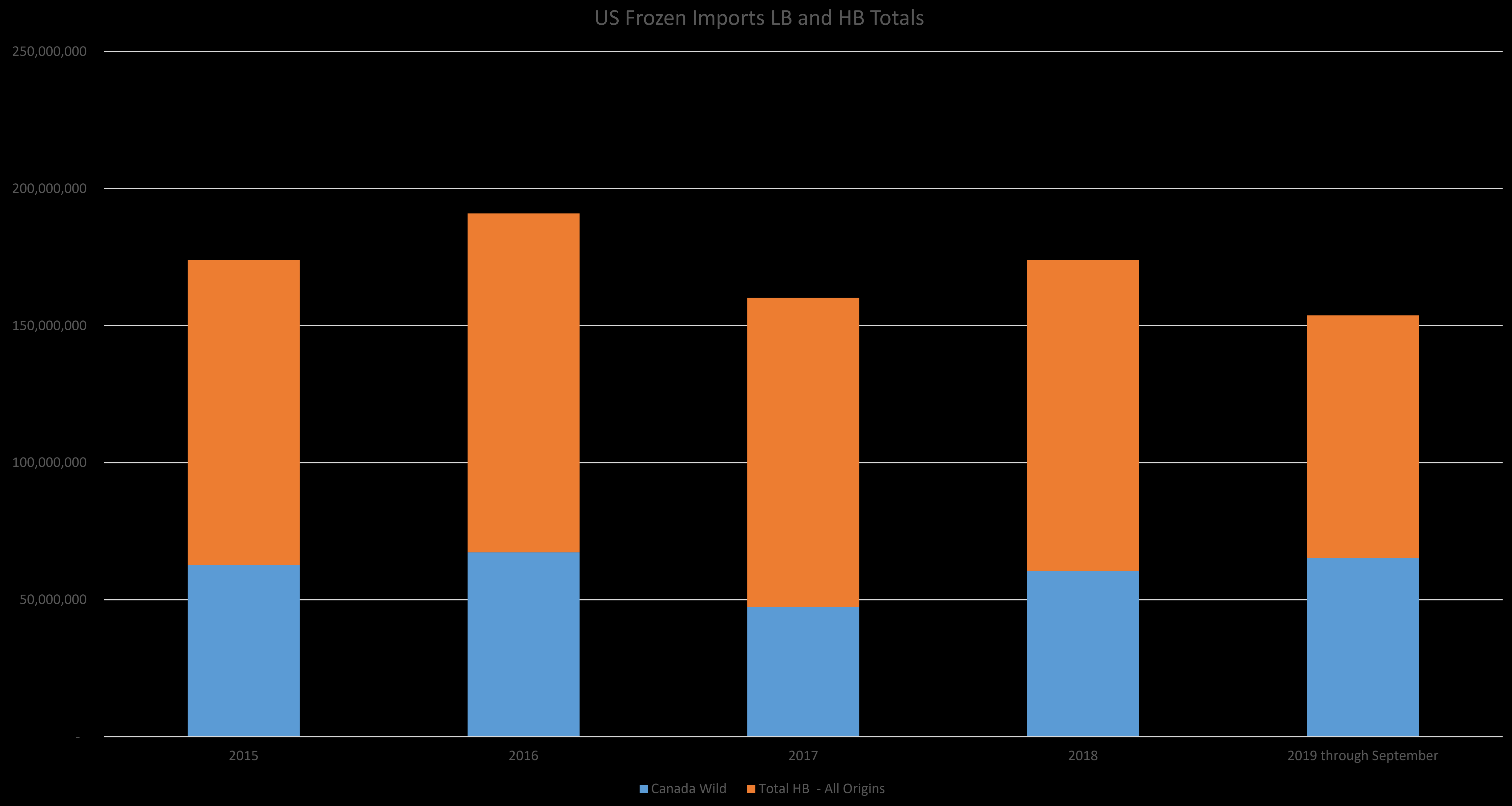
- **May 2019 Cold Storage Stock forecast - lowest since 2011 – combined Public and private**
- **Anticipate stronger price for “in-season” contracts**
- **Lowbush production will increase as price advances, therefore limiting the price advance**
- **Lowbush prices lower than highbush large blueberries**
- **Highbush new and maturing production assure growth**
- **My prediction – if frozen pack returns to 650 million pounds or more, post season prices will stagnant.**

2019 Frozen Prices (Feb 2019)

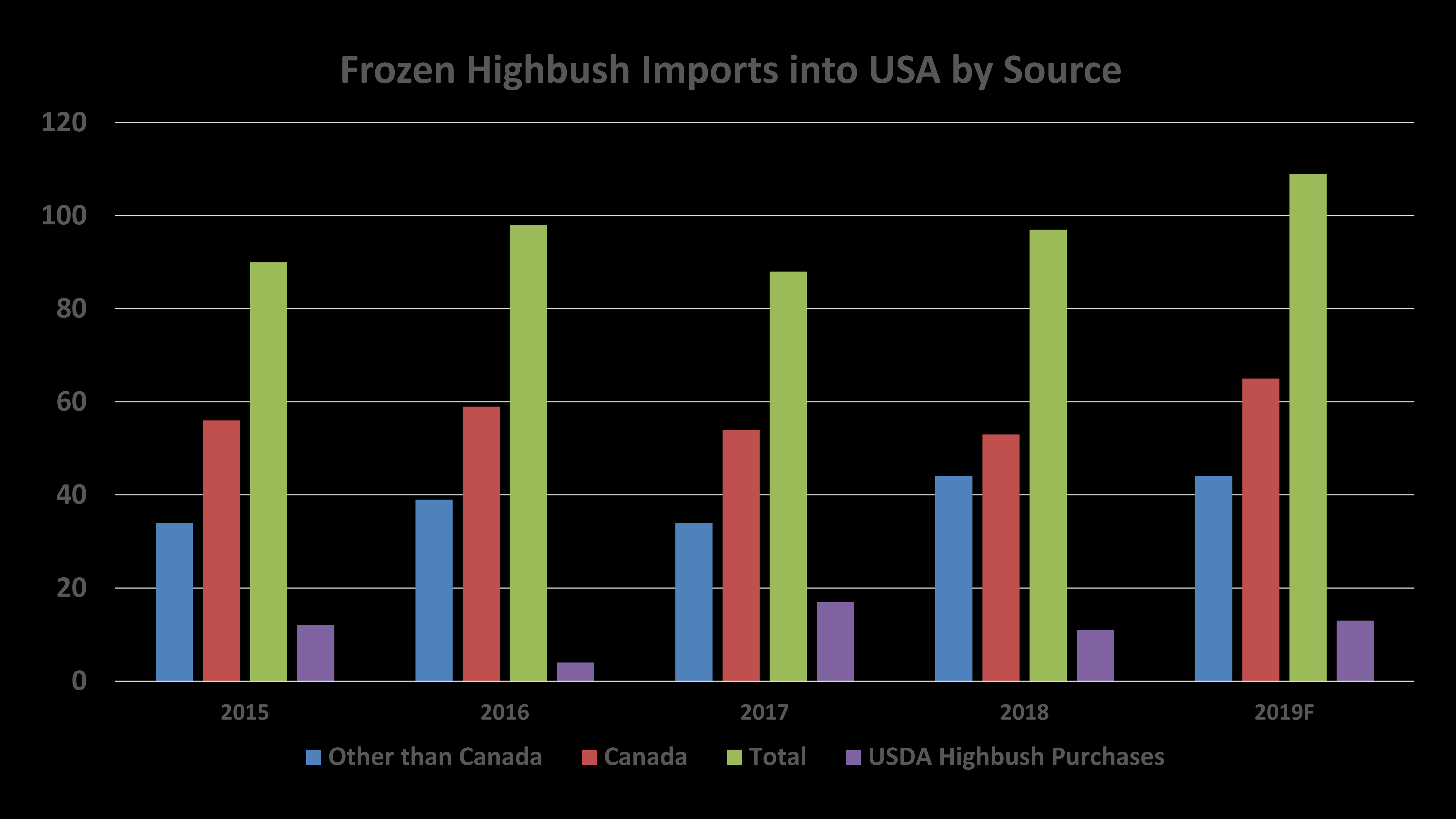
- May 2019 Cold Storage Stock forecast - lowest since 2011 – combined Public and private – DID NOT ACHIEVE – 20m HIGHER
- Anticipate stronger price for “in-season” contracts – +++
- Lowbush production will increase as price advances, therefore limiting the price advance – prices advance to $1.05-$1.15
- Lowbush prices lower than highbush large blueberries – Did not occur
- Highbush new and maturing production assure growth - Yes
- My prediction – if frozen pack returns to 650 million pounds or more, post season prices will stagnant. Total 2019 pack Prelim report at 637M, predict finally number will be greater than 650M and prices stagnant.

Why Stagnant Frozen price?

- **Abundant supply**
- **Storage levels the portion of supply offered**
- **2019 Lowbush harvest greater than forecast -**
- **<u>Fresh</u> import growth – taking "share of stomach" that may displace frozen sales**
- **Frozen pack will continue to grow – restraint is economic, not bearing surface or horticultural practices – weather impact**
- **Growth limited by declining margins – increased costs**



US Frozen Imports LB and HB Totals
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
-
2015
2016
2017
2018
2019 through September
Canada Wild
Total HB - All Origins


Frozen Highbush Imports into USA by Source
120
100
80
60
40
20
0
2015
2016
2017
2018
2019F
Other than Canada
Canada
Total
USDA Highbush Purchases