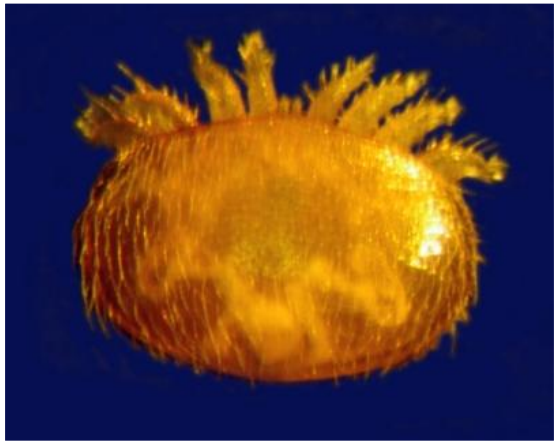
Coy Bee Company

Steven & Angelia Coy
Wiggins, MS
www.coybeecompany.com

Russian Honey Bees
&
the RHBA

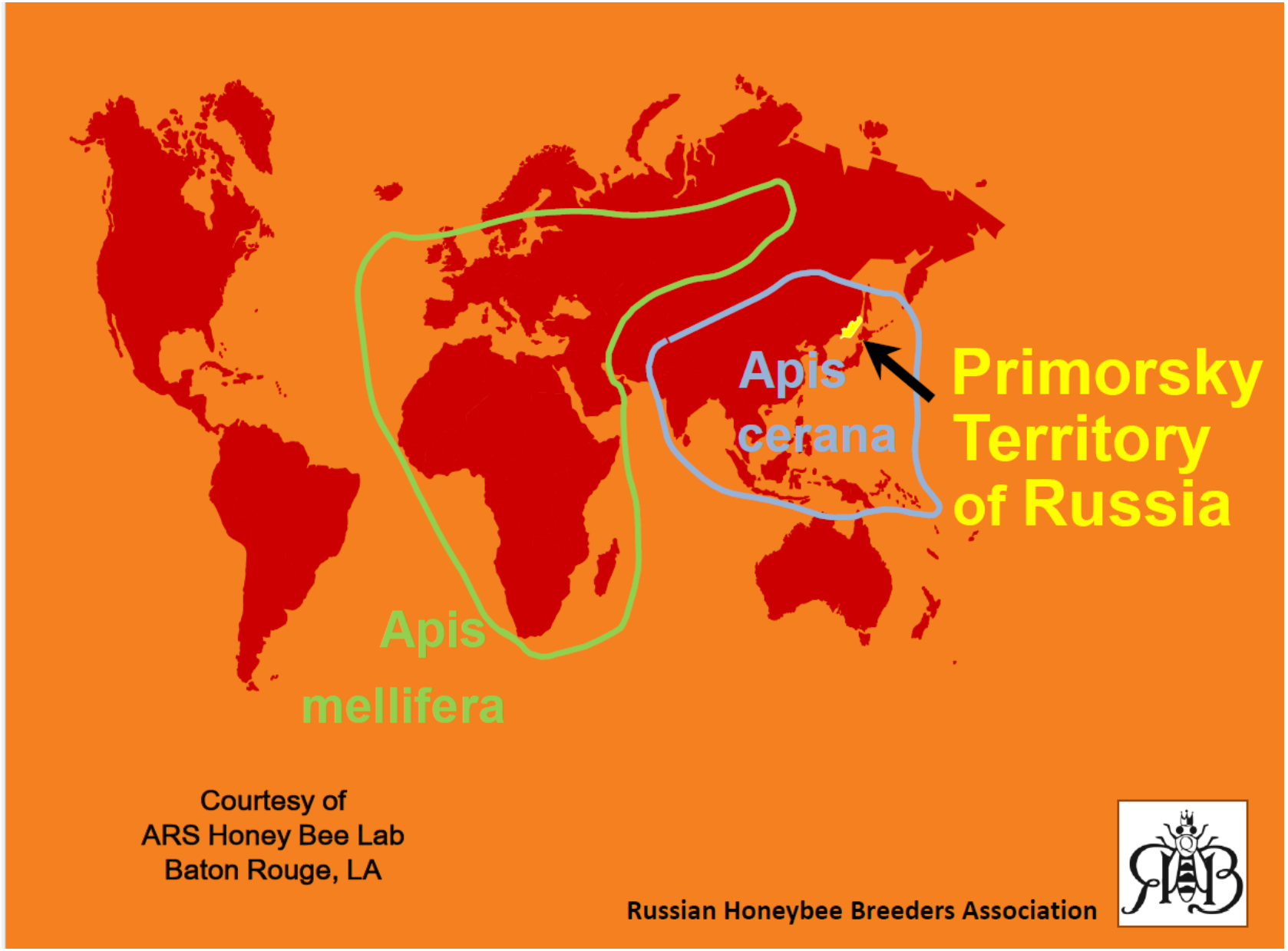
What makes Russian bees special?



Varroa Mites

&

Mite Resistance


Apis
cerana
Primorsky
Territory
of Russia
Apis
mellifera
Courtesy of
ARS Honey Bee Lab
Baton Rouge, LA
Russian Honeybee Breeders Association

Russians bees are:

Resistant to *Varroa* mites

Resistant to Tracheal mites

Resistant to American Foulbrood

Good honey producers

Excellent at overwintering

History of the Russian Queens

1994 – USDA-ARS Scientist Tom Rinderer went to Russia looking for Varroa resistant bees

1997 – 2002 ARS imported +300 Russian queens and selected and improved the stock

1999 – Set up test yards with 3 cooperators: Manley Bigalk, Hubert Tubbs, and Steve Bernard (2000 Charlie Harper)

2008 – Russian Honey Bee Breeders Association, Inc. was formed

Russian Bees are unique

They are the only honey bee in the U.S. with a dedicated breeding group

Russian Honey Bee Breeders Association

"The primary purpose of the corporation will be to maintain and improve the genetic lines of Russian honey bees through propagation and selective breeding."

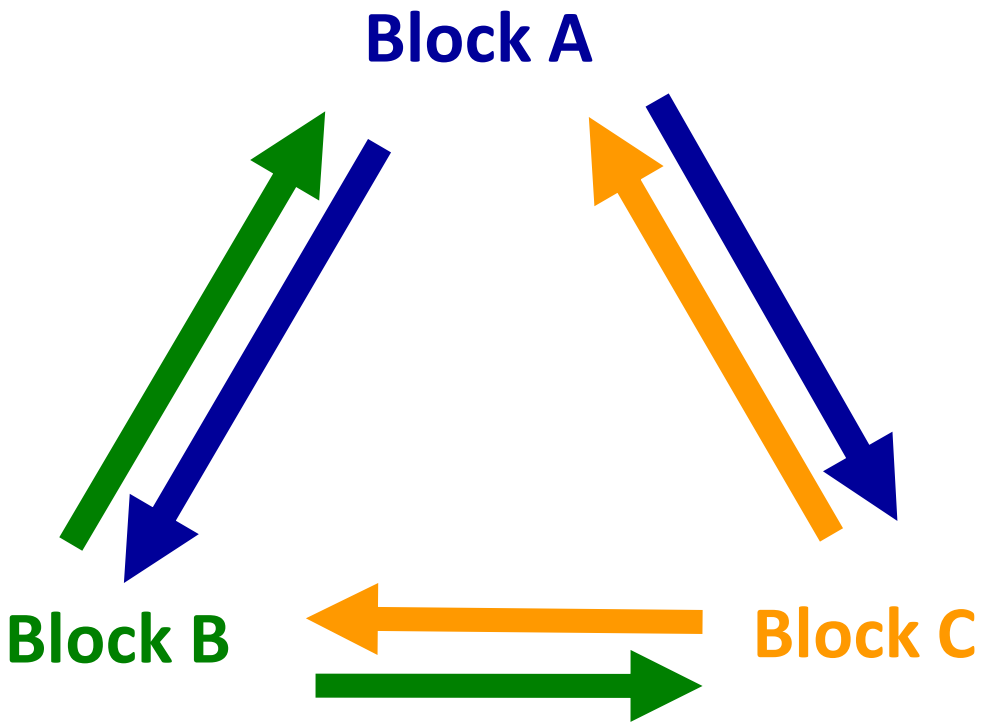
www.russianbreeders.org

Russian Bees Have An Organization That Maintains Their Genetic Purity.

A group of 12 individual beekeepers whose goal is to work together to maintain the Russian stock and improve its commercial value for honey production, as well as resistance to diseases and pests

Primarily Varroa and Tracheal mites

Isolated yards flooded with Russian drones



Breeding Scheme

Russian Stock Identification

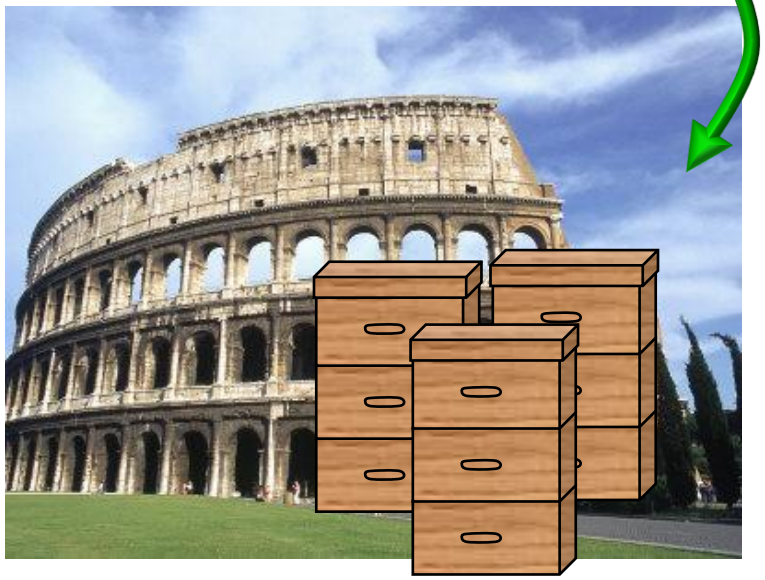
Unknown

Genetic markers are used to identify a stock-specific “fingerprint” of the Russian honey bee.

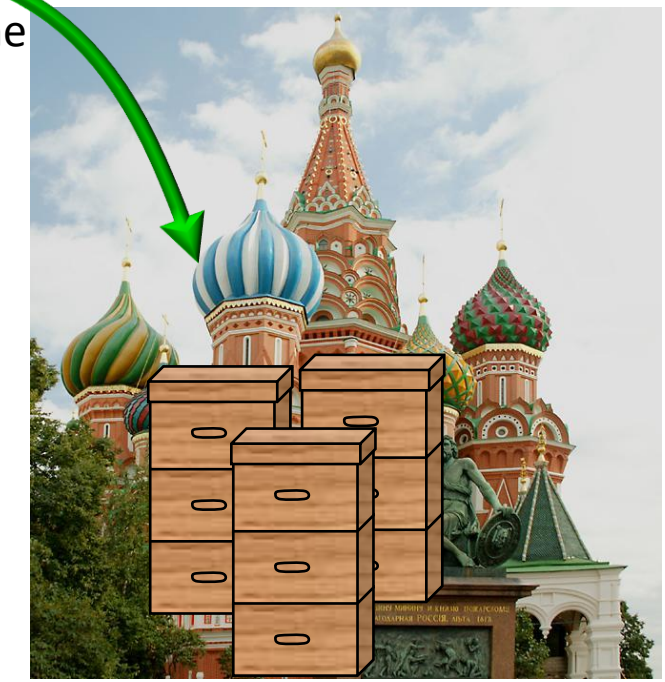
Genetic tests to determine likelihood of ….

Given as Probability of assignment (Russian)

80 % positive bees are 100% Russian



Non-Russian



Russian

You have probably heard that….

- Russian bees are too aggressive
- Russian bees swarm more than other bees
- I heard they don’t make any honey
- They don’t have to be treated for mites
- All the queens are black and too hard to find
- You can’t re-queen Italian hives with Russian queens
- They don’t brood up a soon as Italians
- You can’t pollinate Almonds with them
- Russian bees overwinter in small clusters
- They don’t build up fast enough and you miss the honey flow
- They aren’t really resistant to mites

You probably also heard that …

Hillary was going to win.

It’s NOT difficult to re-queen with Russian queens.

1. Leave queen in cage for 3-5 days
2. Remove the old queen and immediately place the queen cage with the candy end still covered (masking tape works well) between frames where there is brood and bees.
3. After 48hrs go back into the hive and remove the candy cover

   Or go back into the hive on the fifth day and open the cage and permit the queen to walk out onto the top bars and enter the hive.

Caution : she might fly away

4. If the caged queen is dead when you go back; it is most likely because there is another (second) queen in the hive. In that case; you need to remove the second queen and repeat the above procedure.

Any Swarming is too much.

Just like all bees swarming is the natural inclination of a young colony.

Controlling it is a hive management issue.

If the hive swarms then you probably missed the signs.

Russian bees are not aggressive?

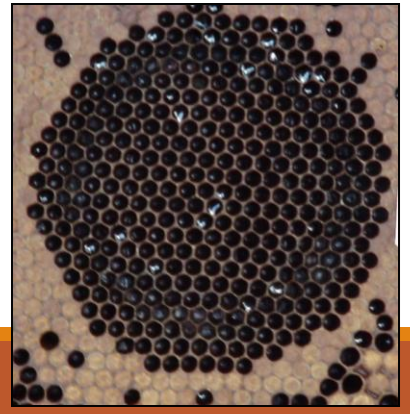
Russian queens vary in color.

Mites

Mechanisms of Resistance to Varroa Mites by Russian Honey Bees

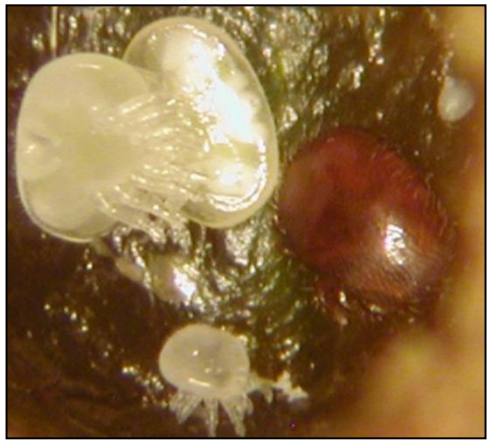
- Low proportions of brood infested

- Extended phoretic period of *Varroa* mites
  - Higher proportion of damaged mites



- A strong expression of hygiene

Mechanisms of Resistance to Varroa Mites by Russian Honey Bees



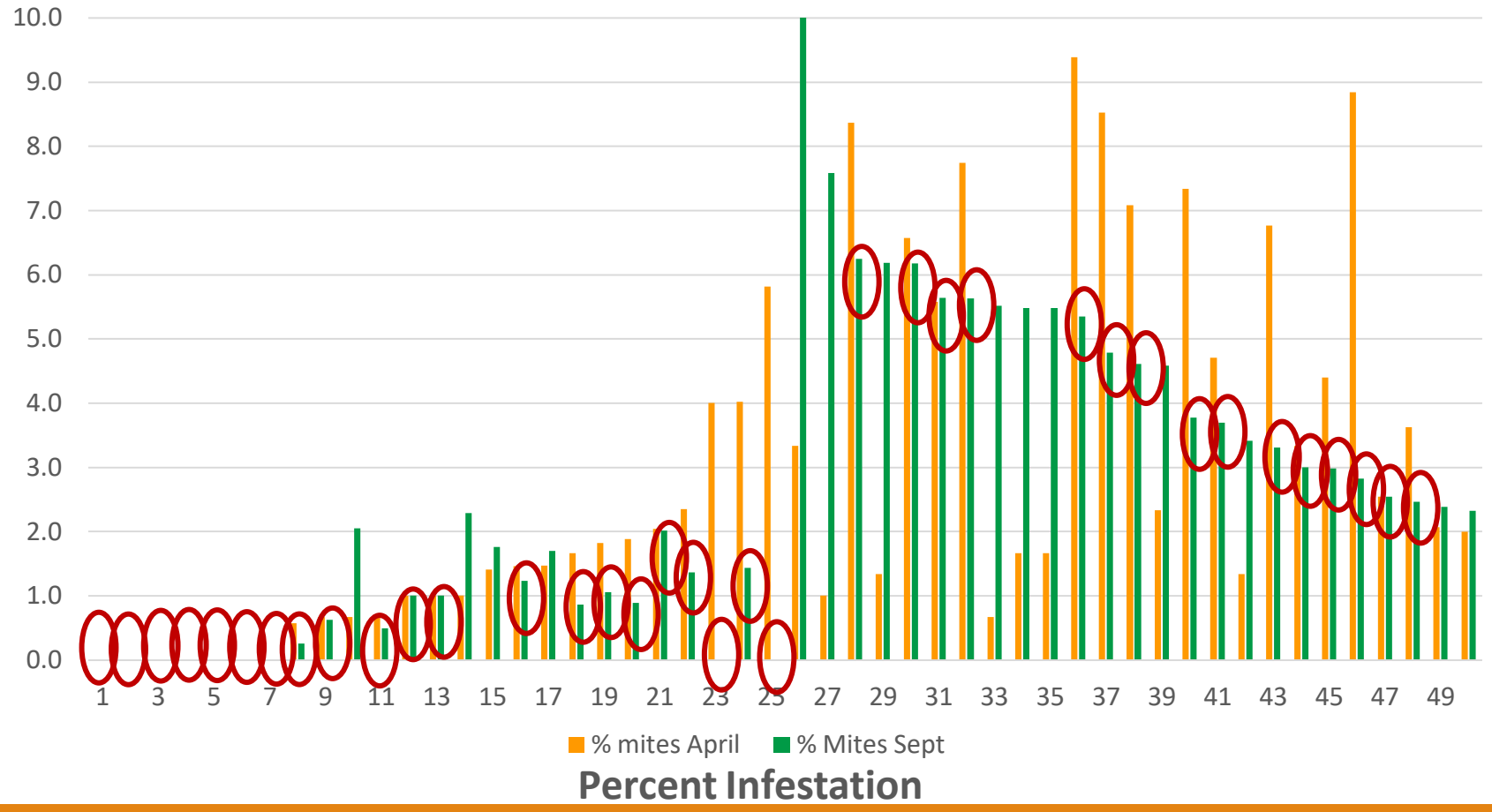
- Fewer multiply in infested cells in both worker and drone brood
- Higher proportion of non-reproductive mites
- Decreased number of progeny and number of viable female offspring

- Combs built by RHB contribute to decreased reproductive success

They Are Not Mite Proof

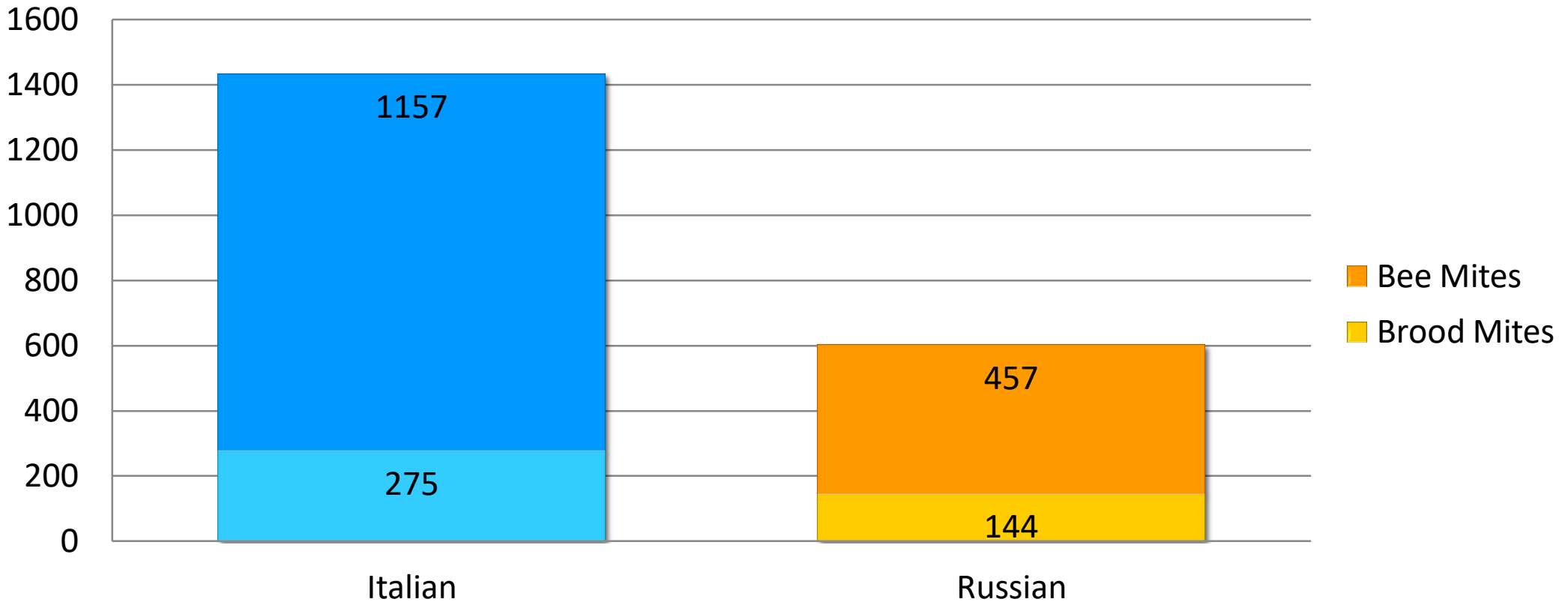
NO Mite Treatment

Water proof vs. Water resistant



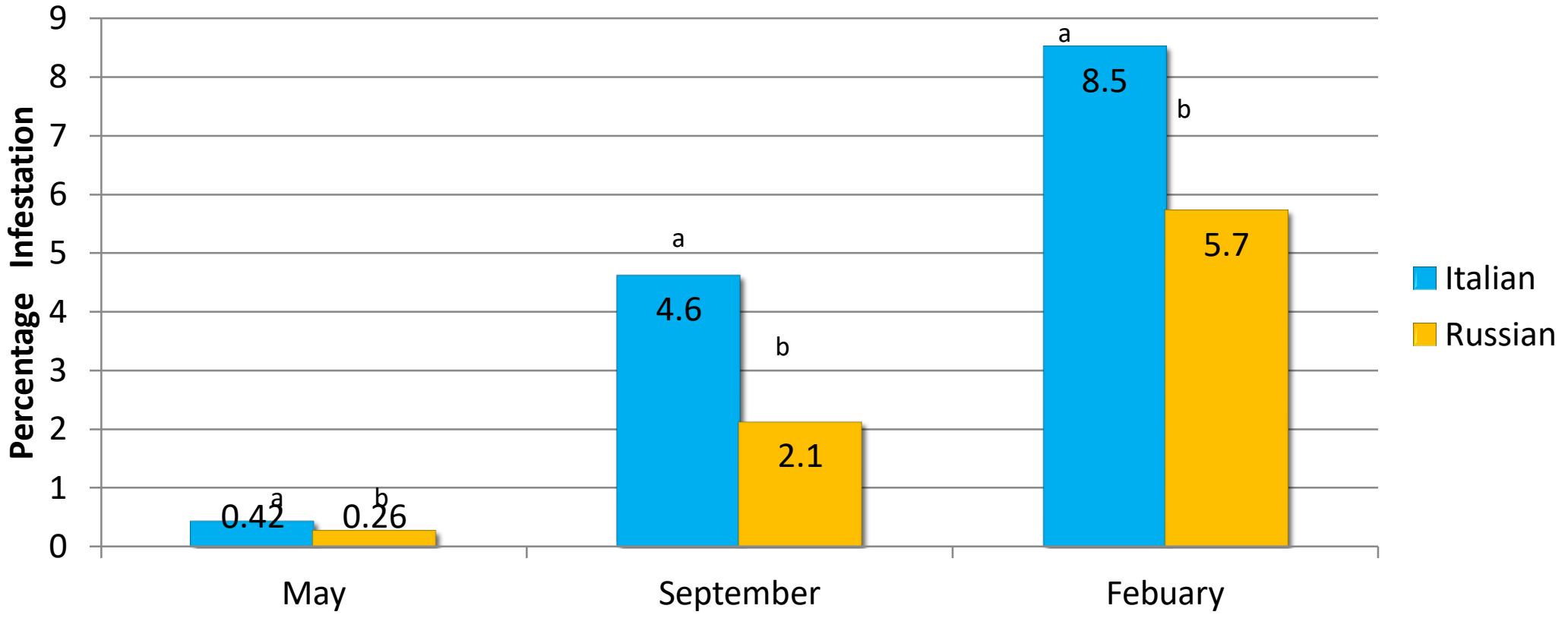
Varroa Mites in September

Montana 2011

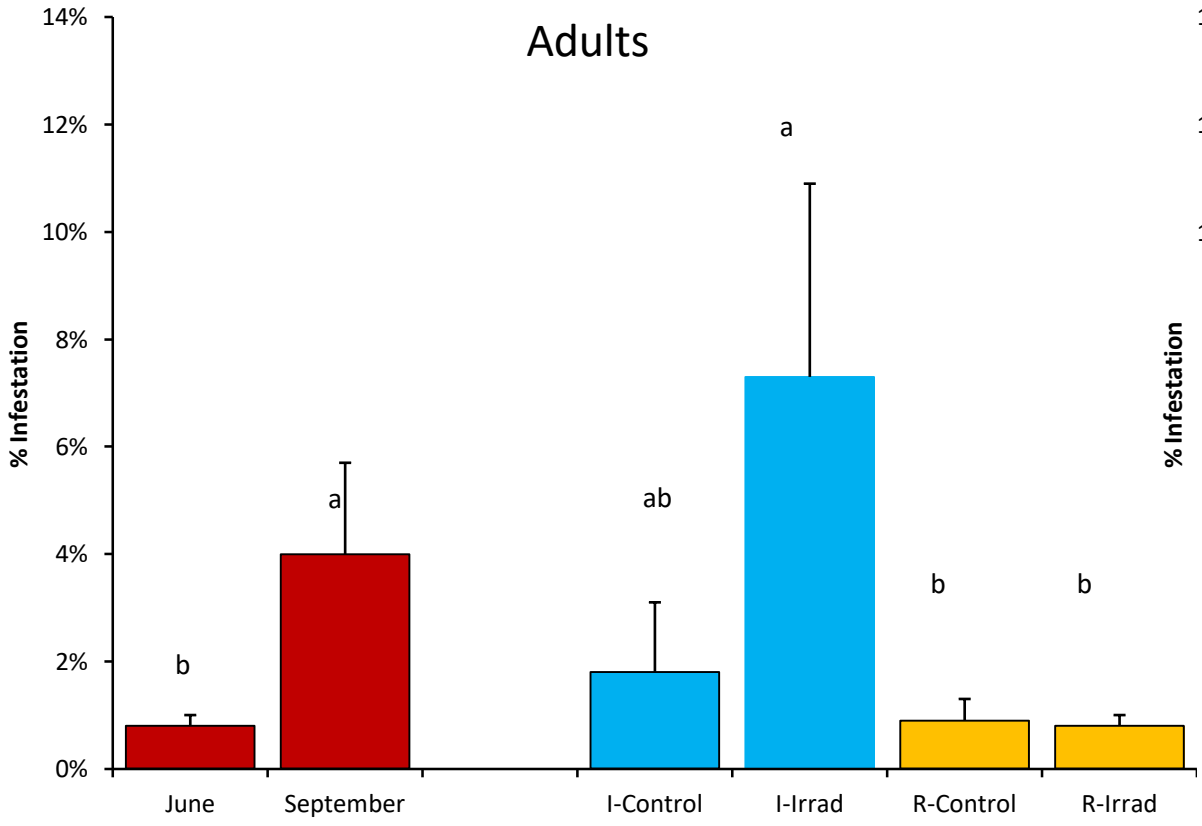


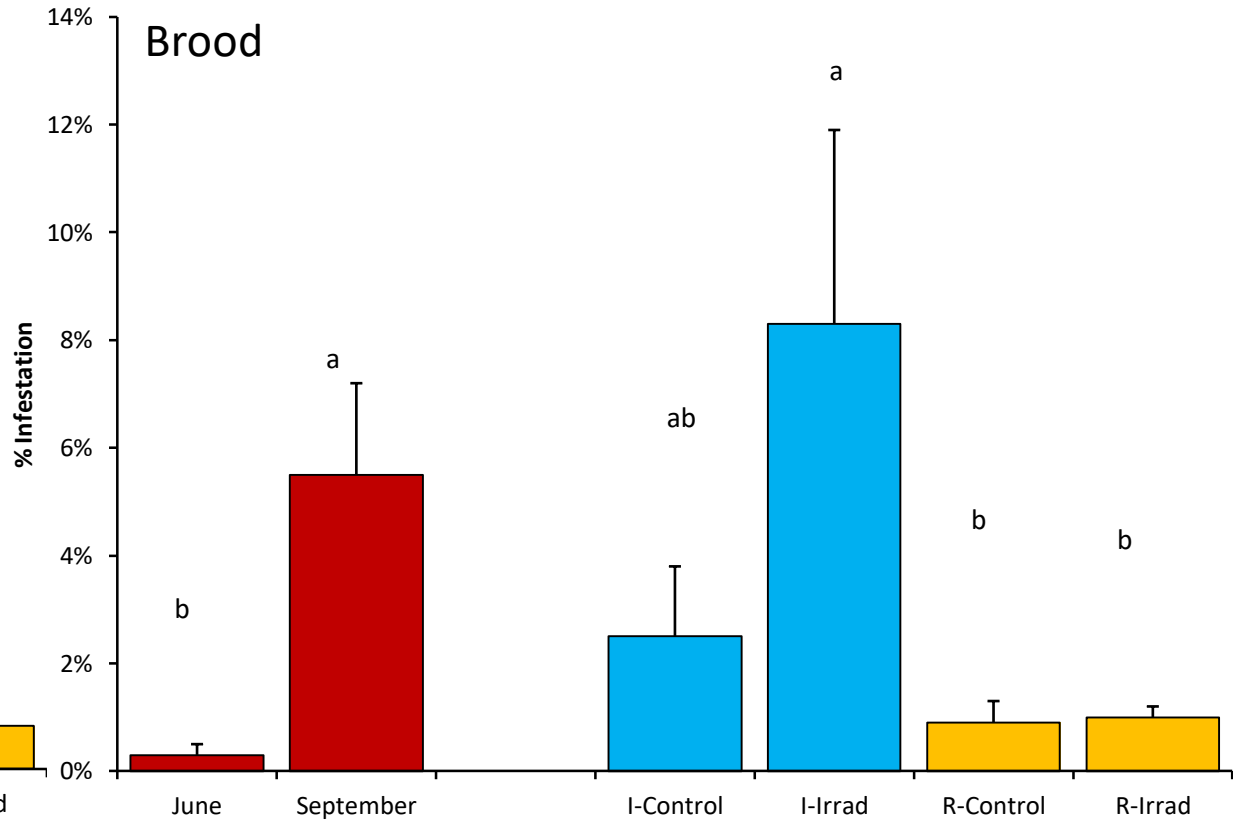
Percentage Infestation of Mites on Adult Bees

Montana 2011



Infestation Parameters -2015

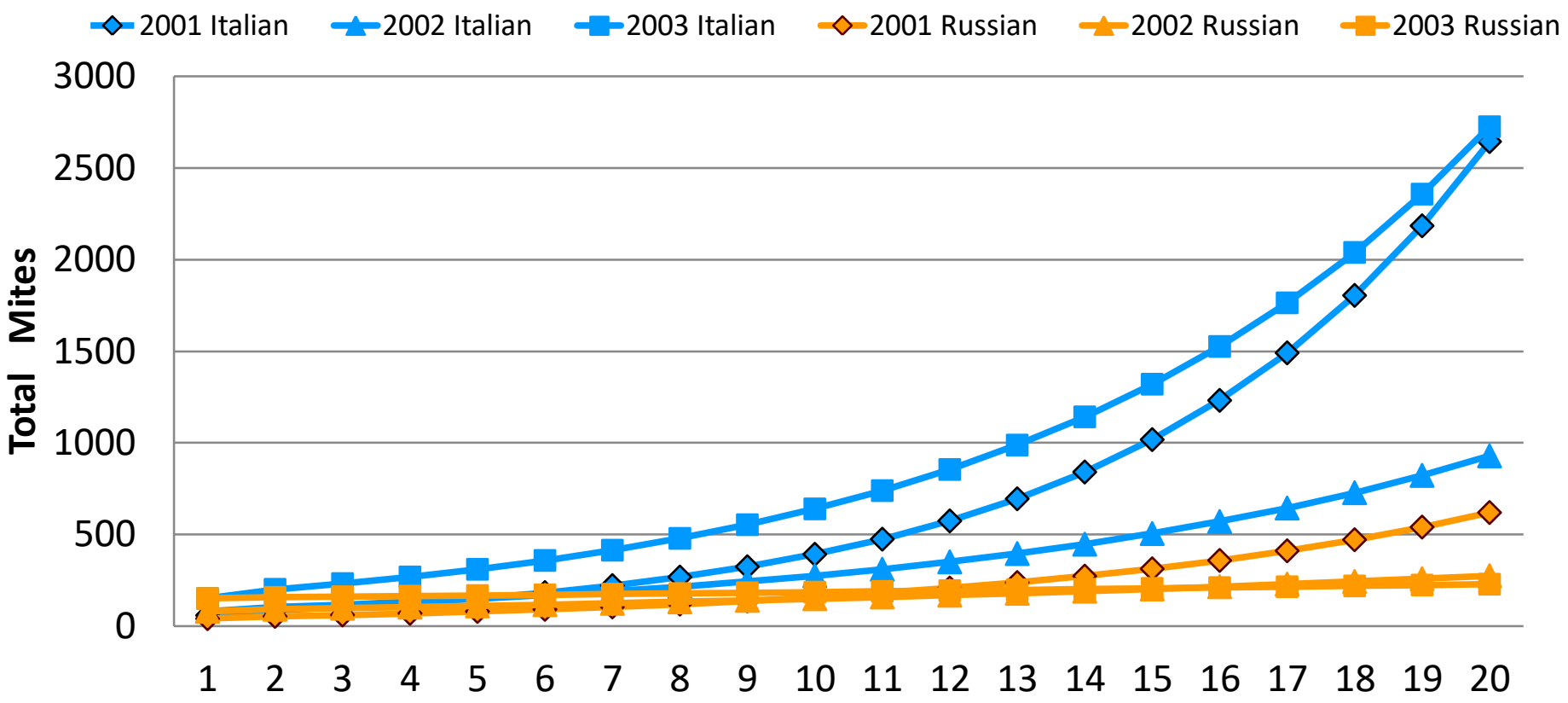




Initial adult infestation = 1.68%
(April 21, 2015)

Weekly Growth rate of Varroa Mites in Russian and Italian Colonies

DE GUZMAN ET AL.: V. destructor POPULATIONS IN RUSSIAN HONEY BEE COLONIES (2007)



Baton Rouge Bee Lab

Average Infestation

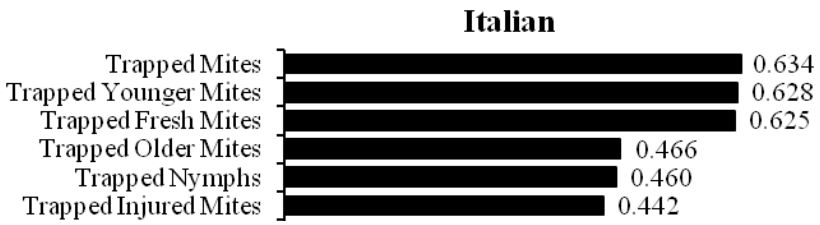
Italian = 3,969 mites
Russian = 1,714 mites

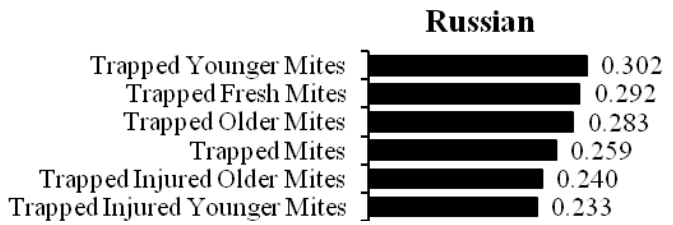
35 colonies each
NO Treatment
Italian 15% mites
Russian 4% mites

There were not enough mites in the Russian hives to finish the experiment

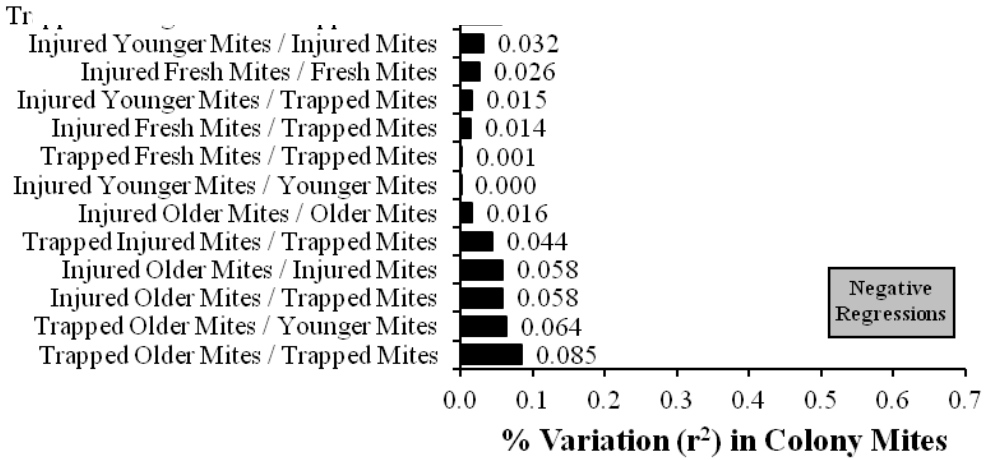
Coy's Honey Farm collaboration

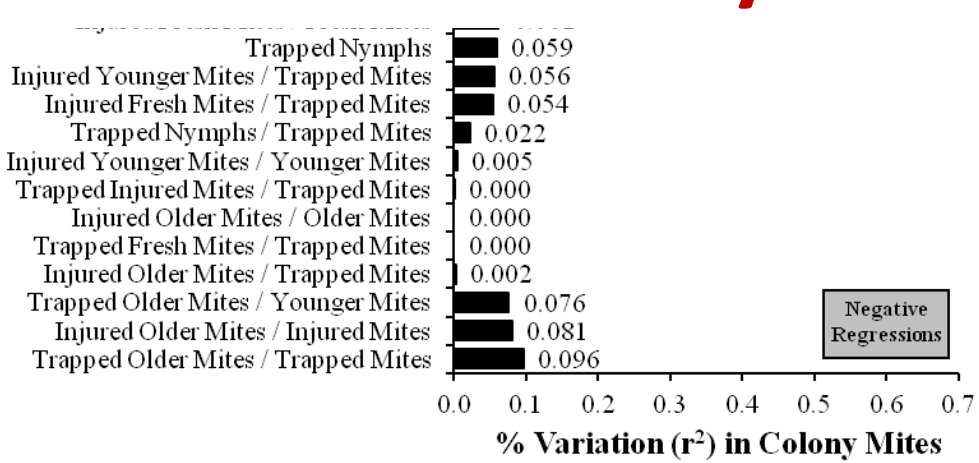
California and Arkansas Average Infestation
Italian = 1501 mites Russian = 307 mites





Too Few Mites in Russian colonies for Analysis





Honey Production

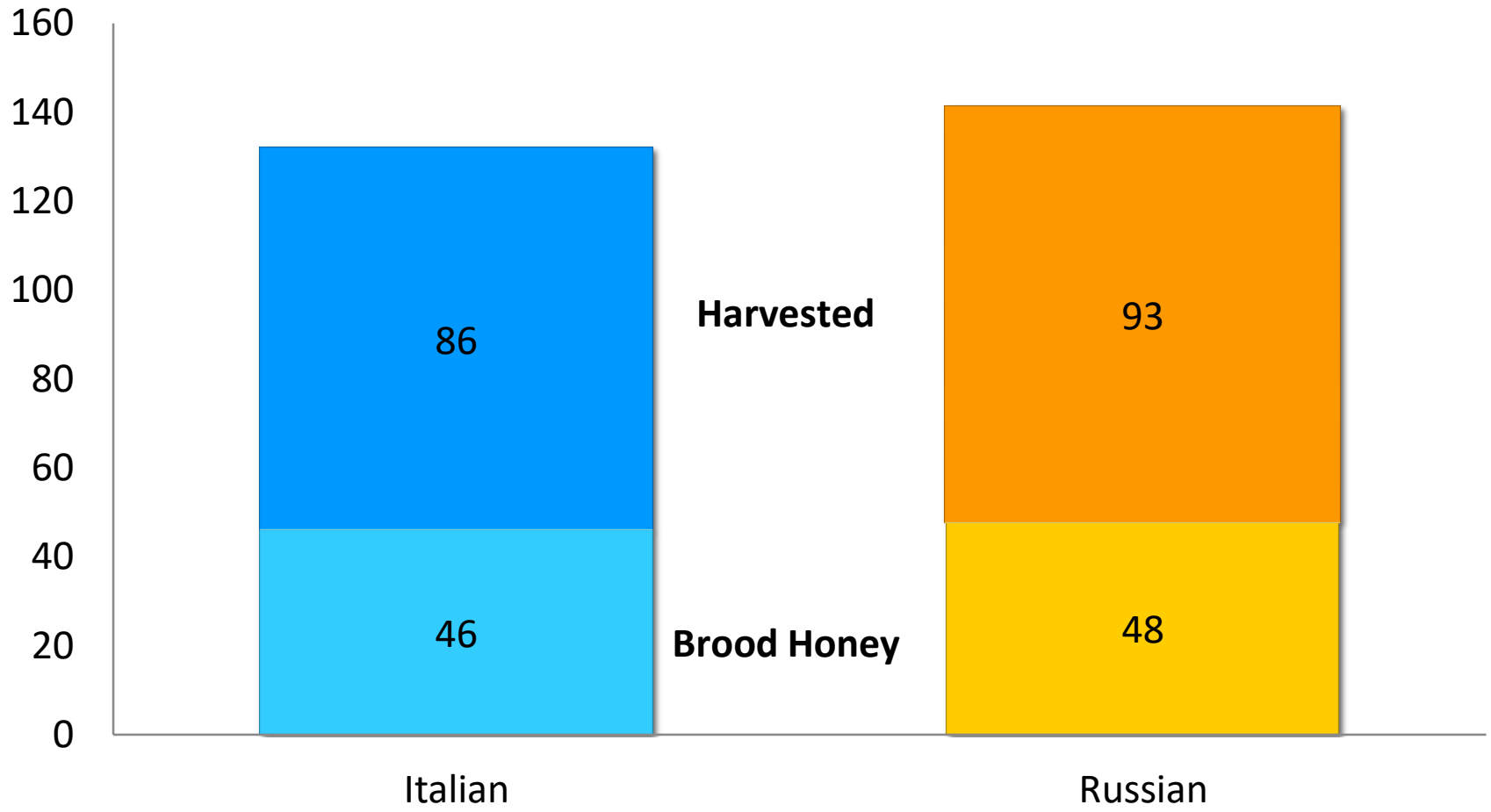
CBC Honey Crop
Second crop for 2015 splits

Splits made in late March

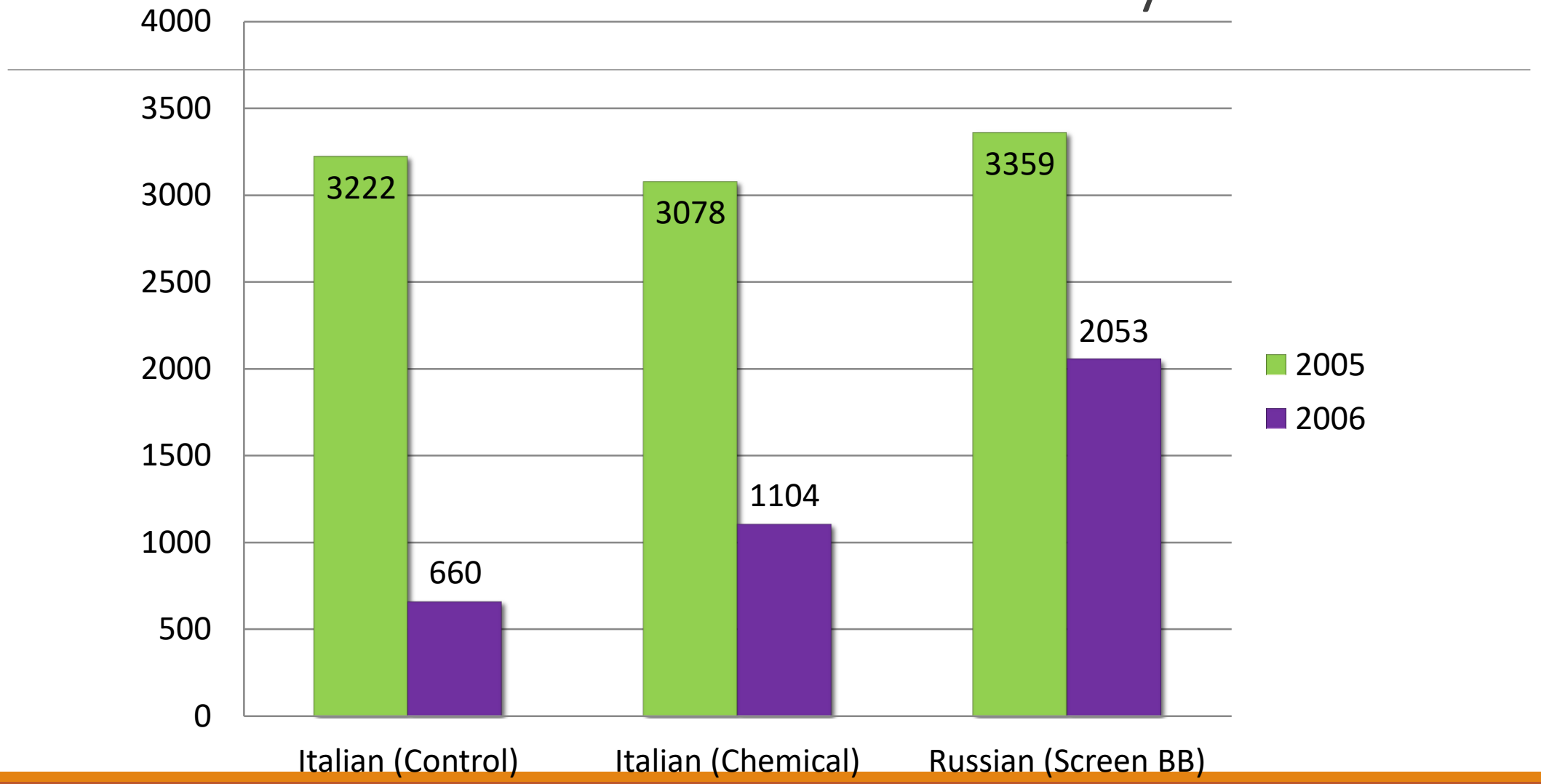
1st crop pulled in late June

2nd crop pulled in late August

Honey Production In Montana



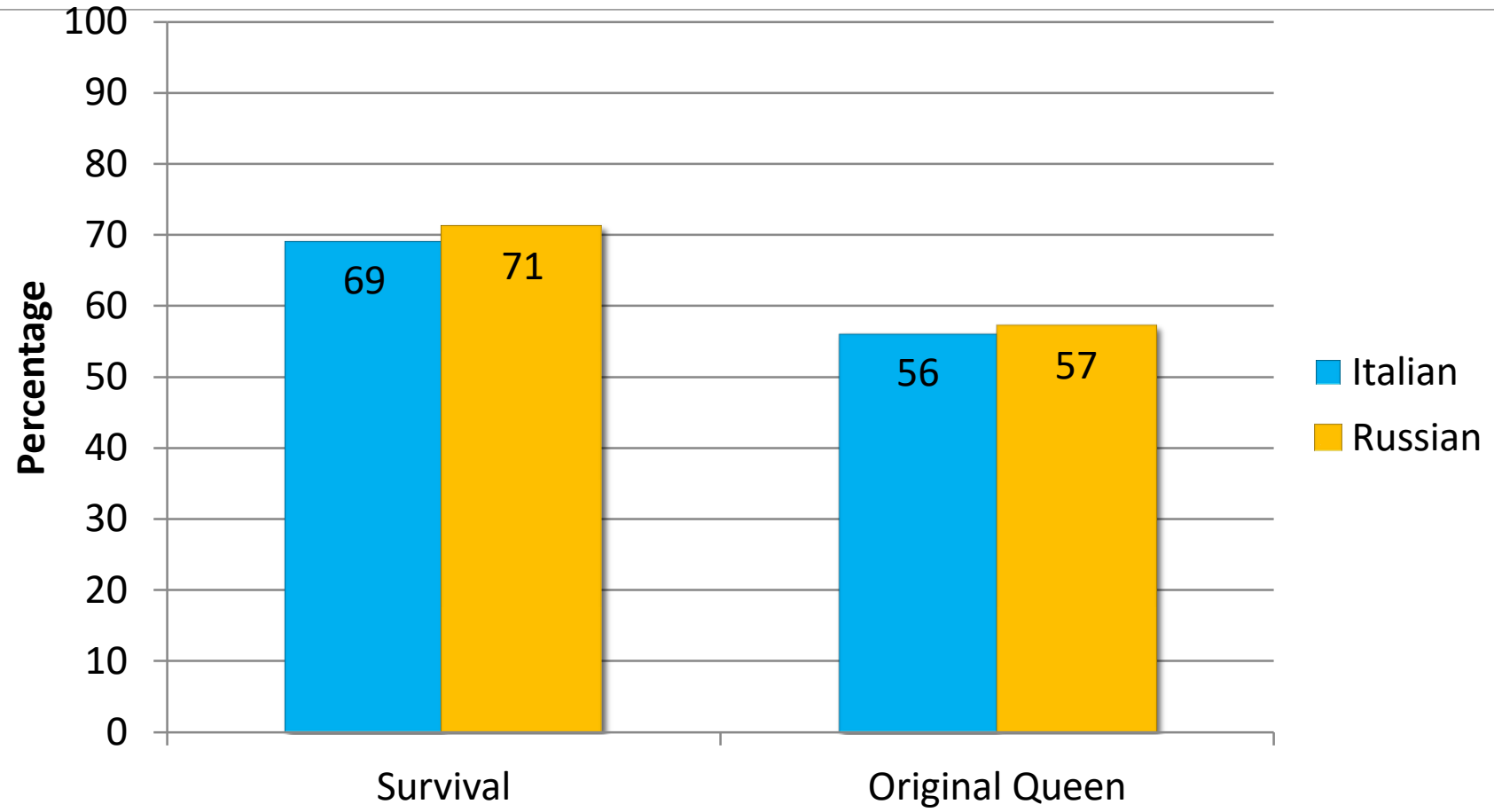
Honey Production By Treatment In UGA Study



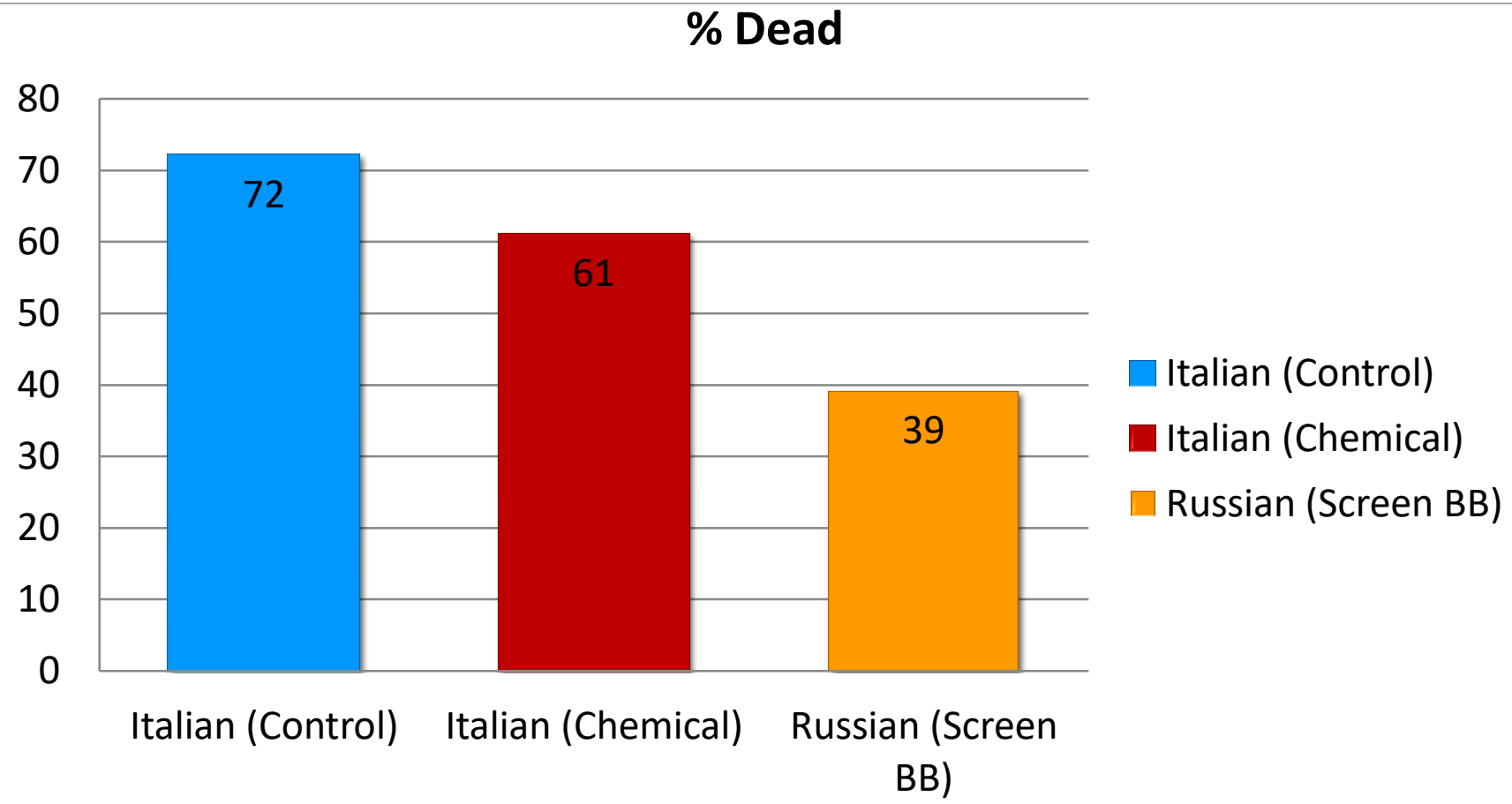
How long do your hives live?

Colony Survival and Supersedure

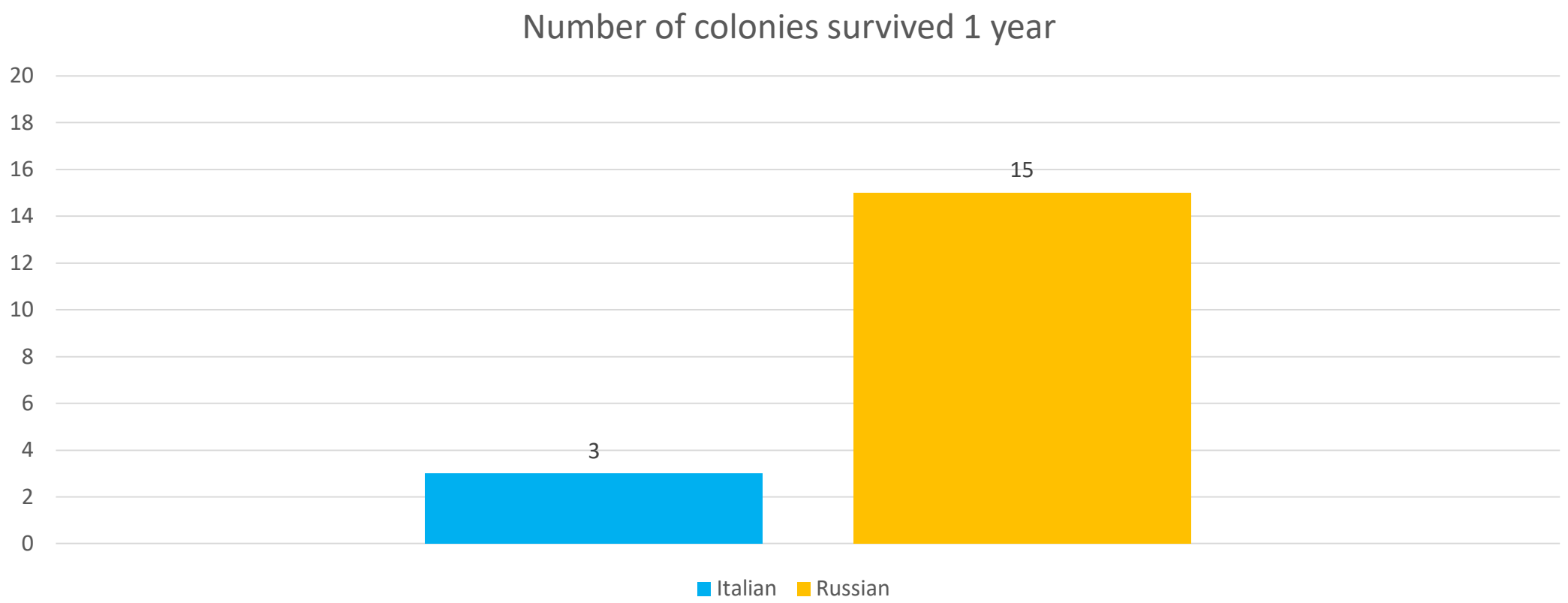
Montana 2011



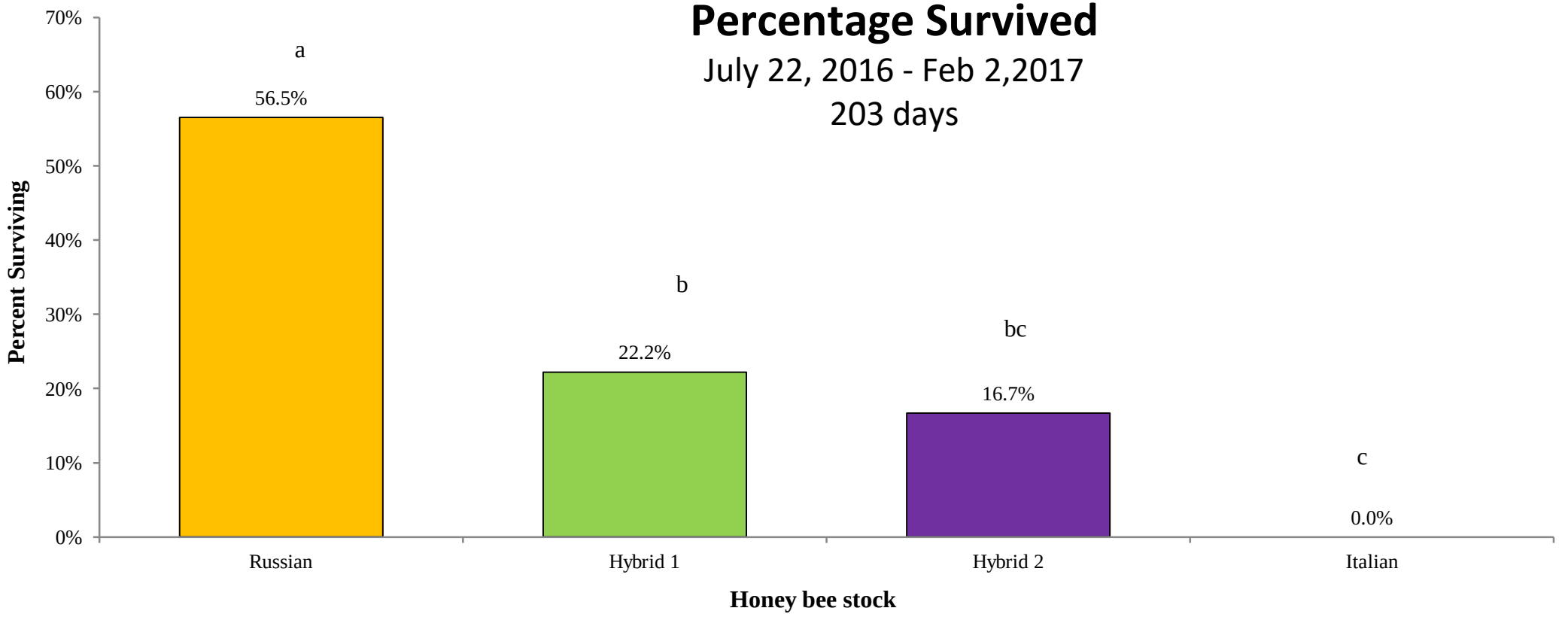
Percent of Colonies Dead After 2 Years



Baton Rouge Bee Lab
April 2015 – March 2016



Preliminary results of ongoing **treatment free** study

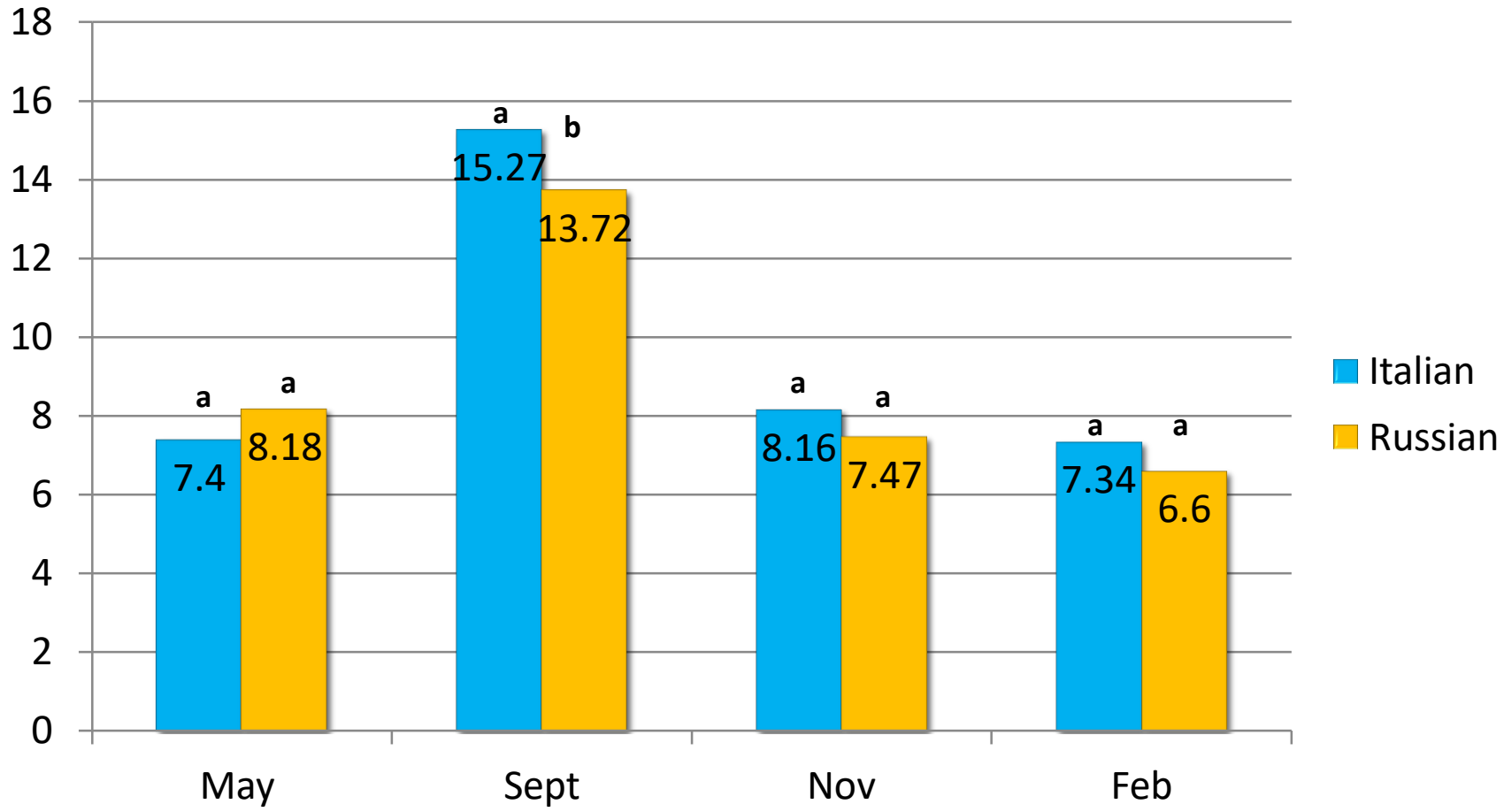


Original infestation	2.2%	0.4%	2.4%	1.8%

Pollination

Frames of Bees

Montana 2011



Resistance to other pests

American Foul Brood – I have not treated for AFB in >10 years

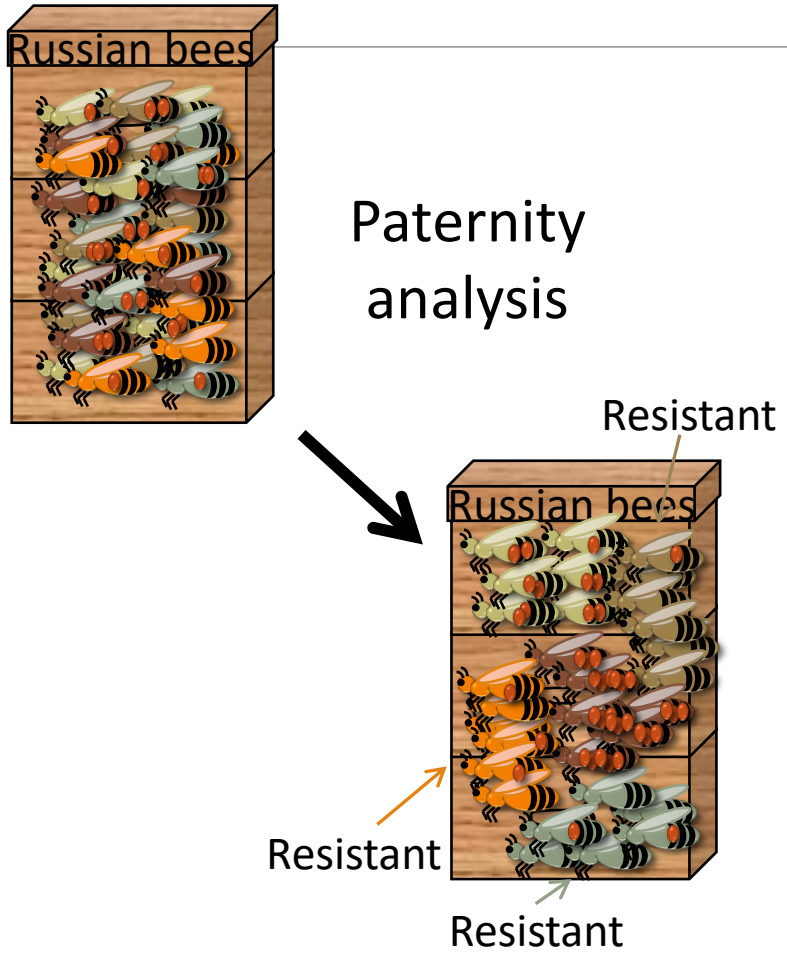
Small Hive Beetle – Russian colonies have fewer SHB than Italian colonies

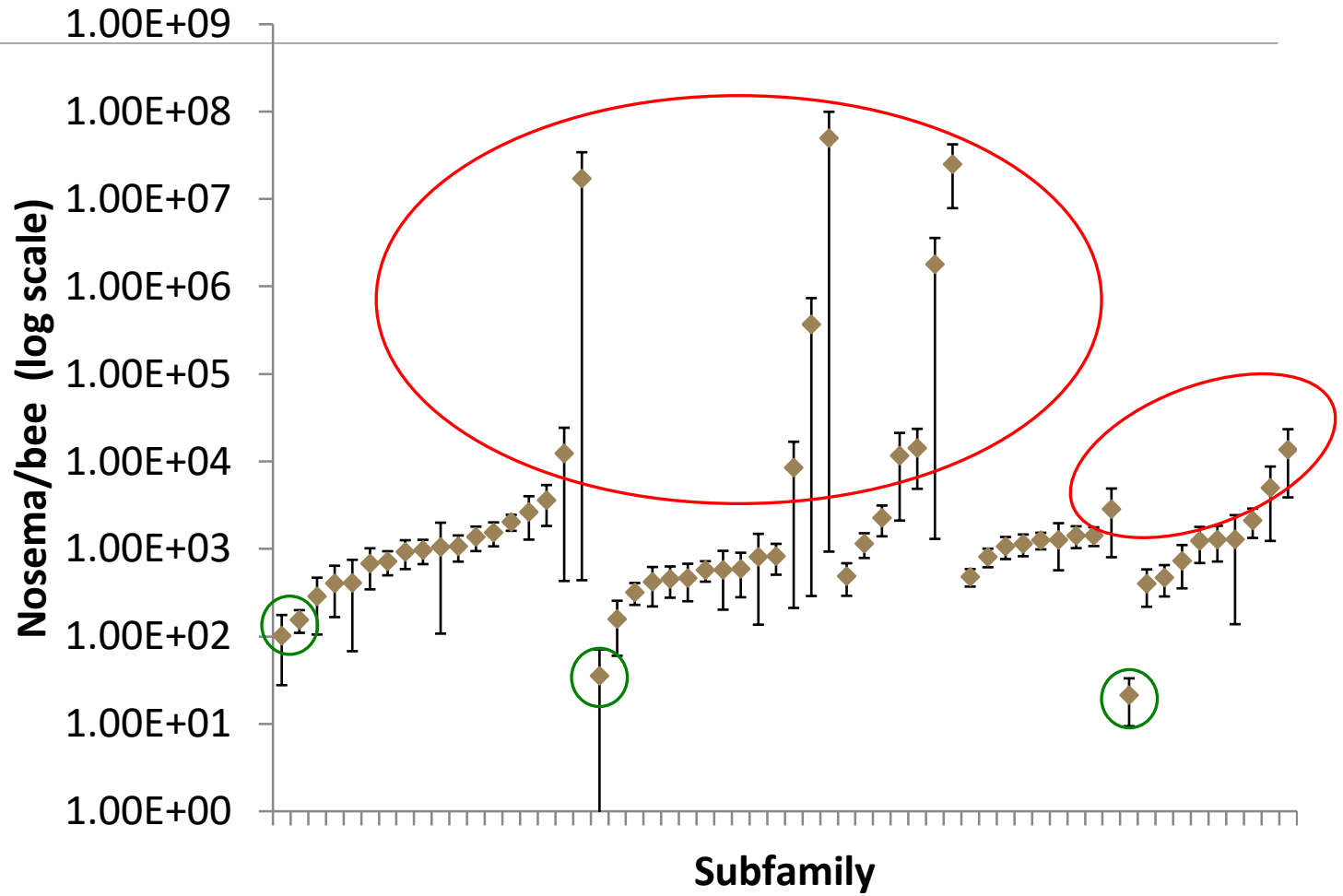
Tracheal mites - they have maintained resistance

Nosema – difficult to predict levels

- - evidence to support genetic resistance in Russian bees but more research is needed

Sub-family-level resistance to *Nosema*





Journal of Apicultural Research

Temperature affects *Aethina tumida* (Coleoptera: Nitidulidae) Development

Lilia I de Guzman and Amanda M Frake

Room temp Incubator

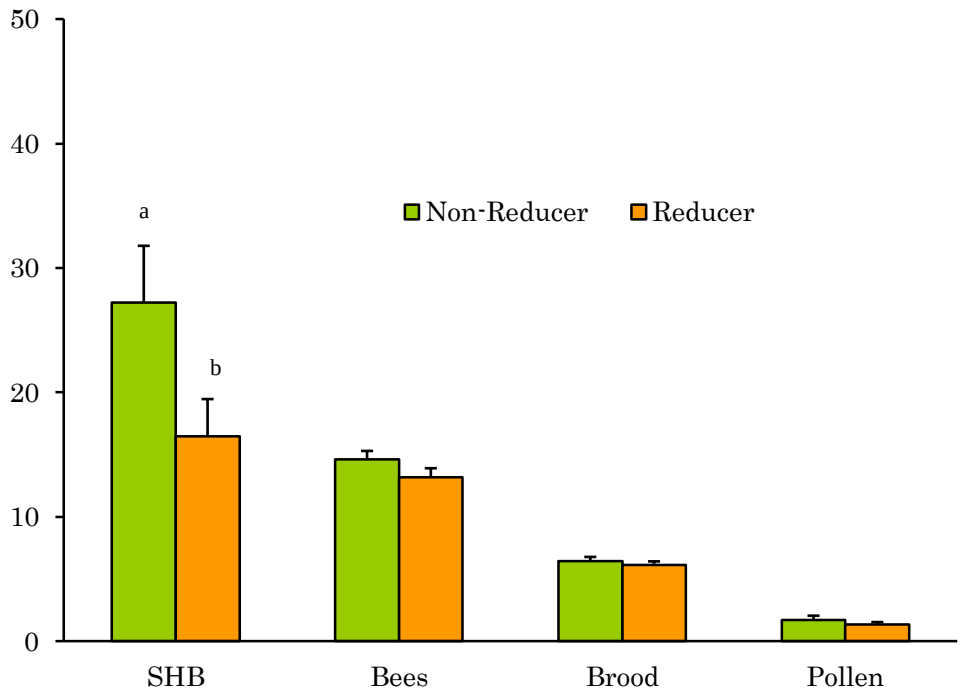
High temperature shortens the developmental period of SHB.

- Colder climates - inhibit SHB population development.
- Warmer climates - accelerate population development and may reach levels that damage colonies.

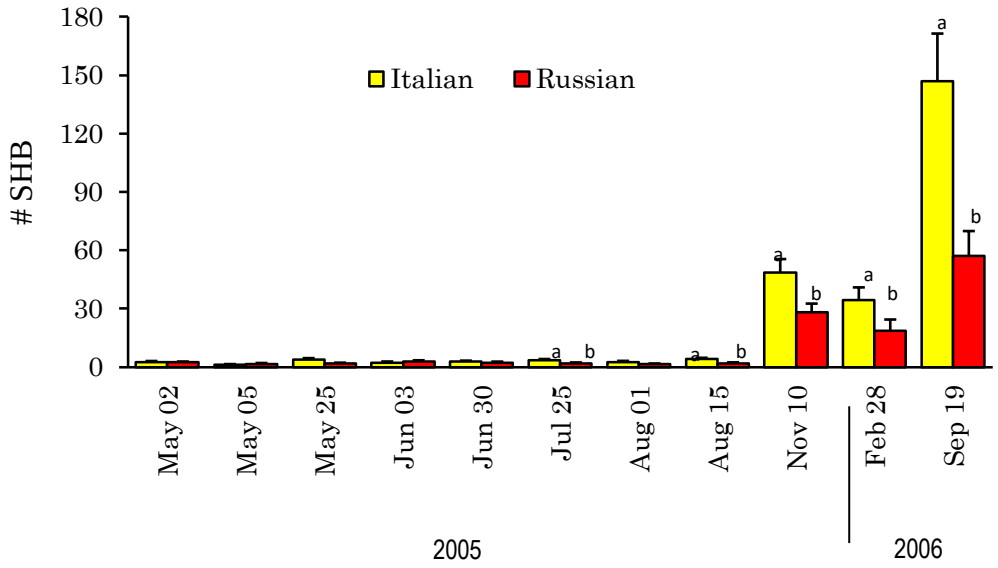
JOURNAL OF ECONOMIC ENTOMOLOGY

Comparative Resistance of Russian and Italian Honey Bees (Hymenoptera: Apidae) to Small Hive Beetles (Coleoptera: Nitidulidae)

AMANDA M. FRAKE,[1] LILIA I. DE GUZMAN, AND THOMAS E. RINDERER



Fewer SHB in RHB than Italian colonies.



Entrance reducers helped regulate SHB population in colonies.

Summary of Flight Activities of RFID-tagged workers

Variables	Age at first flight (days)	Age at last flight (days)	Total number of flights	Avg. daily flights	Flight duration (h)
Italian	8.77 ± 0.24	18.24 ± 0.40	25.35 ± 1.40[b]	3.25 ± 0.09[b]	14.61 ± 0.91[b]
Russian	8.74 ± 0.27	18.32 ± 0.41	31.33 ± 1.64[a]	3.83 ± 0.11[a]	17.84 ± 1.06[a]
	P = 0.097	*P* = 0.409	*P* = 0.007	*P* < 0.001	*P* = 0.012
Non -irradiated	8.66 ± 0.27[b]	18.86 ± 0.44	30.65 ± 1.69	3.67 ± 0.11	16.95 ± 1.05
Irradiated	8.83 ± 0.24[a]	17.81± 0.38	26.63 ± 1.42	3.45 ± 0.10	15.72 ± 0.95
	P = 0.039	*P* = 0.925	*P* = 0.16	*P* = 0.179	*P* = 0.369

Russians allow you to manage your bees not your mites.

Questions?