



Beekeeping in Sweden



Estonian Beekeepers Winter Day
Tartu, 2011

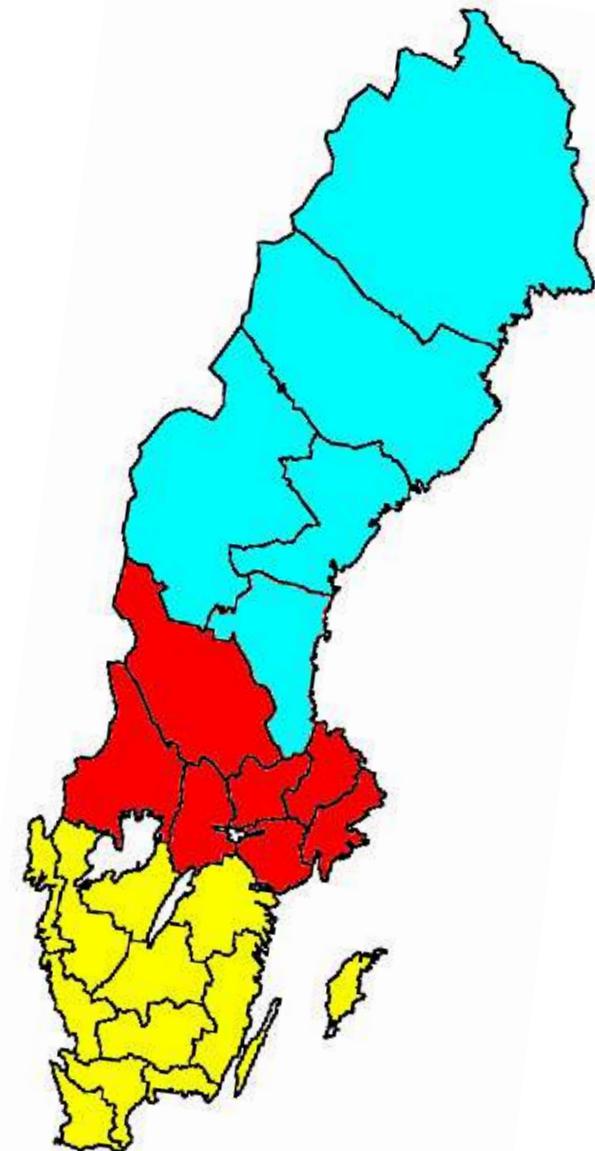
Preben Kristiansen

Beekeeping in Sweden

10 000 - 14 000 beekeepers

110 000 - 150 000 colonies

2 500 tons of honey



Beekeepers

11%

28%

61%

Hives

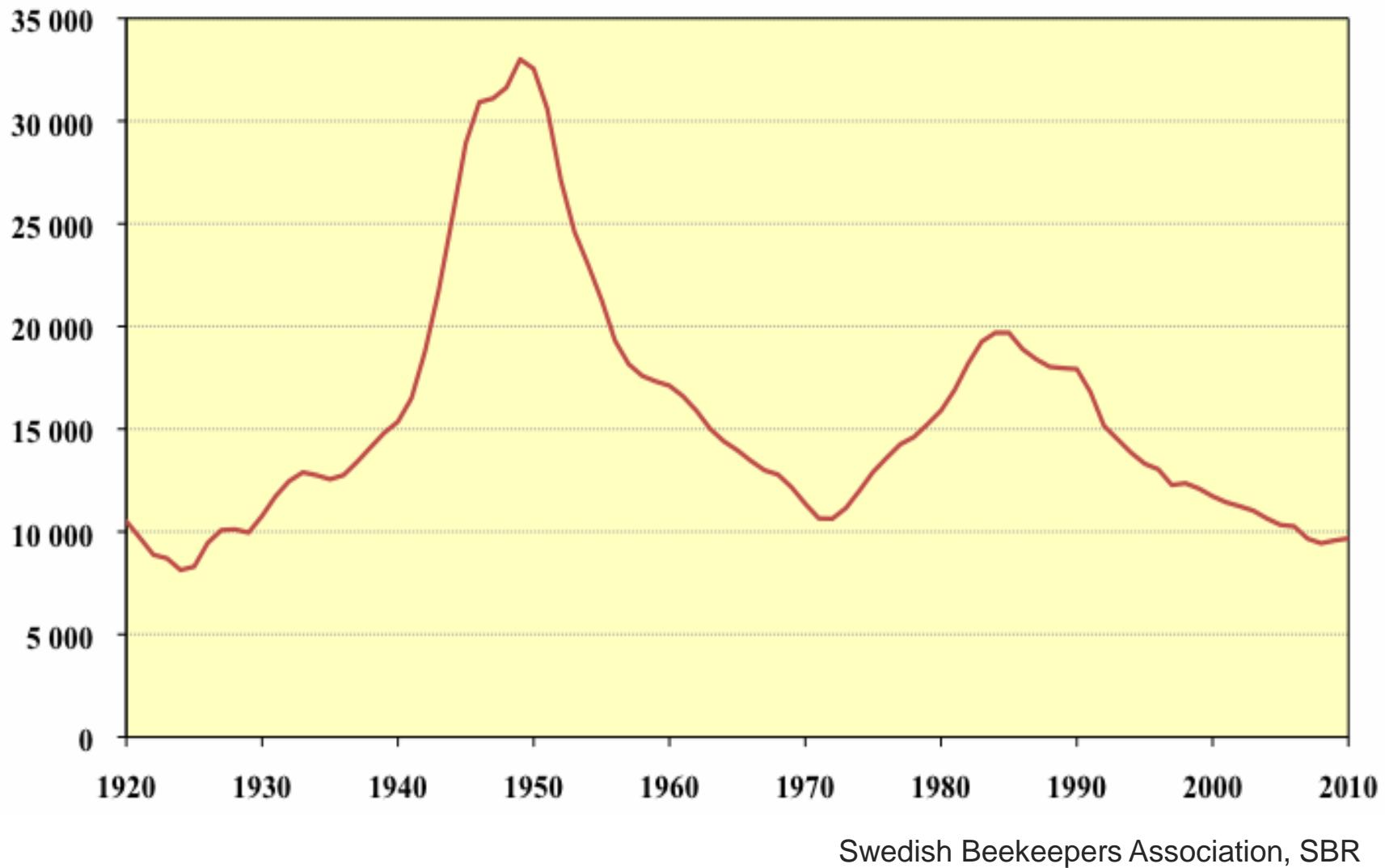
6%

33%

61%

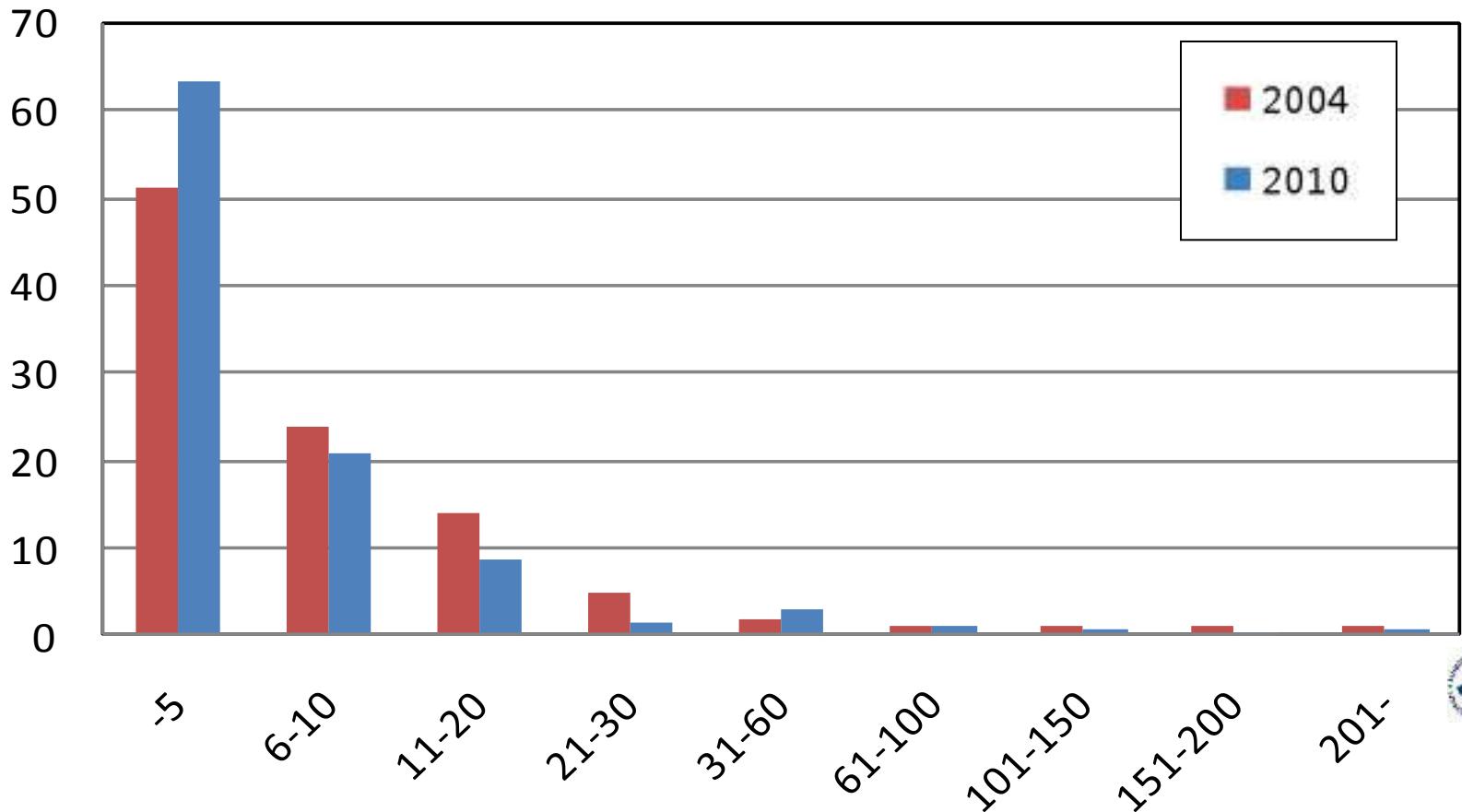


Members of the Swedish Beekeepers Association



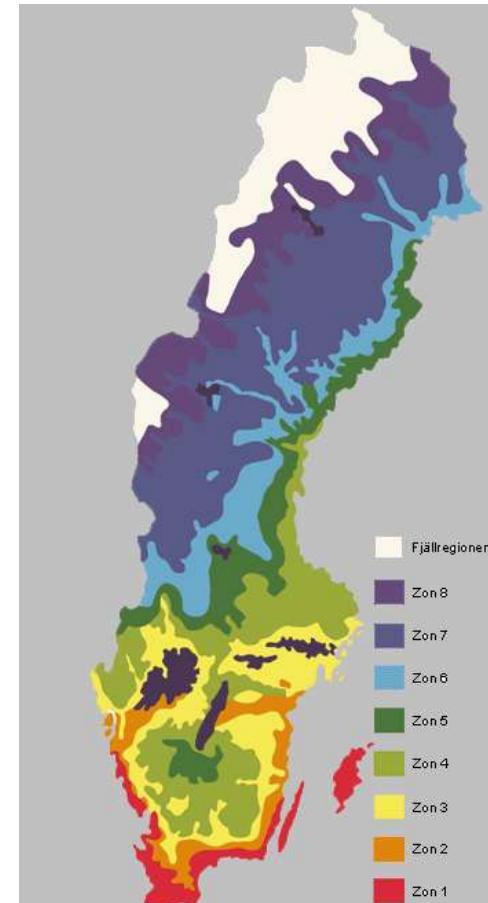
Swedish Beekeepers Association, SBR

How many colonies do the members of SBR have?

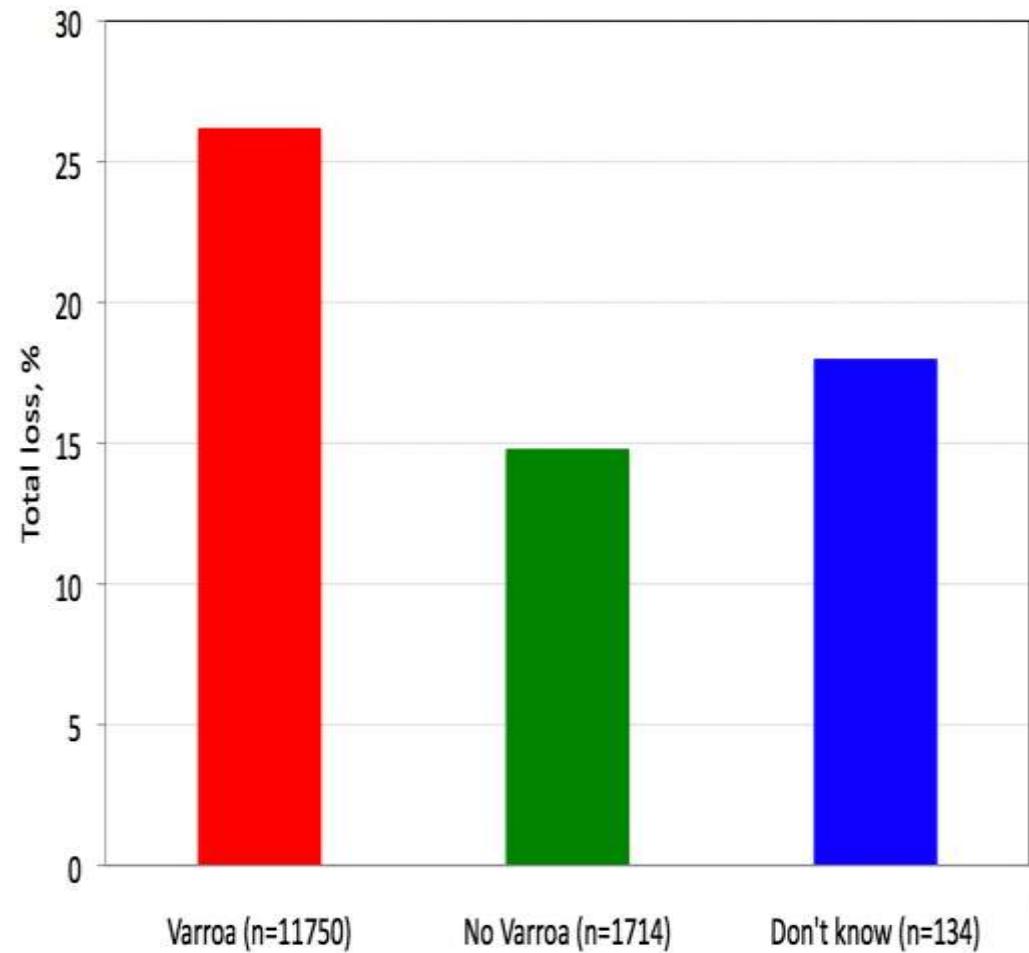


Honey yield per colony

1999-2009

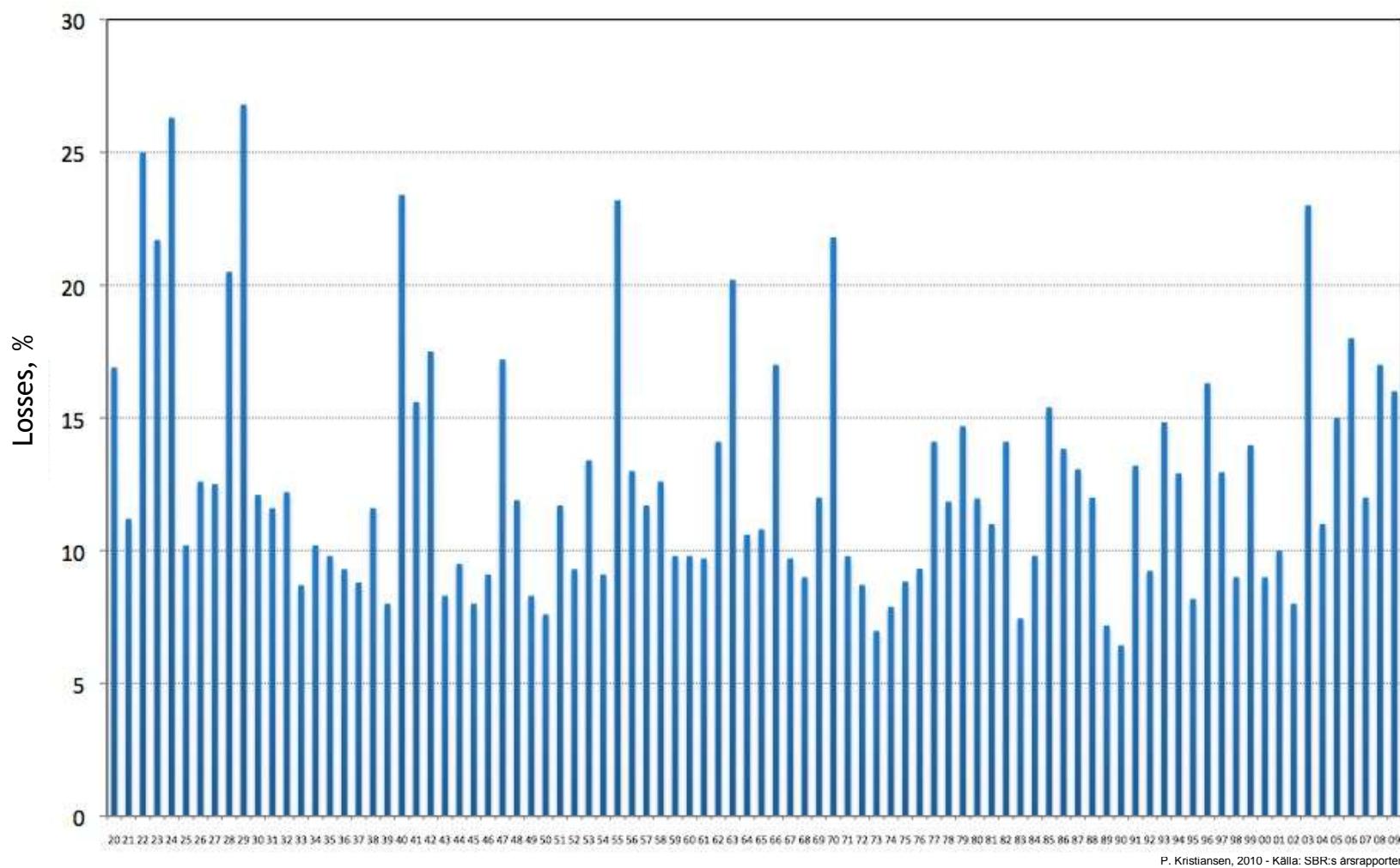


Varroa in Sweden and colony losses 2009-2010



Colony losses in Sweden

1920-2009



P. Kristiansen, 2010 - Källa: SBR:s årsrapporter

COLOSS project

Survey 2010



Questionnaire

Viable Colonies, Honeyproduction and Pollination service in 2009

Q6 How many viable/productive hives/colonies did you have in April 2009

Q7 Which bee race are you mainly using?

Q8 How many times were the majority of your hives in 2009 moved for either honeyproduction or pollination services? (If available, please add the postal codes of the region where you have moved the hives to.)

Q9 What was the average honey yield in kilograms per production colony for 2009?

Q10 How many colonies were used for pollination services in professional agriculture?

Lost Colonies 2009-2010

E3 How many productive colonies were lost in September 2009

E4 How many productive colonies did you have in October 2009?

E5 How many productive colonies as meant in question E3 did you have alive in April 2010?
E6 How many of your lost colonies died, without dead bees in the hive nor in the apiary, while enough food was present.

E7 When did 'winter' start for your colonies?

E8 When did the foraging season start for your colonies?

E9 To what do you attribute the cause of the death colonies in your operation?

a. Starvation b. Poor queens c. Varroa d. Nosema e. Poor weather f. Pesticides g. Weak colonies in the fall h. Other

Q12 What percentage of losses over the period October 2009 - April 2010 would you consider normal for your operation?

Q13 If not in winter, what is the period with high risks of losses for your colonies?

Q14 If the colonies were located at different beeyards *during the foraging season 2009*, Have you observed substantial differences in colony losses between the apiaries in the period october 2009 - April 2010?

Number Postal Code

yes/no



Survey on losses in Sweden

Questionnaire on internet

Beekeepers : 12 000
Colonies: 125 000

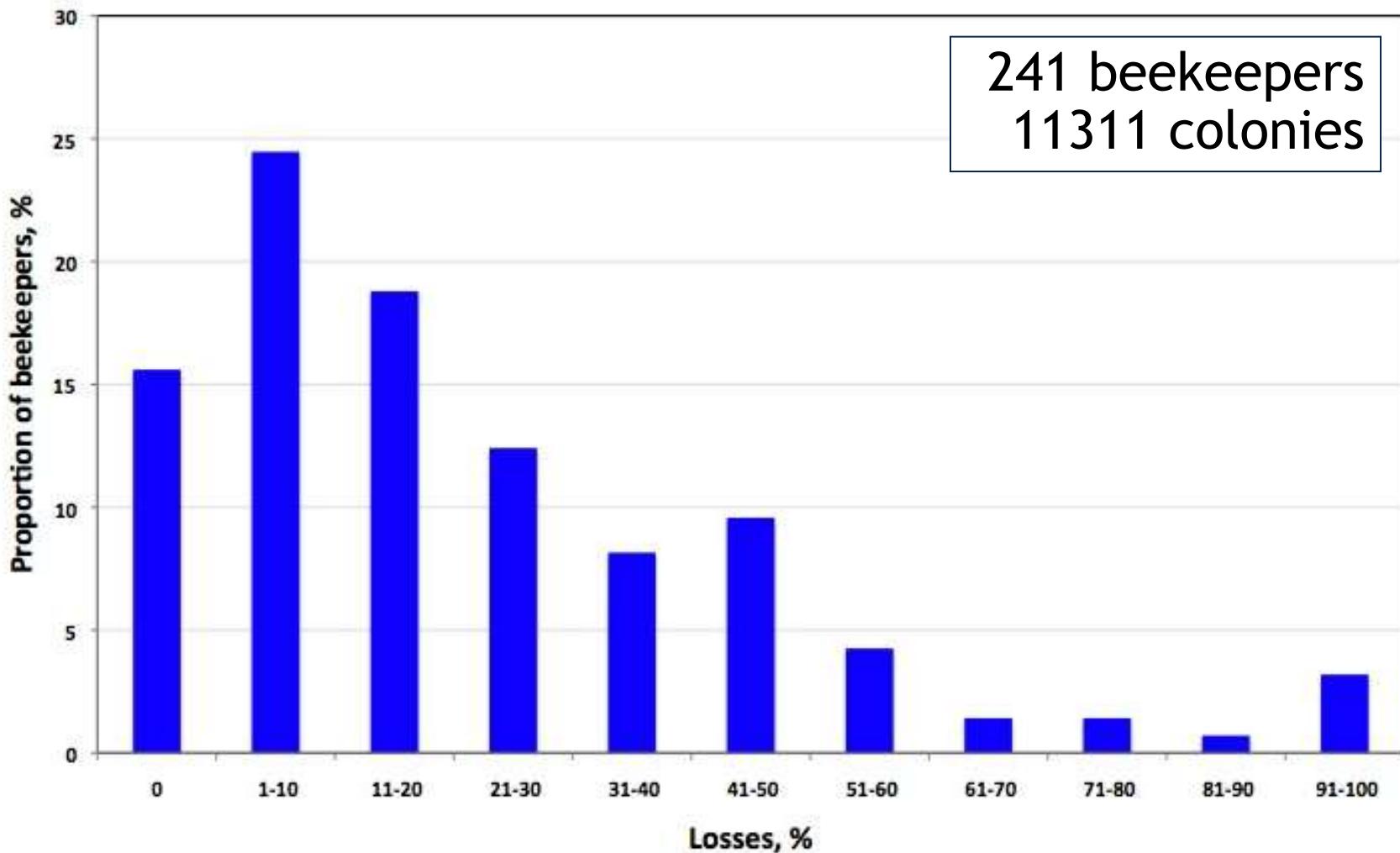
	Beekeepers	Colonies	Total loss, %
2008-2009	565	7354	17,5
2009-2010	751	13598	24,7

One beekeeper lost 570 of his 620 wintered colonies
during the winter 2009-2010

If data from his operation is left out the total loss was
21,5 %

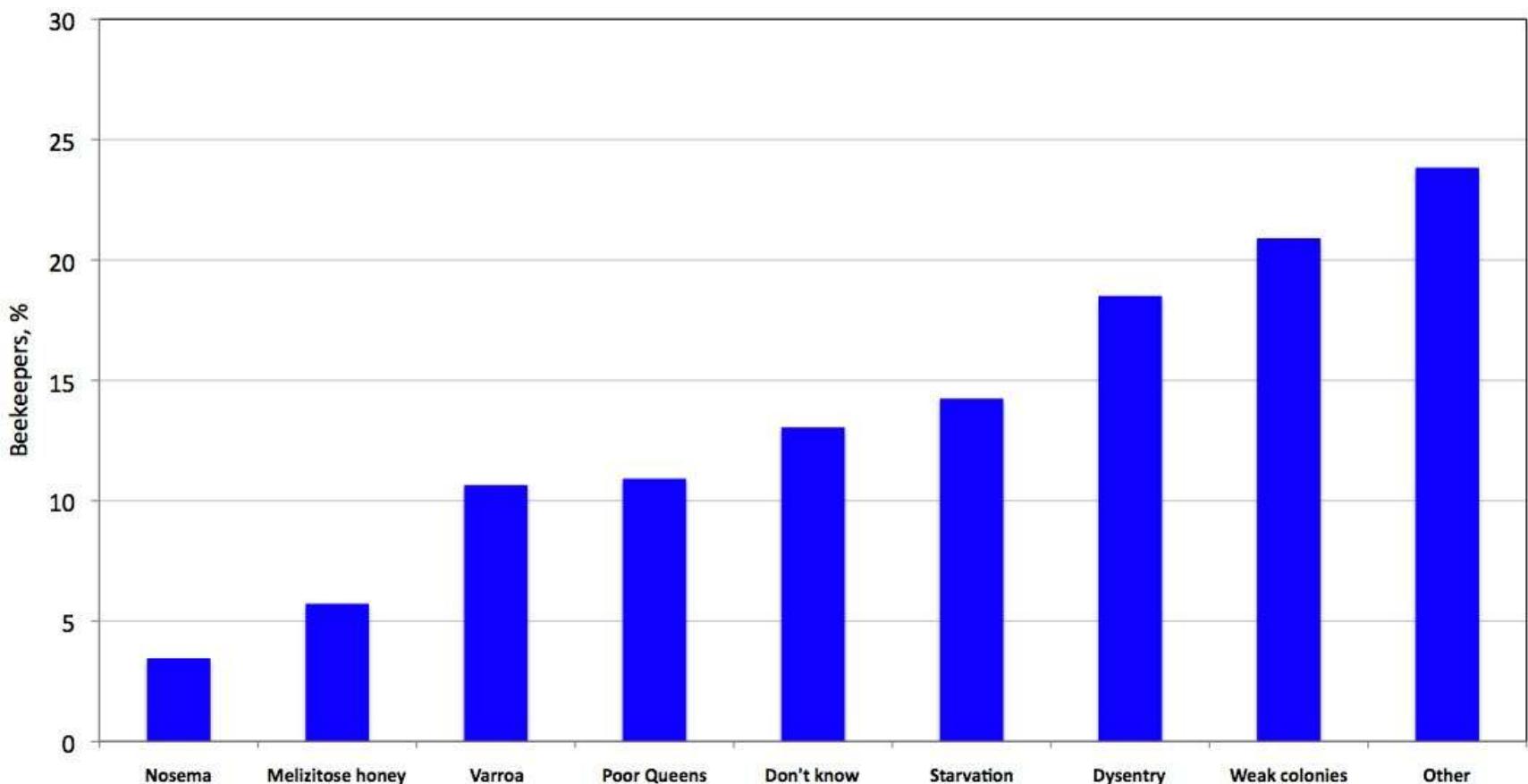
Survey on losses 2009-2010

Beekeepers with 10 or more hives



Major cause for losses

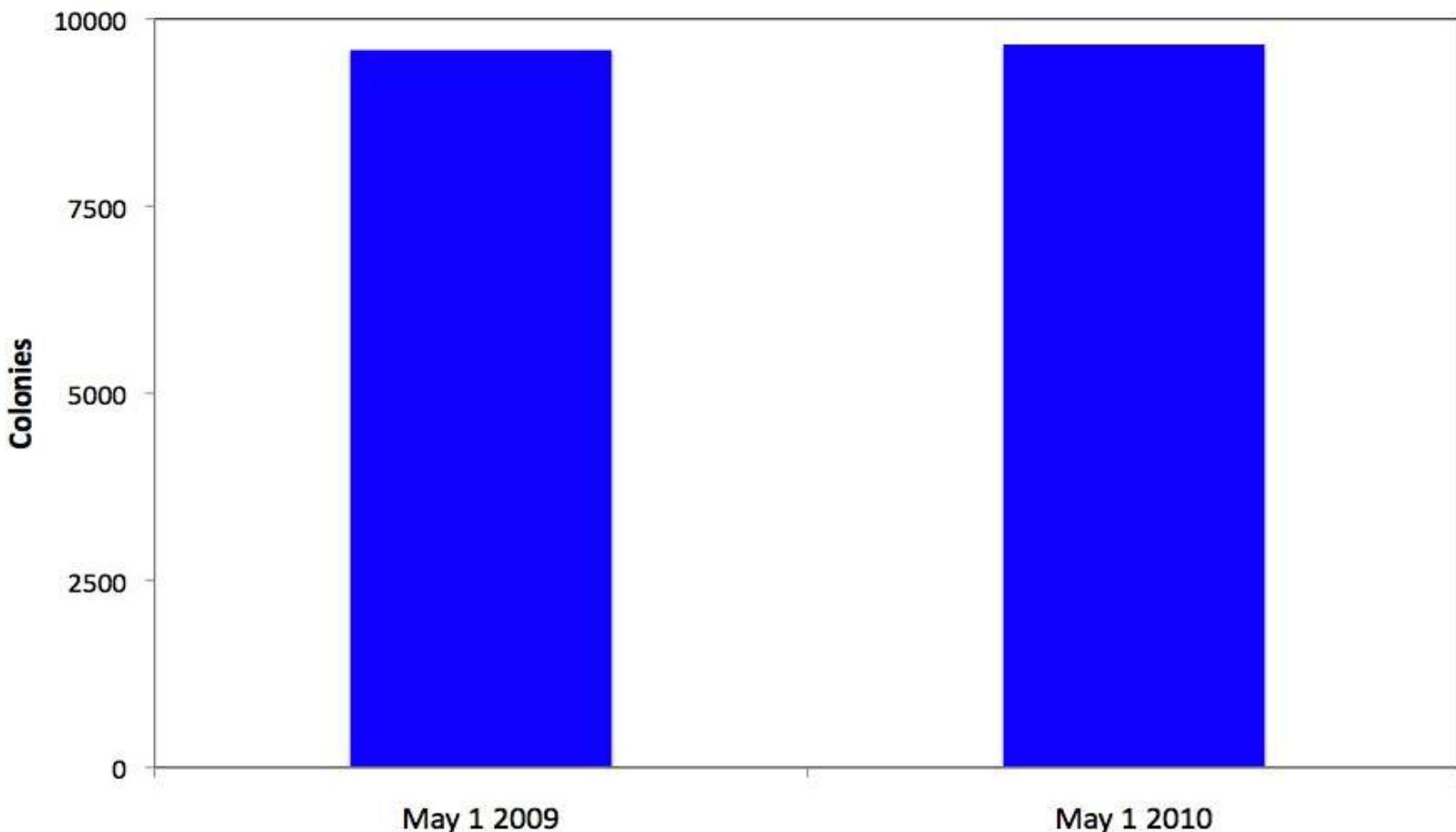
survey 2009-2010



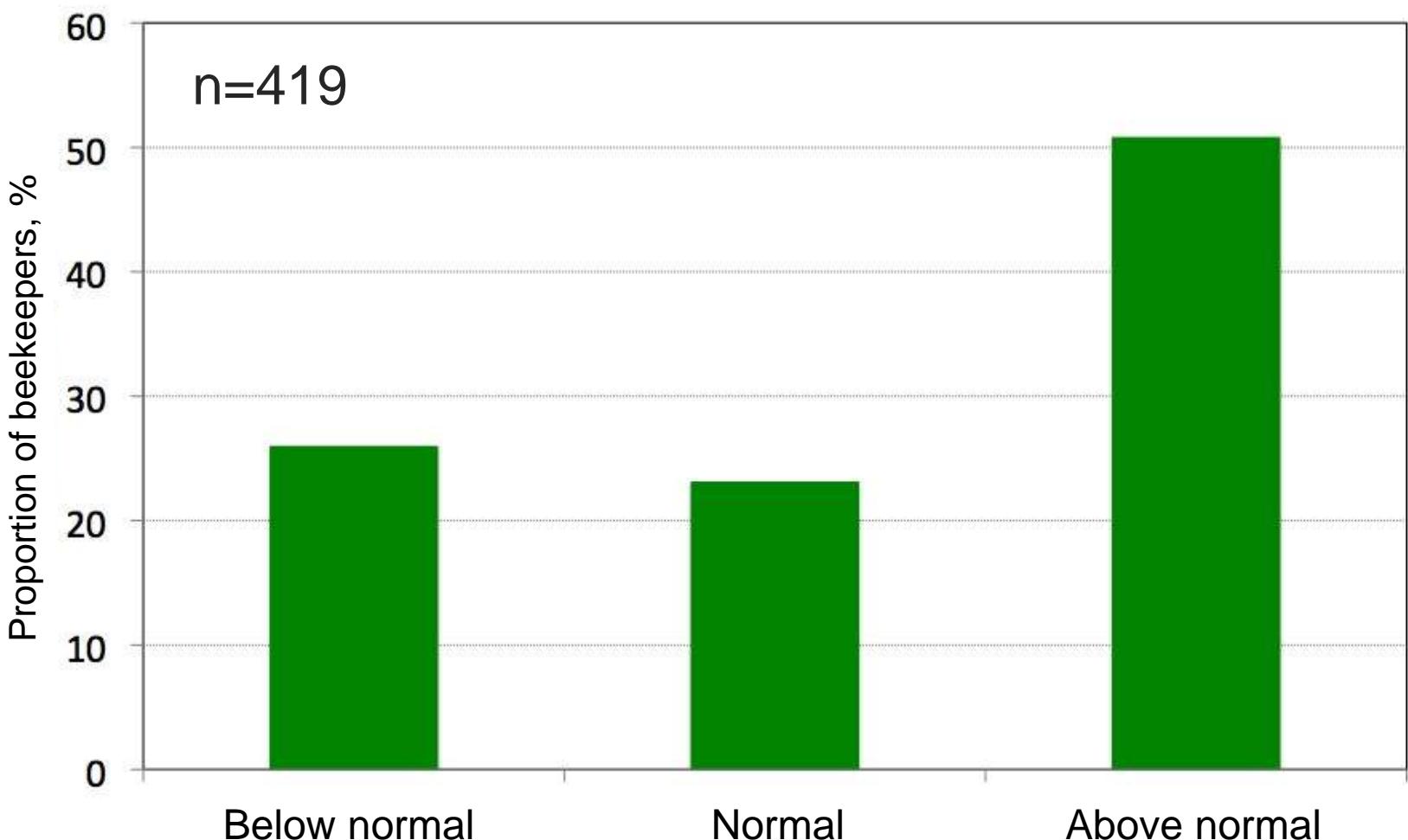


Number of colonies

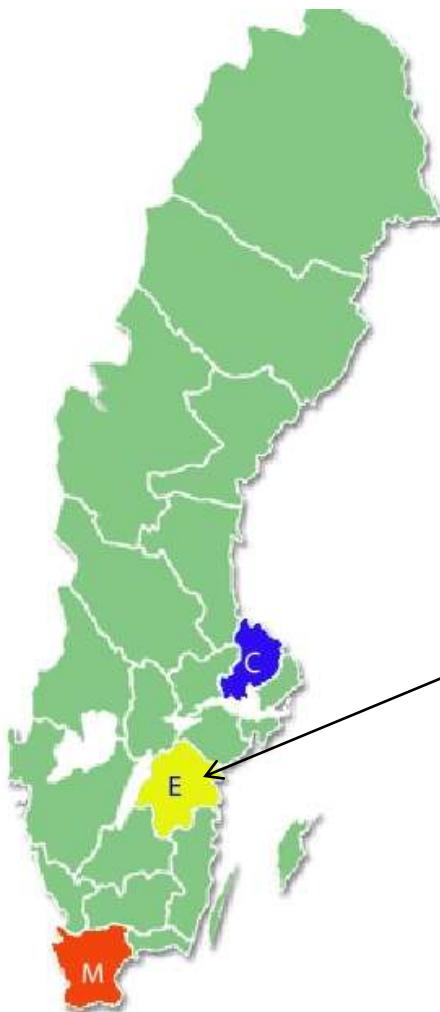
May 1st 2009 and 2010
681 beekeepers



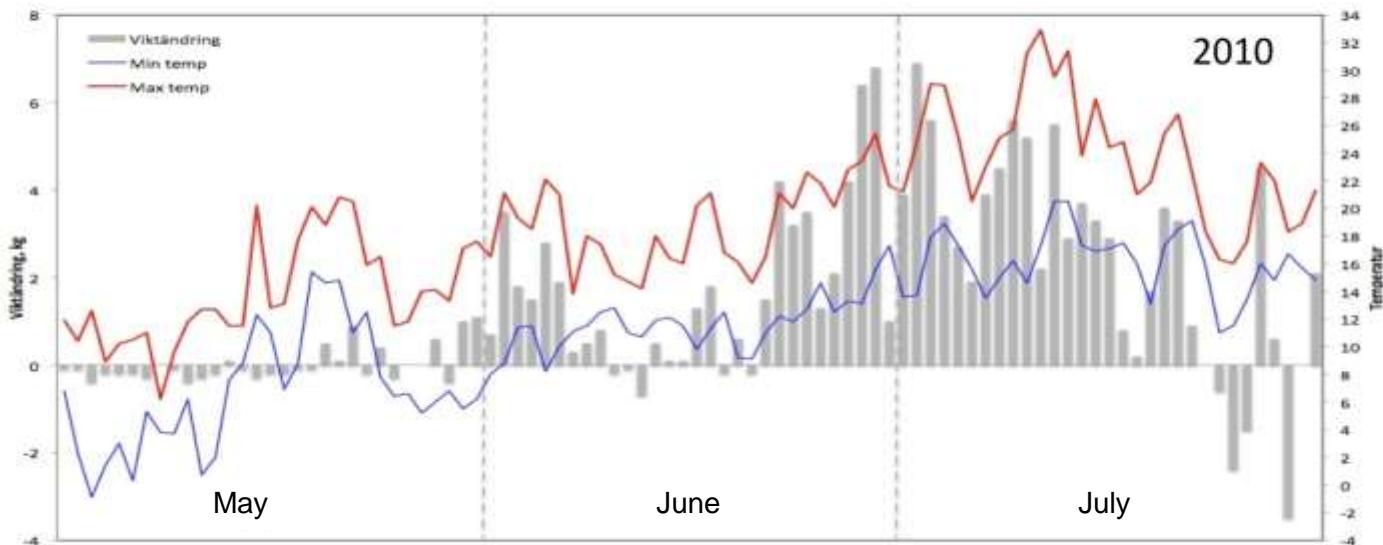
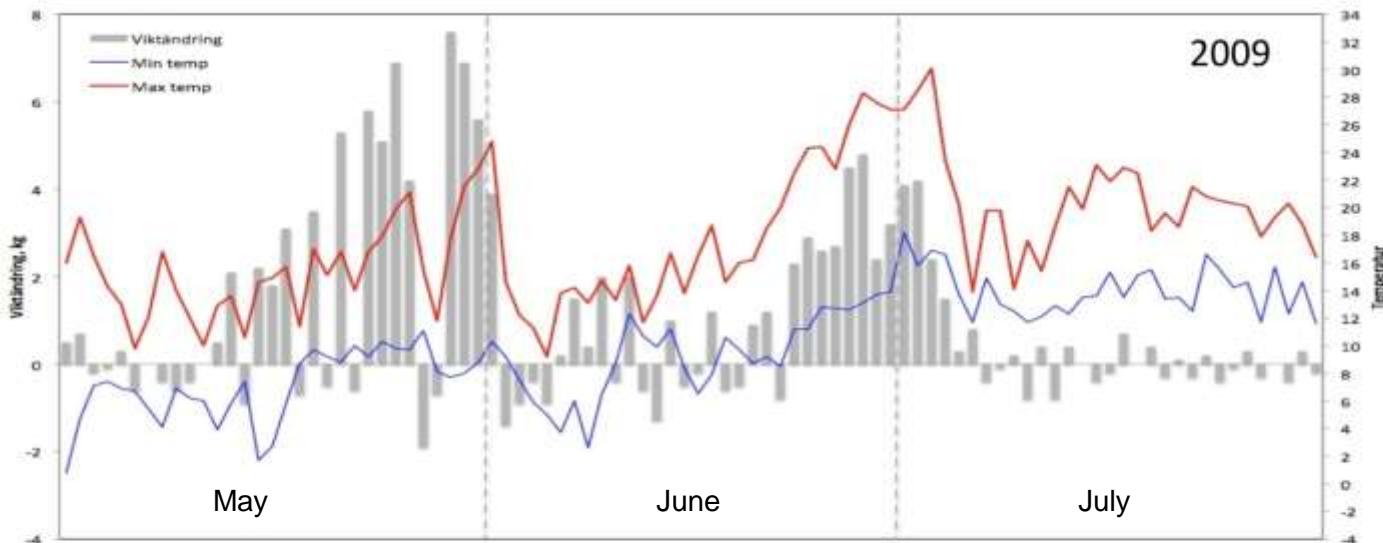
The honey yield 2010



Hive scales



The honey flow





Products against varroa



Apistan

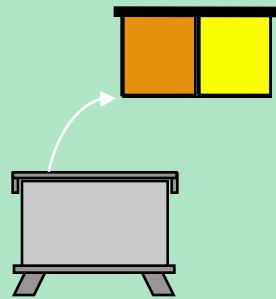


Apiguard

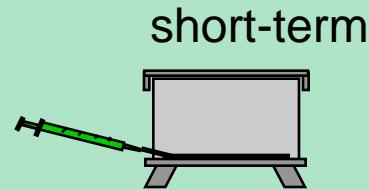
Control concept

dronebrood removal and OA + FA if needed

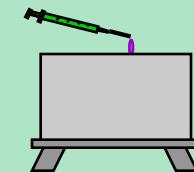
Removal of dronebrood



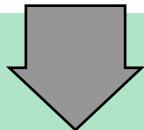
FA



OA



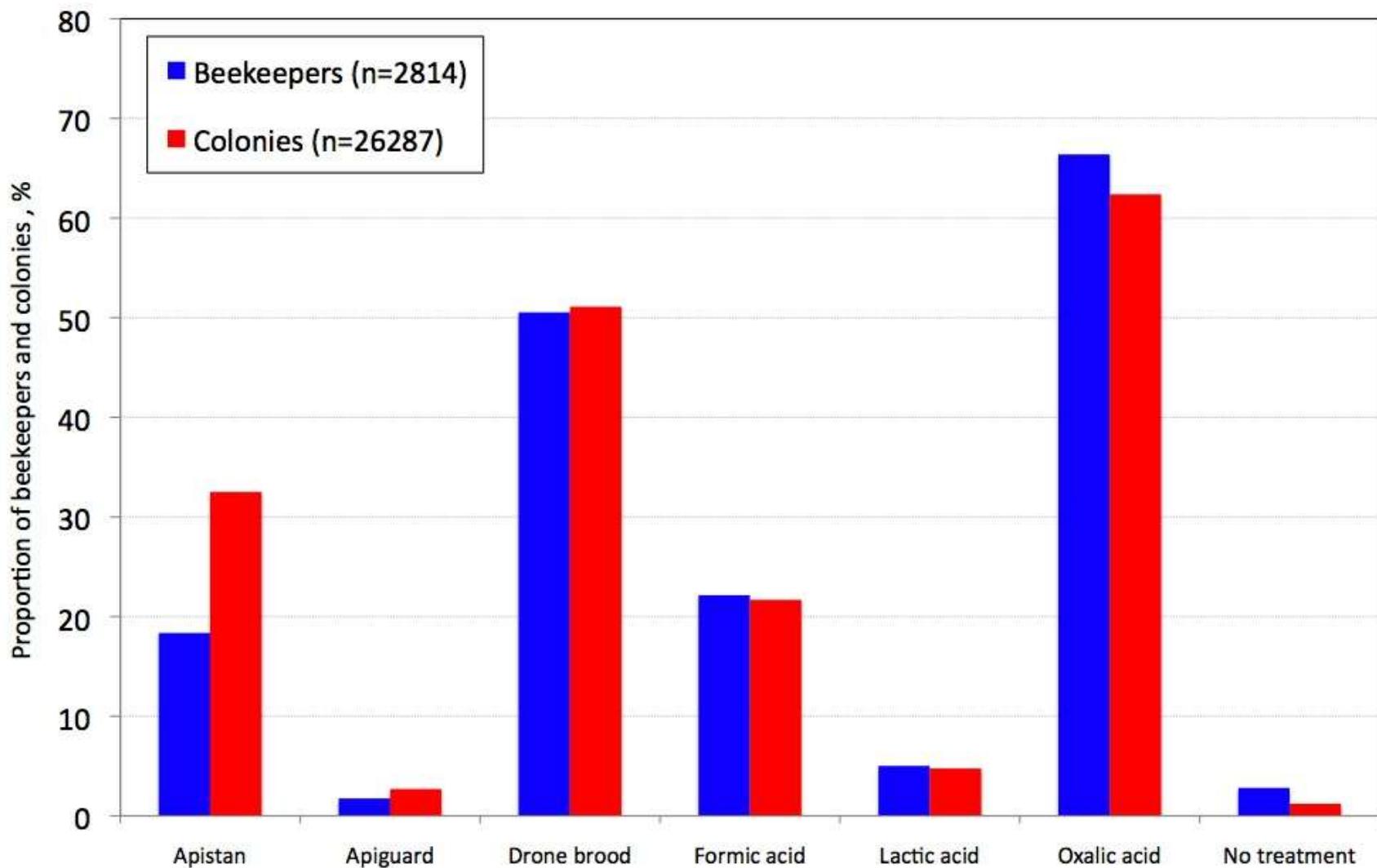
| May | June | July | August | September | October |



Natural mite drop

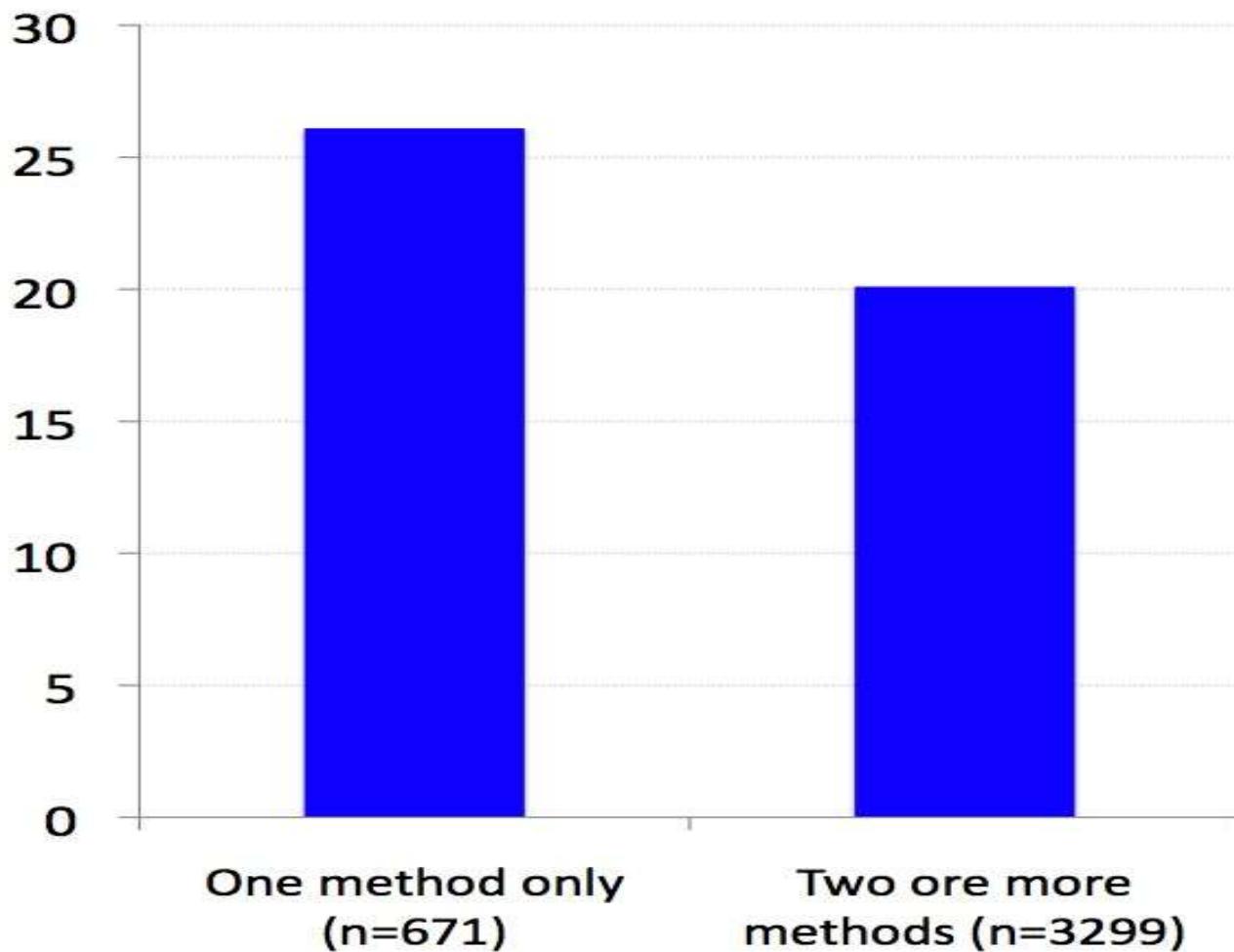
5-10 mites per day

Varroa control 2010



Colony losses

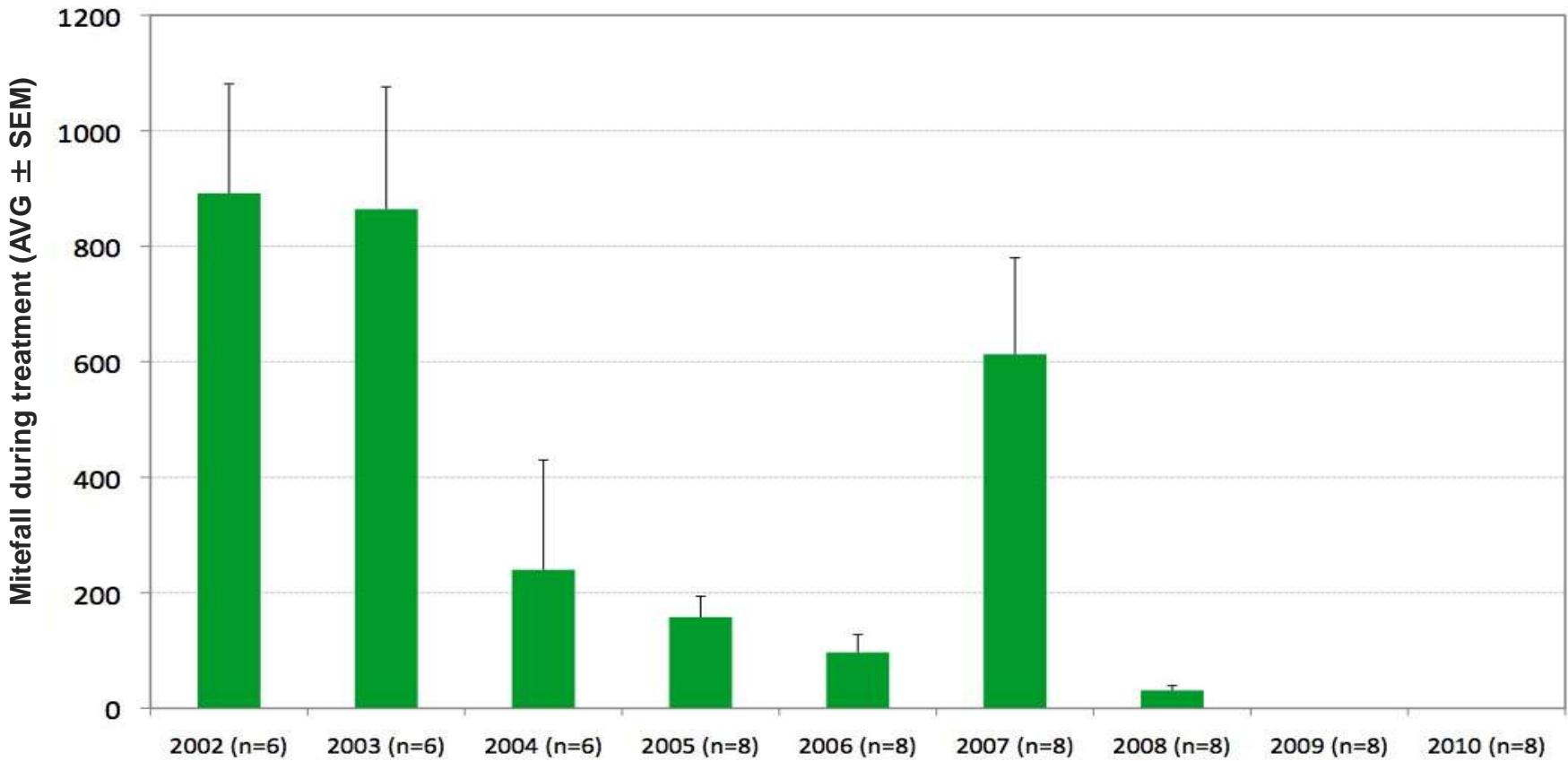
in relation to number of methods against Varroa
2008/2009



Observation apiary

Hästveda in Skåne

Drone brood removal, formic acid (long term) and oxalic acid



”Bond” project

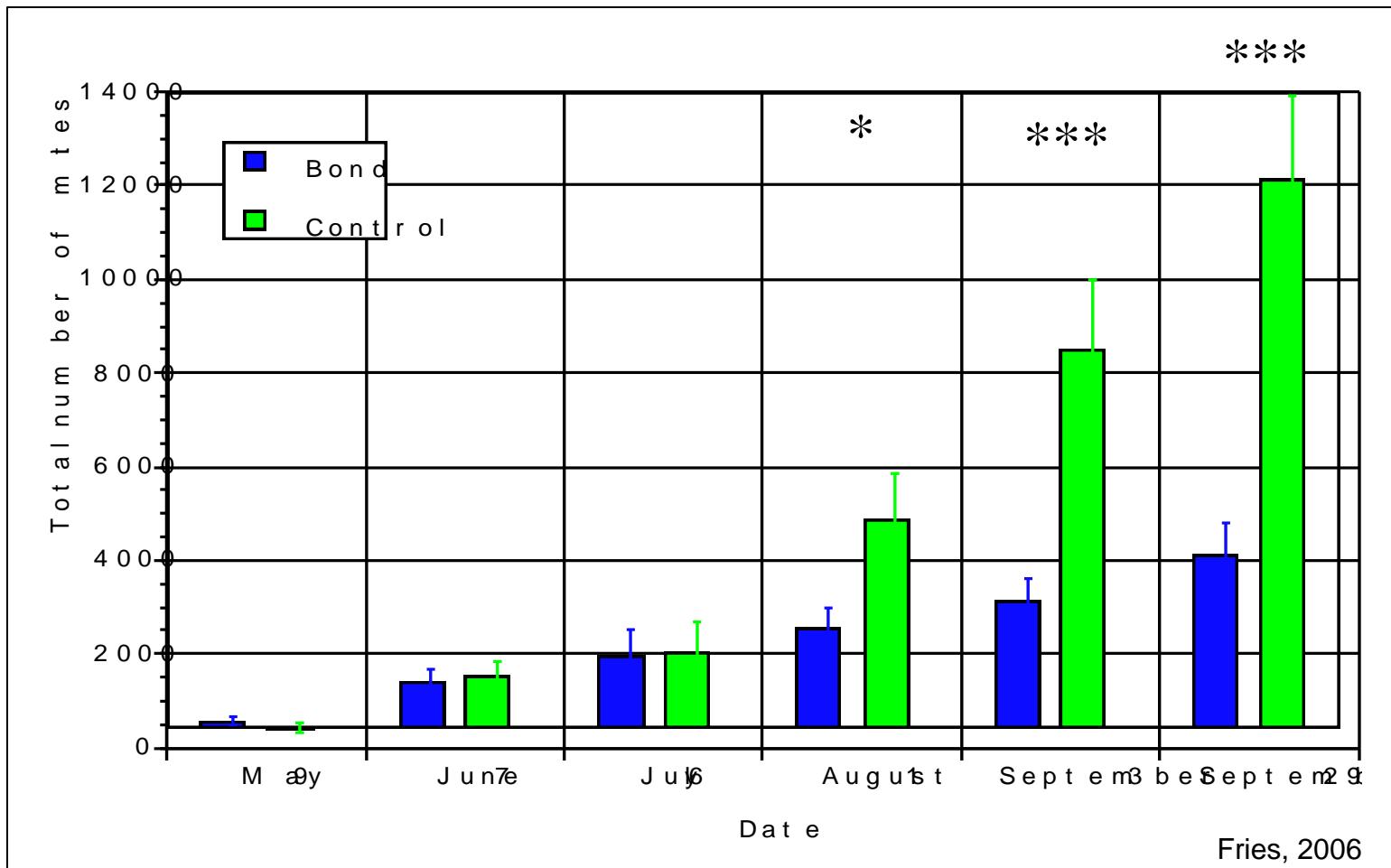


Project started 1999
150 colonies (8 apiaries)
No Varroa control
Project leader Ingemar Fries



Results from test on Gotland

- mite population dynamics



There is good evidence for a slower mite population increase in Bond colonies compared to controls









**On mainland Sweden: 7 apiaries with
queens from the Bond-project on Gotland**

- 8 colonies with Bond-queens**
- 8 colonies with control queens**

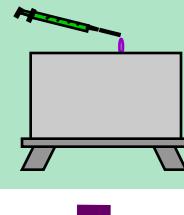


Test of queens for Varroa tolerance Plan

2006 (1st year)

OA

Nucs
with the
queens
established



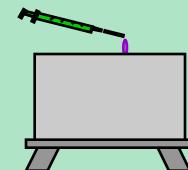
| May | June | July | August | September | October |



Test of queens for Varroa tolerance Plan

2007 and 2008

OA



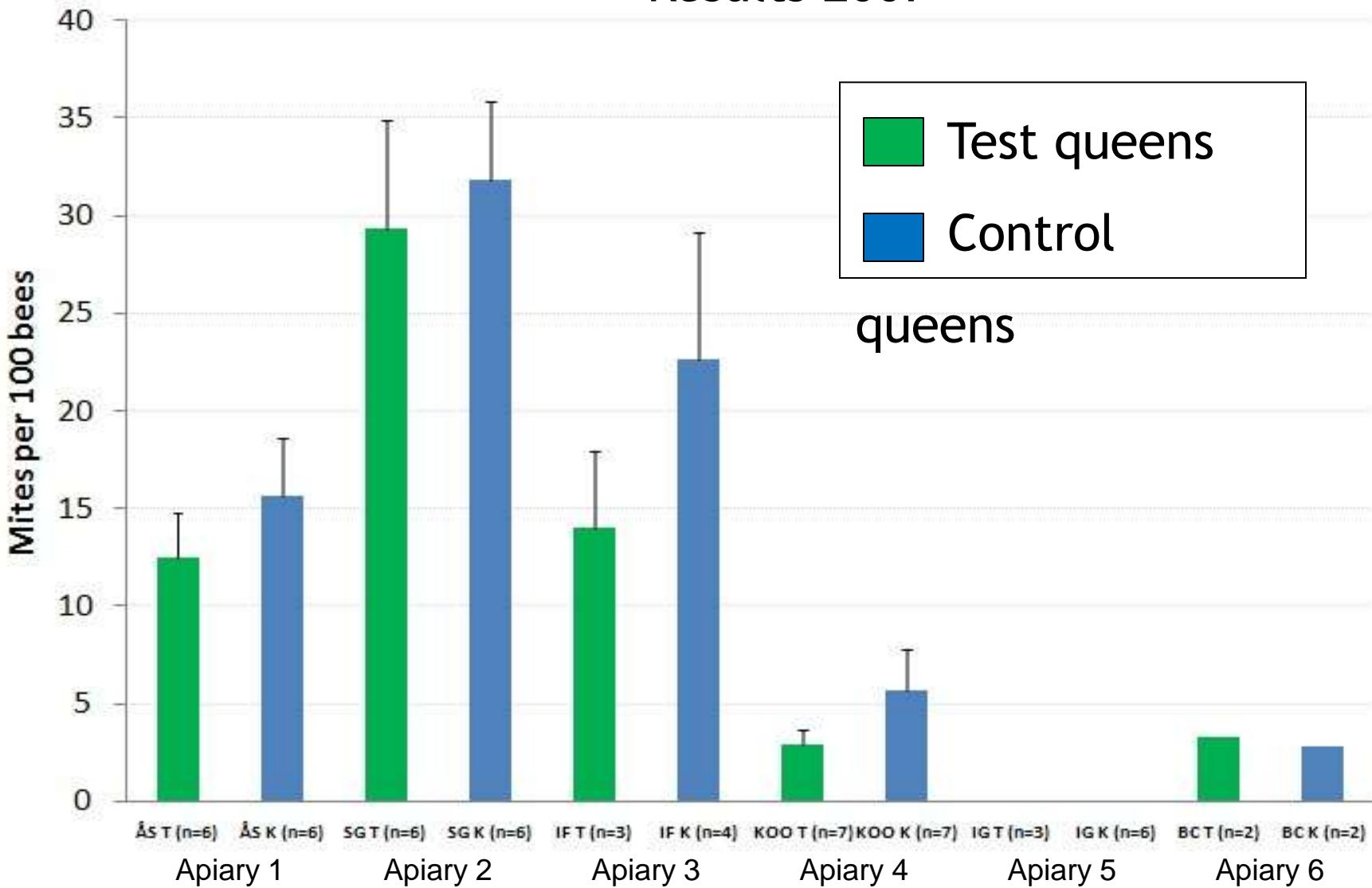
| May | June | July | August | September | October |

Sample of at
least 100 bees



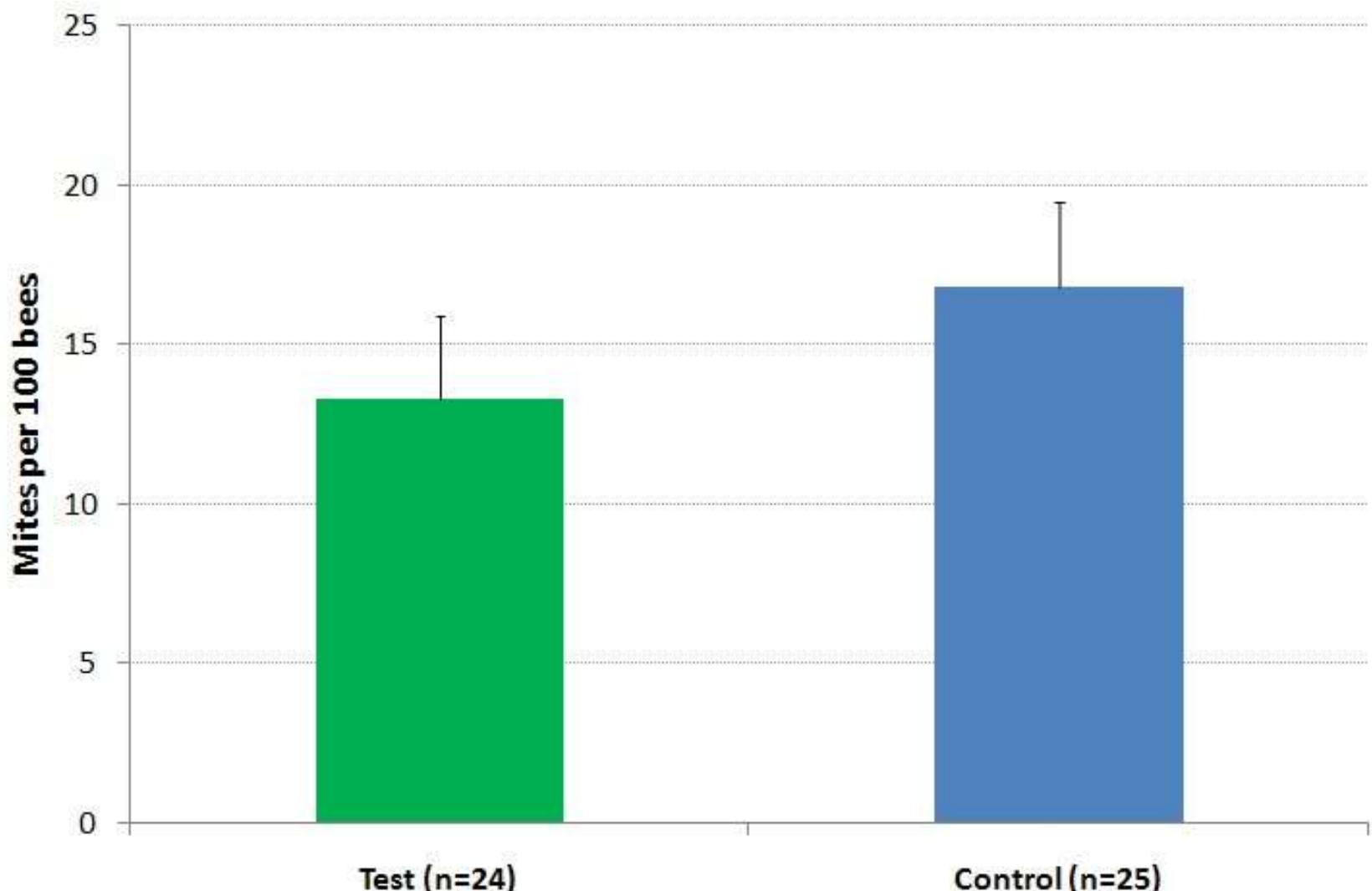
Test of queens for Varroa tolerance

Results 2007



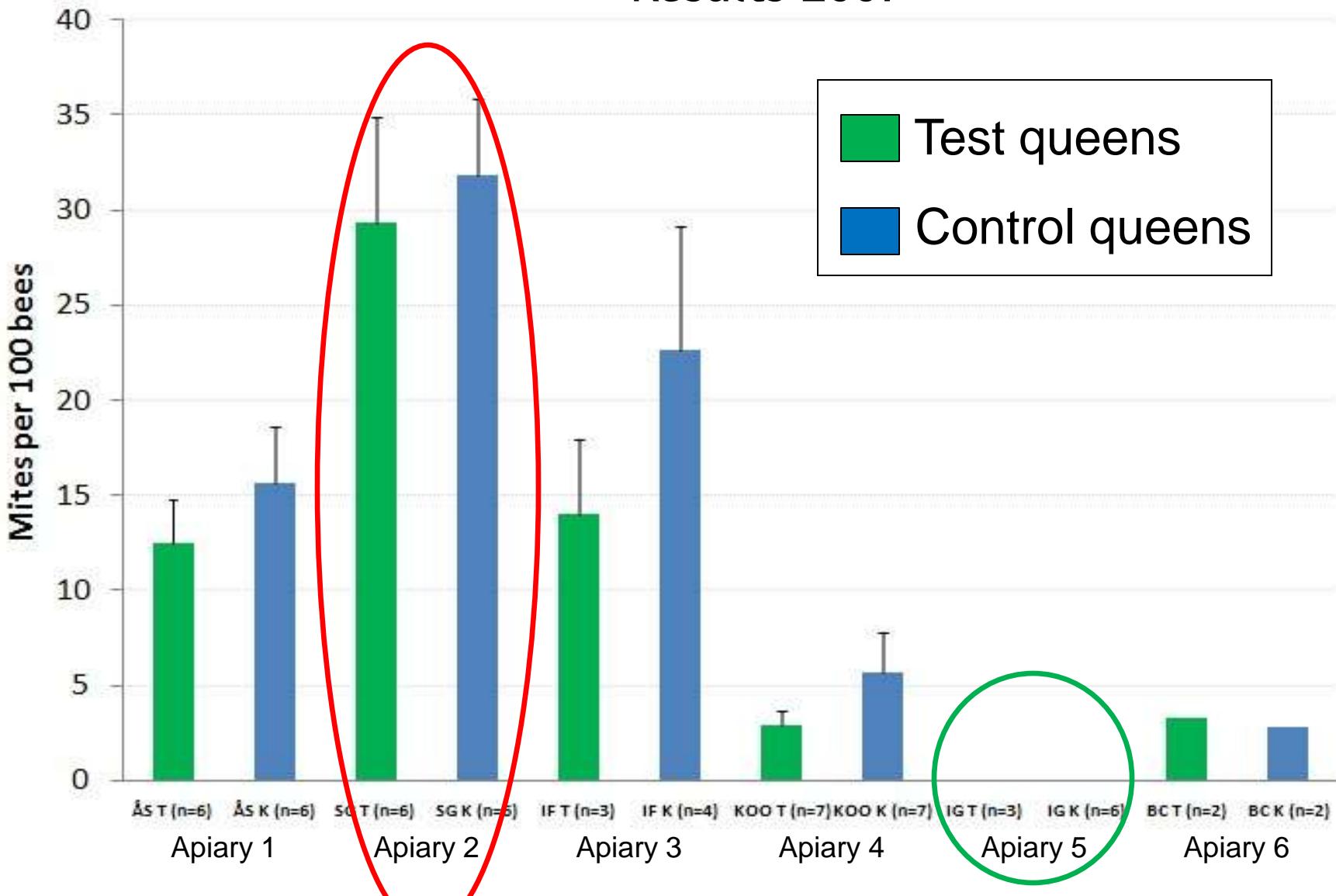
Test of queens for Varroa tolerance

Results 2007



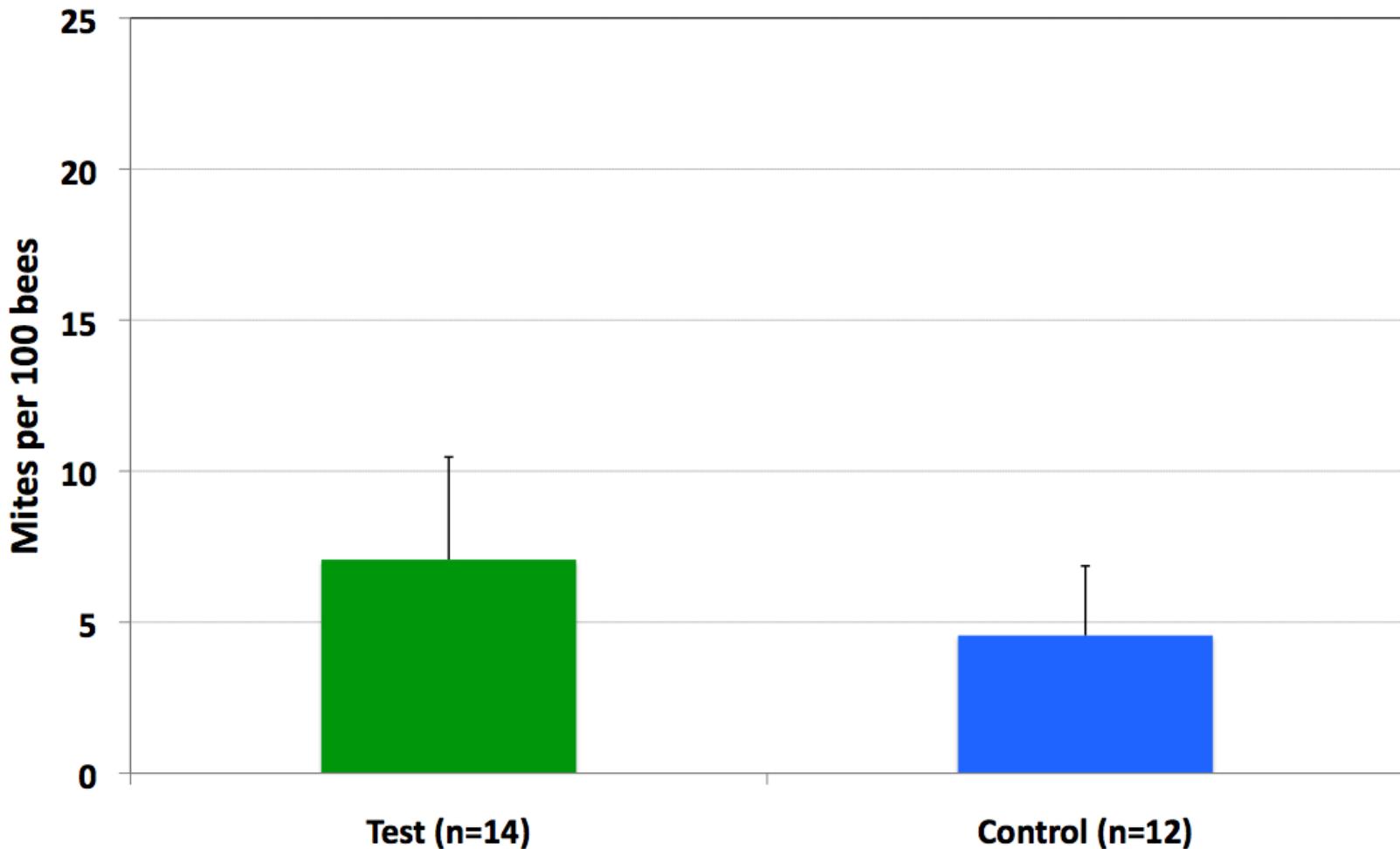
Test of queens for Varroa tolerance

Results 2007



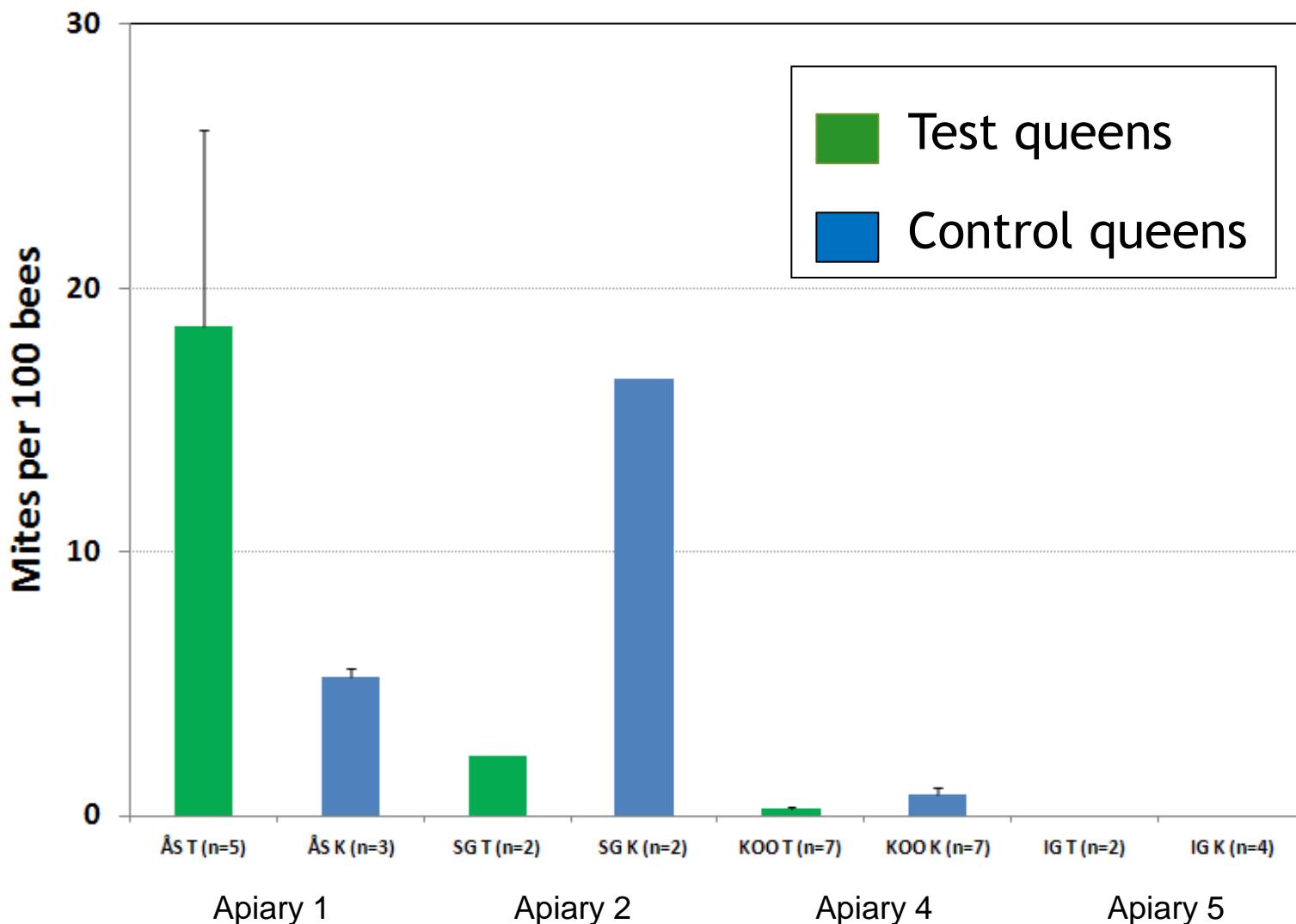
Test of queens for Varroa tolerance

Results 2008



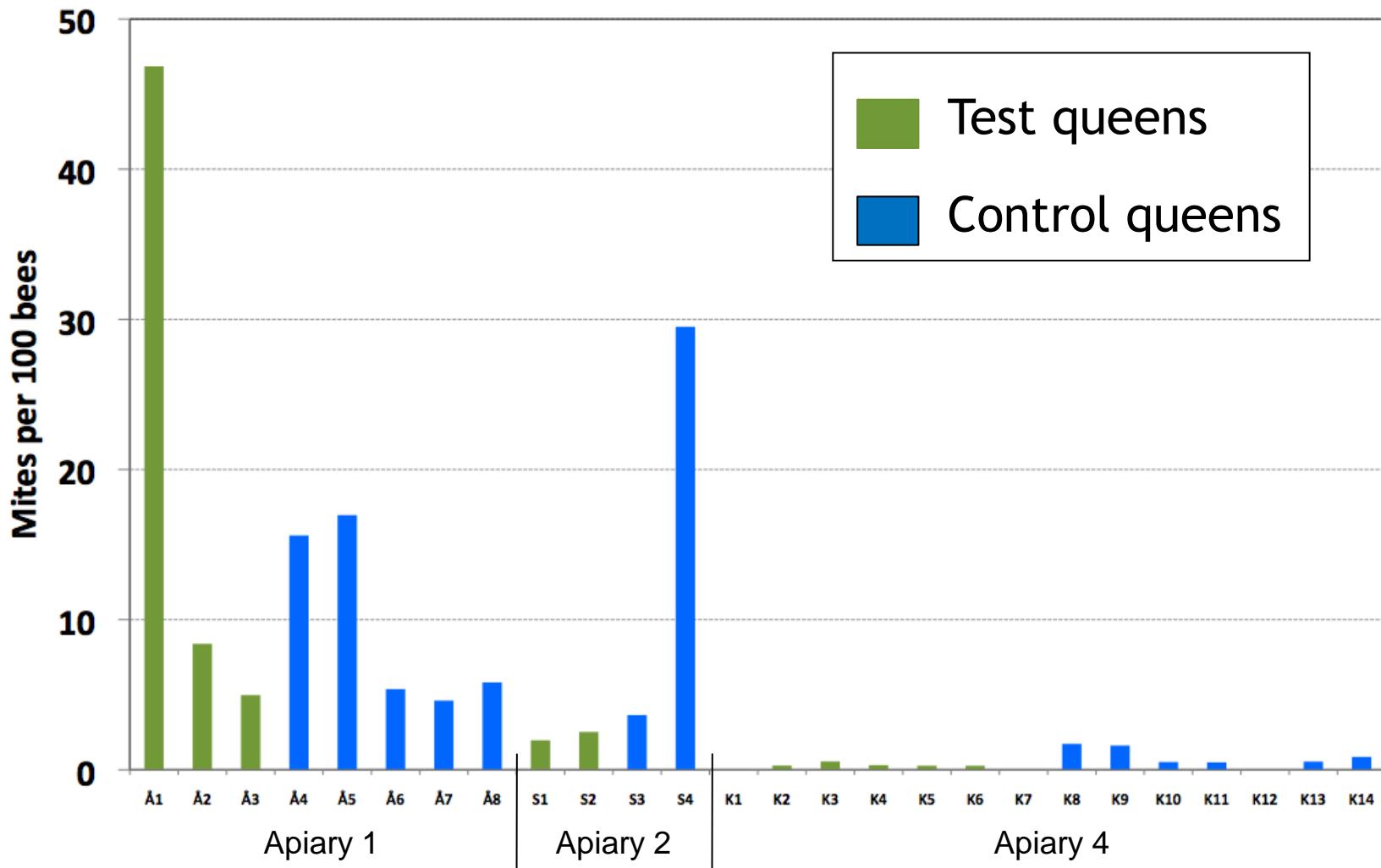
Test of queens for Varroa tolerance

Results 2008



Test of queens for Varroa tolerance

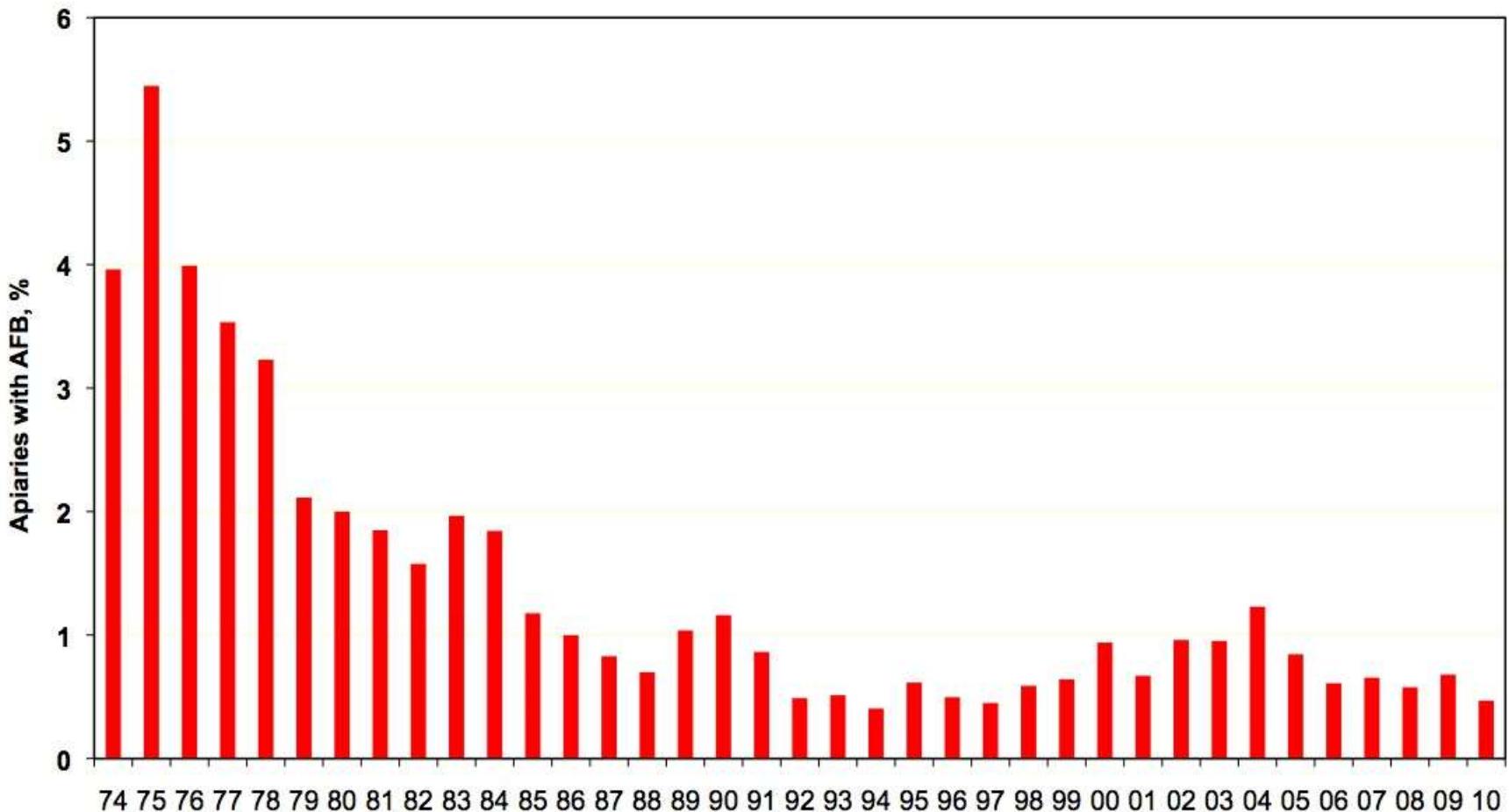
Results 2008



Some colonies are still surviving



American Foulbrood i Sweden 1974-2010





Samples from apiaries with high and low mortality

2009

Low mortality

< 12 % (0 - 12 %)

- 10 beekeepers
- 21 apiaries
- 27 samples

High mortality

>14 % (14 - 40 %)

- 5 beekeepers
- 9 apiaries
- 10 samples



Swedish Board of Agriculture and Swedish University of Agricultural Sciences



Samples from apiaries with high and low mortality

2009

The bees analyzed for:

Varroa

Tracheal mite

Nosema (both species)

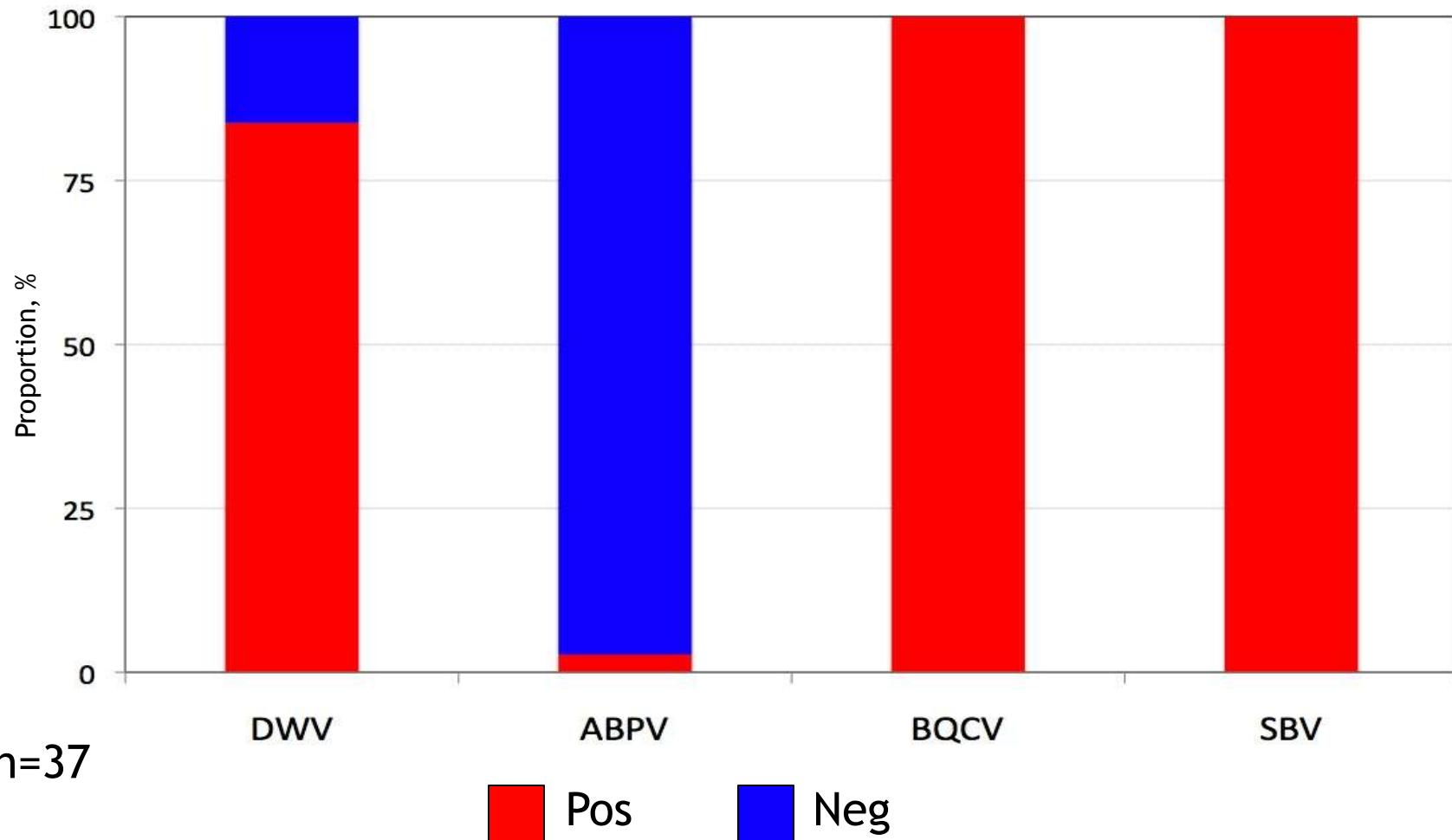
Paenibacillus larvae (AFB)

Melissococcus plutonius (EFB)

Virus: DWV, ABPV, BQCV, SBV, IAPV, KBV, SPV, CBPV, VaDv1, VdMLV



Virus in samples from apiaries with high and low mortality



Jordbruksverket & SLU, 2009

Other patogenes in samples from apiaries with high and low mortality

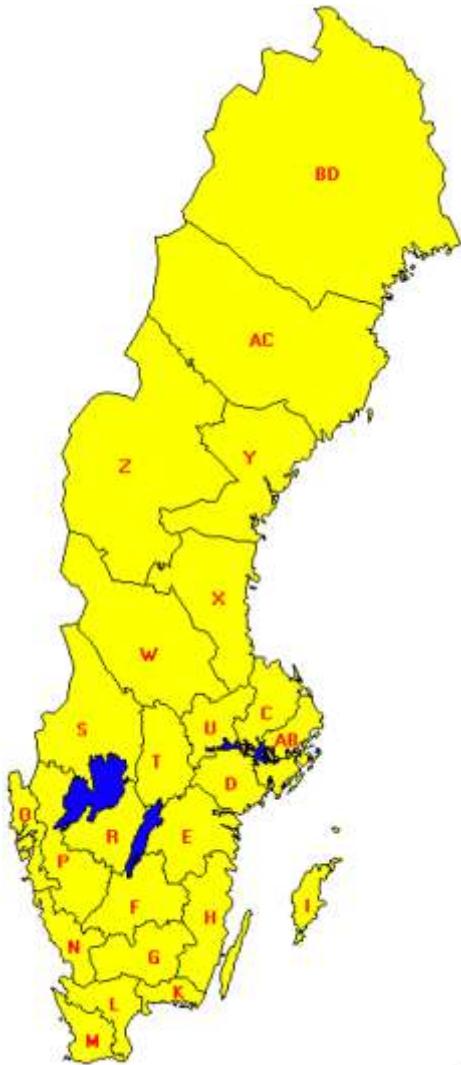
Tracheal mite:	0
Nosema (both species):	1
<i>Paenibacillus larvae</i> (AFB):	4 (4 apiaries, 2 beekeepers)
<i>Melissococcus plutonius</i> (EFB):	0
Virus:	
IAPV, KBV, SPV, CBPV, VaDv1, VdMLV:	0



Jordbruksverket & SLU, 2009

Survey for tracheal mites

2010



The aim was to collect samples from 380 randomly chosen apiaries

262 samples were collected and they were all free from tracheal mite

The rest of the samples are going to be collected in the early spring of 2011

Approx. 100 samples are going to be analysed for a number of other pathogens





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