

BROOD INTERRUPTION IN DENMARK

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THE SHORT SEASON

Beekeepers in Denmark have most activities in 3 months

In April you know if the bees have survived the winter

Queen production starts in June

Honey harvest in June and/or only late July or August

In August you winter again

Except in the heather regions, it shifts to September

MANY TREATMENTS

Spatial clusters of *Varroa destructor* control strategies in Europe

Honey bees in Denmark are treated chemically

91 % of beekeepers use oxalic acid

71 % of beekeepers use formic acid

13 % of beekeepers use thymol

2% of beekeepers use either lactic acid or flumethrin

74 % of beekeepers remove drone brood

1 % of beekeepers use biotechnical methods

“I DID AS ALWAYS, I NEVER LOSE BEES!”

Beekeepers are susceptible to varroasis

Stubbornness can be deadly – also for their bees

Journal of Pest Science
<https://doi.org/10.1007/s10340-022-01523-2>

ORIGINAL PAPER

The same paper says 43 % monitor for varroa

Spatial clusters of *Varroa destructor* control strategies in Europe

The truth is, that most treat in August, but only 43 % of those check, if it worked

Very few check before treatment

These habits are hard to change, treatment is too easy

WORST CASE, ALL BEES LOST!

The hives are empty, the bees are gone

So is any evidence that could point to a cause

The scientist solution, let's call it: CCD



Often beekeepers suspect pesticides,
and sometimes they are right!

However, when evidence exist, it often points towards varroa



COULD THE LOSS HAVE BEEN FORESEEN?

Samples can be very useful:

The history of the hive may be examined

In case of an actual poisoning, it may be important

- even if, just to rule out varroa as an additional stressor

Rarely samples are taken

Coordination of reporting is lacking

Hence, we end up with “inexplicable” losses

WHAT IF WE HAD COUNTED MITES?

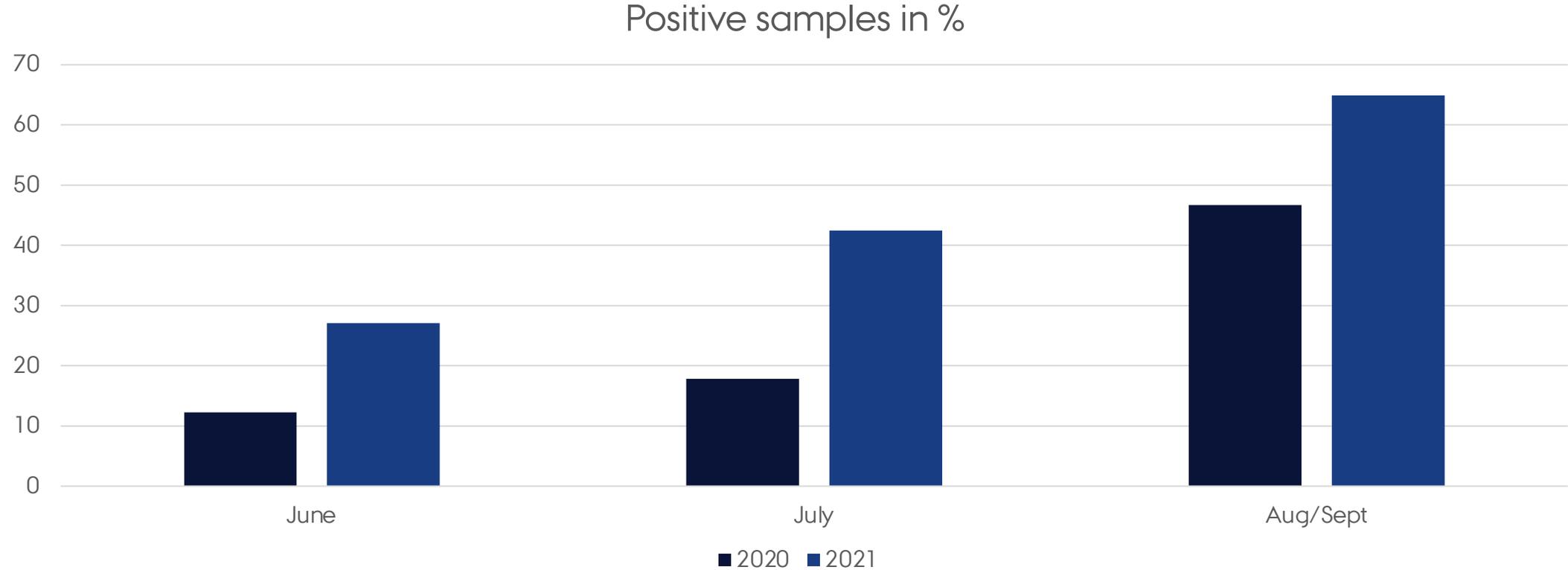
Well we did, for beekeepers in the project:

Pollen supply, varroa population growth and overwintering

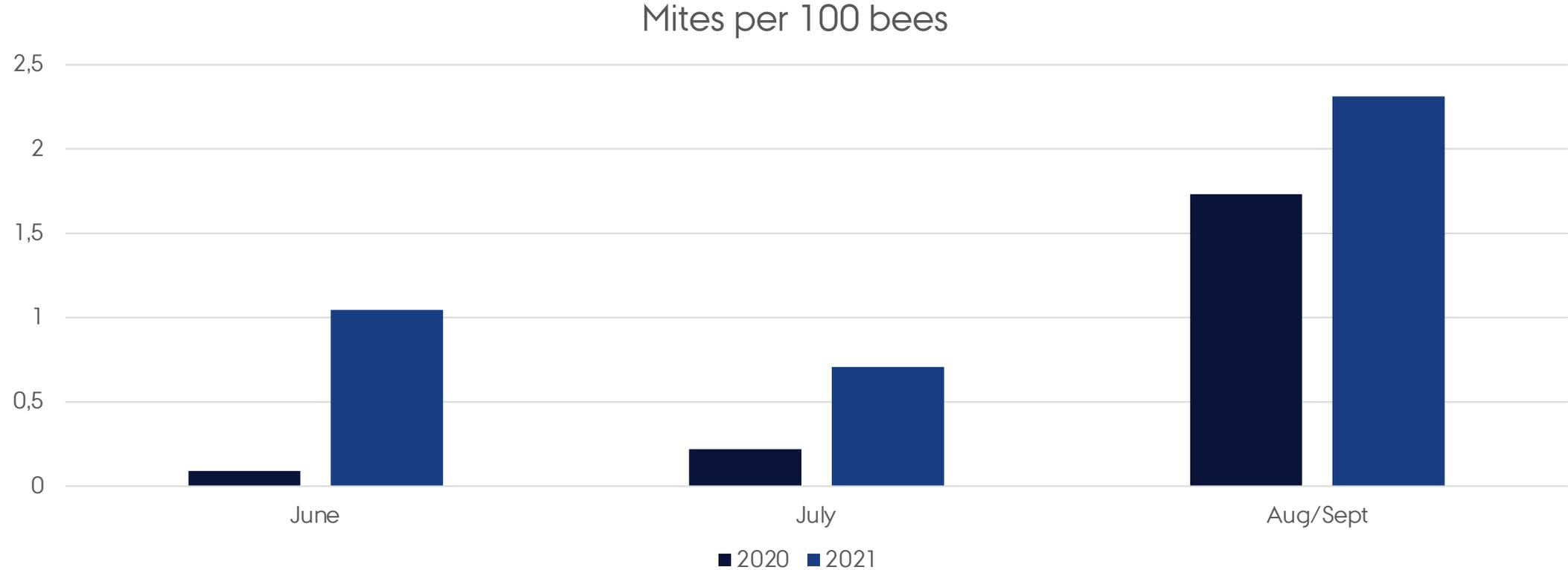
The project is trying to link landscape data to pollen supply and pollen diversity
– interesting data for another talk

However, the varroa mites appeared at first near absent

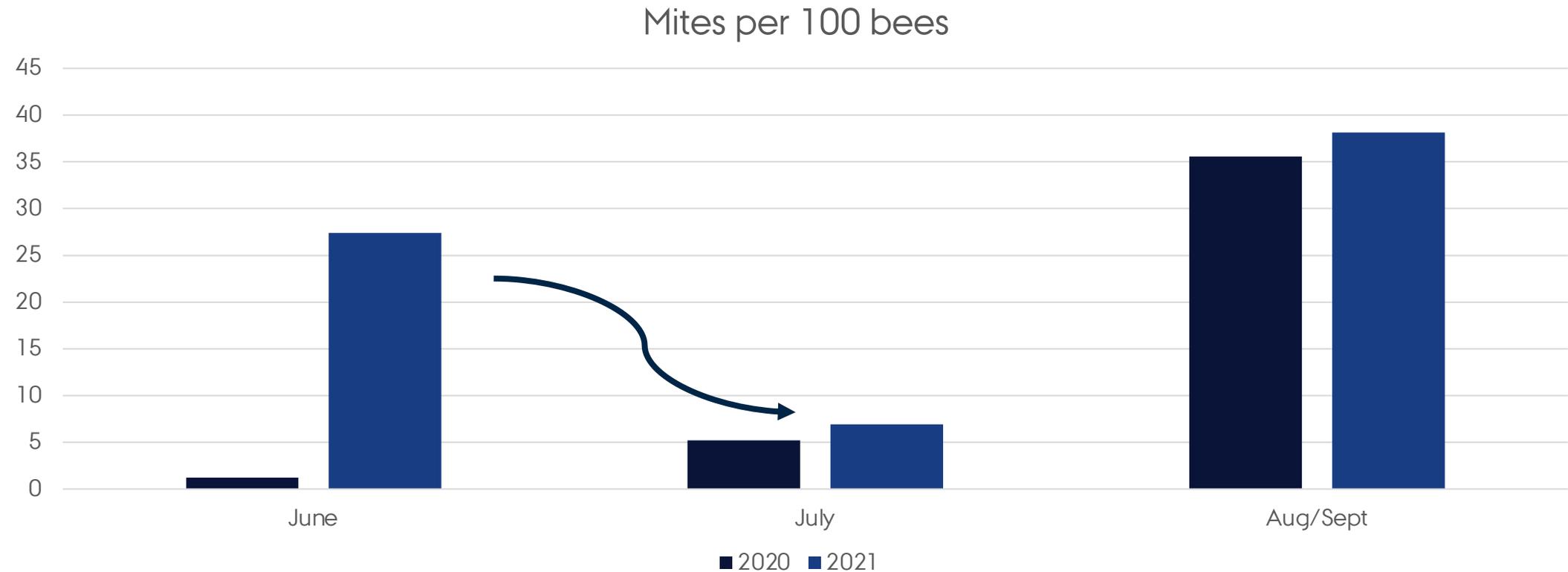
VARROA DATA FROM 2020 AND 2021



AVERAGE VARROA COUNTS



HIGHEST VARROA NUMBERS



BE AWARE OF DATA MANIPULATION!

Average values are to be handled with care

June 2021, 3 of 85 colonies exceed 5 mites per 100 bees!

That was our mark for warning, also in pollen supply project

Colony shifted project to varroa treatment without chemistry

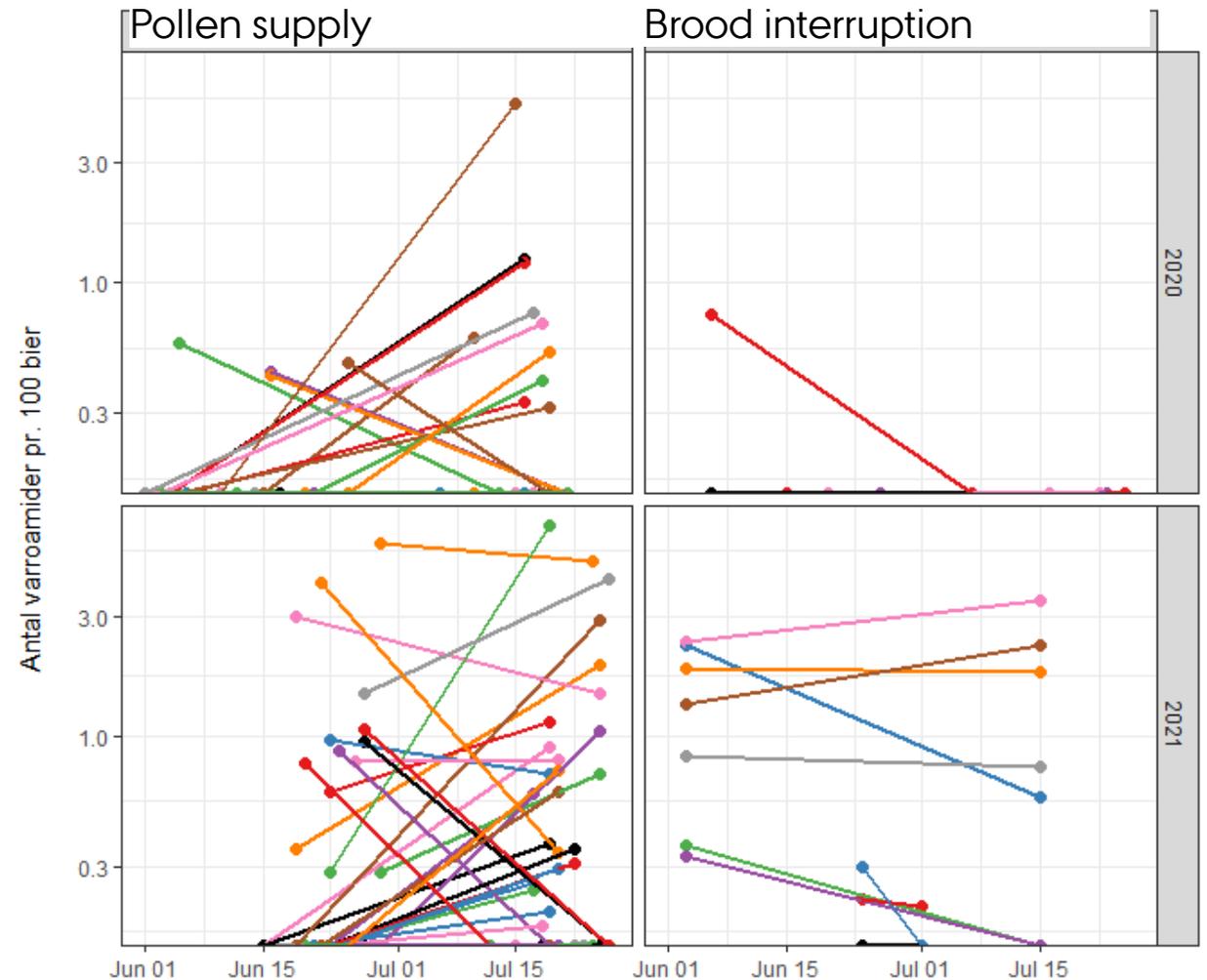
VARROA COUNTED

From two projects:

Pollen supply; the beekeepers collect bee bread and 300 bees, which we wash for varroa, twice

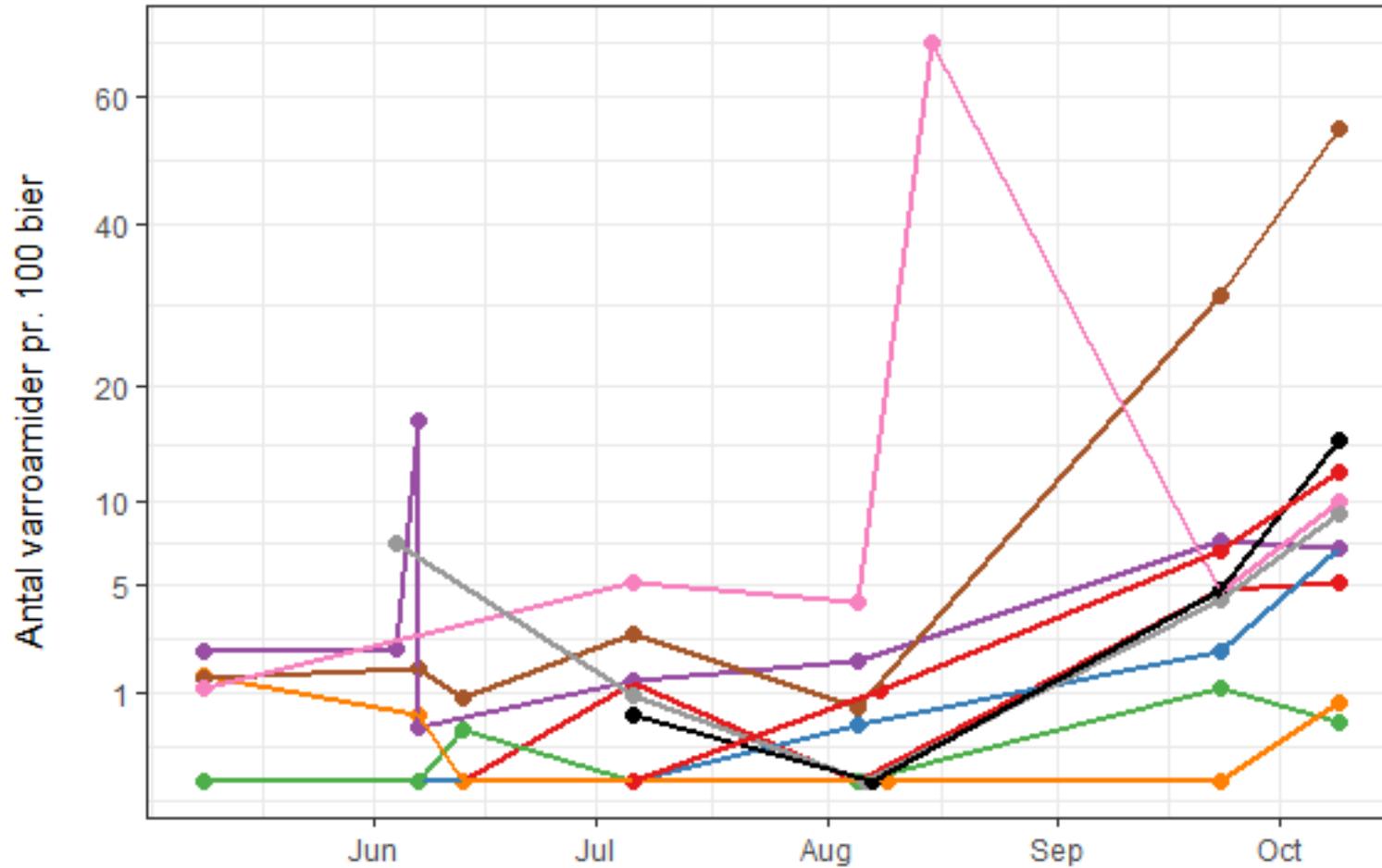
Brood interruption; Beekeepers either apply brood removal or queen caging.

We see stable varroa numbers in colonies with brood interruptions, but growth in many colonies in pollen supply project.





VARROA IN OUR INSTITUTE BEES 2022



Treatment in early June, and in one colony in August

Either queen caging or brood removal.
New dots from removed brood

All but one colony is alive, one is weak.
Last chemical treatment in 2020 or 2019

DOES IT WORK?

—
Yes.

Bees survive.

Deformed Wing Virus and
Acute Bee Paralysis Virus
are low in our hives.

In April we have survival data
also from the beekeepers



HOW TO INVOLVE MORE BEEKEEPERS?

The trend in Denmark goes towards oxalic acid strips

Treatment in March, in August, October and December

Some beekeepers are discussing applying oxalic acid strips the whole year

Treatment is easy and cheap, control of mites is hard work

Brood interruption is still viewed as “alternative”.



THANK YOU !

BEEKEEPERS FOR SENDING BEES

ANNA LA COUR FOR COUNTING MITES

LANDBRUGSSTYRELSEN & EU FOR FINANCES





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