

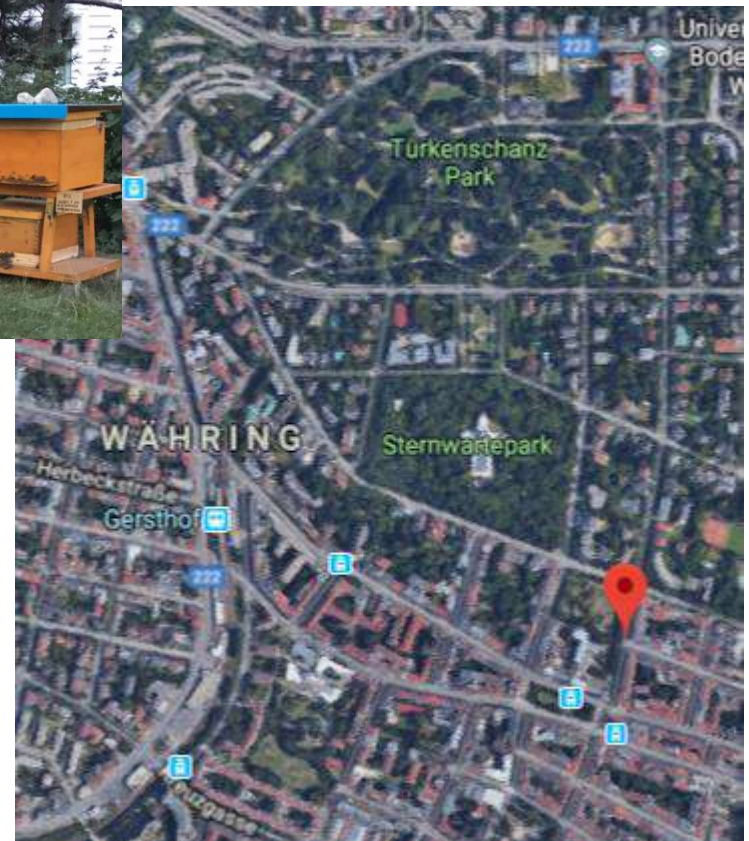
Treatment of Varroatosis with Hyperthermia

*Chemical free varroa treatment enables high
quality bee products for apitherapy*

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My bees in Vienna / Austria



Hyperthermia application



Annual plan for healthy bees...

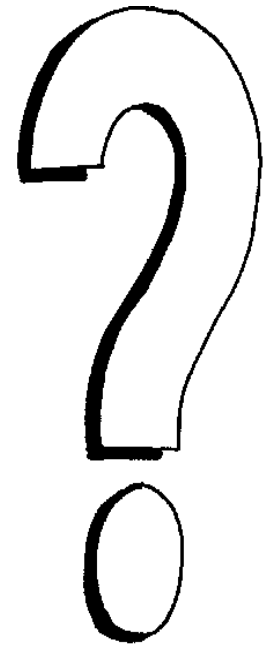
- ... works **without chemicals or medicine**,
- ... tested and successfully **applies since 10 years**,
- ... that works **without losses** for **small and large** apiaries,
- ... works also under **massive re-infestation**,
- ... is **safe** for bees and bee keepers.

What problems do we face these days?

- Warmer autumn/winters cause shorter or no disruption in the breeding cycle of the bees –ideal development conditions for the mites
- Bee viruses transmitted by the Varroa mite cause colony collapses
- Classical chemical Varroa treatments are less and less effective - resistance of mite, climate change
- Overlapping of honey harvesting and treatment cycles - bee keepers are “running out of time” and can not use late blooming seasons
- **An effective new treatment plan is needed.**

Four facts one needs to know

- **Limit**– how many mites a hive can tolerate?
- **Total mite population** calculated from the daily mite fall.
- Uncontrolled **reproduction rate** of the mites in a bee hive.
- **Location** of the mites – how many mites are in the breeding cells, how many are attached to adult bees?



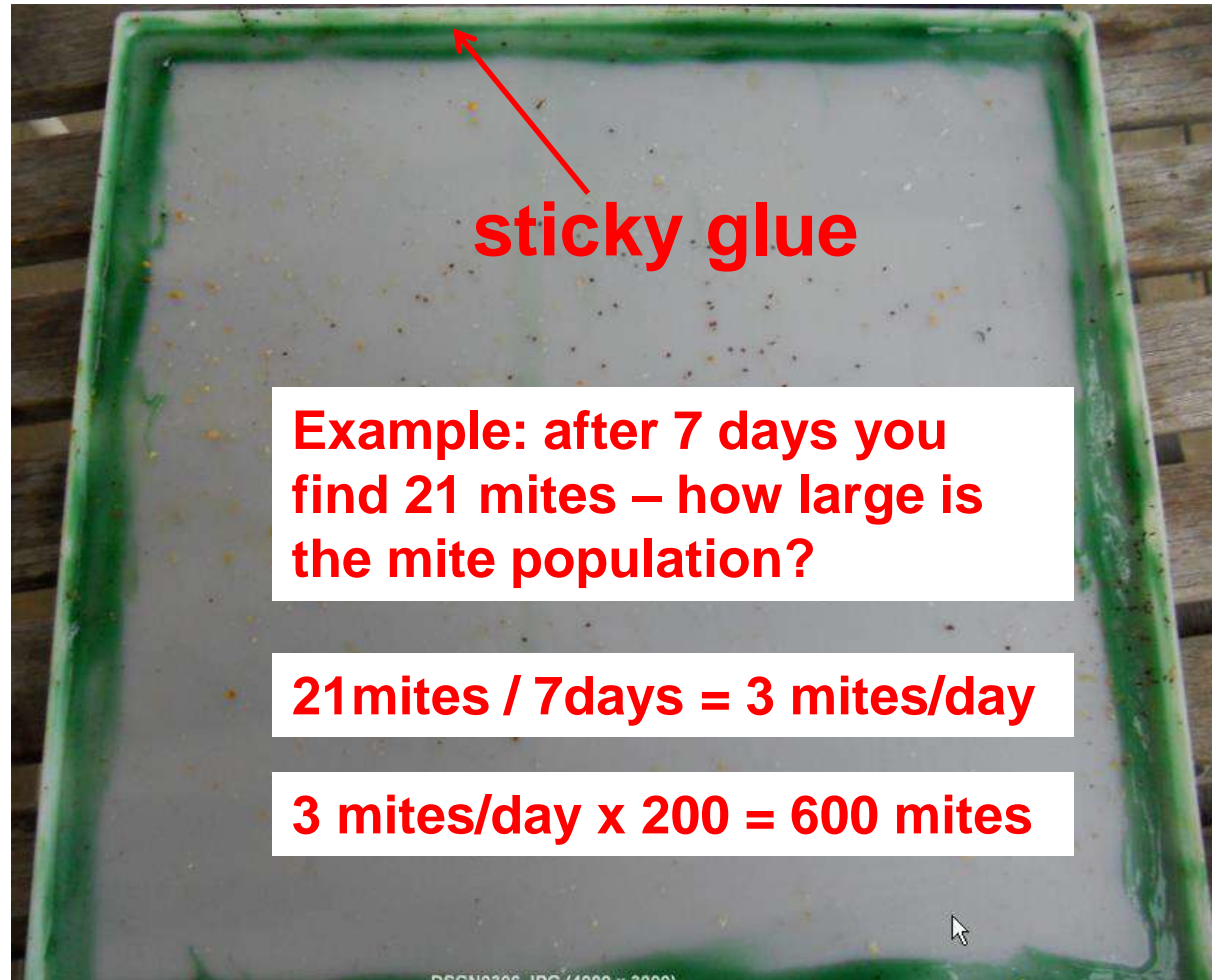
What do you see here?

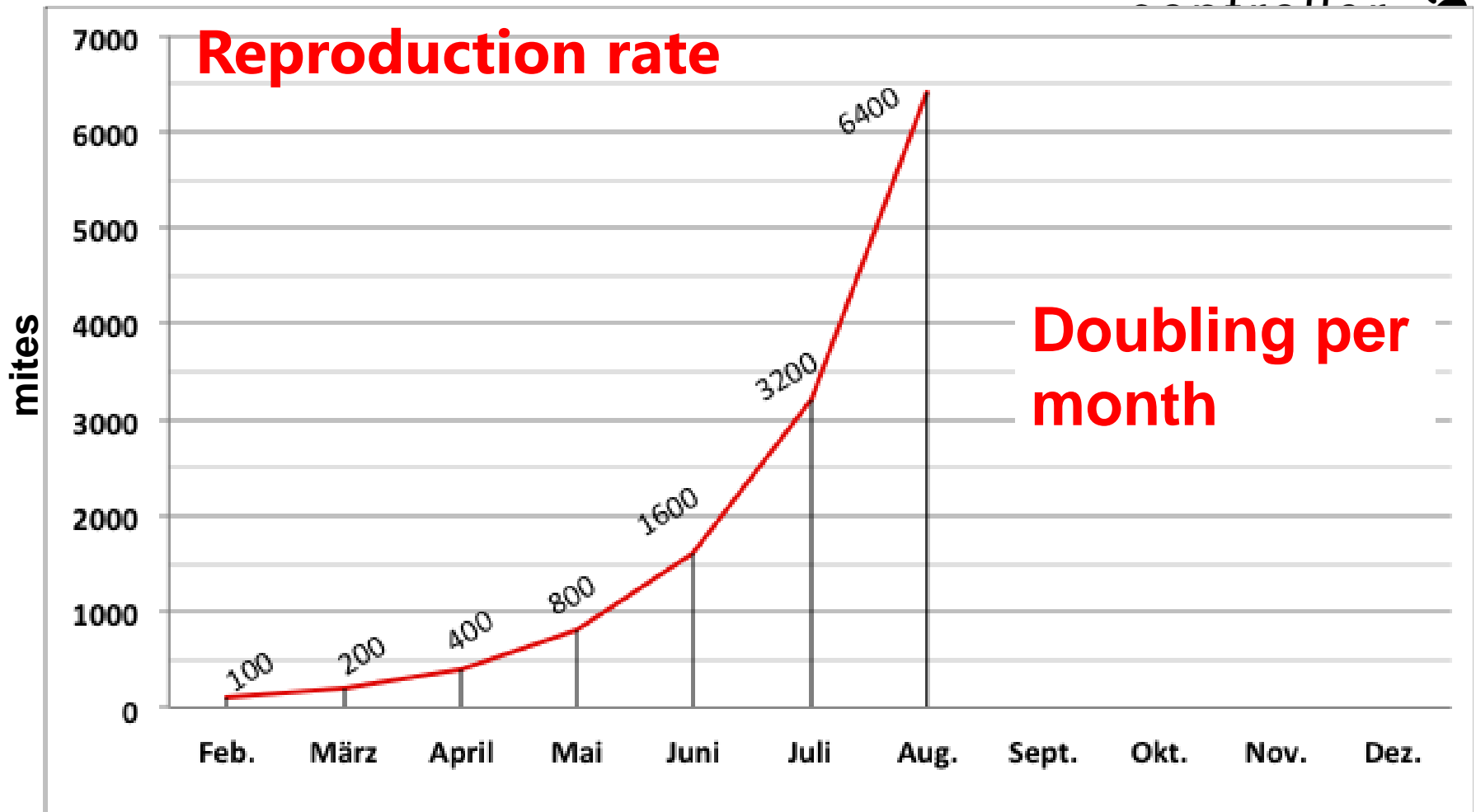
- Bee viruses are a massive danger!
- **Epidemic virus infections**
- **Direct transmission** bypassing the bee immune system
- **Approx. 1000 mites** a normal hive can sustain in the spring period.



Total mite population

- Open bottom with varroa tray
- Daily mite fall based on weekly average
- Sticky glue that protects from ants and other insects





A precise plan is needed!

Location of the mites

- In **spring** about **80%** of the mites are in the breeding cells.
- In **summer** **70%** of the mites are in the breeding cells.
- In **autumn** still **60%** of the mites are in the breeding cells.

Four facts one needs to know

- **Total mite population** calculated from the daily mite fall. → **Daily mite fall x 200**
- Uncontrolled **reproduction rate** of the mites in a bee hive. → **2x / month**
- **Location** of the mites – how many mites are in the breeding cells, how many are foretic mites, living on adult bees. → **80% in the brood**
- **Limit**– how many mites a hive can tolerate? → **Stay below 1000**

The treatment needs to happen **early & in the brood!**

With the heat treatment we kill the mite while reproducing without harming the bee pupae.

Heating up the entire hive will not work.

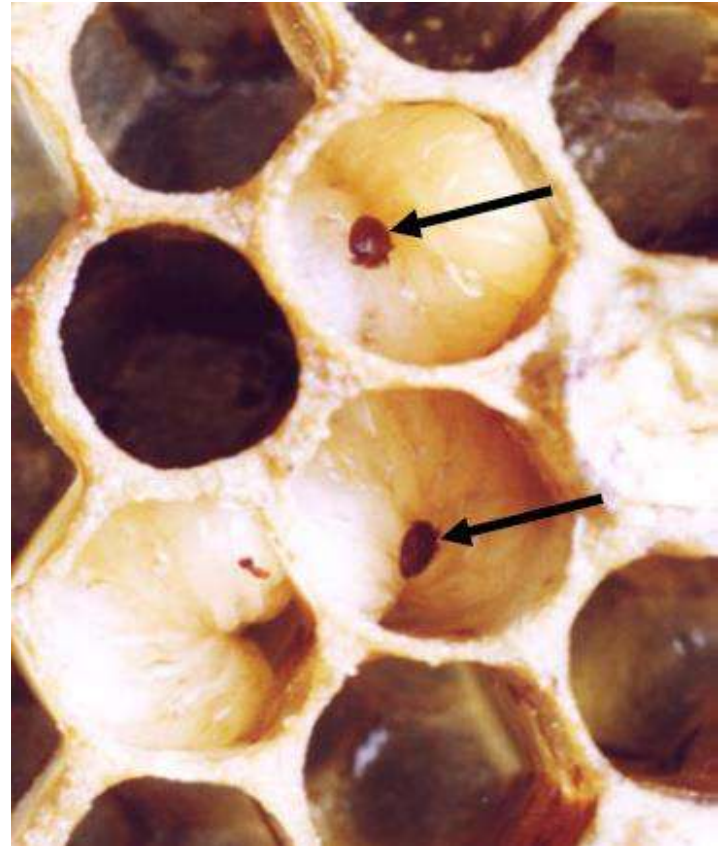
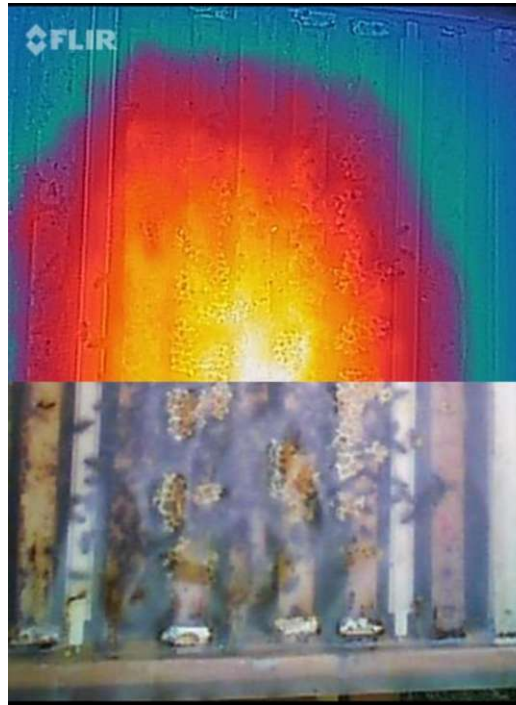
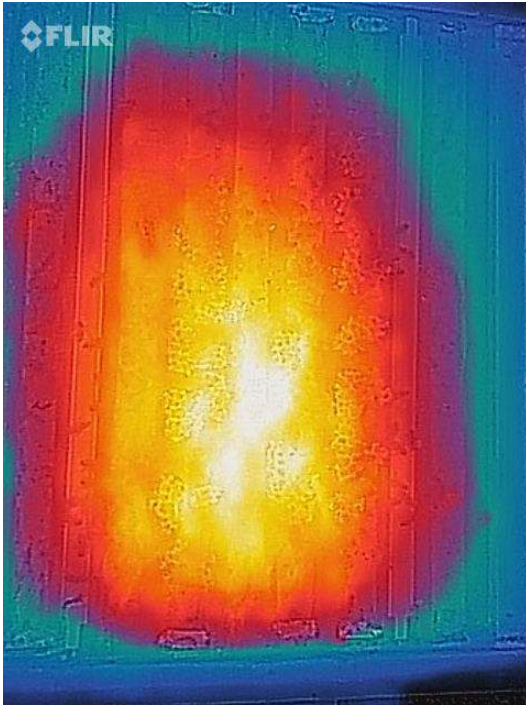


Photo: Assegid Garedew, Dissertation, Freie Universität Berlin

The mite does not like the warm

- Keeping the brood nest entirely warm, gives less ideal conditions for the mite.



Annual treatment plan for a safe bee keeping

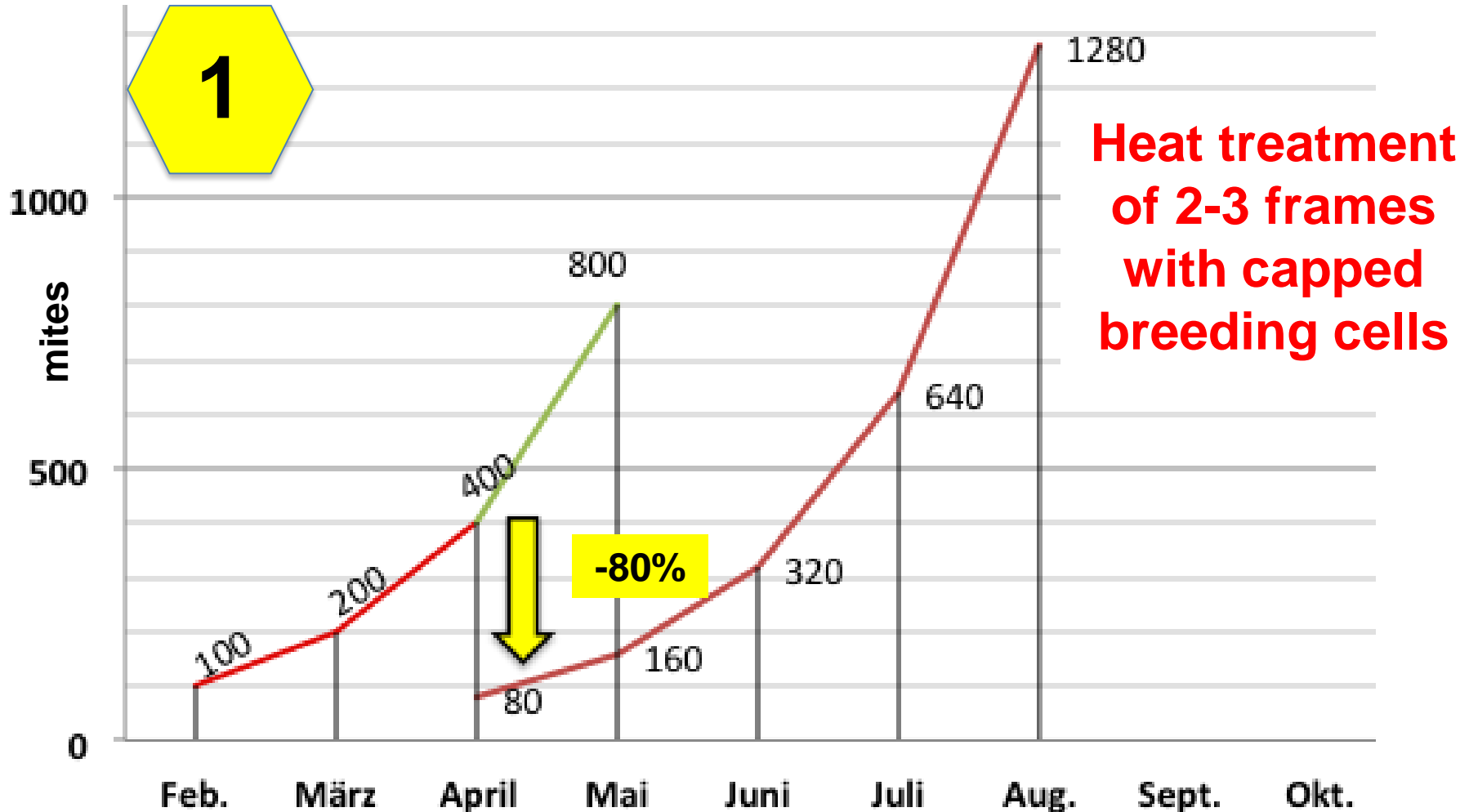
- The important **spring treatment**
- **Summer treatment** using the Duplex-Framebox
- **Autumn treatment** to combat a possible reinfection

1

2

3

The important **spring treatment**



Varroa Controller

- Main components:
 - Heating
 - Ventilation
 - Humidification
 - Sensors
 - Control unit
- Accommodates 20 breeding frames



7 steps of a heat treatment

1. Preparation
2. Fill in Water
3. Heat up
4. Fill with breeding frames
5. Apply sensor
6. Start treatment
7. Give frames back to the hives



Typical results

- Falling right after treatment
- Falling of several hundred mites per day as the bees are born – over 12-14 days



Summer treatment with the Duplex-Framebox

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- Idea:
Concentration of the mites in only two brood frames

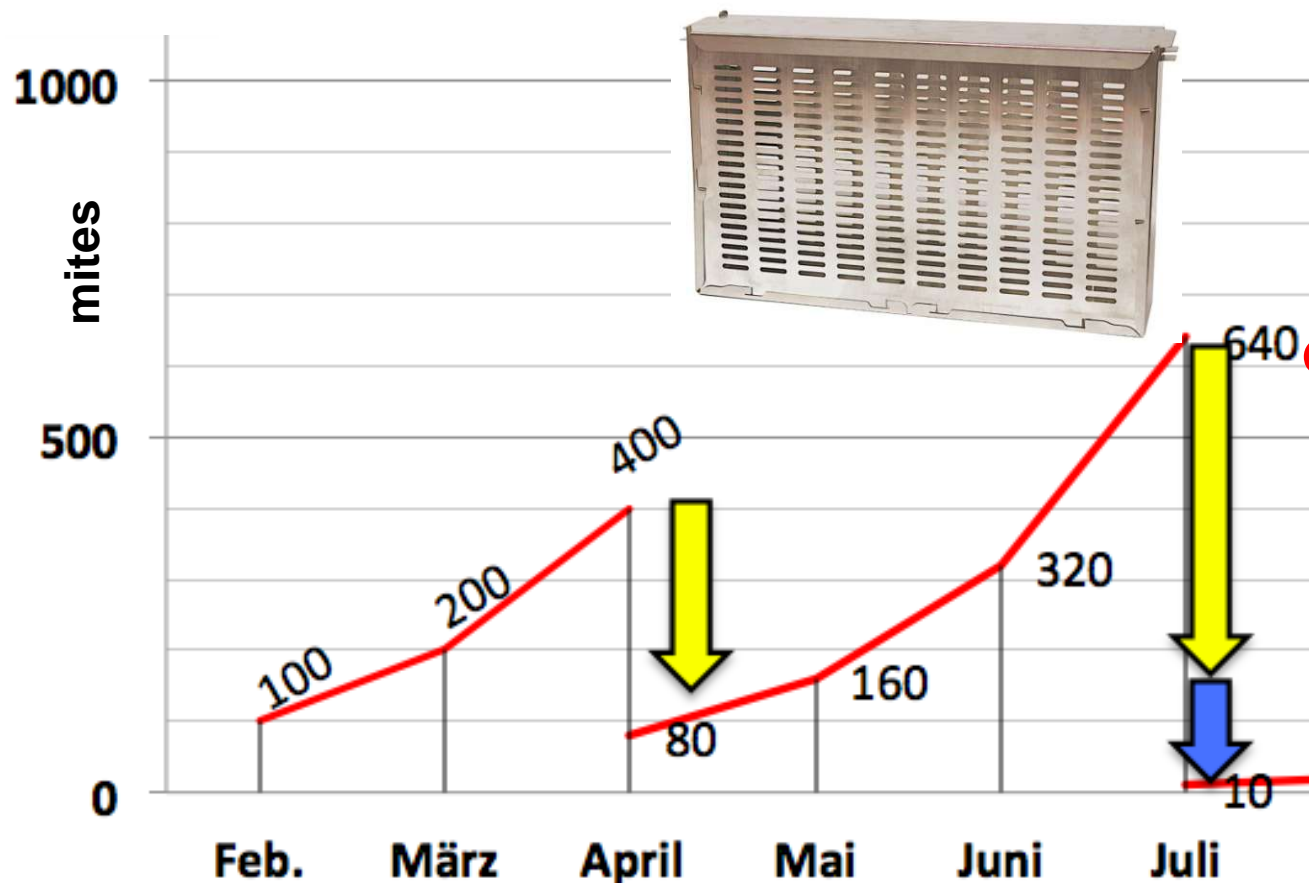


Advantage of the Duplex-Framebox

- **20% more honey**, since the bees don't need to take care of many breeding cells.
- **New wax** due to taking out the old (empty!) frames.
- On day 24 one has a **brood free hive**, for treating the mites on adult bees.
- Easy way to **assess the queen** and her performance. This is the time to exchange her in brood free hive if needed.



Zero mites after the honey harvest ...

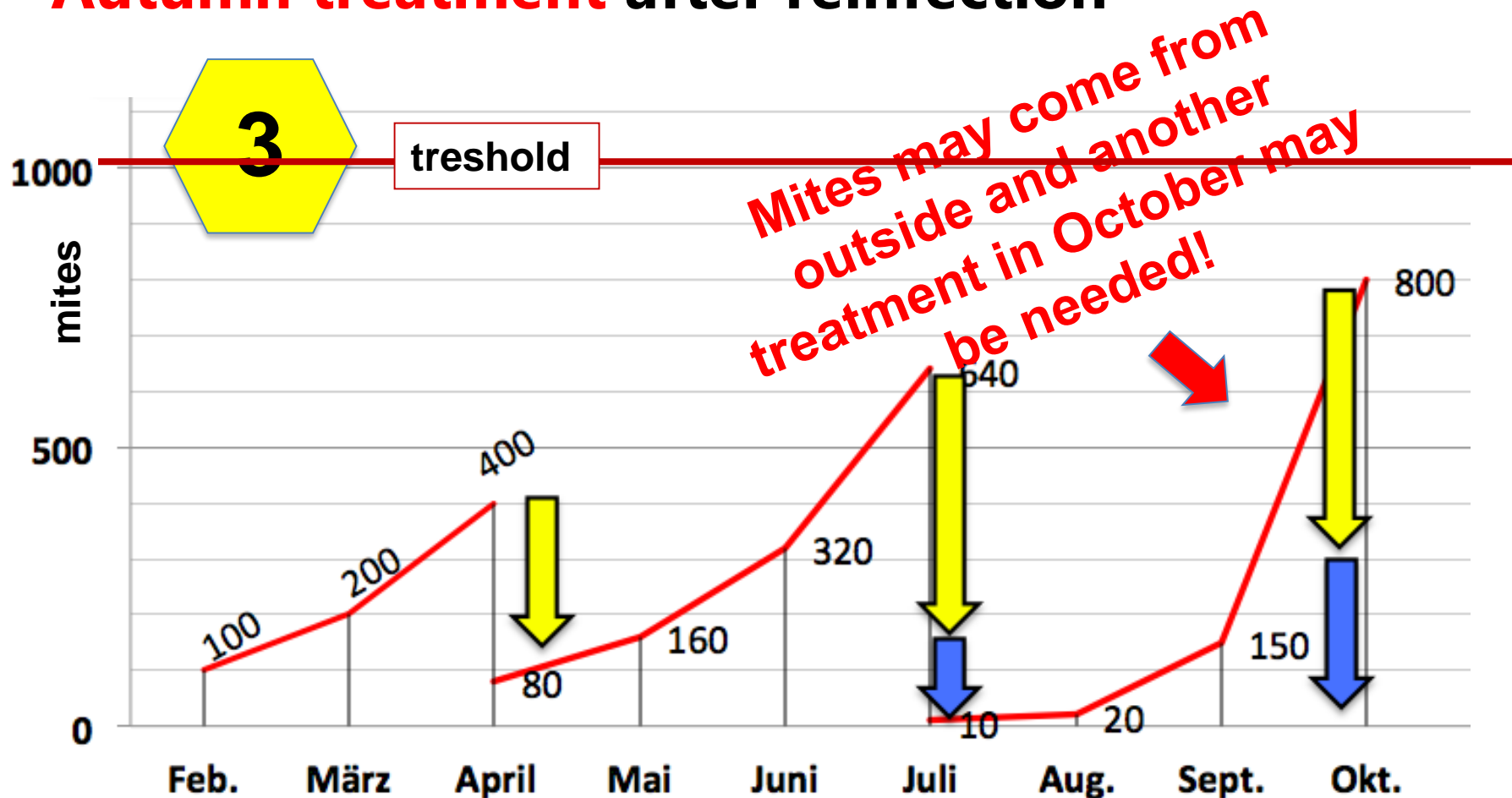


Sugar dusting to get rid of mites on adult bees

- Open the lid.
- Introduce a mesh so that the bees can not fly out.
- Apply the icing (fine powder) sugar.
- Bees start cleaning their bodies.
- The mites loose grip and fall.



Autumn treatment after reinfection



Advantages of heat treatment

- **Preventive approach** is most effective and helps bees and beekeepers
- It is a **safe way** to treat against the mite
- It allows **high quality bee products for apitherapy** thanks to chemical free beekeeping



Bavarian bee centre tested the VC

Hyperthermia works

Hyper-
thermie

*Best efficacy has the Varroa
Controller (VC)*

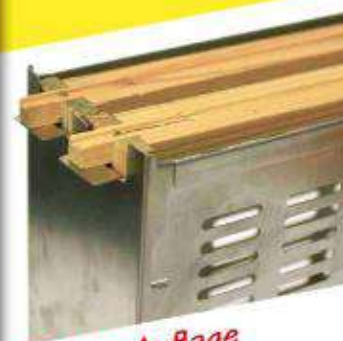
Das Prinzip
funktioniert



*97% of the mites in the
brood cells have been killed
with the heat treatment
using the VC*

Dr. Stefan Berg
Institut für Bienenkunde und
Imkerei, Veitshöchheim, Germany
published in:
Deutsches Bienenjournal 01/2017

Praxishandbuch der thermischen Varroa-Bekämpfung



Zweite Auflage
mit Duplex-
Wabentasche

Mit einem Vorwort von Prof. Dr. Wolf Engels

und Erfahrungsberichten von:

Wilfried Ammon, Konrad Gwiggner,
Werner und Fabienne Kron,
Felix Munk, David Ratzberger, Konrad Tabojer.



Illustrationen: Michael Preisel

Thank you very much for your attention!



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