THYMOVAR®

Varroa control with natural substances

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Andermatt BioVet AG

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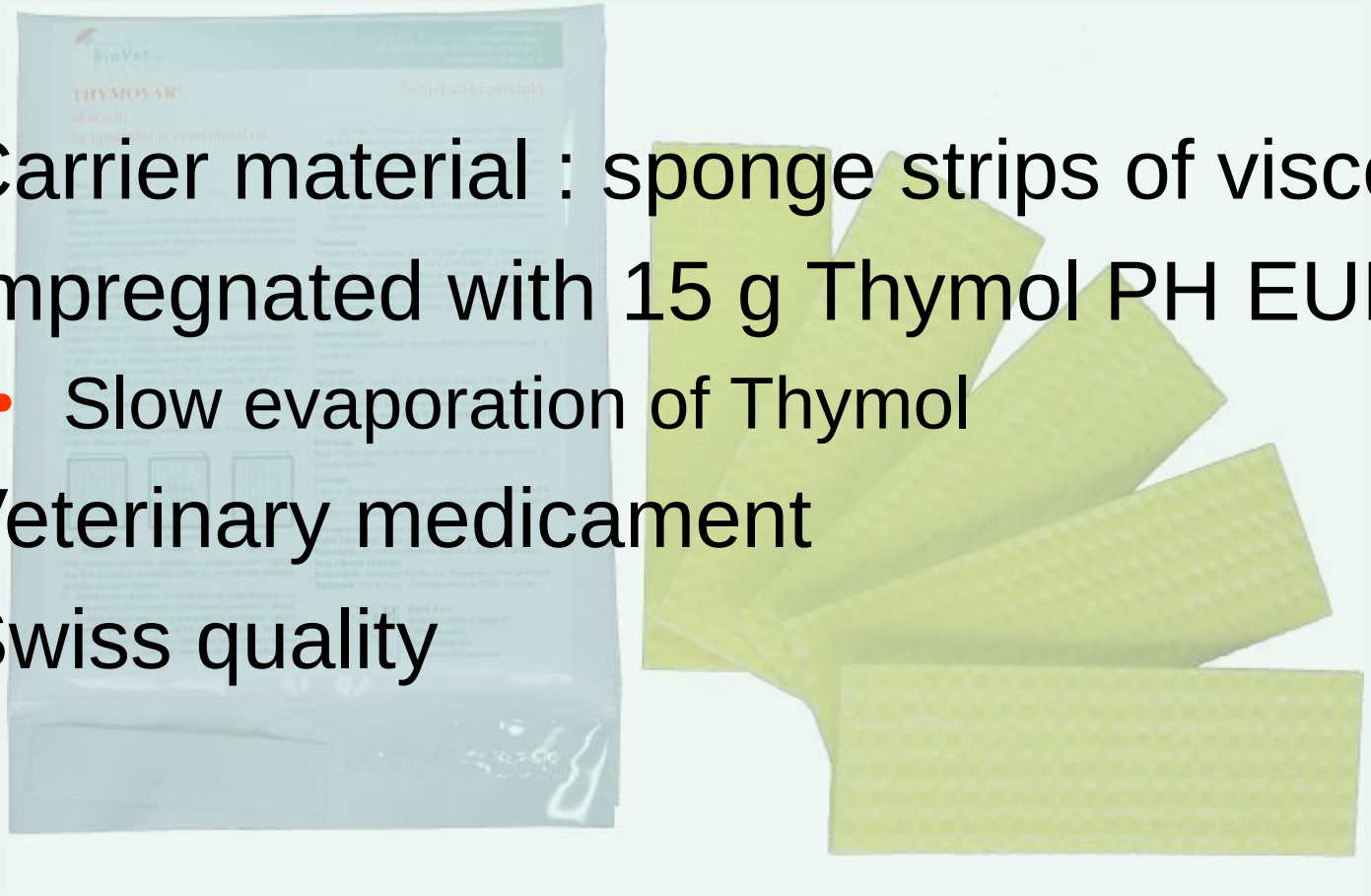
THYMOVAR®



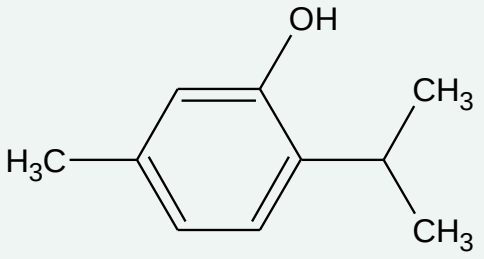
- Carrier material : sponge strips of viscose
- Impregnated with 15 g Thymol PH EUR
  - Slow evaporation of Thymol
- Veterinary medicament
- Swiss quality

Registration

• Bosnia-Herzegovina		2007
• New Zealand		2006
• Germany		2006
• France		2006
• Belgium		2006
• Algeria		2004
• Turkey		2004
• South Korea		2003
• Netherland		2002
• Israel		2002
• Cyprus		2000
• Austria		1999
• Switzerland		1998

Active Substance : Thymol

- Nature identical substance
- Naturally contained in thyme essential oil
- Property : evaporates at room temperature
- Natural component of a few honeys
- Accepted for biological control according to EU-regulation no. 1804/1999



Thymol in honey

Honey	Natural concentration of Thymol in honey (ppb)
Lime tree	160
Sunflower	25
Rosemary	25
Chestnut	10

(Guyot et al. 1998)

Thymol in food?

- In the EU, food legally contains up to 50 mg Thymol/kg, with no maximum value for Thymol residues in foodstuff of animal origin
- In Switzerland, the legal threshold for Thymol residues in honey is 0.8 mg/kg

Thymol in everyday life

- Uses by Humans
  - Refreshing substances
  - Dental hygiene
  - Aromas (beverage, food) 50 mg/kg
- Features
  - Antibacterial
  - Antifungal
  - Disinfectant
  - Varroacide

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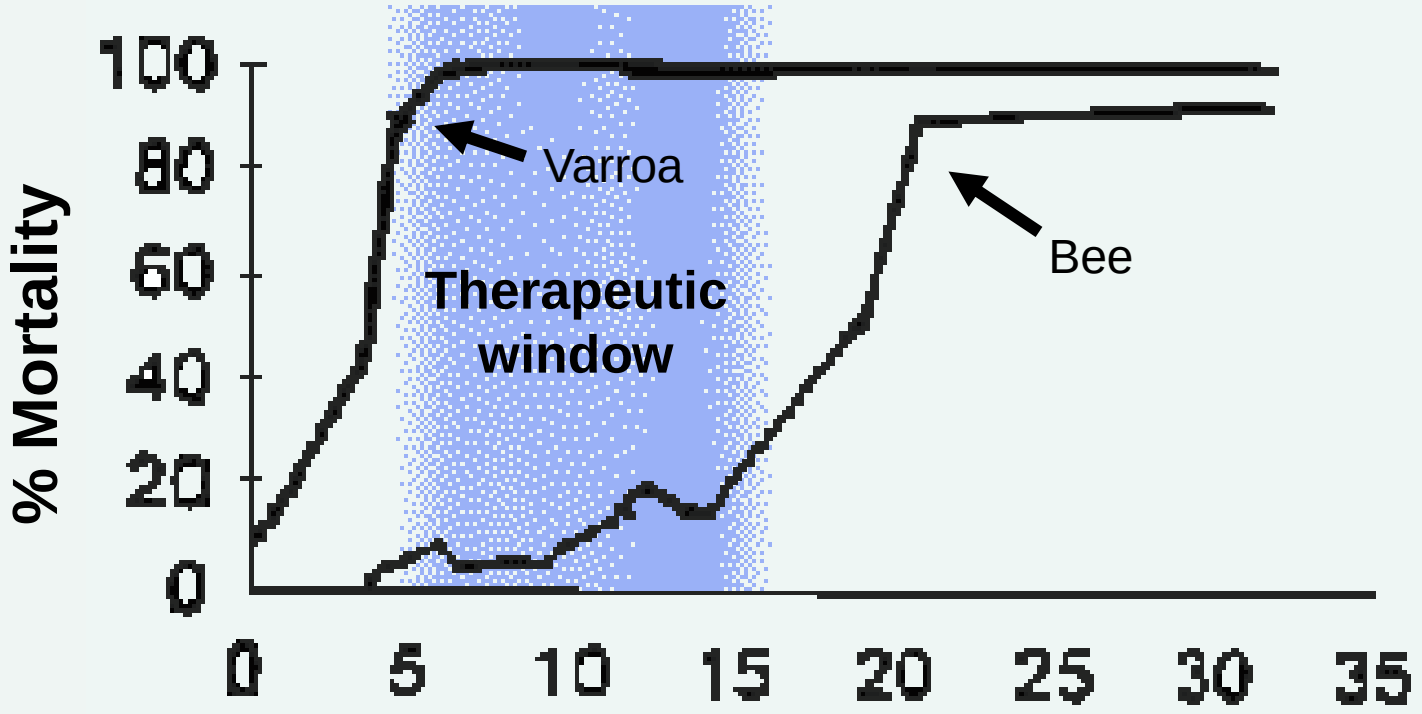
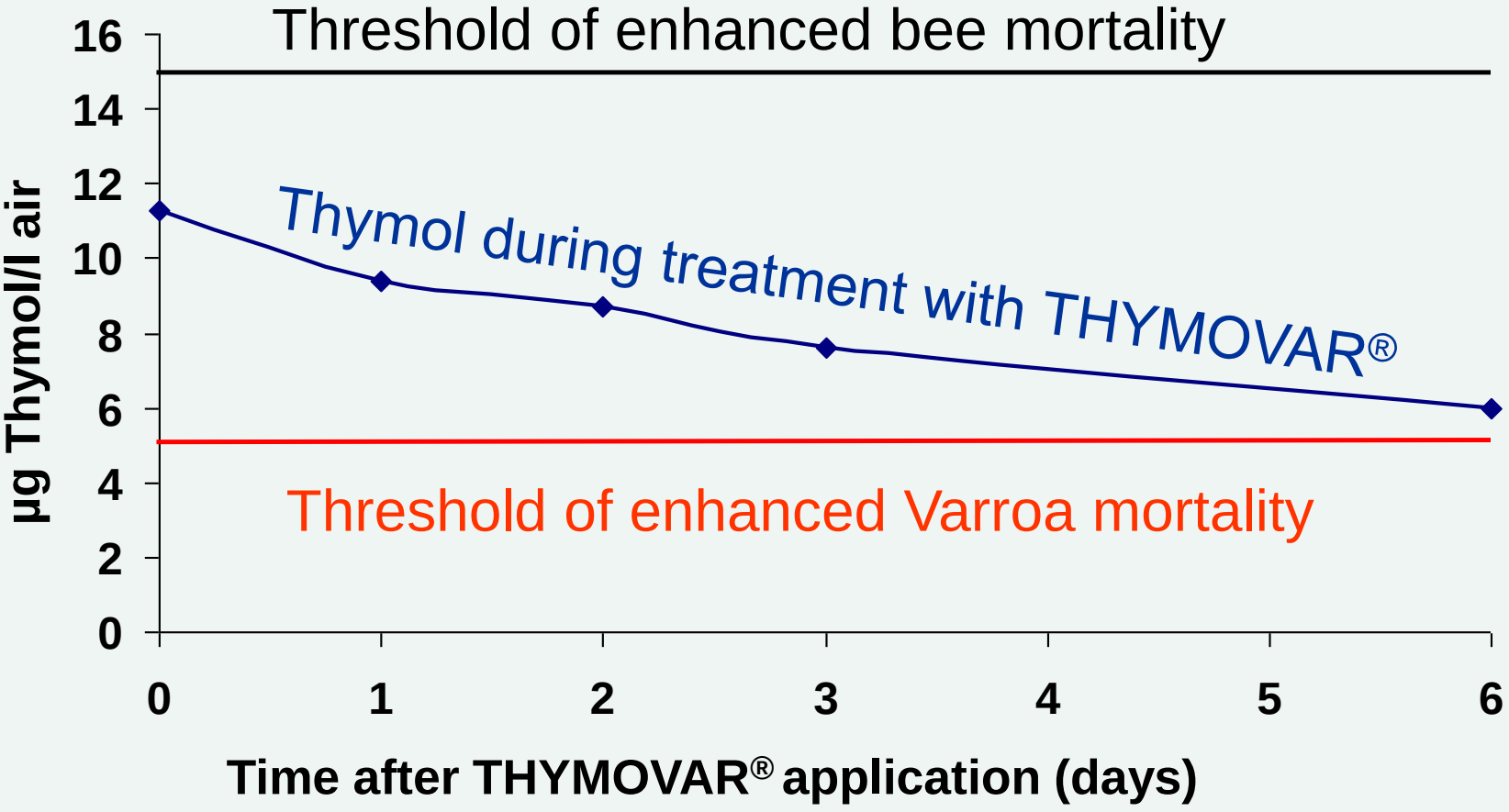
Varroacide

Toxicity in laboratory :



(Imdorf et al. 1995)

Concentration of Thymol



(internal assays in one colony 1998)

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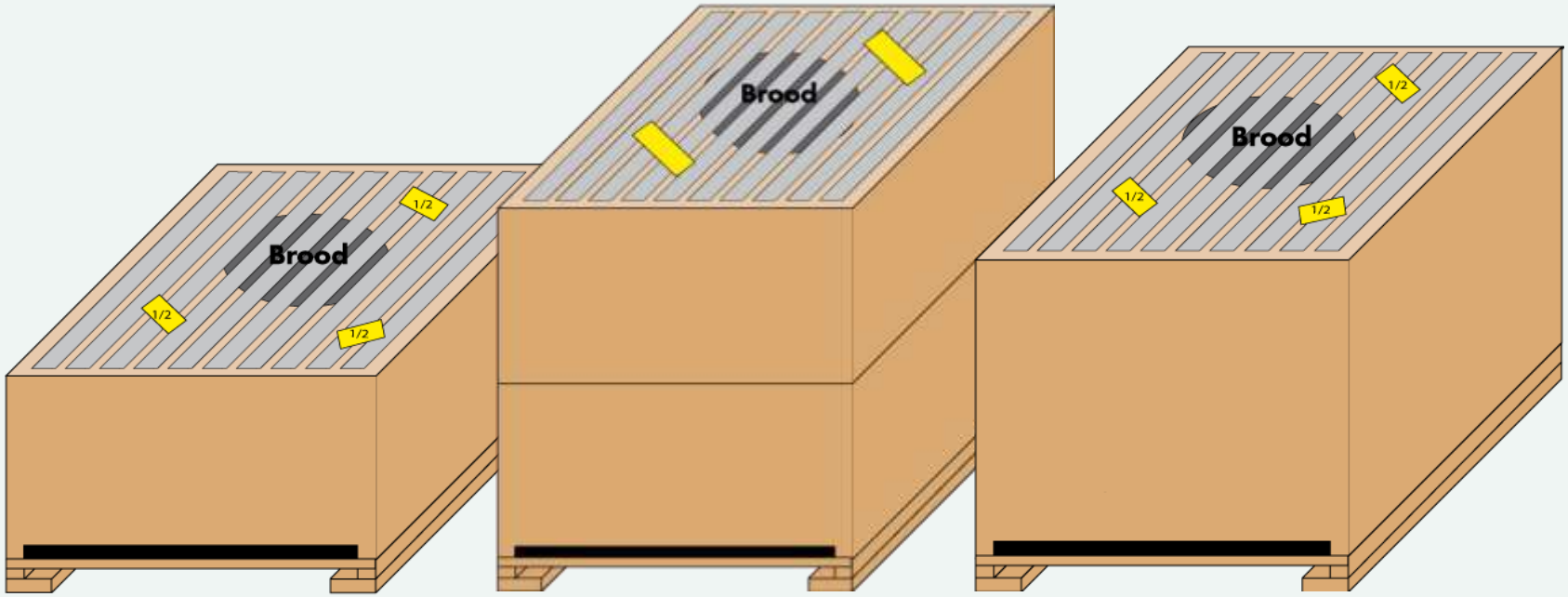
Use of THYMOVAR®

- 2 Applications per year :
  - 2 x 3 weeks
  - in late summer
- Temperatures
  - 15-30 °C
  - 20-25 °C ideal

Propolization

THYMOVAR® bee-hive strips may be damaged and propolized by bees. However, according to our observations, THYMOVAR® doesn't lose its effectiveness against the mites.

Placement of Strips



One storey hive

Two storey hive

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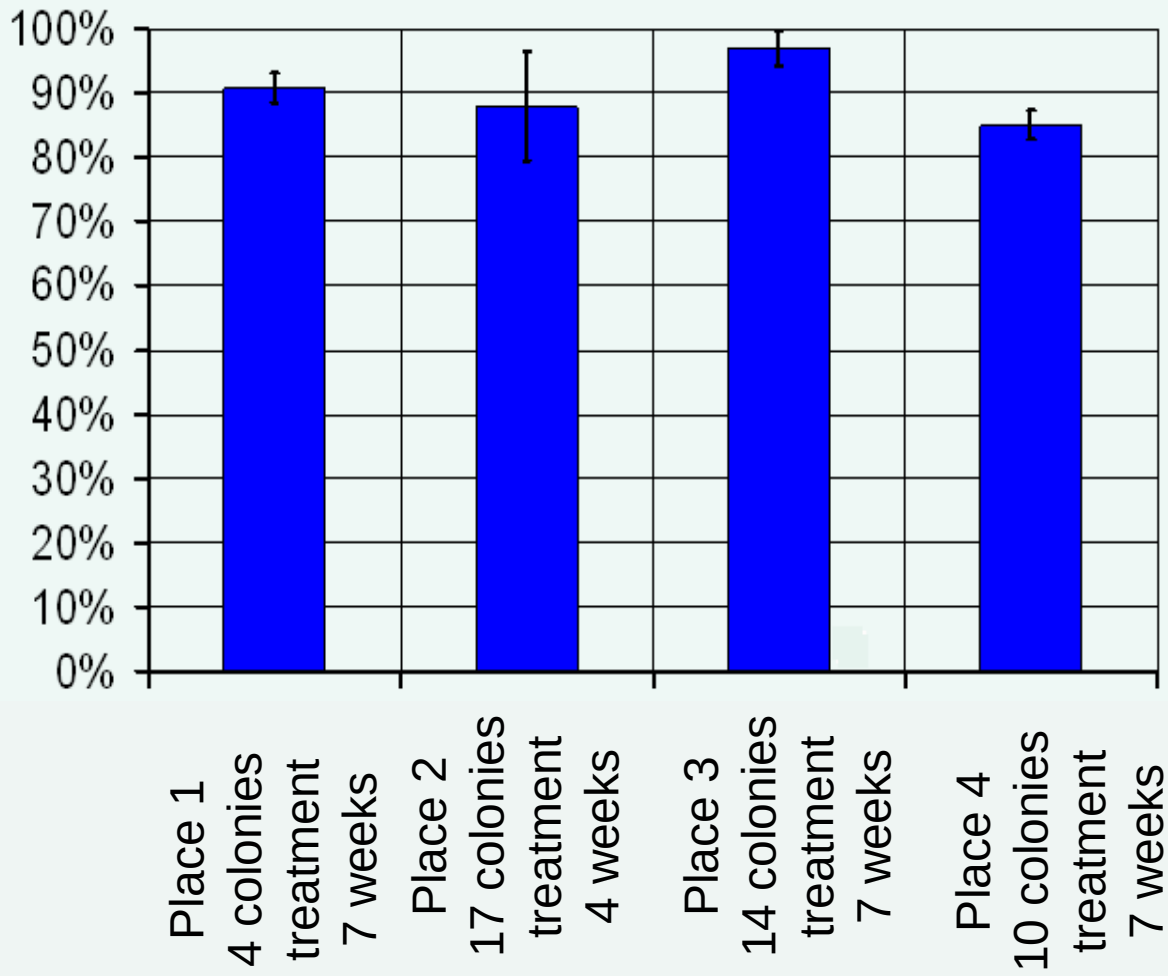
Field trials Switzerland

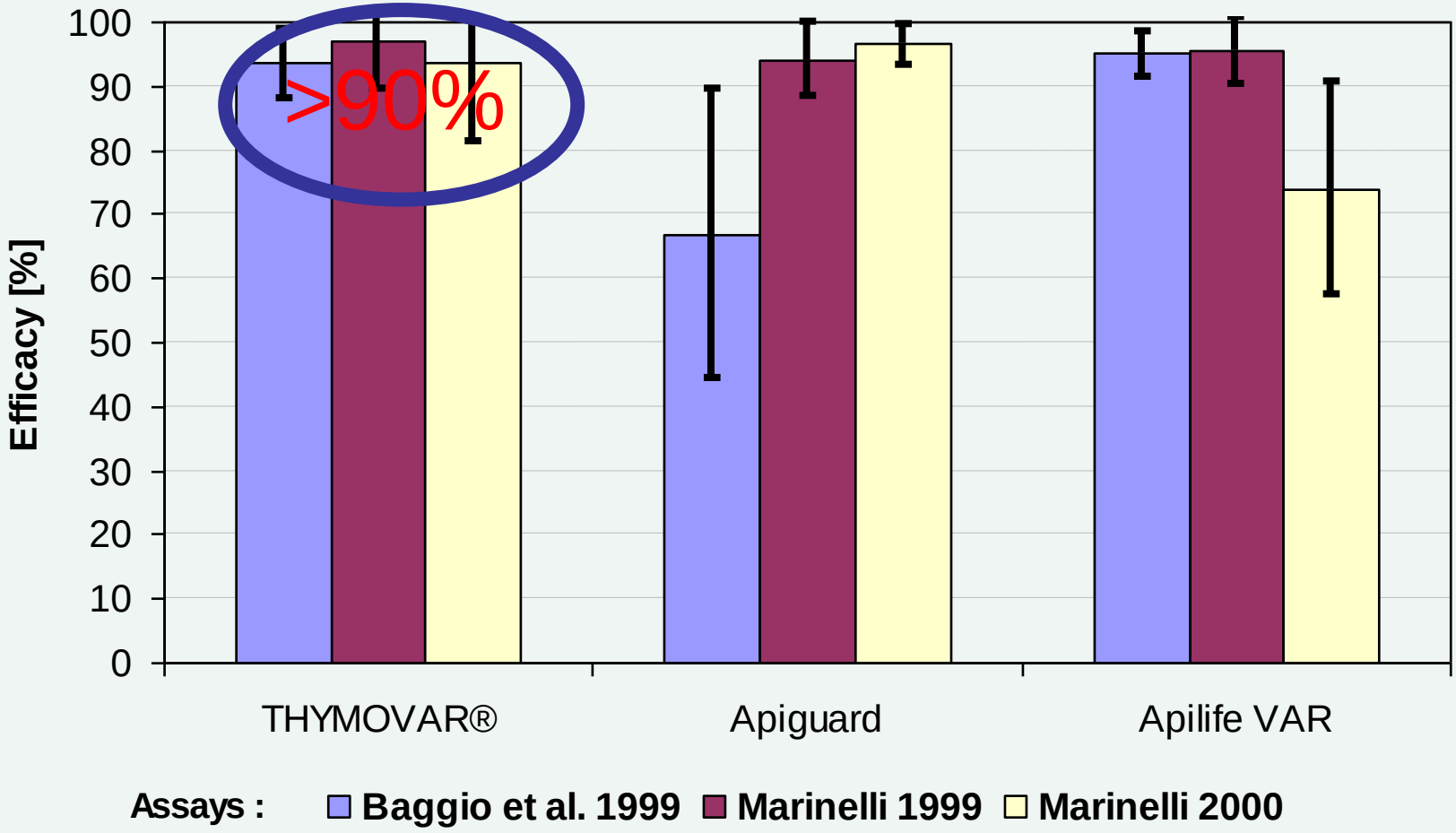


(Internal report 1997)

Field trials Germany

Allowed products	APIGUARD®	THYMOVAR®	Formic acid
Kirchhain (Berg 2004)	**43,1%** (5,52% – 91,4%) n=15	**86,5%** (54,2% – 99,7%) n=15	**90,6%** (55,7% – 99,1%) n=15
Mayen (Otten 2004)	**71,5%** (25,2% – 99,7%) n=21	**92,6%** (49,2% – 99,0%) n=26	

Field trials Italy



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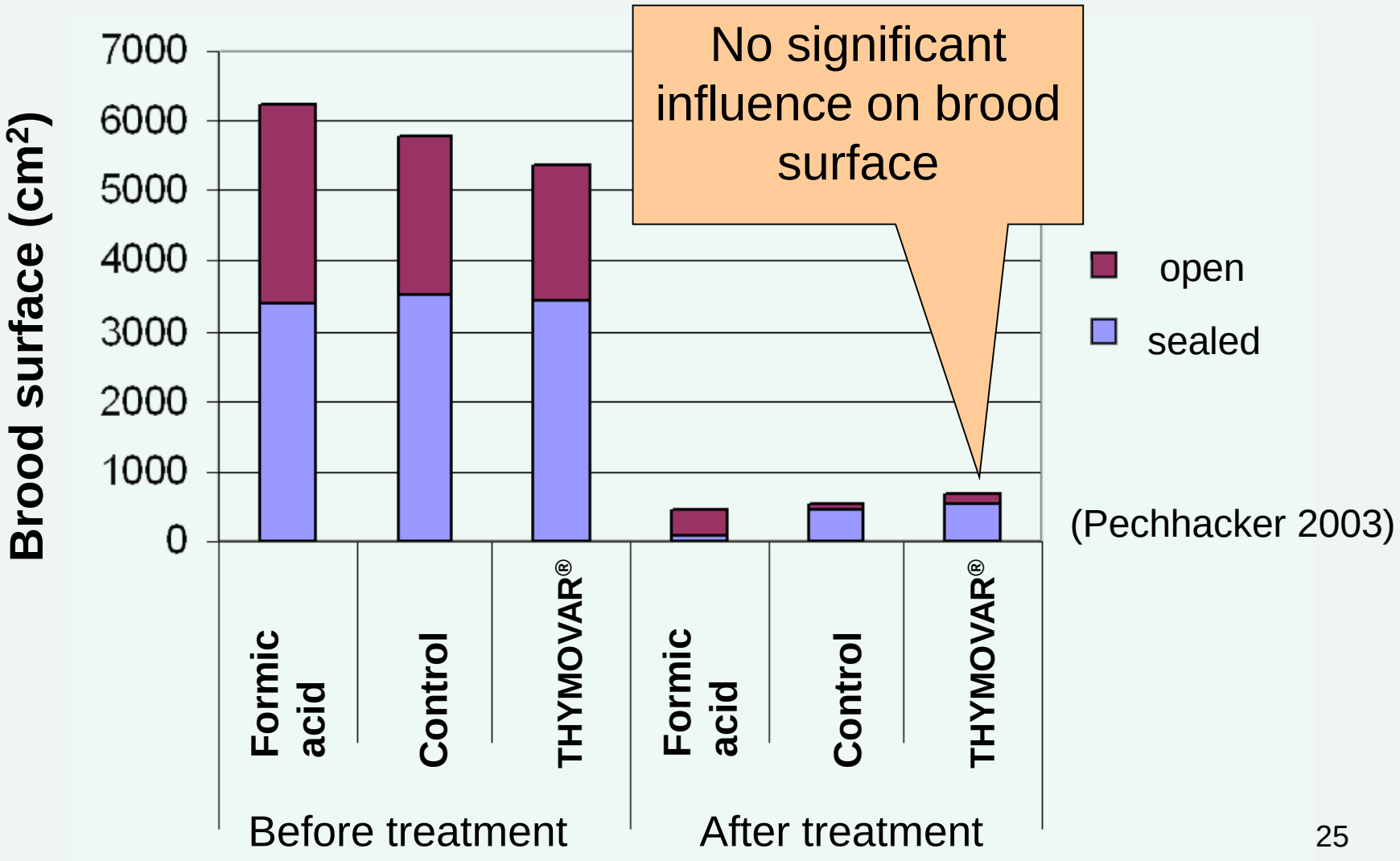
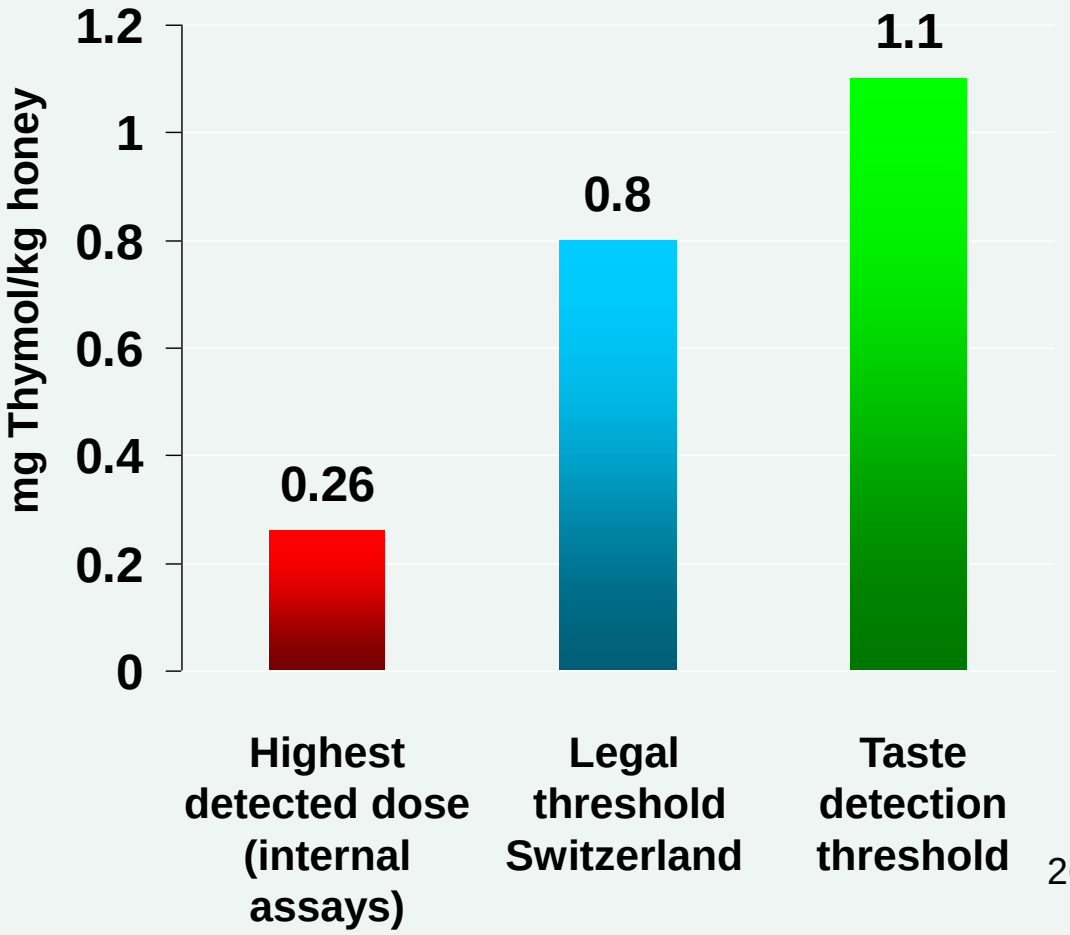
Incidence on brood



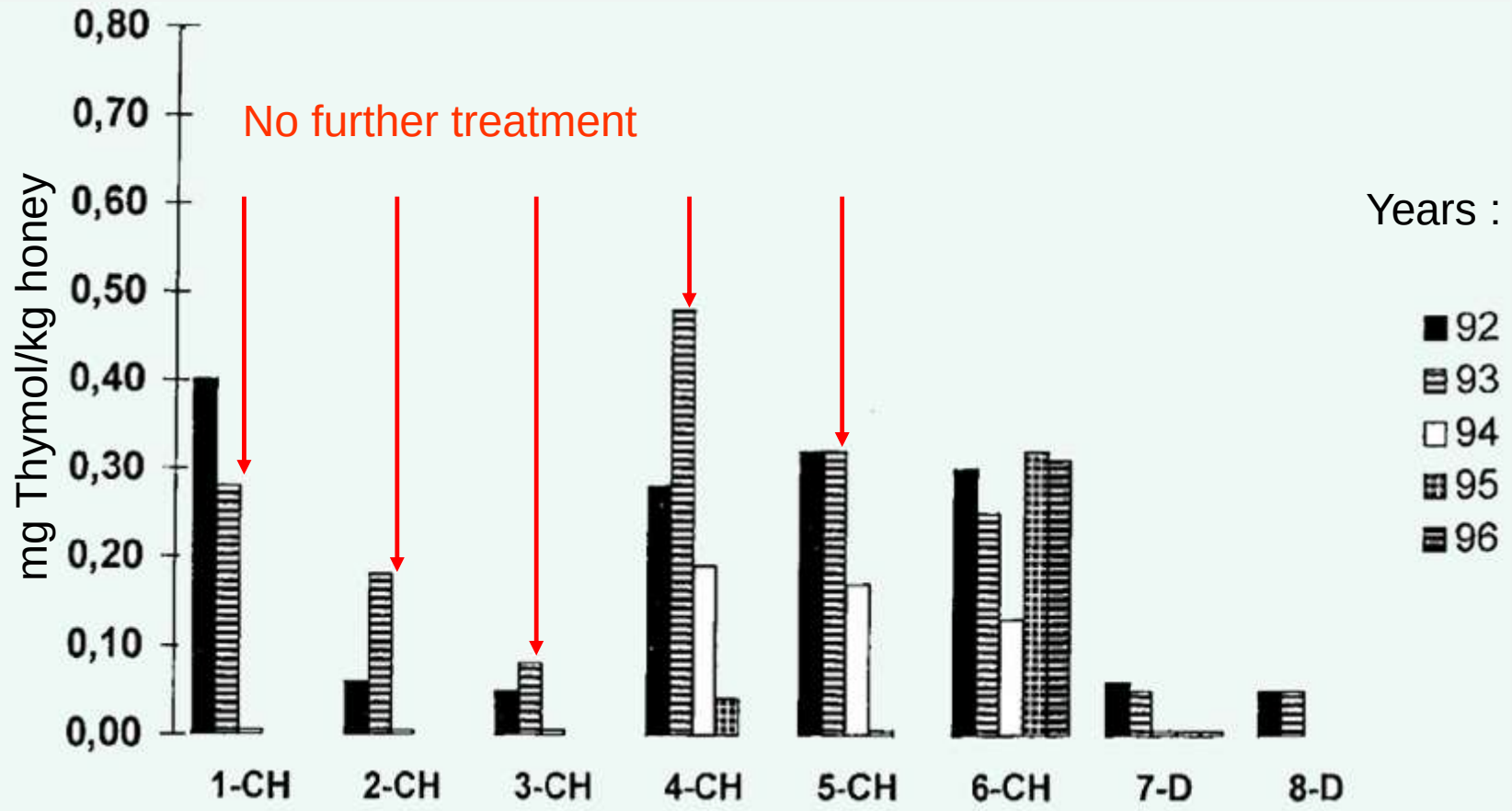
Residues in honey

Honey shows no alteration when THYMOVAR® is correctly used!



Residues in honey

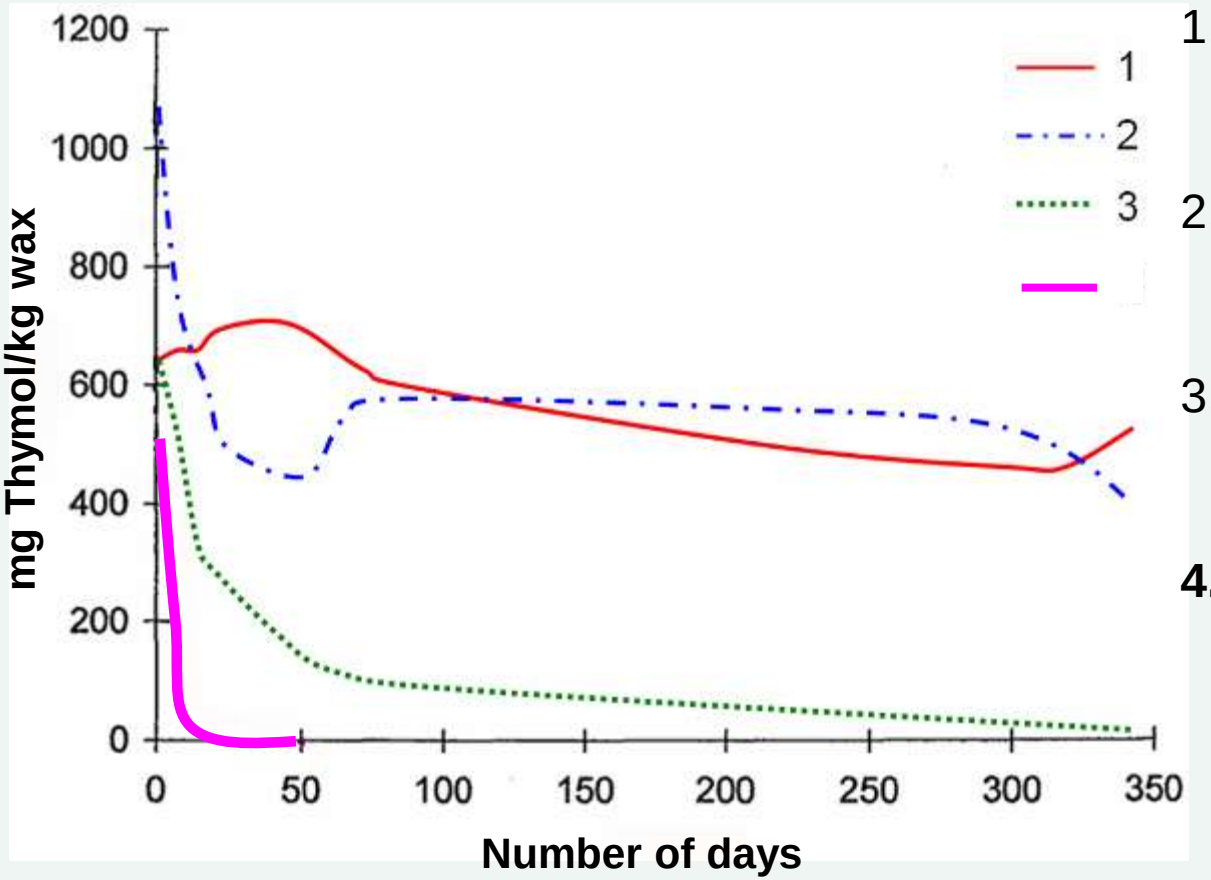
Thymol residues in honey in field trials with Thymol-based products :



(Bogdanov 1998)

Residues in wax

Evaporation of Thymol under different conditions :



1. Foundations, stacked in a closed cardbox box
2. Mounted foundations in a comb cupboard (unaerated)
3. Mounted foundations in a comb cupboard (aerated)
4. **Foundations, drawn out in a colony**

(Bogdanov 1998)

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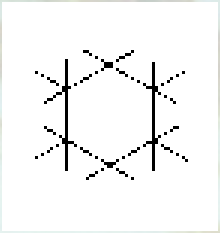
Pest management strategy

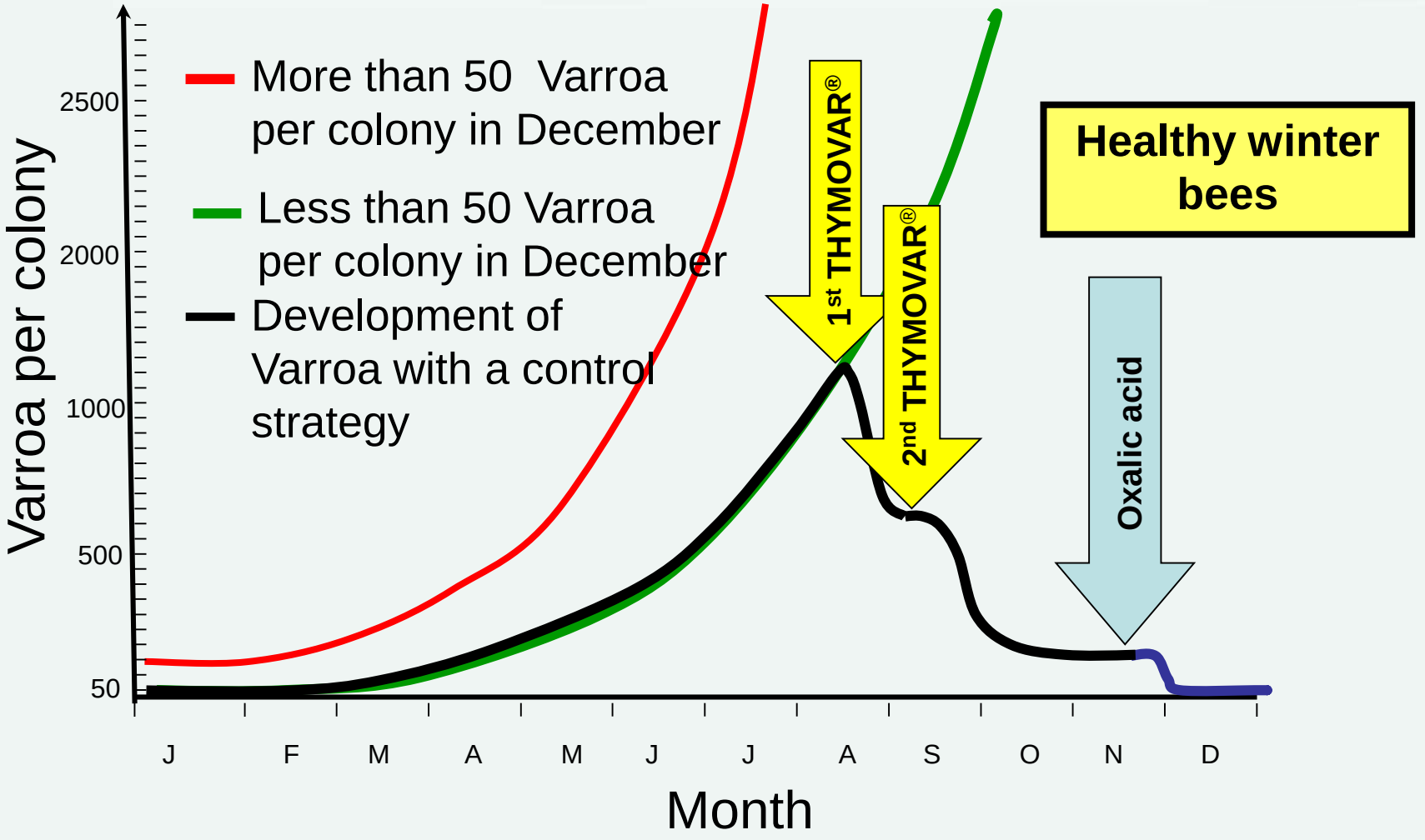
Control of the infestation rate of the mites

Late summer treatment at the right moment

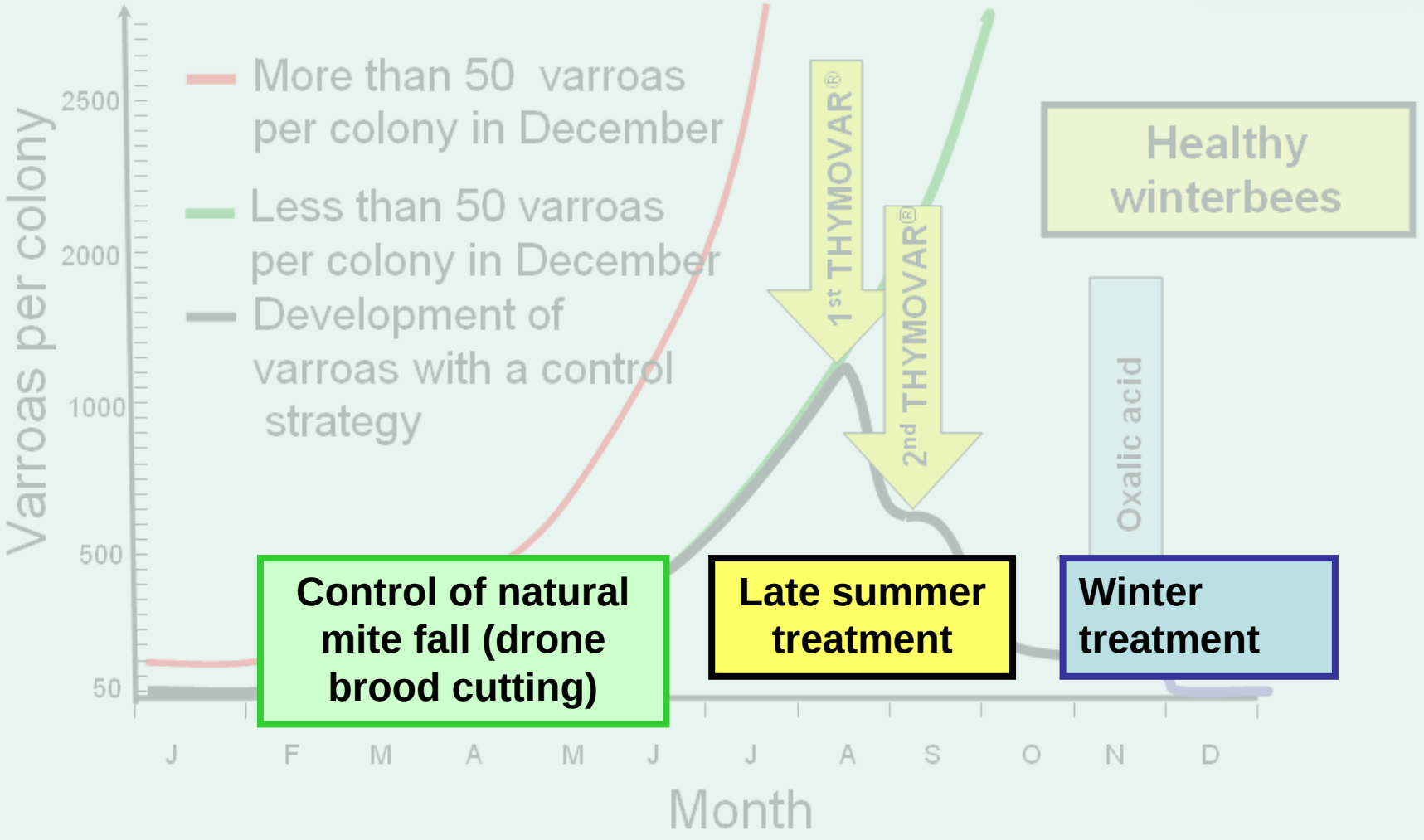


Winter treatment as soon as the colony is broodless (about 3 weeks after the first frost)

Pest management model



Pest management model



Summary

- Thymol : the ideal solution for Varroa control in late summer
- THYMOVAR®
  - Natural
  - Simple
  - Effective
  - Harmless for bees
- Production of quality honey
- Integration in control strategy

Literature

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Thanks for your attention!