

Website:

<https://yqd2001.wixsite.com/varroa>

Website includes a short, informal sources page with hyperlinks sectioned into works cited, further readings, and images. Formal bibliography provided below.

Abstract:

This website explores the pathology of parasite *Varroa destructor*, a mite that preys on Eastern and Western honey bees, inflicting especially harmful effects in the latter host. This medium functions as a short, yet credible guidebook for beekeepers in an accessible format that will **(1)** introduce the *V. destructor* organism, **(2)** describe its debilitating effects on honey bees, **(3)** explain why this parasite is a serious problem, **(4)** introduce methods that are effective in controlling *Varroa* mites, and **(5)** clear up confusing or inaccurate information popular sources may echo. Explanations of beekeeping terminology are not included for conciseness as the intended audience is likely already familiar with such knowledge. However, there are those who do not take action to monitor, prevent, and/or control for mite populations in their colonies. As such, this website aims to not only inform, but also persuade beekeepers or aspiring beekeepers that *V. destructor* is of high-threat to honey bee welfare.

Bibliography

“Amitraz”. *Wikipedia*, <https://en.wikipedia.org/wiki/Amitraz/>.

Baer, Borris. “The Honeybee Hive.” *Australian Academy of Science*, 22 Jan. 2018,
www.science.org.au/curious/earth-environment/honeybee-hive.

Bahreini, Rassol, et al. “Evaluation of Potential Miticide Toxicity to Varroa Destructor and Honey Bees, *Apis Mellifera*, under Laboratory Conditions.” *Scientific Reports*, vol. 10, no. 1, 2020, p. 21529.

Cabbri, Riccardo, et al. “Biomarkers of Nutritional Status in Honeybee Haemolymph: Effects of Different Biotechnical Approaches for Varroa Destructor Treatment and Wintering Phase.” *Apidologie*, vol. 49, no. 5, 2018, pp. 606–618.

Genersch, Elke. “Honey Bee Pathology: Current Threats to Honey Bees and Beekeeping.” *Applied Microbiology and Biotechnology*, vol. 87, no. 1, 2010, pp. 87–97.

Guichard, Matthieu, et al. “Exploring Two Honey Bee Traits for Improving Resistance Against Varroa Destructor : Development and Genetic Evaluation.” *Insects (Basel, Switzerland)*, vol. 12, no. 3, 2021, p. 216.

Hernández-Rodríguez, Carmen Sara, et al. “Large-Scale Monitoring of Resistance to Coumaphos, Amitraz, and Pyrethroids in Varroa Destructor.” *Insects (Basel, Switzerland)*, vol. 12, no. 1, 2021, p. 27.

Hertzberg, Richie. “How honeybees get their jobs—explained”. *National Geographic*, 22 Mar. 2019,
https://www.nationalgeographic.com/animals/2019/03/honey-bee-job-queen-hive-animals
/.

- Hess, Peter. “Bee Collapse: The Varroa Mite Is More Destructive Than Scientists Ever Knew.” *Inverse*, 18 Jan. 2019, www.inverse.com/article/52529-scientists-finally-understand-why-varroa-mites-kill-bees.
- Lattorff, H. Michael G, et al. “A Selective Sweep in a Varroa Destructor Resistant Honeybee (*Apis Mellifera*) Population.” *Infection, Genetics and Evolution*, vol. 31, 2015, pp. 169–176.
- Mondet, Fanny, et al. “Age-Related Changes in the Behavioural Response of Honeybees to Apiguard®, a Thymol-Based Treatment Used to Control the Mite Varroa Destructor.” *Journal of Comparative Physiology A*, vol. 197, no. 11, 2011, pp. 1055–1062.
- Mondet, Fanny, et al. “Honey Bee Survival Mechanisms against the Parasite Varroa Destructor: a Systematic Review of Phenotypic and Genomic Research Efforts.” *International Journal for Parasitology*, vol. 50, no. 6-7, 2020, pp. 433–447.
- Ramsay, Samuel D. “Dr Samuel Ramsey - Varroa Feed on Fat Body - Lecture at the INIB Honey Show 2019.” *YouTube*, 6 Dec. 2019, www.youtube.com/watch?v=z2pIL5NIRcw.
- Ramsey, Samuel D, et al. “Varroa Destructor Feeds Primarily on Honey Bee Fat Body Tissue and Not Hemolymph.” *Proceedings of the National Academy of Sciences - PNAS*, vol. 116, no. 5, 2019, pp. 1792–1801.
- Rosenkranz, Peter, et al. “Biology and Control of Varroa Destructor.” *Journal of Invertebrate Pathology*, vol. 103, 2010, pp. S96–S119.
- Smith, Kristine M, et al. “Pathogens, Pests, and Economics: Drivers of Honey Bee Colony Declines and Losses.” *EcoHealth*, vol. 10, no. 4, 2013, pp. 434–445.
- Sun, Mei. “This Tiny Parasite Has Crippled the World's Honey Bees. It Isn't in Australia - Yet.” *ABC News*, 18 Sept. 2019,

www.abc.net.au/news/2019-09-18/the-beekeepers-ready-to-fight-varroa-mite-in-australia/11505370.

Underwood, Robyn, and Margarita López-Urbe. “Methods to Control Varroa Mites: An Integrated Pest Management Approach.” *Penn State Extension*, 23 May. 2019, <https://extension.psu.edu/methods-to-control-varroa-mites-an-integrated-pest-management-approach>.

“Varroa Mites.” *Bee Aware*, <https://beeaware.org.au/archive-pest/varroa-mites/>.

Images

Bauer, Scott. “Image Number K9544-1”. *USDA Agricultural Research Service*, <https://www.ars.usda.gov/oc/images/photos/may08/k9544-1/>.

Caza, Shawn. “varroa mite on bee with DWV”. *Flickr*, 28 Sept. 2011, <https://flic.kr/p/arSjuJ>.

Martin, Gilles. “Female Varroa destructor on the head of a bee pupa (dorsal view)”. *Flickr*, 3 Oct. 2010, <https://flic.kr/p/8G5Q3X>.

Martin, Gilles. “Female Varroa destructor on the head of a bee pupa (frontal view)”. *Flickr*, 3 Oct. 2010, <https://flic.kr/p/8G5RgD>.

Martin, Gilles. “Varroa destructor (Adult male)”. *Flickr*, 3 Oct. 2010, <https://flic.kr/p/8G8TGL>.

Martin, Gilles. “Varroa destructor on a bee pupa”. *Flickr*, 20 Sept. 2010, <https://flic.kr/p/8G5NGF>.