OP-094 [Bee Health]
Bee Aware Science: Ten Scientific Articles Highlights Every Month

Sébastien Hoffmann, Nicolas Vidal-Naquet, Christophe Roy
SNGTV, Paris

Scientific research relating to honeybee health and hive products is abundant, but we consider that it is not sufficiently promoted or disseminated to beekeepers, technicians and players in charge of honeybee health (administrations, veterinarians, technicians, laboratories, researchers). French vets specialising in honeybee colony health wanted to improve their access to new scientific knowledge that is regularly published and relevant to their day-to-day work. With this aim of sharing and disseminating knowledge, since September 2019 we have been carrying out a daily independent and voluntary bibliographic watch. Every month, we digitally publish a collection of abstracts of the ten most interesting articles recently published. The articles selected may deal with any beekeeping theme, including apitherapy, bee biology and health, the industry's economy, beekeeping practices or pollination. This bibliographic watch is carried out using online search engines (PubMed©, GoogleScolar©, Researchgate©, etc.) and smartphone applications (Researcher©, R Discovery©, etc.). An editorial board, free of any conflict of interest and comprising several French veterinary experts in bee health, is responsible for selecting the articles chosen each month. In addition to the theme, the selection of articles is based on the quality of the publication, the independence of the authors, the reputation of the journal (Impact Factor) and the contribution of new and useful information to the beekeeping industry. This gazette is shared freely and openly with all those who request it. Its six-page format is quick and easy to read, making it easy to keep up to date. Today, the French version is distributed to all partners in the beekeeping industry in France: beekeeping unions, beekeeper groups, research organizations, analysis laboratories, pharmaceutical industries, journalists, politicians, veterinary practitioners and schools in particular. The English version is currently distributed in 31 countries on five continents, mainly to scientists. The long-term aim is to widen the circle of distribution of the English version of this gazette, to make scientific advances relating to Apis mellifera accessible to as many people as possible.

Bee Aware Science

Sébastien HOFFMANN, DVM, Bee Pathology, France

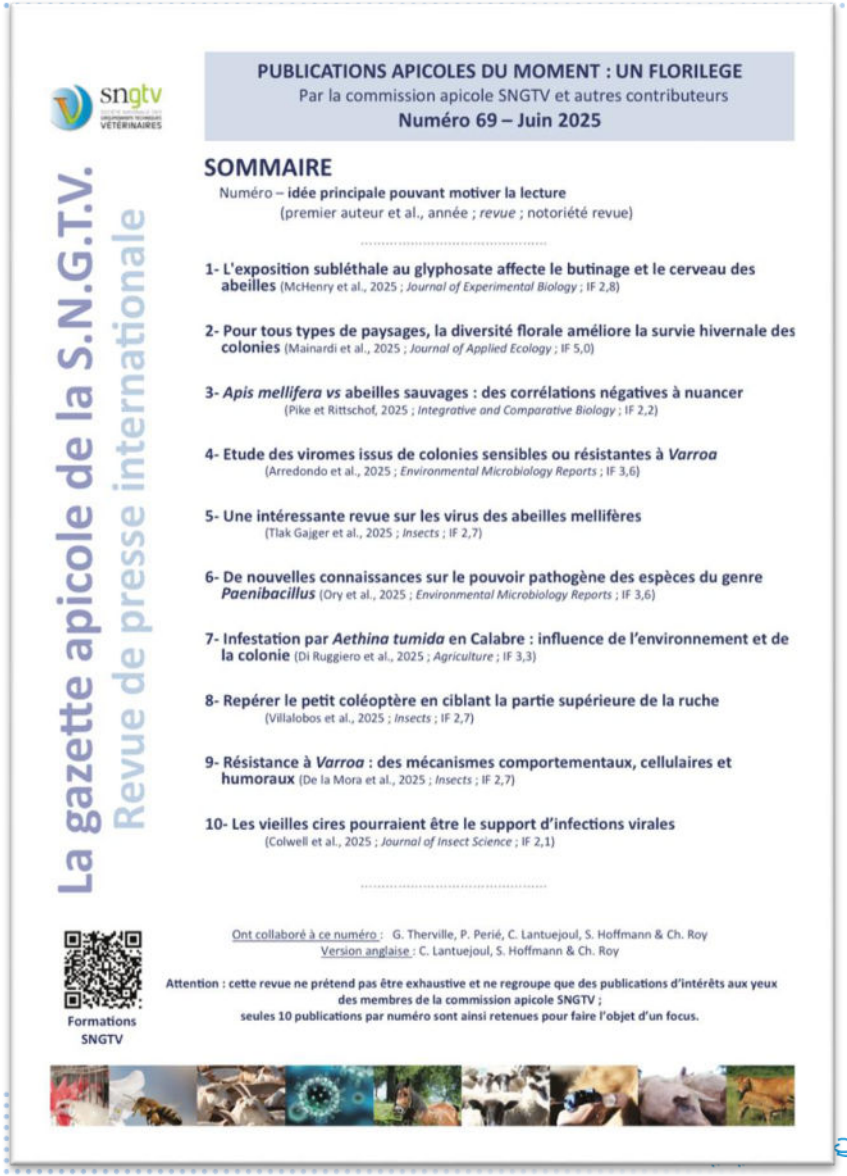
APIMONDIA 2025, 25th september 2025

SNGTV
SOCIÉTÉ NATIONALE DES GROUPEMENTS TECHNIQUES VÉTÉRINAIRES

APIMONDIA SCANDINAVIA 2025
23-27 SEPTEMBER
COPENHAGEN

Ten Scientific Article Highlights Every Month

«*Beekeeping gazette*»



La gazette apicole de la S.N.G.T.V.
Revue de presse internationale

PUBLICATIONS APICOLES DU MOMENT : UN FLORILEGE
Par la commission apicole SNGTV et autres contributeurs
Numéro 69 – Juin 2025

SOMMAIRE

Numéro – **idée principale pouvant motiver la lecture**
(premier auteur et al., année ; *revue* ; notoriété revue)

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10- **Les vieilles cires pourraient être le support d'infections virales**
(Colwell et al., 2025 ; *Journal of Insect Science* ; IF 2,1)

Formations SNGTV

Ont collaboré à ce numéro : G. Therville, P. Perié, C. Lantuejoul, S. Hoffmann & Ch. Roy
Version anglaise : C. Lantuejoul, S. Hoffmann & Ch. Roy

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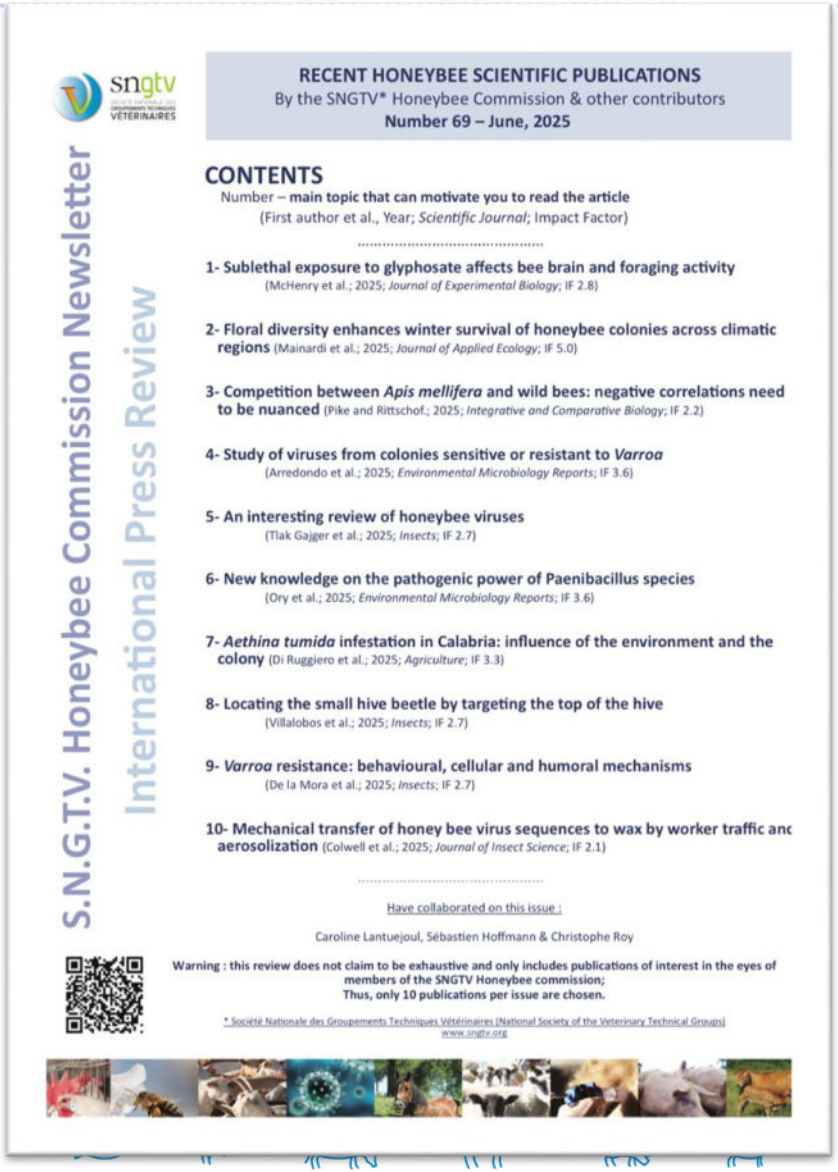
seules 10 publications par numéro sont ainsi retenues pour faire l'objet d'un focus.**



S.N.G.T.V. Honeybee Commission Newsletter
International Press Review

RECENT HONEYBEE SCIENTIFIC PUBLICATIONS
By the SNGTV* Honeybee Commission & other contributors
Number 69 – June, 2025

CONTENTS

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(First author et al., Year; *Scientific Journal*; Impact Factor)

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Have collaborated on this issue :

Caroline Lantuejoul, Sébastien Hoffmann & Christophe Roy

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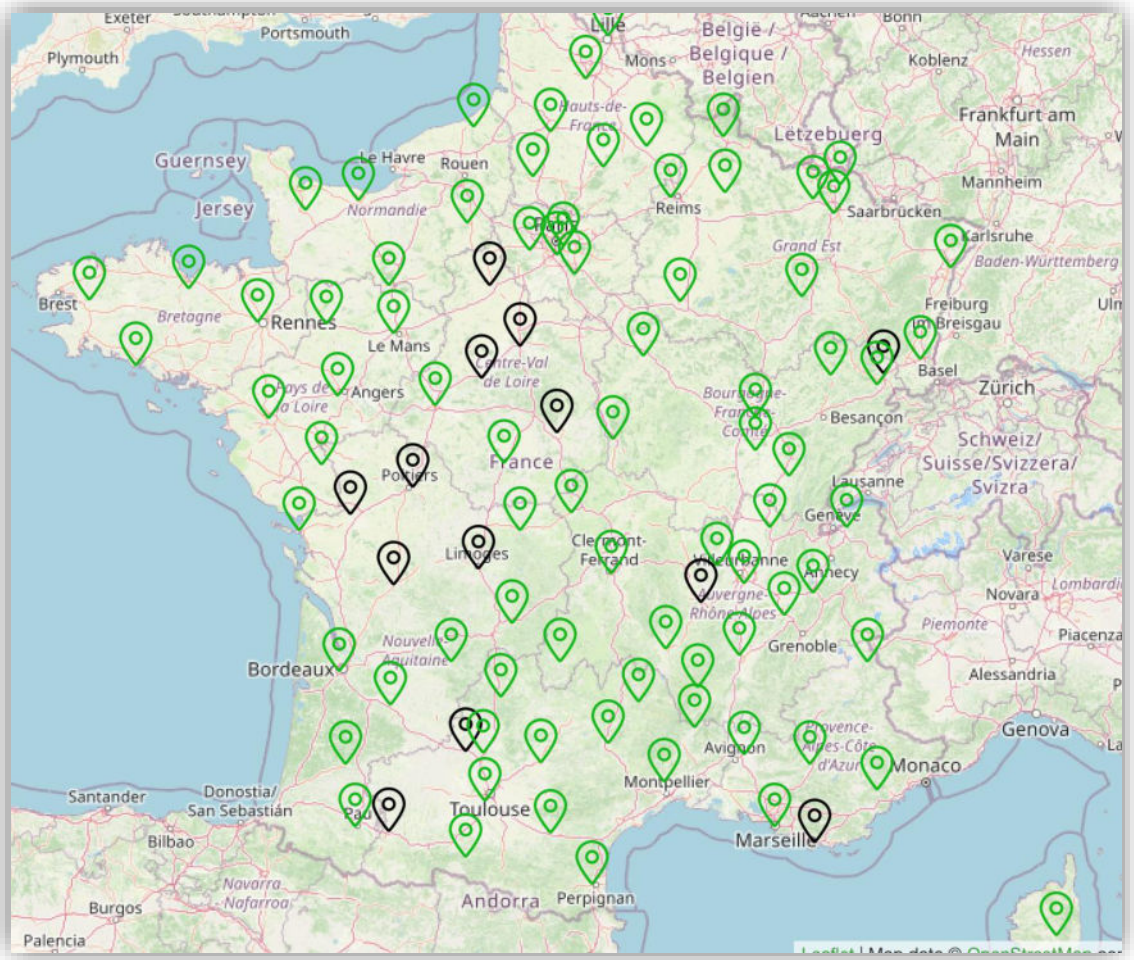
* Société Nationale des Groupements Techniques Vétérinaires (National Society of the Veterinary Technical Groups)
www.sngtv.org

Bee vets in France : missions

- **Via local health associations (OSAD)**

  - → Assisted by bee health technician
  - → Scheduled monitoring of apiaries
  - → Treatment against *Varroa*
  - → Prevention, beekeepers training
  - → *Vespa velutina*
  - → Soon : gestion of AFB



FNOSAD

FNOSAD-LSA, LA SANTÉ DE L'ABEILLE
Fédération Nationale des Organisations Sanitaires Apicoles Départementales

GDS France
L'action sanitaire ensemble

sngtv

Bee vets in France : missions

Investigation

- *Via* Bee disease observatory (OMAA)
  - → 8 regions
  - → Financed by public funds
  - → Coordinated by regional sections of SNGTV

Monitoring
of an health event in a apiary

Reporting system
One phone number by region

Suspicion of *Aethina tumida*, *Tropilaelaps* spp., *Paenibacillus larvae

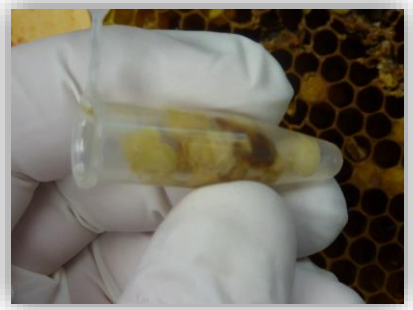
Suspicion of bee poisoning

Others interesting Suspicions

Bee vets in France : missions

- **French autorities request**
  - Biological hazards :
    - *Aethina tumida*
    - *Tropilaelaps spp.*
    - *Paenibacillus larvae**
  - Suspected poisoning
    - joint environmental investigation

- **Beekeepers direct request**



Bee vets in France : training

- **Veterinary school : basic beekeeping training**

- **SNGTV :**
  → post-graduate training for general or more specialized vets

- **Interschool diploma in bee pathology**
  → 5 weeks of post-graduate training in **Oniris** veterinary school
  → 294 veterinarians are graduated

Poster
APIMONDIA
SCANDINAVIA 2025
SWEDEN | DENMARK | NORWAY
COPENHAGEN

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Why did we create the beekeeping gazette ?

- **Internet is full of unverified informations, and dubious or even dangerous treatments.**
  → From recognized scientific journals

- **Veterinarians are often overwhelmed** (with other species)
  → A quick-to-read selection

- **Publications are in English, technical and scattered**
  → French traduction

The Bee Gazette - Monthly Work

- Created in September 2019 by Christophe Roy
- Independent, voluntary bibliographic watch
- Selection of 10 key scientific articles
- Criteria:
  - → Relevance
  - → Scientific quality
  - → Independence
  - → Impact Factor >1
- 6 pages, PDF format, free

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Formations SNGTV

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How Do We Work?

Search of interesting articles:

- Daily
- PubMed, Google Scholar, ResearchGate, Researcher app

Classification and selection:

- Shared Zotero group
- Between 30 and 50 articles every month
- Selection of 10 articles

Translation:

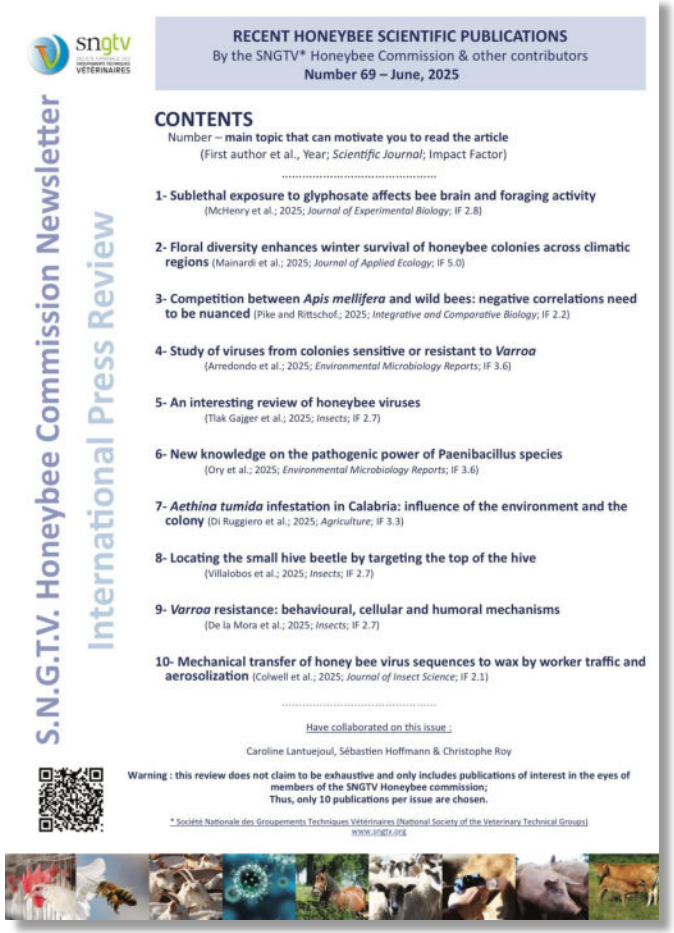
- Collective work of our beekeeping commission
- Only article with full PDF (open source or requested from authors)
- DeepL, Google Translate

Layout:

- Compilation of data in a spreadsheet (numbers, excel)
- Data merging and page layout with Affinity publisher
- Proofread by commission before diffusion

The English Version

- Includes original abstracts
- Translated short titles from French
- Sent every months to researchers in 30 countries, across 5 continents
  - → On request
  - → To researchers who send us their pdf
- Annual summary in October – categorized by topic



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Annual summary : sorted by topics

S.N.G.T.V. Honeybee Commission Newsletter

International Press Review

HONEYBEE SCIENTIFIC PUBLICATIONS N°5

October, 2023 / September, 2024

Sébastien Hoffmann DVM, Christophe Roy DVM

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SOCIÉTÉ NATIONALE DES GROUPEMENTS TECHNIQUES VÉTÉRINAIRES

Every month, the S.N.G.T.V. Honeybee French Commission reviews the international scientific literature about honeybees, their health and the products of the hive. Ten publications of interest are chosen per issue to be focused on : these monthly works don't claim to be exhaustive and only includes publications of interest in the eyes of the SNGTV Honeybee commission for its vet practitioners members.

This document is the fifth synthesis of these monthly bibliographical reviews, between the months of October 2023 and September 2024.

The abstracts of each article are presented in chronological order of publication and numbered from 1 to 120. An index, by topics, makes it easier to find them.

TOPICS

Bee Products

1- China and antibiotics big winners in a large-scale study of honey contaminants (Eissa et al 2023)
34- Royal jelly jelleins hold therapeutic promise for human health (Lima et al 2024)
48- Is honey really eternally edible? (Sajtos et al 2024)

Beekeeping practices

3- « Shook swarming »: old strategie as modern solution against *Varroa*? (N
4- Instrumental insemination vs. mating stations: saving time... but also inbr
6- The starting point of summer queen caging affects honey production (Ko
13- Re-using food resources from failed honey bee (*Apis mellifera* L.) colonie capacity (Tokach et al 2023)
15- Biotechnical Control of *Varroa* in Honey Bee Colonies: A Trade-Off betwe (Vercelli et al 2023)
16- Queen quality, performance, and winter survival of imported and dome
19- Exploring a Potential Avenue for Beekeeping in Ireland: Safeguarding Lo Resistant Lines (Smith et al 2023)
24- Electric harps against *Vespa velutina* are rather selective (Pérez-Granado
36- Using black solider fly larvae (*Hermetia illucens*) to clean unwanted bee
59- Is biodynamic beekeeping right to ban queen excluders? (Bundschuh et
70- The Bee has a positive psychological impact on beekeepers and their fa
87- Queen ringing vs. queen caging for summer brood interruption (Uzunov
99- A technico-economic study on the cost of queen breeding in Europe (Di
119- Single or multiple males for artificial insemination? (Du et al 2024)

Biological Hazard

8- The bumblebee and the honeybee: the latter lends... its *Vairimorpha cera*
9- *Varroa destructor* reproductive success: key genes identified (Muntaabski
10- The Asian Hornet also disturbs European bumblebee colonies (O'Shea-W
14- Signatures of adaptive decreased virulence of deformed wing virus in an *mellifera*) (Ray et al 2023)
21- Suspicion of nosemosis: sampling 60 bees would be unrepresentative of 2023)
31- Varroosis in *Apis mellifera*: influence of bacteria and immunity (Zhang et
32- Reproduction of *Varroa destructor* depends on well-timed host cell recaj
41- The balance between *Apis mellifera* and its viruses has been dramaticall al 2024)
42- Virus loads keep pace with the increase, but not the decrease in those o
43- A swab at the hive entrance to detect American foulbrood with a PCR ar
44- A virulence plasmid for European foulbrood much more widespread tha
54- *Aspergillus* strains present in hives are specific to bee bread (Bush et al 2
57- Seasonal trends of the ABPV, KBV, and IAPV complex in Italian managed
67- Pathogens may affect wing morphology in *Apis mellifera* (L.) workers (Ta
71- Detection of *Aethina tumida*: benefits of using oil traps on a large scale (
77- Participatory science to better understand the links between *Nosema* ar
78- Micronutrient deficiency may be associated with chalkbrood disease (Pa
79- Detecting the pollen eater mite *Carpoglyphus lactis* by PCR (Nguyen et a
82- Analysis of winter debris accumulated on hive floors as a diagnostic met
85- Small hive beetle infestation levels correlate with sun exposure but not al 2024)
86- The small hive beetle benefits from a microbiome that adapts to its lifes

91- Understanding the dispersal patterns of *Aethina tumida* (Cornelissen et al 2024)
92- Researchers call for *Vairimorpha* to be reintegrated into the *Nosema* genus (Bartolomé et al 2024)
95- The larger the cells, the lower the fecundity and fertility of *Varroa*. (Zhang et al 2024)
103- Supersedures may be the result of heavily infected queens (Chapman et al 2024)
113- Endochitinase from the microsporidia *Nosema ceranae* facilitates infection in *Apis mellifera* (da Cruz Souza et al 2024)

Biology / Physiology

2- Resilin is a marker of joint youth in *Apis mellifera* (Anderson et al 2023)
20- Decoding the Behavior of a Queenless Colony Using Sound Signals (Kanelis et al 2023)
23- A scientific review of bees' gut microbiota highlights its importance for their health (Motta and Moran 2023)
37- Immunity molecular markers monitoring between winter and spring Italian honeybees (Frunze et al 2024)
39- *Apis mellifera* tends to prefer some colors and directions (Liga et al 2024)
45- The secret of *Varroa*-tolerant Africanized bees lies not in their social immunity
49- Energetic costs of raising brood in honeybee are high, but "heater" bees are cl
50- The foraging itinerary of the ground bumblebee is more efficient than that of t
63- Warmer autumns and winters also disrupt the age structure of winter bees (Ri
64- The role of temperature on the development of circadian rhythms in honey be
75- As with workers, queen health is governed by complex interactions (Copeland
93- MNR and VSH traits are the result of distinct mechanisms (Sprau et al 2024)
94- Hygienic traits in *Apis mellifera* are not acquired but innate (Martin et al 2024)
107- Abnormal winter colony thermoregulation may be an early indicator of colon
110- The local black bee adapts better to temperate continental climates (Ostrover
120- Succinate derived from *Lactobacillus* Firm-5 is central to the metabolism of A

Chemical Hazard

5- Curious effects obtained by exposing queens to insect growth disruptors (Fine e
11- Fungicides and insecticides can alter the microbial community on the cuticle o
22- Chronic exposure to coumaphos and tau-fluvalinate residues is toxic for honey
28- Fungicides: don't overlook the deleterious effects of co-formulants (DesJardins
40- What is the value of rotations to insecticide resistance management? (Madgwi
60- Glyphosate researched... and found in Italian honey (Rampazzo et al 2024)
62- Novel indices reveal that pollinator exposure to pesticides varies across biolog (Laurent et al 2024)
65- Risk assessment of residues left by authorized drugs in bee matrices (Luna et a
98- A meta-analysis confirms the need for change in the use of pesticides on crops
105- Does glyphosate have an impact on gut microbiota biofilms... (Motta et al 20
106- Does glyphosate also disrupting the feeding behavior of *Apis mellifera*? (Rosa

Emerging Hazard

18- Emerging threats and opportunities to managed bee species in European agric al 2023)
46- First description of Slow Bee Paralysis Virus (SBPV) in Italy (Leti Maggio et al 2
52- Phylogenetic analysis of *Aethina tumida* Murray from Reunion Island (Cont et
69- Climate change likely to favor *Vespa velutina* in Europe (Nie et al 2024)
81- First report of established *Tropilaelaps* mite populations in Europe (Brandorf e
111- *Apis florea* colony discovered on European soil (Uzunov et al 2024)

Environnement

7- Wind turbines have no impact on nearby bee colonies (Fourrier et al 2023)
12- Beekeeping under climate change (Neumann et al 2023)
29- Landscape composition and pollen contamination by plant protection product

55- Advances and knowledge gaps on climate change impacts on honey bees and beekeeping (Zapata-Hernández et al 2024)
56- Pollinators in Africa and Europe will be hardest hit by global warming (Rahimi et al 2024)
61- Global warming threatens bee diversity (Kazenel et al 2024)
66- Urbanisation impacts the diversity, coloration, and body size of wild bees in a Mediterranean city (Badiane et al 2024)
80- Bees as Covid-19 sentinel in the environment (Mancusi et al 2024)
88- Climate change seen by Italian beekeepers (Remotti et al 2024)
96- *Apis mellifera* used as a sentinel for Colistin-resistant environmental bacteria (Resci et al 2024)
97- Ground transport has a direct impact on heavy metal contamination in beehives (Scarfone et al 2024)
112- Climate change will have an impact on the epidemiology of living pathogens (McAfee et al 2024)
118- Landscaping for healthier colonies (Pluta et al 2024)

Epidemiology

17- A national survey of managed honey bee colony losses in the USA: Results from the Bee Informed Partnership for 2020–2021 and 2021–22 (Aurell et al 2023)
53- Case report of massive honeybee colony losses in the USA (Lamas et al 2024)
58- Distribution of infectious and parasitic agents among three sentinel bee species across European agricultural landscapes (Babin et al 2024)
72- Spatial distribution of the risk posed by *V. Velutina nigrithorax* in France and Germany (Requier et al 2024)
73- Some epidemiological data on foulbrood in the USA (Alburaki et al 2024)
104- Spatio-temporal evolution of the distribution of CBPV in Italy (Zavatta et al 2024)
114- Genetic evaluation of the results of the Italian bee protection policy (Taurisano et al 2024)

Pharmacy / Therapeutics

25- Lithium chloride may be lethal for *Apis mellifera* larvae, but not for *Varroa* (Demeter et al 2023)
26- Lithium chloride disrupts honeybees' circadian rhythms, and that's problematic (Erdem et al 2023)
27- A variant of the Pettis test to detect phenotypic *Varroa* resistance to varrocides (Bahreini et al 2023)
30- A natural antiviral against DWV from a fungus? (Svobodová et al 2023)
33- Could lithium chloride finally be of interest in broodless colonies? (Rein et al 2024)
35- The anticancer bleomycin, a false good idea against *Nosema ceranae* (Parrella et al 2024)
47- Probiotics do not benefit *Apis mellifera*, even after an antibiotic treatment (Anderson et al 2024)
51- Experimental parameters affecting the outcomes of amitraz resistance testing in *Varroa destructor* (Rinkevich et al 2024)
74- Testing disinfectants against *Paenibacillus larvae* (Tlak Gajger et al 2024)
76- Selecting virus-resilient queens through egg analysis? (Domingues et al 2024)
83- Promising double-stranded interfering RNA inhibits *Varroa* reproduction (McGruddy et al 2024)
84- *Varroa destructor* seems particularly sensitive to ultraviolet radiation (Silva-Acosta et al 2024)
101- Beekeepers Support the Use of RNA Interference (RNAi) to Control *Varroa destructor*... (McGruddy et al 2024)
102- Beekeepers may one day use this RNAi which blocks the synthesis of a salivary protein in mites (Becchimanzi et al 2024)
108- Lithium chloride is poorly excreted in hypopharyngeal glands (Rein et al 2024)
109- Plant powders coming soon to beekeeping stores? (Brown et al 2024)
117- Research into new treatments against American foulbrood (El-Sayied Ali et al 2024)

Unclassified

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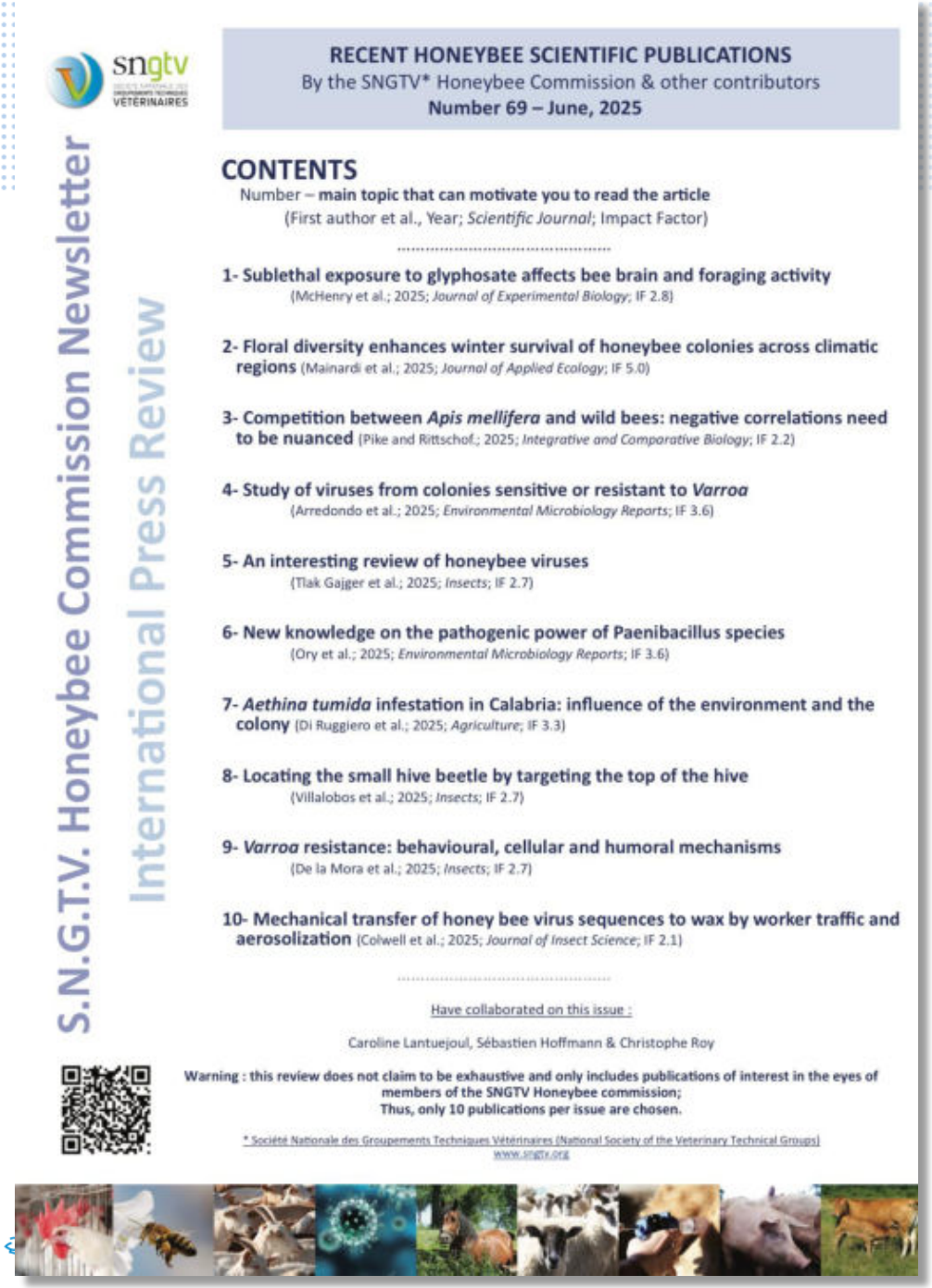

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SOCIÉTÉ NATIONALE DES GROUPEMENTS TECHNIQUES VÉTÉRINAIRES

RECENT HONEYBEE SCIENTIFIC PUBLICATIONS
By the SNGTV* Honeybee Commission & other contributors
Number 69 – June, 2025

S.N.G.T.V. Honeybee Commission Newsletter
International Press Review

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Have collaborated on this issue :

Caroline Lantuejoul, Sébastien Hoffmann & Christophe Roy

Warning : this review does not claim to be exhaustive and only includes publications of interest in the eyes of members of the SNGTV Honeybee commission;
Thus, only 10 publications per issue are chosen.

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1- Sublethal exposure to glyphosate affects bee brain and foraging activity

McHenry, L.C., Schürch, R., Council-Troche, M., Gross, A.D., Johnson, L.E., Ohlinger, B.D., Couvillon, M.J., 2025. Sublethal glyphosate exposure reduces honey bee foraging and alters the balance of biogenic amines in the brain. Journal of Experimental Biology. https://doi.org/10.1242/jeb.250124

Abstract: Glyphosate is a broad-spectrum herbicide that inhibits the shikimate pathway, which honey bees (*Apis mellifera*), a non-target beneficial pollinator, do not endogenously express. Nonetheless, sublethal glyphosate exposure in honey bees has been correlated to impairments in gustation, learning, memory and navigation. While these impacted physiologies underpin honey bee foraging and recruitment, the effects of sublethal glyphosate exposure on these important behaviors remain unclear, and any proximate mechanism of action in the honey bee is poorly understood. We trained cohorts of honey bees from the same hives to forage at one of two artificial feeders offering 1 mol/l sucrose solution, either unaltered (N=40) or containing glyphosate at 5 mg acid equivalent (a.e.)/l (N=46). We then compared key foraging behaviors and, on a smaller subset of bees, recruitment behaviors. Next, we quantified protein levels of octopamine, tyramine and dopamine, and levels of the amino acid precursor tyrosine in the brains of experimental bees collected 3 days after the exposure. We found that glyphosate treatment bees reduced their foraging by 13.4% (P=0.022), and the brain content of tyramine was modulated by a crossover interaction between glyphosate treatment and the number of feeder visits (P=0.004). Levels of octopamine were significantly correlated with its precursors tyramine (P=0.011) and t
not in control bees. Our findings emphasize the critic
applied herbicide and to elucidate its non-target mech
pollinator protection strategies.

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2- Floral diversity enhances winter survival of honeybee colonies across climatic regions

Mainardi, G., Sponsler, D., Minaud, E., Vardakas, F., Charistos, L., Requier, F., Hatjina, F., Steffan-Dewenter, I., 2025. Floral diversity enhances winter survival of honeybee colonies across climatic regions. Journal of Applied Ecology. https://doi.org/10.1111/1365-2664.70054

Abstract: In temperate climates, winter can be an arduous time for eusocial insects. Survival of honeybee colonies during winter depends on a delicate balance between hive thermoregulation, managing the food reserves and timing the onset of the new worker bee generation. Winter survival is influenced by several factors, most notably colony size, *Varroa* mite infestation levels and the availability of stored food. Importantly, the climatic conditions and floral resources of the previous foraging season can also impact honeybee health and colony strength before hibernation. This study, conducted across Europe, examines how landscape composition and weather conditions affect the winter survival of honeybee colonies. It uses pollen diversity as a proxy for flower resource quality and available foraging days as a climatic variable to understand their causal relationships to winter survival. We found that landscapes with higher percentages of agricultural areas increased pollen diversity collected by honeybees in autumn, whereas higher percentages of semi-natural areas increased the diversity during summer. Spring and autumn pollen diversity was the main driver for winter survival success, emphasizing the importance of diverse flower resources for colony health. While we did not find a statistically significant effect of weather on winter survival, trends suggest potential influences, warranting further research to confirm and clarify the role of seasonal foraging on colony health. Synthesis and applications: Our study highlights the critical role of including floral resource diversity and weather conditions in a comprehensive framework for studying honeybee hibernation. It suggests that increasing plant diversity around apiaries and implementing agricultural practices that enhance floral resources can significantly improve winter survival, with honeybee colonies benefiting even in landscapes with higher agricultural activity, distinct from the needs of other pollinators.

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