

Nematology News



INTERNATIONAL FEDERATION OF
NEMATOLOGY SOCIETIES

The Seventh International Congress of Nematology

<https://www.icn2020antibes.com/>

ICN 2020 will occur during 3-8 May and will feature 12 keynote talks ranging from “nematodes in space” to “microbiomes of nematodes deep in the seas,” to “nematode management in agrosystems.” There will be 12 workshops/symposia, 32 oral sessions and several poster sessions in the spacious surroundings of the Palais des Congres. Students can compete in one of several Poster Award categories and, if they wish, give a 3-minute flash preview during the regular oral sessions. During a midweek break, you can take one of four, organized tours or enjoy the day exploring the medieval town, its shops, markets, museums, restaurants and beaches. The Congress is being organized by the European Society of Nematology (ESN) under the auspices of the International Federation of Nematology Societies (IFNS) in Antibes Juan-les-Pins, one of the most celebrated seaside resorts of the French Riviera since the ‘Belle Epoque’ of the 1920s.

Every effort was made to make the meeting comprehensive, cutting edge, and affordable to all. There are special registration rates for middle and lower income countries, special congress hotel rates beginning at €35, and bursaries up to €1200 for students and early career scientists. Registration includes lunches, coffee breaks, a welcome reception, mid-week tours, and the congress banquet. So register now to take part in the Congress next spring – a perfect time of year on the Riviera.





Larry Duncan, Pierre Abad and Eric Grenier have mostly prepared last summer the plan for the ICN 2020 bursary call and further discussed it with the different societies for any additional comments. The call was open in early October till the end of November 2019. The information was forwarded by each society to its membership.

In total 183 student applications representing 43 countries (top 3 = US, Brazil and South Africa) and 52 Early Career Nematologist applications representing 23 countries (top 3 = China, Iran and South Africa) were received.

All these applications were then sent to a Bursary Committee composed of 15 nematologists (5 from ESN, 3 from SON, 2 from ONTA, 1 from NSSA, 1 PSN and 2 from the Local Organizing Committee) led by Larry Duncan (IFNS). The committee composition reflects the proposal by ESN to combine the efforts of different societies that will provide bursaries without regard to the affiliation of the applicants. A few additional members are from other societies to make the job manageable and to provide a broader geographic representation.

Award selection process: Applications were assigned to pairs of judges. The two members evaluated the applications independently. At the end of this evaluation step the entire committee decided which receive the awards.

Close to 80 students were awarded a bursary to attend the ICN2020 meeting which is over 40% of the applications.

Biocontrol in space!

On Thursday, 05 December 2019, nematodes of the species *Steinernema feltiae* were sent to the International Space Station ISS for a biocontrol research project.

The project aims to gain insights into the influence of gravitation on pheromone production and thus the ability of entomopathogenic nematodes to infect insect pests.

Read more: <https://astronematode.com/>



Highlights of *Nematology* volume 21

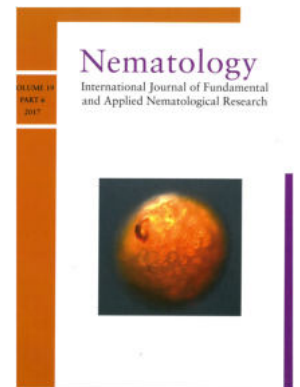
Volume 21 (2019) was completed in December 2019 with the planned 10 issues. In total the volume contained 78 full research papers, 4 short communications, 1 Forum article and 3 book reviews.

Nematology publishes full Research papers, Forum articles, Review articles and Short Communications. All articles are available online with a DOI immediately corrected proofs are returned. *Nematology* papers, including the earlier papers of *Nematologica*, are available on Brill's online platform at:

<http://booksandjournals.brillonline.com/content/15685411>

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ESN members are reminded that they can subscribe to Volume 22 (2020) of *Nematology* at the special individual e-only member subscription rate of €150/US\$162 (excluding VAT). Please send your order to brill@turpin-distribution.com, quoting action code 71126. Price group/type to be entered as "society/member"



Volume 21 contained papers on a wide spectrum of topics, including descriptions of seven new species of *Bursaphelenchus*. Here, Roland Perry selects [five papers](#) from the volume to illustrate various aspects.

Paper 1. *Globodera pallida* is an economically important cyst nematode that has proved difficult to control effectively. There is a continuing search for cultivars with full resistance to this nematode and screening of potato germplasm for resistance at the early stages of a breeding programme is an important aspect. In a paper by Mwangi *et al.* ([Reproduction of *Globodera pallida* on tissue culture derived potato plants and their potential use in resistance screening process](#); pp. 613-623) the authors assessed the suitability of tissue culture (TC) derived potato plants as screening material for resistance. Tissue culture plants have the potential of speeding up the screening process and reducing resource requirements, thus lowering breeding cost. The authors found that reproduction of *G. pallida* on TC plants was similar to the reproduction on tubers and eye-plug derived plants. The pot volume, inoculum density and inoculation time had a significant effect on the reproduction. Resistance ranking using TC plants and the tubers yielded comparable results, thus justifying the use of TC in the screening process.

Paper 2. The roller phenotype is a well characterised mutant in *Caenorhabditis elegans*. Tomalak & Filipiak have now identified and characterised the first spontaneous morphological / anatomical and behavioural mutation *Bxy-rol(tom3)* in the pine wood nematode, *Bursaphelenchus xylophilus* ([A spontaneous Roller mutant in *Bursaphelenchus xylophilus* \(Steiner & Buhner, 1934\) Nickle, 1970 \(Nematoda: Aphelenchoididae\)](#); pp. 641-653). The mutation is recessive to its wild-type counterpart. The mutant phenotype designated as Roller (Rol) is distinctive for the helical twist of the whole body around its longitudinal axis. The twist of the nematode body wall cuticle is accompanied by a similar twist of hypodermis, muscles and other organs and cuticular structures, which are responsible for the altered pattern of the nematode movement. However, apart from these changes, the *Bxy-rol(tom3)* mutation does not visibly affect any other essential character or function of *B. xylophilus*. Tomalak & Filipiak discuss the practical value of such mutations as markers for selected populations.

Paper 3. Root-lesion nematodes (*Pratylenchus* spp.) are one of the most economically important nematode groups worldwide. Using morphological characteristics and molecular analyses based on D2-D3 of 28S rDNA, ITS rDNA and COI mtDNA regions, Hguyen *et al.* describe a new species of *Pratylenchus* ([Molecular and morphological characterisation of a new root-lesion nematode, *Pratylenchus horti* n. sp. \(Tylenchomorpha: Pratylenchidae\), from Ghent University Botanical Garden](#); pp. 739-752). The new species was recovered from soil and root samples from the rhizosphere of *Hedychium greenii* (red ginger), an exotic plant originally from the Himalayan Mountains and growing in the Botanical Garden, Ghent University, Belgium; the description brings the total number of valid species of *Pratylenchus* to 103. It is not known whether *P. horti* was introduced together with the *H. greenii* specimen, or whether it is a native species that also occurs on other host plants.

Paper 4. The rice root-knot nematode, *Meloidogyne graminicola*, is one of the most important biotic constraints to rice production and is present in all South Asian and Southeast Asian countries surveyed so far, causing yield losses in various rice-based agro-systems. Lawilao *et al.* ([Mapping quantitative trait loci of *Meloidogyne graminicola* resistance and tolerance in a recombinant inbred line population of *Oryza glaberrima* × *O. sativa*](#); pp. 401-417) evaluated the host response in the field of BC2F3 recombinant inbred line (RIL) population derived from a cross between African rice (CG14) and Asian rice (IR64) genotypes. Quantitative trait loci (QTLs) that confer resistance and tolerance to *M. graminicola* were mapped using SSR markers. Of the 155 BC2F3 progenies evaluated, 23 were classed as resistant and 6 were partially resistant. QTLs related to resistance were detected on chromosomes 6, 7 and 12. QTL for tolerance linked to percentage yield reduction was mapped on chromosome 5. QTLs linked to fresh root weight, dry root weight, dry shoot weight, percentage filled grains per panicle and yields were also mapped. QTLs identified will be useful in a breeding programmes to develop *M. graminicola* resistant and tolerant rice cultivars.

Paper 5. To enhance understanding of the epidemiology of populations of potato cyst nematodes (PCN), *Globodera rostochiensis* and *G. pallida*, Nuaima *et al.* used PCR-DGGE fingerprinting of the effector gene vap1 to study the genetic variation within and among populations of PCN ([Effector gene vap1 based DGGE fingerprinting to assess variation within and among *Globodera* species and populations](#); pp. 1023-1036). The authors developed a technique to amplify vap1 fragments of PCN, and electrophoretically separate variants in a denaturing gradient (DGGE). Among other data, they found that siblings were more similar in vap1 pattern than juveniles from different cysts. Nearly all juveniles analysed had unique patterns with up to ten or five vap1 variants for *G. pallida* or *G. rostochiensis*, respectively. Patterns differed significantly among populations, with similarities increasing from between-species, within-species to within-pathotype comparisons. The authors concluded that the method is suitable to determine the similarity of heterogeneous PCN populations for studies on their temporal change and spread.



Roland N. Perry
Editor-in-Chief, *Nematology*

51st ONTA meeting in San José, Costa Rica, 21-25 July, 2019.

The ONTA Annual Meeting in San José, Costa Rica was a very successful meeting. The meeting counted 148 participants from 16 different countries. The symposium took place at an internal congress centre in San José and was perfectly organized, with simultaneous translation. On Monday 22 July 2019, we started with a very nice opening ceremony with a local singer, and followed by three opening lectures: *Managing nematodes in high-value crops: increasing sustainability in a challenging environment* by Johan Desaegeer, *The nematode threat to food security in Sub-Sahara Africa* by Danny Coyne and *Progress and priorities for nematodes as indicators* by Deborah Neher and was continued with five presentations. In the afternoon, we had the *Banana Symposium* and in the evening the poster session and student competition. The latter was with a new concept: the posters were presented on electronic screens during several rounds of fifteen minutes each. Tuesday, 23rd July started with the *Symposium on Nematode Systematics* with five presentations by invited speakers (Hugo Mejia, Thomas Powers, Reyes Pena Santiago, Alejandro Esquivel and Wilfrida Decraemer) and followed by seven oral presentations. In the afternoon, the *Symposium of Biological Control* took place with five keynote speakers (Rosa Manzanilla, Aurelio Ciancio, Lidieth Uribe, Lee Simons and Luis Payan) and followed by seven presentations. On Wednesday the *Symposium of nematode Genomics* was scheduled with five invited speakers (Etienne Danchin, Inga Zasada, Eric Grenier, Sergei Subbotin and Benjamin Mimee). This was followed by three sessions with 17 presentations in total. In the evening the ONTA Banquet and ONTA awards ceremony were held at the congress centre where all participants enjoyed an excellent dinner with music. Dr Janete Andrade de Brito and Dr Ignacio Cid del Prado received the *Honorary member Award -2019*. Dr Ignacio Cid del Prado also received the *Extraordinary Service in Nematology Award* for his contributions to the benefit of ONTA and the Science of Nematology during his 50-year career in nematological research, teaching and services to ONTA. Dr Edward McGawley received the *Past President's Award -2019*. On the last day of the meeting, Tuesday 25th July, we joint a very interesting *Technical Tour* to the Hacienda Alsacia, a large coffee farm located on the slopes of the Poás volcano close to the capital San José. This coffee farm creates the best practices to make coffee growing more profitable for small-scale farmers and to develop the next generation of high quality coffee resistant to diseases.

Wilfrida Decraemer



Group picture at the Hacienda Alsacia coffee farm

European Union reference Laboratory for plant-parasitic nematodes

In 2019, the EU Commission (EC) designated the consortium between the Nematology unit of the plant health laboratory of the French Agency for Food, Environmental and Occupational Health & Safety (ANSES, France) and the Nematology group of the Flanders Research Institute for Agriculture, Fisheries and Food (ILVO, Belgium) as European Union Reference Laboratory (EURL) for plant parasitic nematodes (PPNs) (Commission Implementing 2019/530 of 27 March 2019). The missions and activities of the EURL are assigned in the Regulation (EU 2017/625) of 15 March 2017 and supplemented by the Commission Delegated Regulation (EU) 2018/631 of 7 February 2018. The official activities of the EURL started the 1st of August 2019. The EURLs in Plant Health were created to support the EC and all National Reference Laboratories (NRLs) of the Member States (MSs) in implementing the new Plant Health EU Regulation 2016/2031 and in contributing to the improvement and the harmonisation of the diagnostic methods used for official controls in the EU territory. The main function of the EURL for plant parasitic nematodes is to improve and provide the NRLs with knowledge and high standard diagnostic practices for accurate detection of regulated and emerging PPNS threatening EU plant health.

The EURL for plant parasitic nematodes director is Laurent Folcher (ANSES), the deputy directors are Sylvie Gamel (ANSES) and Nicole Viaene (ILVO), and the project managers are Maíra Grossi de Sá (ANSES) and Nicole Damme (ILVO).

The EURL for plant parasitic nematodes is located in two headquarters: Le Rheu (France) and Merelbeke (Belgium). The current working period started on the 1st of August 2019 and runs until the 31st of December 2020. More information on the website.

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EURL

European Union Reference Laboratory for
PLANT PARASITIC NEMATODES

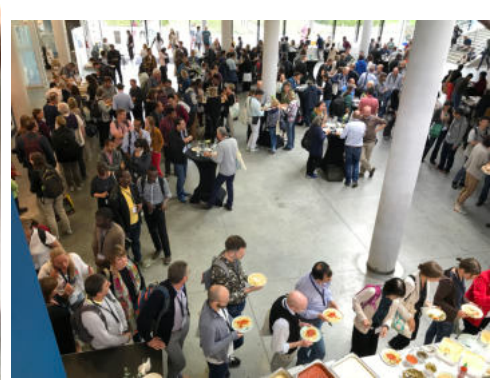
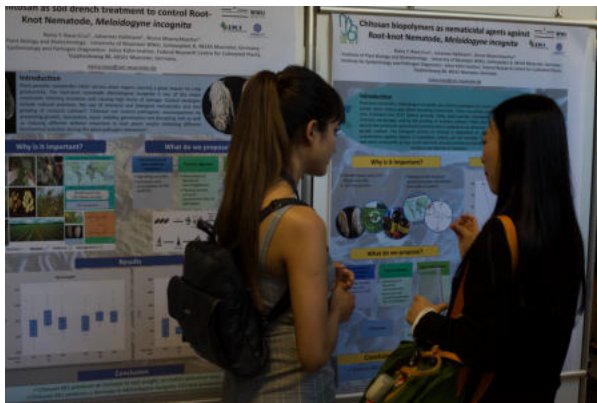
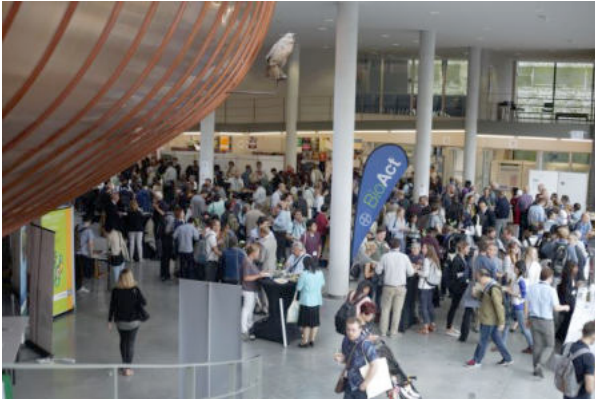


EURL team Anses, France



EURL team ILVO, Belgium

33rd Symposium of ESN, Ghent 2018







Upcoming meetings

The 72th International Symposium on Crop Protection, May 19th 2020, Ghent, Belgium. <https://www.ugent.be/bw/crop-protection/iscp/en>

The 7th International Congress of Nematology, 3-8th May 2020, Antibes Juan-les-Pins, France

<https://www.alphavisa.com/icn/2020/index.php>



Parasitic Helminths - New Perspectives in Biology and Infection, August 30th - September 4th 2020, Hydra, Greece <http://hydra.bio.ed.ac.uk>

Advances in Nematology, aab, 15th December 2020, London, UK.

<https://www.aab.org.uk/conferences>



Why join the ESN? - the movie

Please have a look at our video “Why join the ESN ?” made from some interviews during the 2016 ESN meeting. You can access this video via the homepage of our website <https://www.esn-online.org>

Also available at this address

https://www.dropbox.com/sh/ebk0lvge179crq2/AABu_zaqEM-YJayZB1Zr9ZC8a?dl=0

Twitter link : <https://twitter.com/ESNematologists/status/869574031032365056>

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Information needed for the newsletter

The ESN Governing Board would like this newsletter to be a Forum that is more widely used by the membership to share news and information. So, if you have any information and/or images that might be of interest to ESN members please send a note to the editor (Wim Wesemael - wim.wesemael@ilvo.vlaanderen.be). All that is needed is a small amount of text in a word file or an email message, along with an accompanying image.