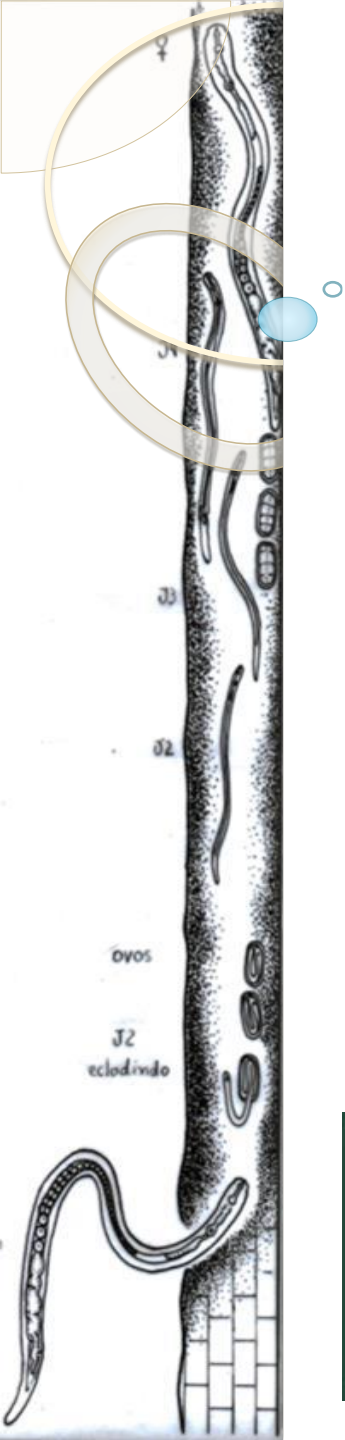


# LFT-5870 Agentes Causais de Doenças de Plantas

## Fitonematoides (4)



Universidade de São Paulo  
Escola Superior de Agricultura Luiz de Queiroz  
Departamento de Fitopatologia e Nematologia  
Piracicaba 6 Julho 23

# Roteiro Geral

## **15 jun 23** *Meloidogyne*

*Meloidogyne* spp. em cafeeiros

*Meloidogyne javanica* e *M. incognita* em cana

*M. javanica* e *M. incognita* em batata

*M. enterolobii* em goiabeira e pimentão

## **22 jun 23** *Heterodera*, *Tylenchulus* e *Rotylenchulus*

*Heterodera glycines* em soja

*Tylenchulus semipenetrans* em cítricos e caqui

*Rotylenchulus reniformis* em algodão e meloeiro

## **29 jun 23** *Pratylenchus*, *Radopholus* e *Helicotylenchus*

*Pratylenchus brachyurus* em soja e quiabeiro

*P. zae* em cana e milho

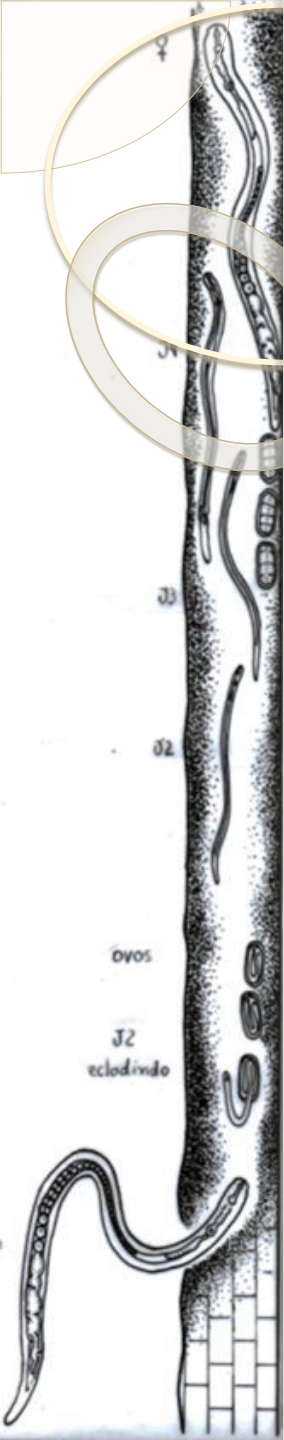
*Radopholus similis* em bananeira e gengibre

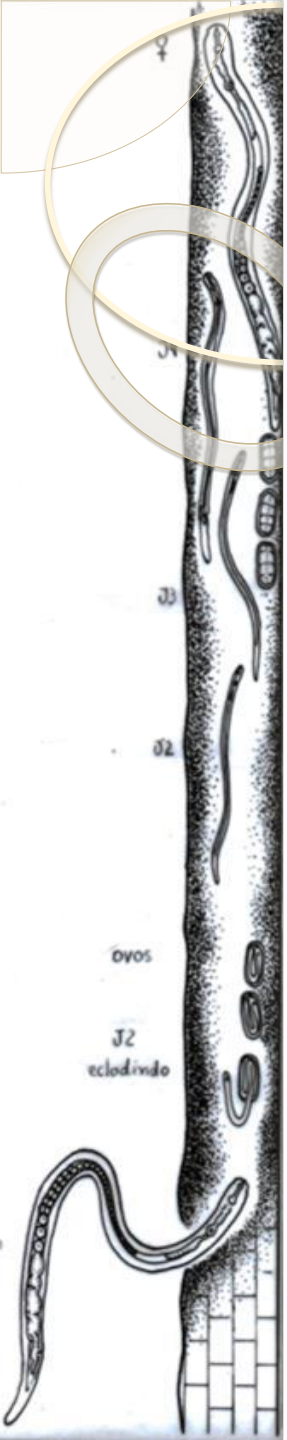
*Helicotylenchus dihystera* em soja

## **6 julho 23** *Ditylenchus* e *Aphelenchoides*

*Ditylenchus dipsaci* em alho e cebola

*Aphelenchoides besseyi* em arroz, soja e algodão

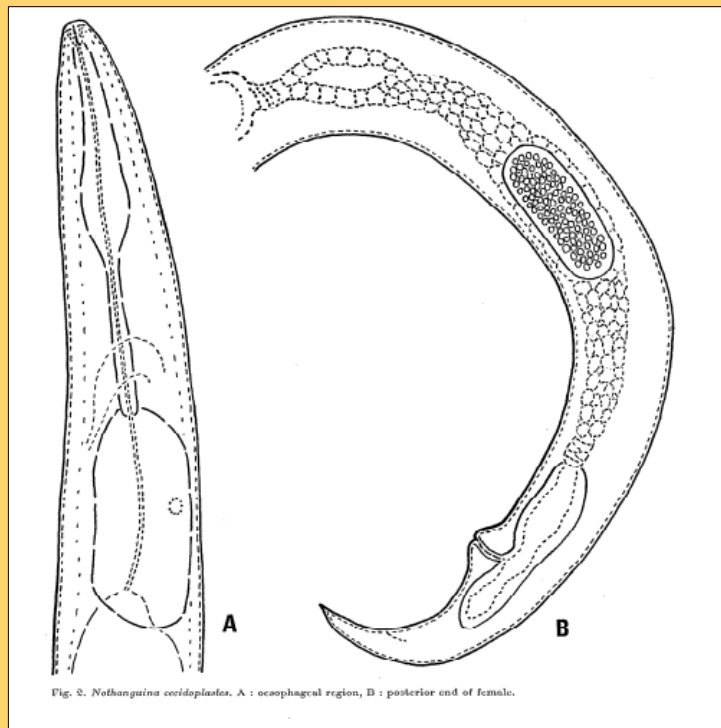




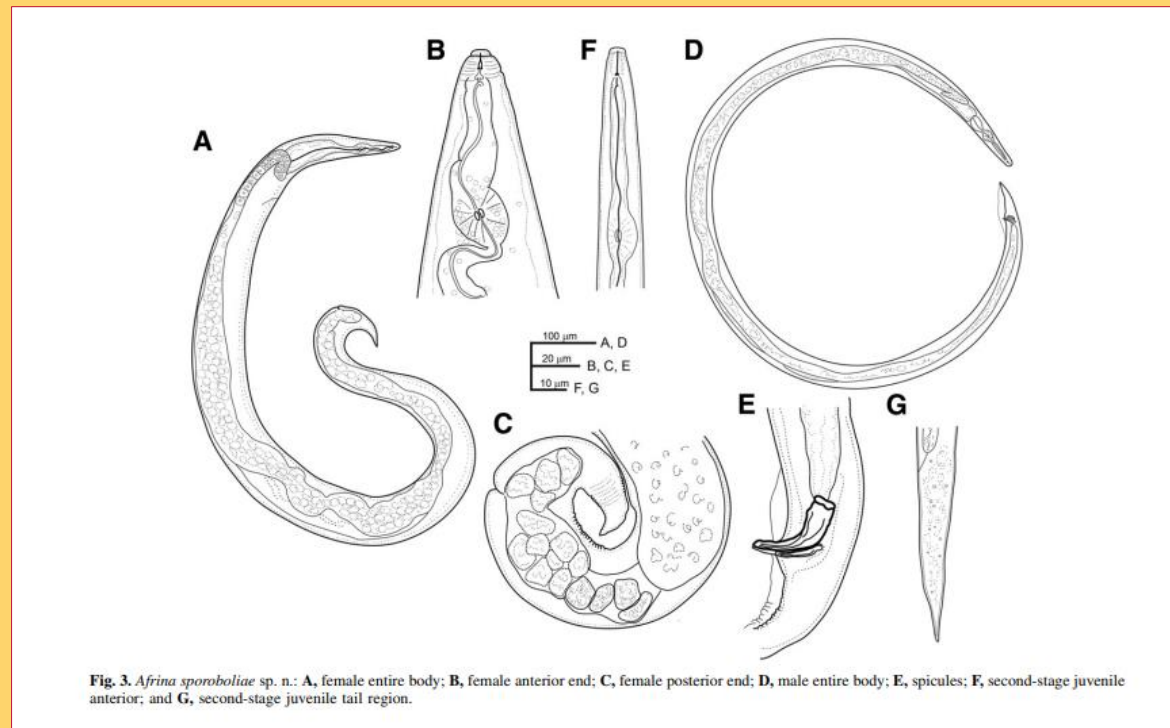
# Hoje

**6 julho 23** *Ditylenchus* e *Aphelenchoides*  
*Ditylenchus dipsaci* em alho e cebola  
*Aphelenchoides besseyi* em arroz, soja e  
algodeiro

# Família Anguinidae



Revue Nématol. 4 (1) : 23-34 (1981)



Phytopathology • 2018 • 108:768-779 •  
<https://doi.org/10.1094/PHYTO-12-17-0395-R>

Espécies micófagas (fungívoras), parasitas facultativas ou obrigatórias de fanerógamas, musgos e algas marinhas.

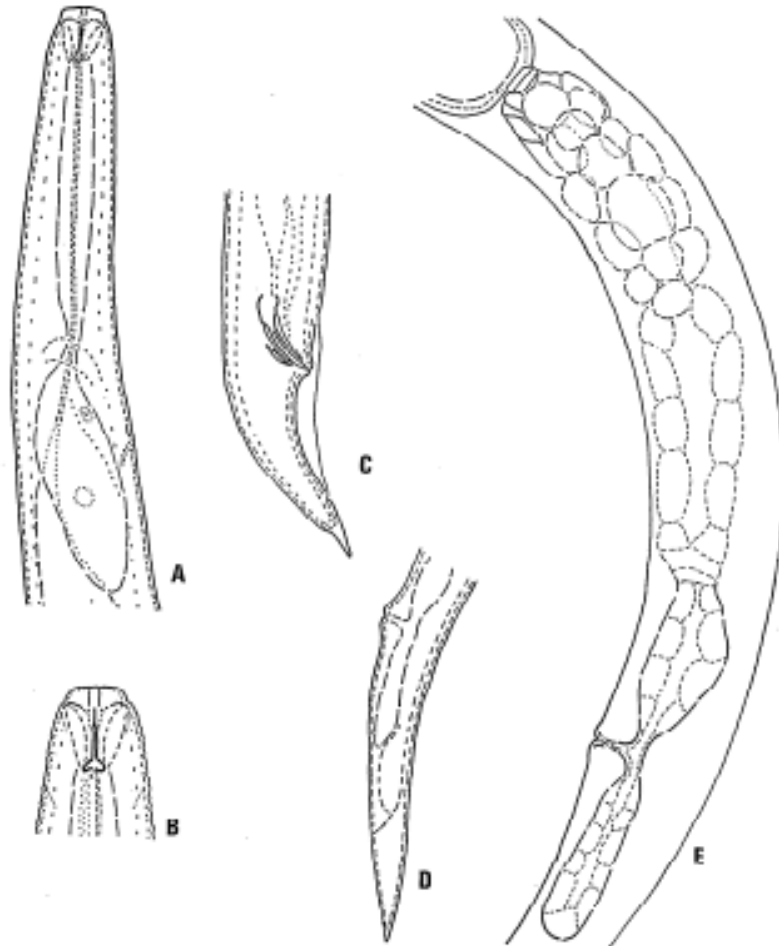


Fig. 4. *Orrina phyllobia*. A : oesophageal region, B : head, C : tail of male, D : posterior end of female, E : part of female reproductive system.

## Identification and phylogenetic analysis of the leaf-galling nematode *Orrina phyllobia* affecting *Solanum elaeagnifolium* Cav. in Guanajuato, Mexico

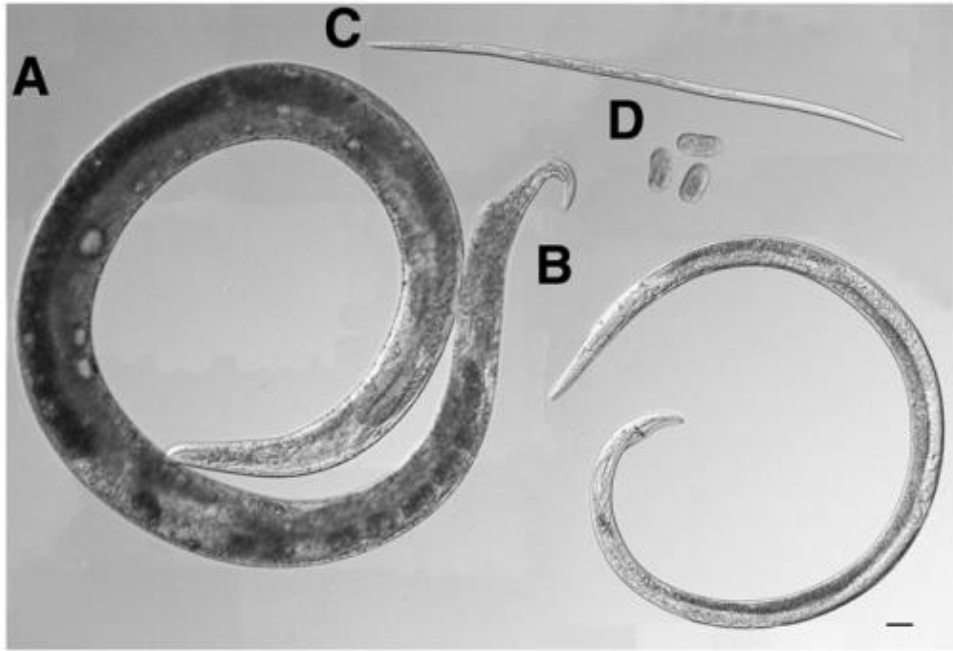
### Identificación y análisis filogenético del nematodo foliar *Orrina phyllobia* afectando *Solanum elaeagnifolium* Cav. en Guanajuato, México

Edgar Medina Gómez, Departamento de Producción Agrícola y Animal, Universidad Autónoma Metropolitana, Calzada del Hueso No. 1100, Col. Villa Quietud, Delegación Coyoacán, Distrito Federal, CP 0496, México; Angel Ramírez Suárez\*, Catedrático CONACYT-Centro Nacional de Metrología (CENAM), Km 4.5 Carretera a Los Cués, El Marqués, Querétaro, C.P. 76246, México; Juventino Cuevas Ojeda, Departamento de Parasitología, Universidad Autónoma Chapingo, Km. 38.5 Carretera México-Texcoco, Estado de México, CP 56230, México; Daniel Martínez Gómez, Laboratorio de Microbiología, Universidad Autónoma Metropolitana, Calzada del Hueso No. 1100, Col. Villa Quietud, Delegación Coyoacán, Distrito Federal, CP 0496, México.\*Correspondencia: angelrasu75@huskers.unl.edu



Figura 1. Síntomas causados por el nematodo agallador foliar *Orrina phyllobia* en trompillo *Solanum elaeagnifolium*. (A), (B) y (C) distorsión y agallamiento de hojas; (D) Agallamiento en la inflorescencia.

Figure 1. Symptoms caused by the leaf-galling nematode *Orrina phyllobia* in silver-leaf nightshade *Solanum elaeagnifolium*. (A), (B) and (C) leaf distortion and galling; (D) Galling in inflorescence.



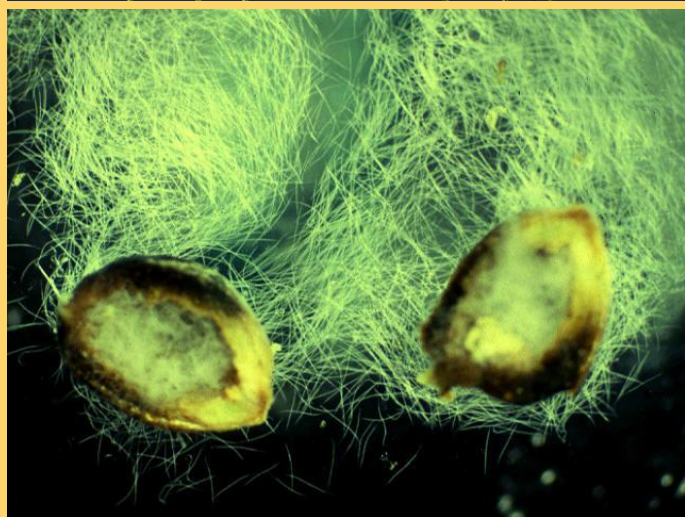
**Fig. 4.** *Afrina sporoboliae* sp. n.: **A**, female; **B**, male; **C**, second-stage juveniles; and **D**, eggs. Scale bar = 40  $\mu$ m.



**Fig. 2.** Inflorescence of *Sporobolus cryptandrus* with **A**, black and **B**, brown seed galls induced by *Afrina sporoboliae* sp. n. **C**, Black and **D**, brown galls under higher magnification. Scale bars: **A and B**, 1 mm; **C and D**, 0.15 mm.

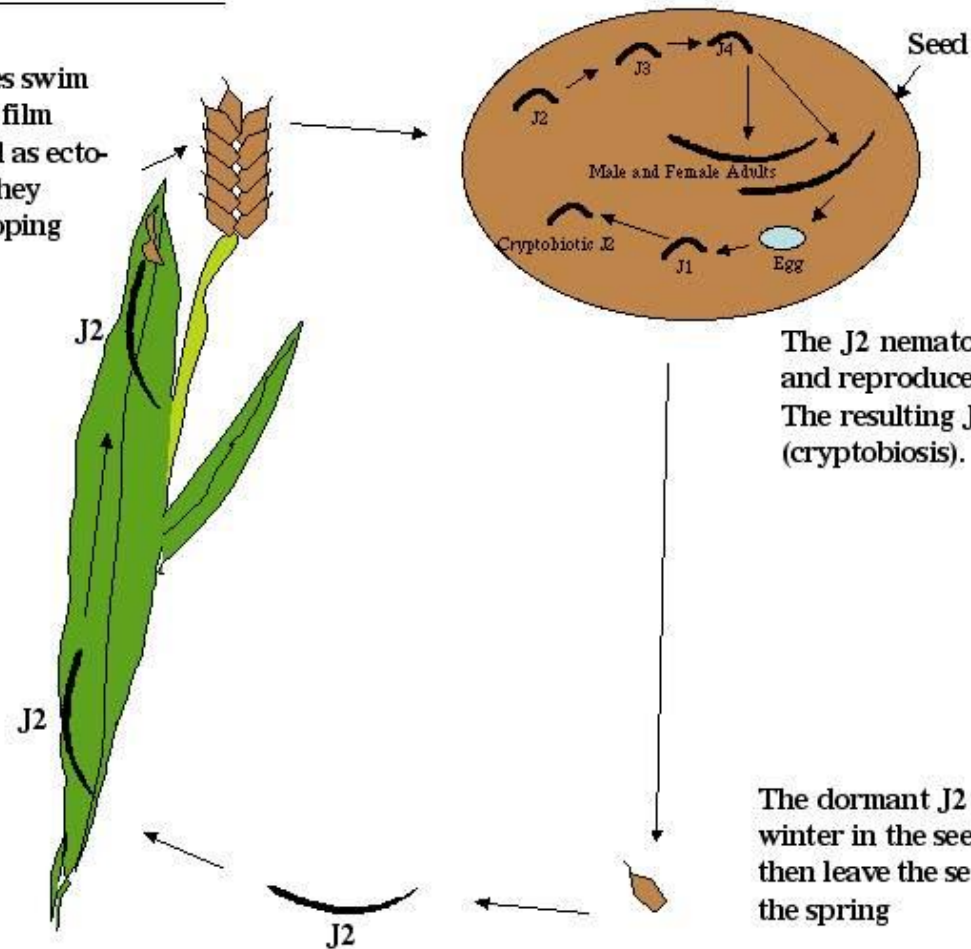
# *Anguina tritici*

## Nematoide-do-Trigo



### Seed Gall Nematodes

The J2 nematodes swim up the plant in a film of water and feed as ectoparasites. Then they invade the developing seeds.





<http://bugwoodcloud.org/images/384x256/1493005.jpg>



<https://bugwoodcloud.org/images/768x512/1356100.jpg>





[http://www.agroes.es/index.php?option=com\\_joomgallery&view=image&format=raw&id=21788&type=img](http://www.agroes.es/index.php?option=com_joomgallery&view=image&format=raw&id=21788&type=img)



<https://bugwoodcloud.org/images/768x512/1356153.jpg>



[https://upload.wikimedia.org/wikipedia/en/thumb/f/fd/Earcockle\\_in\\_screenings.jpg/800px-Earcockle\\_in\\_screenings.jpg](https://upload.wikimedia.org/wikipedia/en/thumb/f/fd/Earcockle_in_screenings.jpg/800px-Earcockle_in_screenings.jpg)

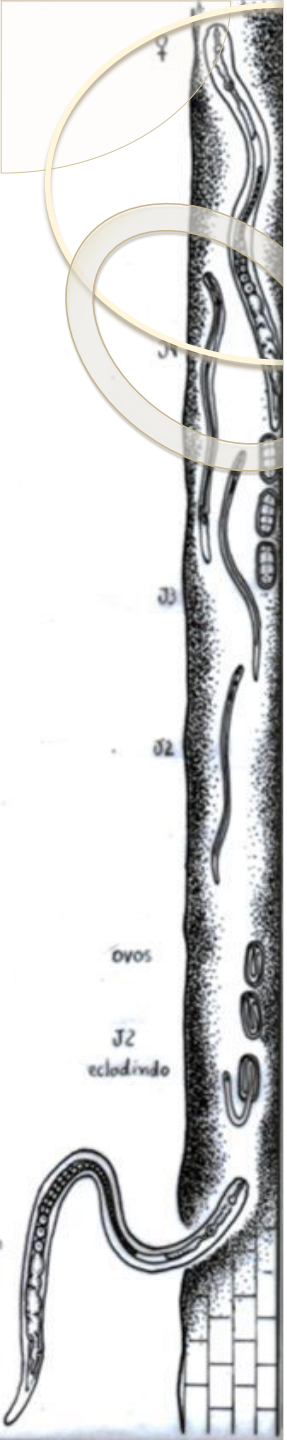
# Nematoides Quarentenários

Fiscalização e controle de materiais vegetais

Reino Unido: 5-20% das espécies introduzidas efetivamente se estabelecem

Legislação / Literatura

Identificação da espécie





Exotic Nematode Plant Pests of Agricultural  
and Environmental Significance to the United States

the Society  
of Nematologists

[Nematode Pest Site Home](#)



[Pest Lists](#)

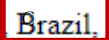
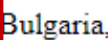
[Pest Table 1](#)

[Pest Description](#)

## *ANGUINA TRITICI*

IDENTITY: Scientific name *Anguina tritici*  
(Steinbuch, 1799) Chitwood, 1935  
Common name: Wheat seed gall nematode

**NOTES ON TAXONOMY AND BIOLOGY:** *Anguina tritici* female show a well developed anterior branch of the ovary which is folded in two or more flexures and a conoid tail, tapered to an obtuse or round tip (Southey, 1972). This species is closely related to *A. funesta* and *Subanguina wevelli*. The morphological separation of these three species is difficult. Recent molecular diagnostic techniques have facilitated the separation of these three species (Riley et. al., 1988; Powers et al., 2001). J2 emerge from the seed galls in the soil and crawl onto the newly germinated seedlings. They establish infection sites between young leaves where they feed as an ectoparasite causing leaf distortion and crinkling. Later, they penetrate the flower buds at the time of flower bud initiation. J2 stimulate the formation of galls in floral tissues in place of seed development. Juvenile development is completed inside the galls. Newly formed females deposit eggs, which hatch producing J2, which remain, encased in the galls (cockle) and perpetuate plant infection in following years. Dried cockles are harvested with developed seeds. *Anguina tritici* vectors a bacterium *Clavibacter tritici*, which is the causal agent of yellow ear rot or tondu of wheat. Freshly harvested infected wheat cockles containing the bacterium are toxic to cattle and sheep (Anwar et al., 2001).

**GEOGRAPHICAL DISTRIBUTION:** Reported from Afghanistan, Australia, Brazil, Bulgaria, China, Egypt, Ethiopia, Hungary, India, Iran, Iraq, Israel, Lithuania, New Zealand, Pakistan, Poland, Romania, Russian Federation, Russian Far East, Syria, Switzerland, Turkey, and Yugoslavia. Early records of nematode detection in the US include California, Georgia, Maryland, New York, North and South Carolina, Virginia and West Virginia. Recent surveys of the wheat seed gal nematode in stored grain harvested from states with records of this nematode have not provided any evidence that nematodes are still occurring in the US (CAB International, 2001).

**Reconhecimento oficial de  
área livre do nematóide  
*Anguina tritici* (Steinbuch,  
1799) Chitwood, 1935,  
no estado de Virginia; EUA,  
para exportação de trigo  
para o Brasil**

*Renata C.V. Tenente<sup>1</sup>*

*Wilmar C. da Luz<sup>2</sup>*

*Ilto A. Morandinir<sup>3</sup>*

Principal hospedeira **Trigo**

Outras hospedeiras **Centeio**,  
**espelta** (*Triticum spelta*),  
"emmer" (*T. monococcum*)

**Aveia**, **cevada**, outras  
poáceas

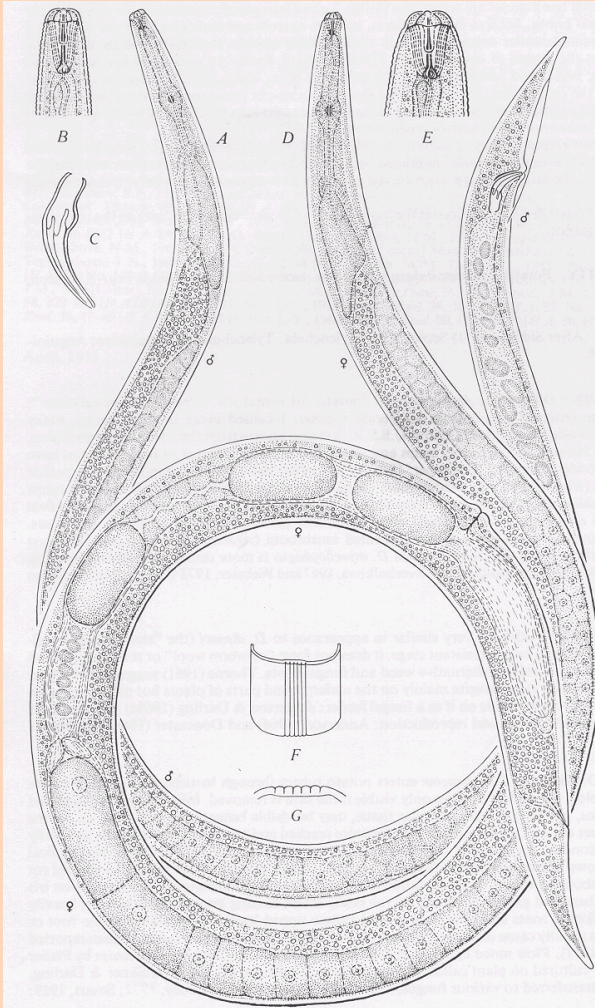


**Perguntas?**

**Gênero *Ditylenchus***



# *Ditylenchus dipsaci*



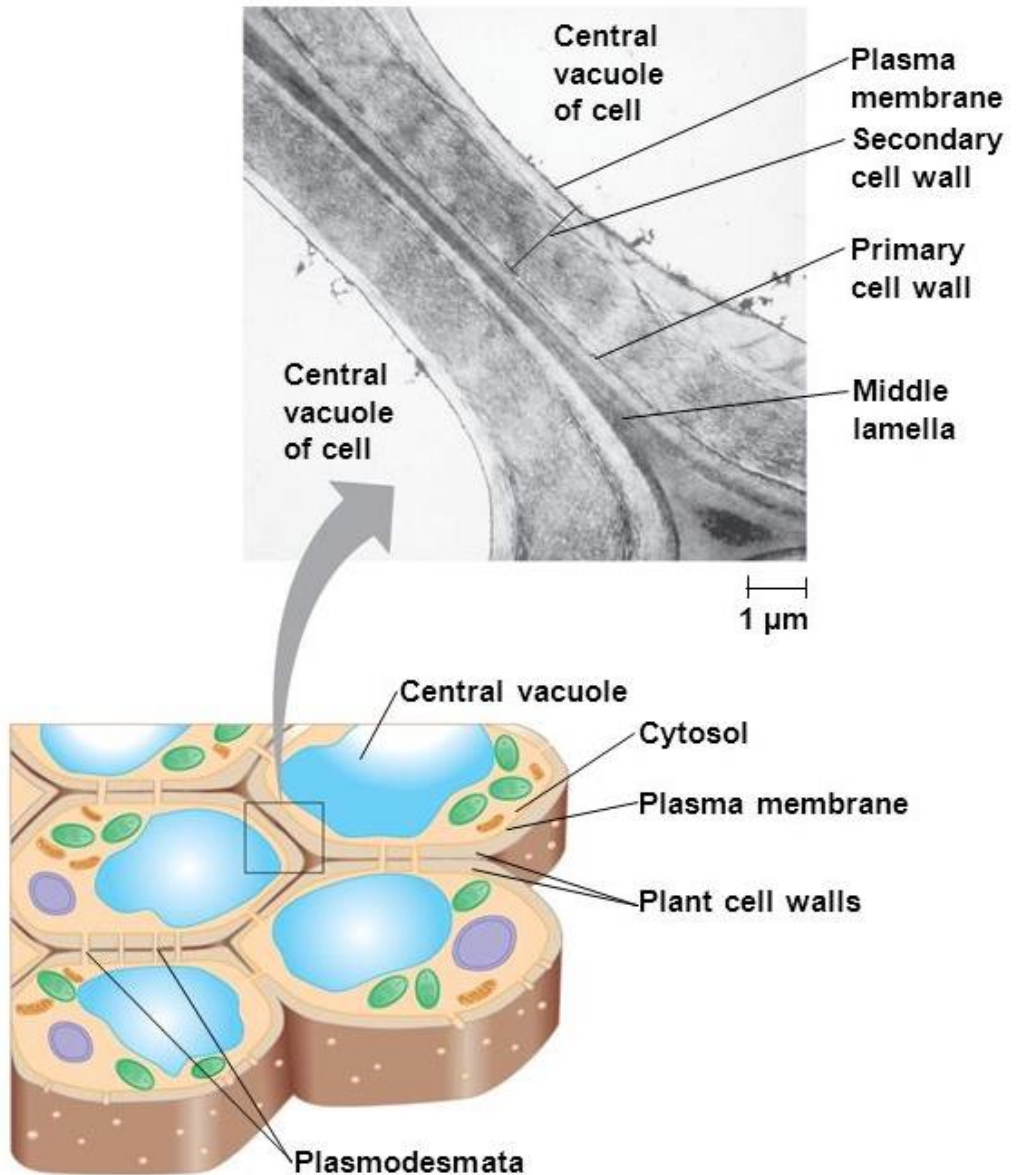
<http://greencommons.de/images/thumb/f/f4/Ddipsaci-Weibchen-1986-UIpach.jpg/662px-Ddipsaci-Weibchen-1986-UIpach.jpg>

*Ditylenchus dipsaci* é endoparasita migrador de tecidos da parte aérea e raízes

Colapso da lamela média

Separação das células

Desorganização do tecido







**Alfafa** Encrespamento das folhas, encurtamento e inchaço do caule



<http://plpnemweb.ucdavis.edu/nemaplex/images/G042S1RKlee.jpg>

**Trevo-vermelho** *Trifolium pratense*  
Encrespamento e redução da folha

*Ditylenchus dipsaci*  
= Nematóide dos Caules e Bulbos?



[https://upload.wikimedia.org/wikipedia/commons/5/5b/Narcissus\\_Geranium.jpg](https://upload.wikimedia.org/wikipedia/commons/5/5b/Narcissus_Geranium.jpg)

Narciso  
*Narcissus* sp.



[http://www.eppo.int/QUARANTINE/nematodes/Ditylenchus\\_dipsaci/DITYDI\\_02.jpg](http://www.eppo.int/QUARANTINE/nematodes/Ditylenchus_dipsaci/DITYDI_02.jpg)

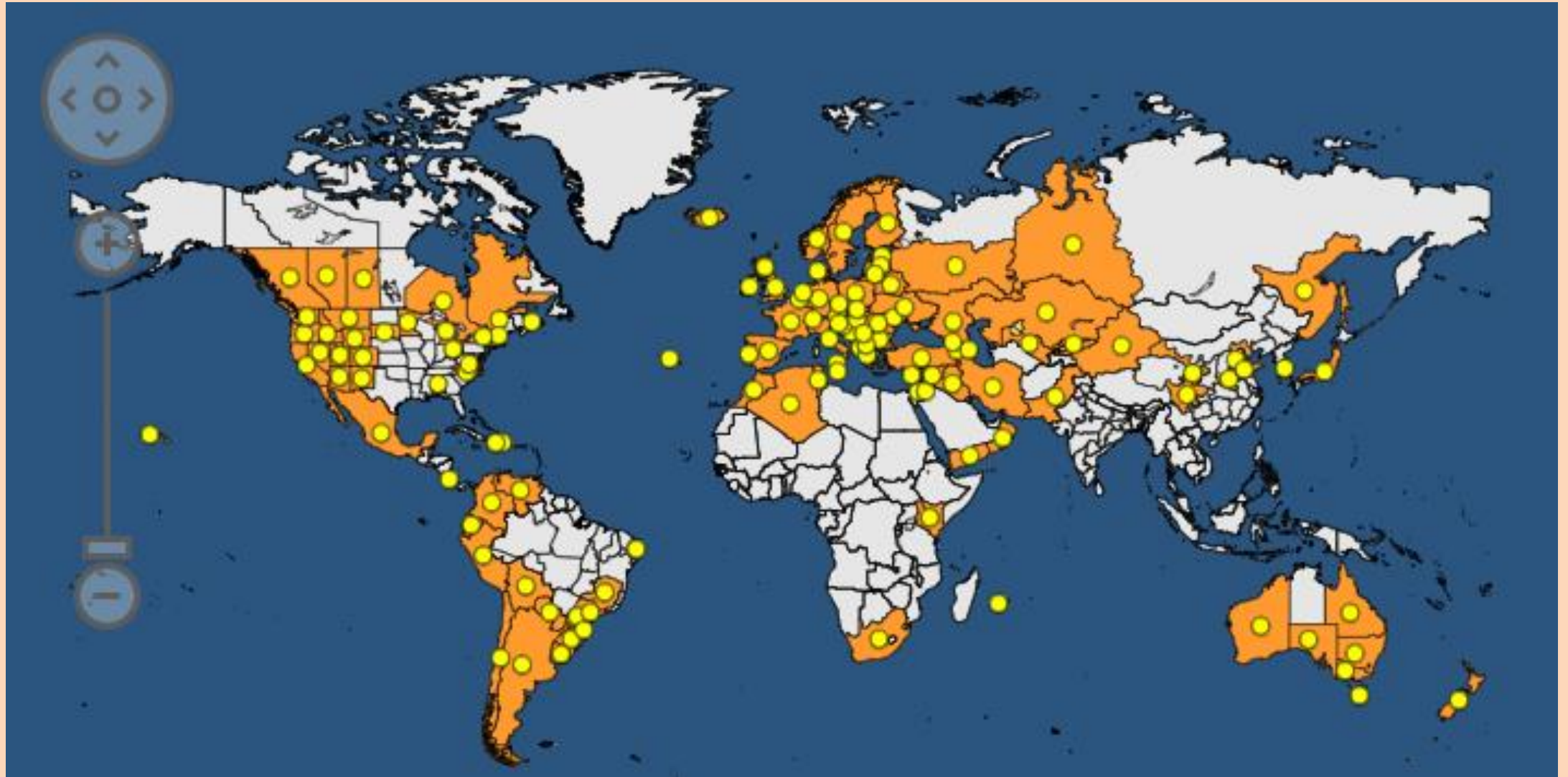


<http://www7.inra.fr/hyppz/IMAGES/7031625.jpg>

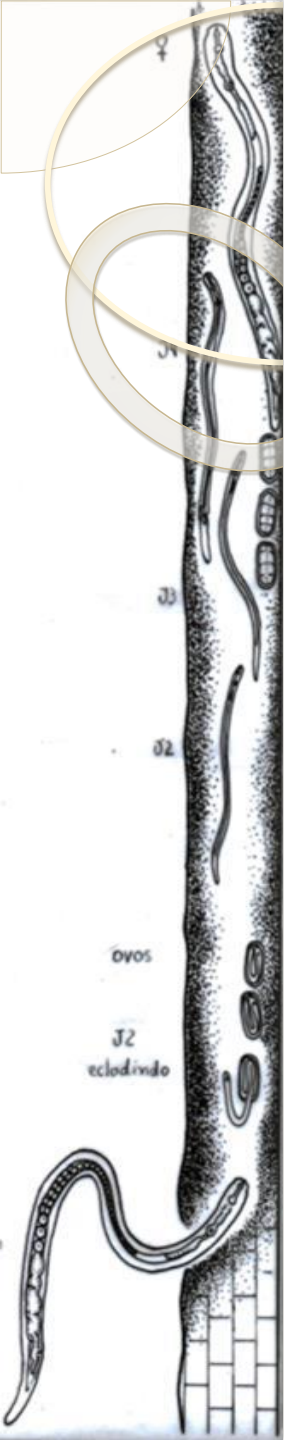


*Ditylenchus dipsaci* (DITYDI) - <https://gd.eppo.int>

<https://gd.eppo.int/taxon/DITYDI/photos>



<https://gd.eppo.int/taxon/DITYDI/distribution>



## *Ditylenchus dipsaci* ocorre no Brasil!

Porém, não ocorre em milho, trevo, alfafa e narciso

Seinhorst 1957 11 raças  
Winslow 1960 12  
Kirjanova & Krall 1971 15  
Ladygina 1982 30

Raça "teasel" (cardo) Morango, cebola, tabaco, *Phaseolus* spp., pepino Europa, N África, EUA

Raça centeio Aveia, milho, beterraba, girassol, ervilha, pepino, cebola, tabaco, várias plantas não cultivadas Europa

Raça beterraba Centeio, aveia, milho, girassol, cebola, ervilha, pepino, várias plantas não cultivadas Europa e EUA

Raça batata Cebola, ervilha, centeio, aveia Europa

Raça cebola Alho, *Allium* spp., feijão, ervilha, soja, *V. faba*, beterraba Europa, América do Sul, Ásia

Raça aveia Cebola, *Vicia faba*, feijão, ervilha, beterraba, várias plantas não cultivadas Europa

Brasil (Pimentel 1984) Alho, cebolinha, cebola, alho-poró, *Phlox subulata*, *V. faba*, caupi

Não em soja, feijão, ervilha, alfafa, beterraba, milho, cenoura, aveia, centeio

**Raça cebola???**  
Feijão????!!!  
Ervilha????!!!  
Beterraba????!!!



“Teasel” = Cardo  
*Dipsacus sativus*



*Ditylenchus dipsaci*

= *Ditylenchus do Dipsacus*

<http://3.bp.blogspot.com/-ztSsyT9eAY4/Uo0OUHKImrI/AAAAAAAAAOE/F6dKWgdq0yg/s1600/DSCF7844.JPG>



[https://upload.wikimedia.org/wikipedia/commons/thumb/5/5a/Dipsacus\\_sativus-26.jpg/450px-Dipsacus\\_sativus-26.jpg](https://upload.wikimedia.org/wikipedia/commons/thumb/5/5a/Dipsacus_sativus-26.jpg/450px-Dipsacus_sativus-26.jpg)



Cardeador

“Teasel Carder”

<https://s-media-cache-ak0.pinimg.com/736x/2d/d3/1d/2dd31d6787767f46ae1511a60e27ba20.jpg>



[http://1.bp.blogspot.com/-0s6rNXrZuGk/UW8TG0IUaNI/AAAAAAA AAOE/pj6qfnTQ-Y0/s320/Mendel\\_Hausbuch\\_Carder.jpg](http://1.bp.blogspot.com/-0s6rNXrZuGk/UW8TG0IUaNI/AAAAAAA AAOE/pj6qfnTQ-Y0/s320/Mendel_Hausbuch_Carder.jpg)

c.1425



<https://s-media-cache-ak0.pinimg.com/736x/2d/d3/1d/2dd31d6787767f46ae1511a60e27ba20.jpg>

*D. dipsaci* (Kuhn, 1857)



[http://3.bp.blogspot.com/-1BGGc0dTMVs/UYLBr825tXI/AAAAAAA AAOo/-BZVbLTV2sc/s400/Teasel\\_card\\_maker.jpg](http://3.bp.blogspot.com/-1BGGc0dTMVs/UYLBr825tXI/AAAAAAA AAOo/-BZVbLTV2sc/s400/Teasel_card_maker.jpg)

c.1545

Ciclo 19-23 dias / 15 °C

200-500 ovos/♀

Sobrevivência solo  
2 anos fungo?

Sobrevivência "J4 wool"  
3-5 anos  
23 anos em laboratório

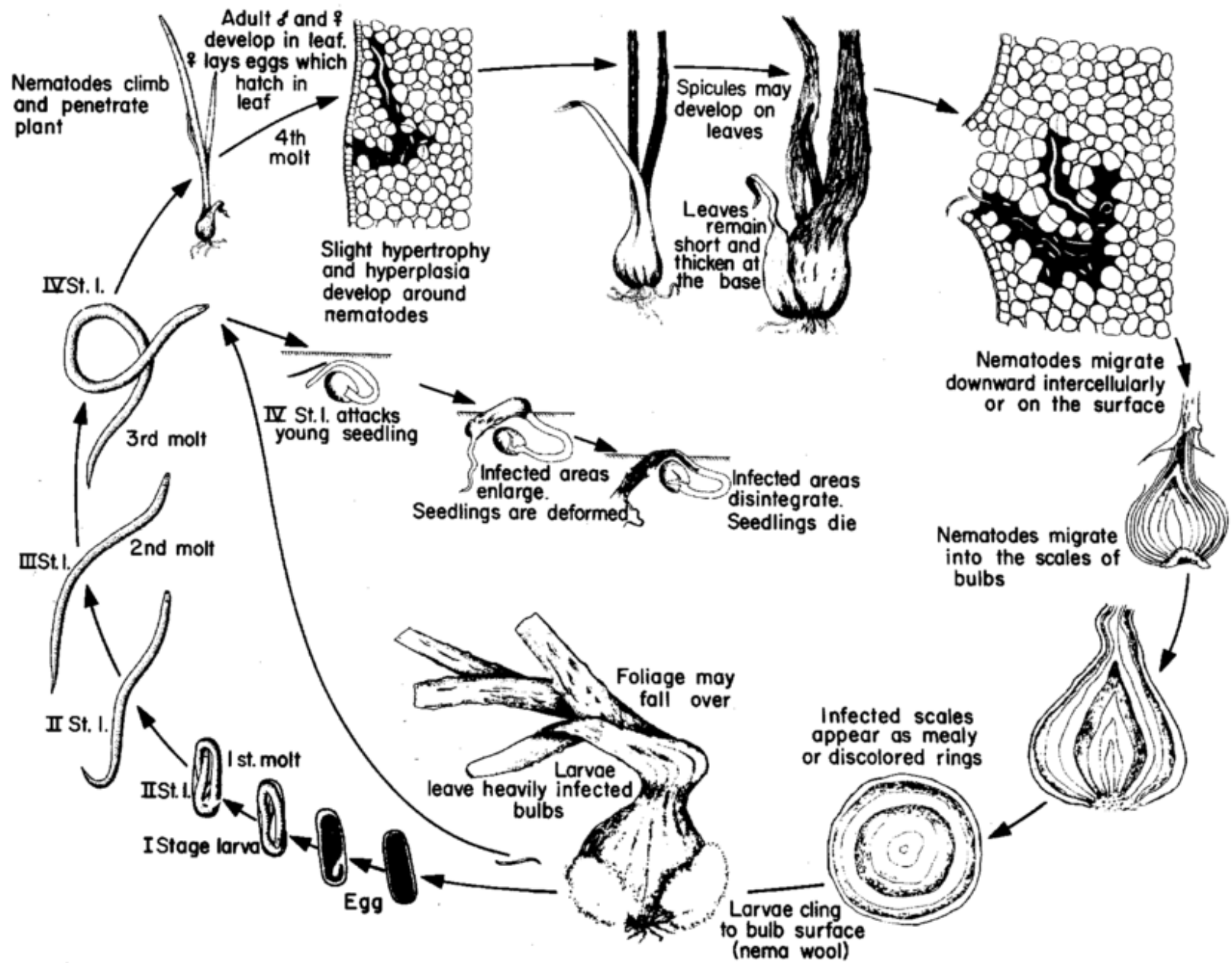
Hospedeiras  
450 spp. nas diferentes  
raças



<http://bugwoodcloud.org/images/3072x2048/0162061.jpg>



[https://gd.eppo.int/media/data/taxon/D/DIT\\_YDI/pics/1024x0/562.jpg](https://gd.eppo.int/media/data/taxon/D/DIT_YDI/pics/1024x0/562.jpg)



Brasil

*Ditylenchus dipsaci*  
=nematoide-do-alho



<https://ag.umass.edu/vegetable/fact-sheets/garlic-bloat-nematode>

**Perguntas?**

***Ditylenchus dipsaci* em Alho e  
Cebola**



# *Ditylenchus dipsaci* em Alho



<http://ail.quebec/wp-content/uploads/2018/02/8.Mimee-D.-dipsaci-ail-30jan18.pdf>



<https://apsjournals.apsnet.org/doi/10.1094/PHP-12-16-0069-BR>



**Local** Rio Paranaíba (MG) 2008



**Local** Rio Paranaíba (MG) 2007

# *Ditylenchus dipsaci* em Cebola



[https://www.researchgate.net/publication/356510589\\_Integrated\\_nematode\\_management\\_of\\_Ditylenchus\\_dipsaci\\_in\\_onion\\_a\\_nematode\\_in\\_a\\_world\\_all\\_on\\_its\\_own](https://www.researchgate.net/publication/356510589_Integrated_nematode_management_of_Ditylenchus_dipsaci_in_onion_a_nematode_in_a_world_all_on_its_own)



<https://revistacultivar.com.br/artigos/podridao-perversa>



<http://ephytia.inra.fr/fr/C/22527/Vigi-Semences-Ditylenchus-dipsaci-Nematode-des-tiges-des-Allium>

# *Ditylenchus destructor*



[https://www.flickr.com/photos/ian\\_riley/2100545390](https://www.flickr.com/photos/ian_riley/2100545390)



<https://www.mdpi.com/2075-1729/11/12/1303>

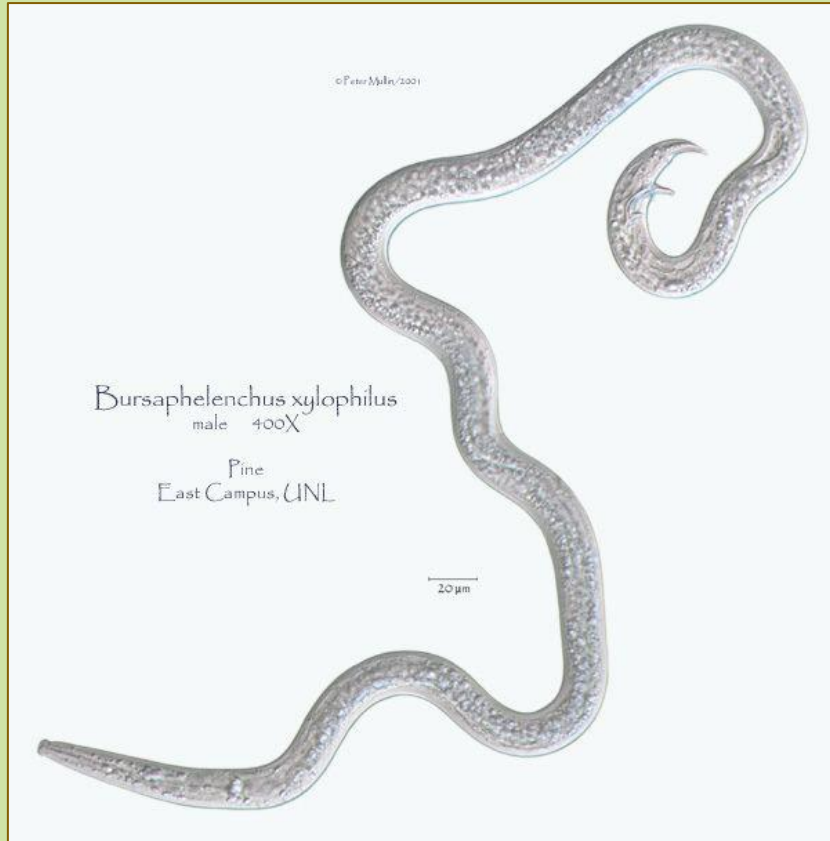
**Perguntas?**



# Intervalo

**Gênero *Aphelenchoides***

# Família Aphelenchooididae



<https://alchetron.com/cdn/bursaphelenchus-696fcb28-b841-4a84-ab0e-ad91507ec86-resize-750.jpg>



***Aphelenchoides fragariae*** <https://www.jean-marc-gil-toutsurlabotanique.com/album-photos/album-photos/photos-insectes/aphelenchoides-fragariae.html>

## Gênero com hábito alimentar predominantemente micófago

*A. besseyi*

**Arroz**

Soja, algodoeiro, feijoeiro-comum

Morangueiro, impatiens, milho, asplênio

*A. ritzemabosi*

**Crisântemo**

Begônia, dália, violeta-africana, girassol, gloxínia, sálvia, *Rudbeckia* spp.,  
várias ornamentais e invasoras

Alface, tabaco, alfafa, tremoço-amarelo, morangueiro etc

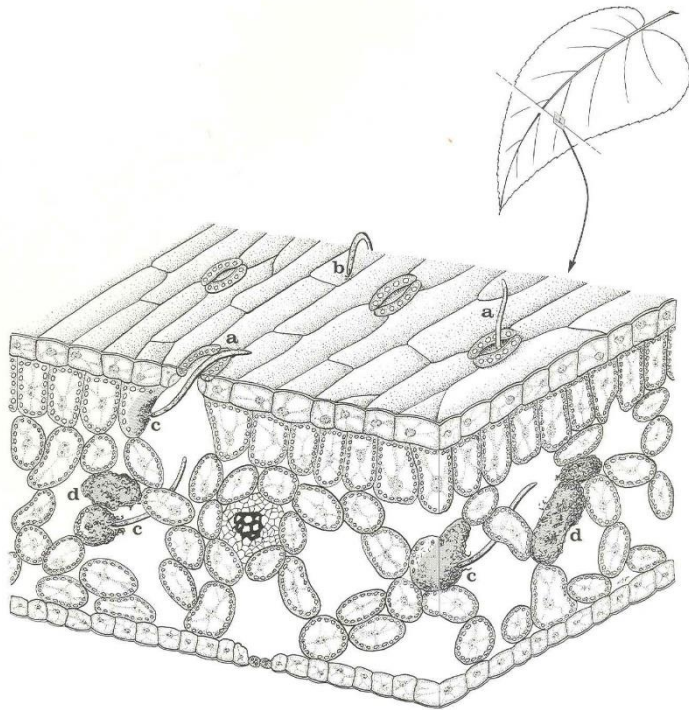
*A. fragariae*

**Morangueiro**

Begônia, violeta-africana, gerânio, flor-da-fortuna, asplênio, falsa-  
seringueira, gérbera, mosquitinho-branco, peônia, impatiens, várias  
ornamentais e invasoras

# Infecção / Colonização

## MECHANISM OF NEMATODE INJURY TO LEAVES



CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE - DIVISION OF PLANT INDUSTRY - PREPARED BY SADEK M. AYOUB - ILLUSTRATIONS BY CHARLES S. PAPP

**Nematoides-das-Folhas-e-Flores**  
Endo / ectoparasitismo (folhas / gemas)

Penetração direta ou pelos estômatos

**À noite** Atraído pelo CO<sub>2</sub>

# “Strawberry Crimp Disease”

*Aphelenchoides fragariae*

*A. besseyi*

*A. ritzemabosi*



Figure 4. *Aphelenchoides besseyi* symptoms on strawberry. Left: twisting, crinkling and curling of strawberry leaves; right: abnormally shaped “broccoli” fruit. Plant City, FL, 2016–17 season.

Credits: J. Desaeger



<https://gd.eppo.int/media/data/taxon/A/APLOBE/pics/1024x0/181.jpg>



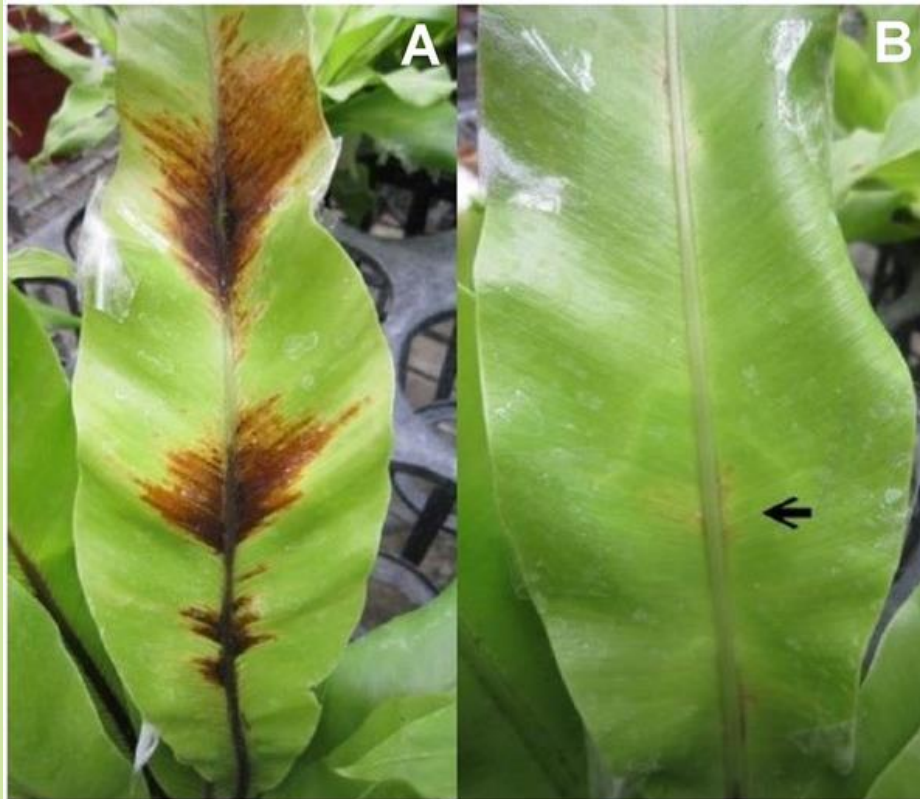
*Aphelenchoides fragariae*  
Bom Repouso MG  
28 set 2018

<http://www.agronomicabr.com.br/agriporticus/detalhe.aspx?id=783>

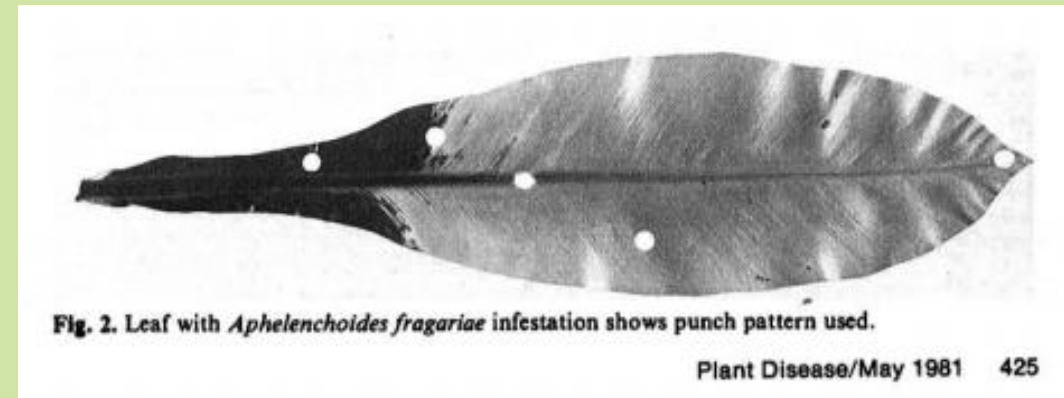
# Ninho-de-Passarinho

## *Asplenium nidus*

*Aphelenchoides besseyi*  
*A. fragariae*



Hsieh SH, Lin CJ, Chen P (2012) Sexual Compatibility among Different Host-Originated Isolates of *Aphelenchoides besseyi* and the Inheritance of the Parasitism. PLOS ONE 7(7): e40886. <https://doi.org/10.1371/journal.pone.0040886>  
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0040886>



[https://www.apsnet.org/publications/PlantDisease/BackIssues/Documents/1981Articles/PlantDisease65n05\\_425.PDF](https://www.apsnet.org/publications/PlantDisease/BackIssues/Documents/1981Articles/PlantDisease65n05_425.PDF)



# Begônias

*Aphelenchoides fragariae*  
*A. ritzemabosi*



<https://ag.umass.edu/greenhouse-floriculture/photos/begonia-foliar-nematode-aphelenchoides-species>

# Crisântemo

*Aphelenchoides ritzemabosi*



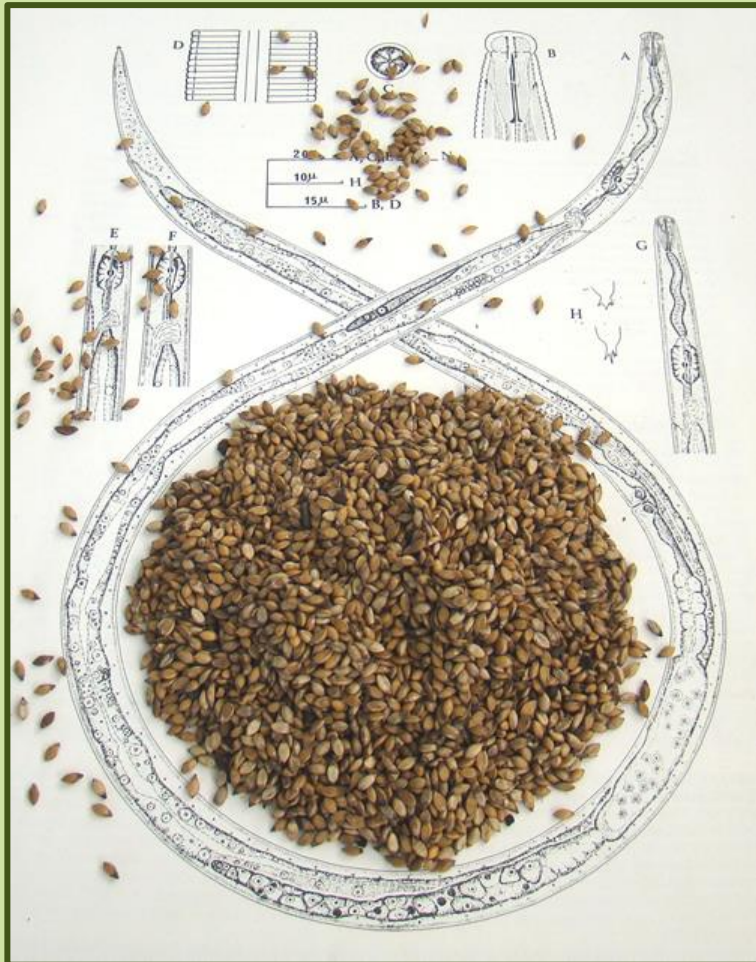
<https://www.cabi.org/isc/datasheet/6384>



<http://what-when-how.com/Tutorial/topic-15445b81/Westcotts-Plant-Disease-707.html>

*Brachiaria* spp.  
*Panicum maximum*

*Aphelenchoides besseyi*  
*Aphelenchoides* spp.



saopaulo.sp.gov.br

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/ Identificação molecular de *Aphelenchoides besseyi* em sementes de forrageiras

**Identificação molecular de *Aphelenchoides besseyi* em sementes de forrageiras**

Cláudia Marcelo G. Oliveira  
marcelo@biologico.sp.gov.br  
Thaiane Yoshie Kanazawa  
Erika Aparecida Consoli  
Centro Experimental Central

Número 119 - 19/11/2009

ARTIGO

### Estudo Fitossanitário, Multiplicação e Taxonomia de Nematoides Encontrados em Sementes de Gramíneas Forrageiras no Brasil\*

Luciany Favoreto<sup>1\*\*</sup>, Jaime M. Santos<sup>1</sup>, Sergio A. Calzavara<sup>1</sup> & Luciano A. Lara<sup>2</sup>

\*Parte da Tese da primeira autora, para obtenção do título de Doutorado em Agronomia.

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Editado por Claudio Marcelo G. Oliveira

ECONOMIA

## Forrageiras movimentam R\$ 1,4 bilhão ao ano

Brasil lidera produção e exportação mundial de sementes de pastagens

Por Redação Canal do Criador  
17 de agosto de 2021 às 09h00



## Produção de sementes de forrageiras tropicais no Brasil<sup>1</sup>

**Elena Charlotte Landau**

pesquisadora da Embrapa Milho e Sorgo

**Rosangela Maria Simeão**

pesquisadora da Embrapa Gado de Corte

**Fausto da Costa Matos Neto**

pesquisador do Ministério da Agricultura, Pecuária e Abastecimento



1

### Embrapa

Empresa pública brasileira que busca viabilizar soluções de pesquisa, desenvolvimento e inovação para a sustentabilidade da agricultura, em benefício da sociedade brasileira.

### Centro de Inteligência da Carne Bovina

### Análise da semana de 5 a 11 de dezembro

A pecuária é uma das atividades rurais de maior relevância econômica para o Brasil. Essa atividade apresenta vantagens competitivas em termos de custo de produção quando comparada a países competidores no mercado da carne, como os Estados Unidos, por concentrar grande parte das etapas de produção baseadas na alimentação de bovinos criados sob pastejo.

A comercialização de sementes de cultivares forrageiras tropicais é um componente econômico importante na cadeia produtiva da pecuária nacional. Até a década de 1970, o Brasil era importador de sementes forrageiras, mas atualmente é o maior exportador mundial, o que representa um mercado de aproximadamente 440 milhões de dólares anuais e cerca de 11% do mercado de sementes no Brasil (Campante, 2018). Os principais destinos das sementes são os países da América Latina (especialmente México, Colômbia e Venezuela), África e Ásia (Jank et al., 2014).

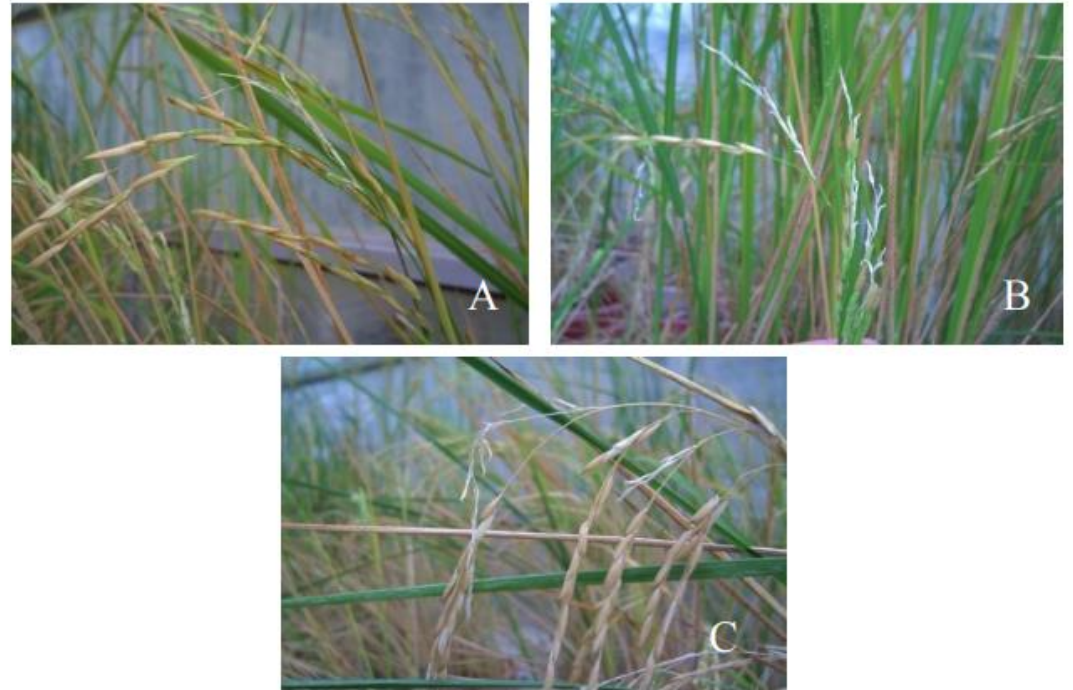
***Aphelenchoides besseyi* em  
Arroz, Soja e Algodoeiro**

# Ponta-Branca-do-Arroz



<https://gd.eppo.int/taxon/APLOBE/photos>

Journal of Agricultural Technology 2011, Vol.7(2): 441-447



**Fig. 1.** Typical symptoms on different high susceptible cultivars A. Neda B.Nemat C. Tarom.



EPPO Bulletin, Volume: 47, Issue: 3, Pages: 384-400, First published: 22 December 2017, DOI: (10.1111/epp.12432)

Fukano (1962) Perdas a partir de 300 nematoides / 100 sementes

Cralley (1949) Tratamento de sementes com água quente

Cralley (1949) / Nishizawa (1953)  
Cultivares resistentes e tolerantes

1975 Bluebelle  
1978 BR-IRGA-409

>1975 *A. besseyi* perdeu importância em arroz no Brasil

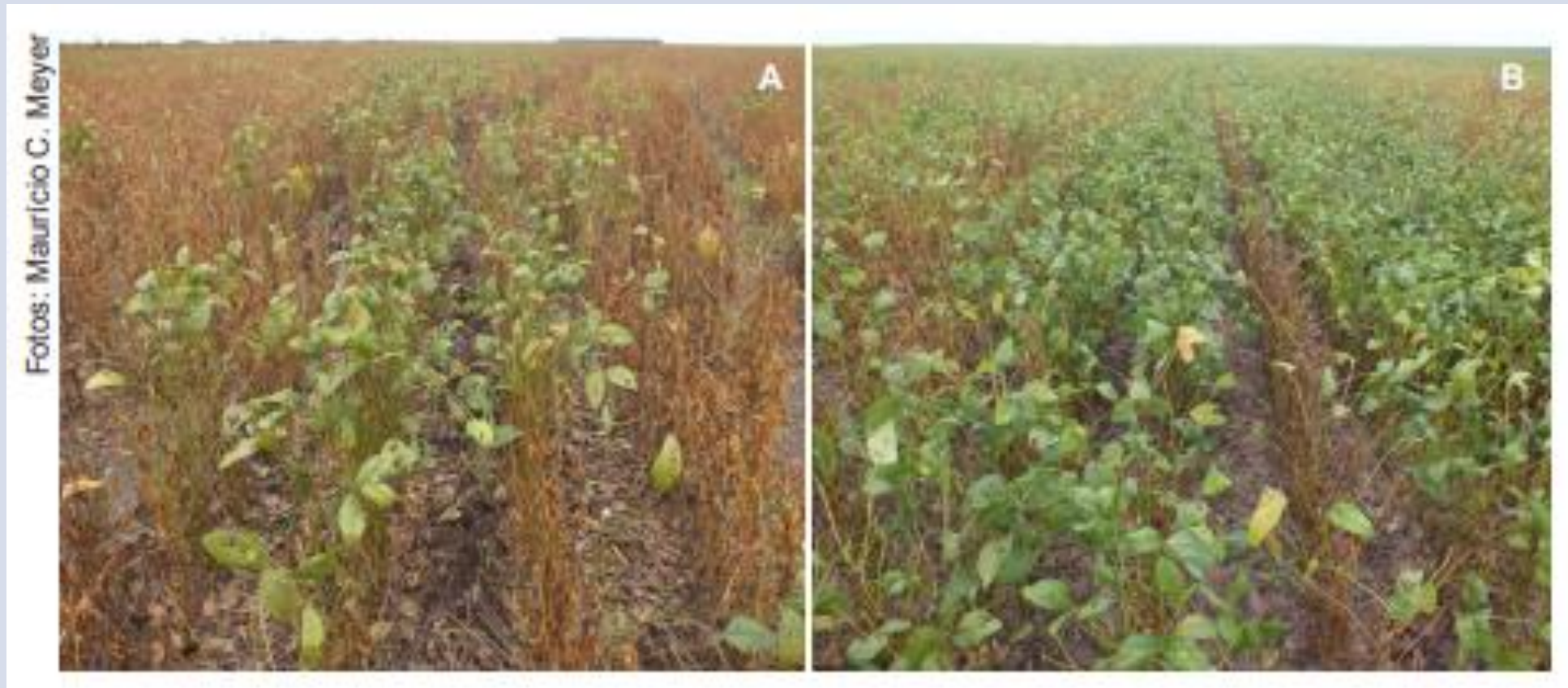


<http://www.agronomicabr.com.br/agriporticus/detalhe.aspx?id=215>



# Soja-Louca II

# Haste-Verde-da-Soja



<https://maissoja.com.br/o-nematoide-da-haste-verde/>

Fotos: Mauricio C. Meyer



Fotos: Mauricio C. Meyer



Ocorrência

Mato Grosso, Pará, Amapá, Tocantins e Maranhão

Condições predisponentes

Temperatura e umidade elevadas

Sobrevivência

Fungos do solo  
Restos culturais  
Anidrobiose

Dispersão

Contato entre folhas  
Resíduos das plantas na colheita



**Local** Ulianópolis (PA) 9 Maio 23



**Local** Ulianópolis (PA) 9 Maio 23

# plant disease

Editor-in-Chief: Alexander V. Karasev  
Published by The American Phytopathological Society

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December 2018, Volume 102, Number 12  
Page 2662  
<https://doi.org/10.1094/PDIS-02-18-0334-PDN>

## DISEASE NOTES

### First Report of *Aphelenchoides besseyi* Infecting the Aerial Part of Cotton Plants in Brazil

**L. Favoreto**, EPAMIG Oeste, Uberaba, MG, Brazil; **V. O. Faleiro**, Embrapa Agrossilvipastoril, Sinop, MT, Brazil; **M. A. Freitas** and **L. R. Brauwers**, Grupo Scheffer, Sapezal, MT, Brazil; **R. Galbieri**, IMA, Primavera do Leste, MT, Brazil; **J. A. Homiak**, Nemat Solution, Sapezal, MT, Brazil; **V. S. Lopes-Caitar**, UEL, Londrina, PR, Brazil; and **F. C. Marcelino-Guimarães** <sup>ORCID</sup> and **M. C. Meyer** <sup>ORCID</sup>, <sup>†</sup> Embrapa Soja, Londrina, PR, Brazil.



<https://revistacampoenegocios.com.br/soja-louca-ii-tem-novo-alvo-o-algodao/>



<http://colidernews.com.br/noticias/leitura/4704/vermes-de-solo-acendem-o-sinal-de-alerta-aos-produtores-de-algodao-de-mt>

## Short Communication

### *Aphelenchoides besseyi* Parasitizing Common Bean in Brazil

Luciany Favoreto,<sup>1</sup> Maurício Conrado Meyer,<sup>2</sup> Angélica Calandrelli,<sup>3</sup> Michele Corpolato Maia da Silva,<sup>3</sup> Santino Aleandro da Silva,<sup>4</sup> and Andressa Cristina Zamboni Machado<sup>4,1</sup>

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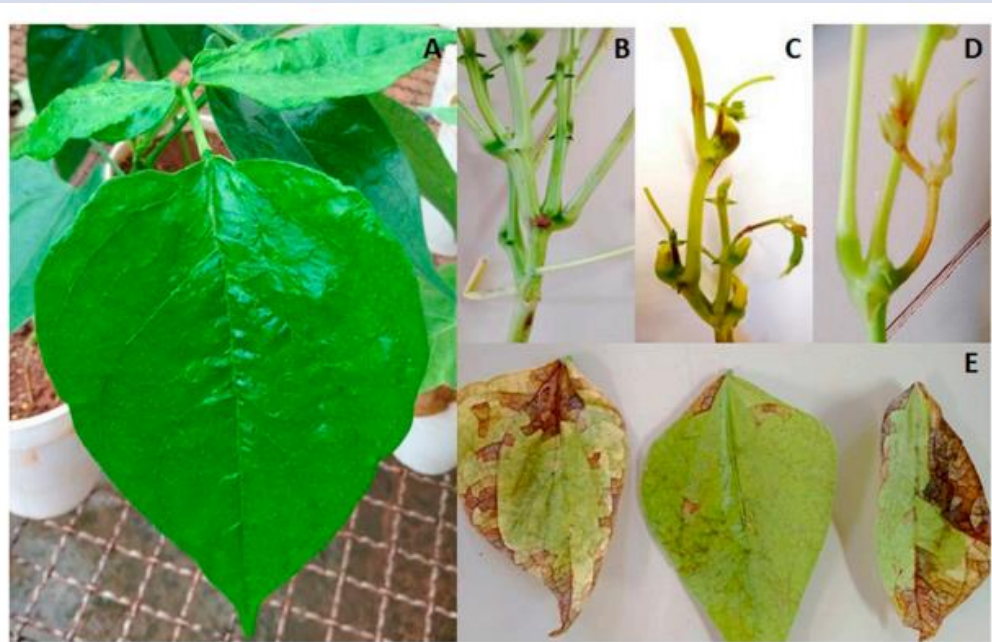


Fig. 1. Symptoms caused by the parasitism of *Aphelenchoides besseyi* in common bean cultivar Jalo Precoco. **A**, initial symptoms of "amachamiento" – leathery leaves with deformations in the leaf surface; **B**, deformed stems with enlargement of nodes; **C** and **D**, retortions and necrotic lesions in stems and nodes, abortion of flowers and little number of pods; and **E**, leaves with necrotic, brown to reddish and angular lesions (false angular spot).

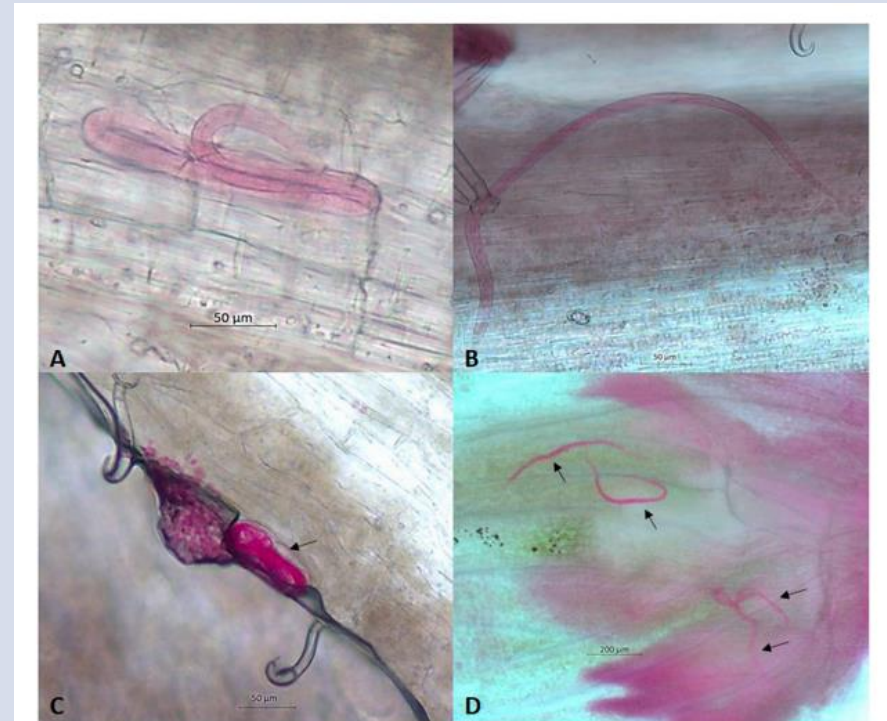


Fig. 2. *Aphelenchoides besseyi* inside common bean tissues, stained by fuchsin acid. **A**, Root; **B**, stem; **C**, leaf; **D**, inflorescence. Arrows indicate the nematodes.

## Morphological and Molecular Identification of Two Florida Populations of Foliar Nematodes (*Aphelenchoides* spp.) Isolated From Strawberry With the Description of *Aphelenchoides pseudogoodeyi* sp. n. (Nematoda: Aphelenchoididae) and Notes on Their Bionomics

Clemen J. Oliveira,<sup>1</sup> Sergei A. Subbotin,<sup>2,3</sup> Sergio Álvarez-Ortega,<sup>4</sup> Johan Desaeger,<sup>5,†</sup> Janete A. Brito,<sup>6</sup> Katia V. Xavier,<sup>7</sup> Leandro G. Freitas,<sup>1</sup> Sílvia Vau,<sup>6</sup> and Renato N. Inserra<sup>6</sup>

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BRILL

*Nematology* 0 (2020) 1-33



## The taxonomic status of *Aphelenchoides besseyi* Christie, 1942 (Nematoda: Aphelenchoididae) populations from the southeastern USA, and description of *Aphelenchoides pseudobesseyi* sp. n.

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*A. pseudogoodeyi*

<Arroz  
Morangueiro  
*Brachiaria brizantha*  
*B. decumbens*  
Ninho-passarinho

*A. pseudobesseyi*

Algodoeiro  
Feijoeiro-comum  
Soja  
Ninho-de-passarinho

*A. oryzae*

>Arroz

*Aphelenchoides* sp.

*B. brizantha*  
*B. decumbens*  
*B. humidicola*  
*B. ruziziensis*

*A. besseyi*

Morangueiro

*A. fujianensis*

*Pinus massoniana*



**Perguntas?**

**Bom Almoço!**