Integrated Pest Management (IPM) Sub-Group 2021 Report

Coordinator: Anne Fisher, University of Kentucky, USA
CORESTA SC Liaison: Colin Fisher, University of Kentucky, USA

CORESTA Agro-Phyto Virtual Conference, October 2021

Sub-Group Structure

- 80 chapters over 5 groups
  - diseases
  - nematodes
  - insects
  - weeds
  - IPM strategies
- Each with a group leader
  - organizes group
  - collects chapters
  - arranges reviews





Sub-Group Approach

Same approach for 3 groups

Diseases

fungal
bacterial
viral
seedling
post-harv

Nematodes

Insects

- Groups divided into sections
- Chapter for each disease or pest

Sub-Group Approach (cont.)

Weeds Group

Field Weeds

Parasitic Weeds

Different approach

- **Principles of weed control**
- **Specific weed problems**

Sub-Group Approach (cont.)

IPM Strategies Group

Biological Control

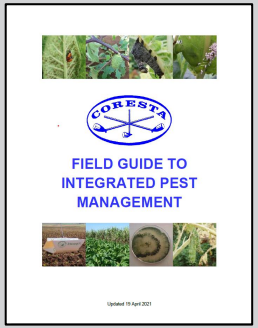
Rotation

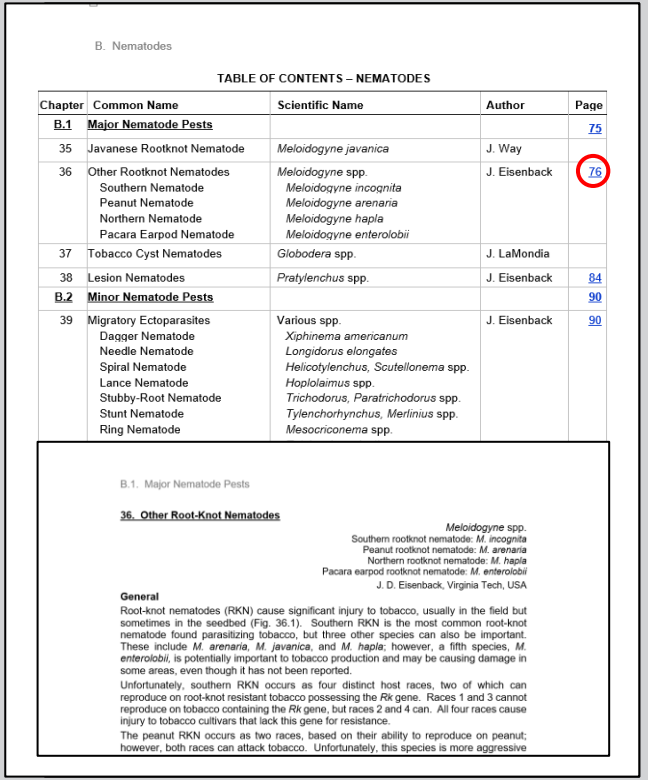
Correct CPA Usage

- **Sections deal with general IPM principles**

Document Submitted

- **Incomplete document submitted**
  - **Included – completed chapters reviewed, corrected, formatted**
  - **Review by Scientific Commission and board**
    - Currently, corrections being made after review
- **More chapters still in progress**
  - **Being written**
  - **Being edited and reviewed**





B. Nematodes

TABLE OF CONTENTS – NEMATODES

B.1. Major Nematode Pests

36. Other Root-Knot Nematodes

Meloidogyne spp.
Southern rootknot nematode: *M. incognita*
Peanut rootknot nematode: *M. arenaria*
Northern rootknot nematode: *M. hapla*
Pacara earpod rootknot nematode: *M. enterolobii*

J. D. Eisenback, Virginia Tech, USA

General

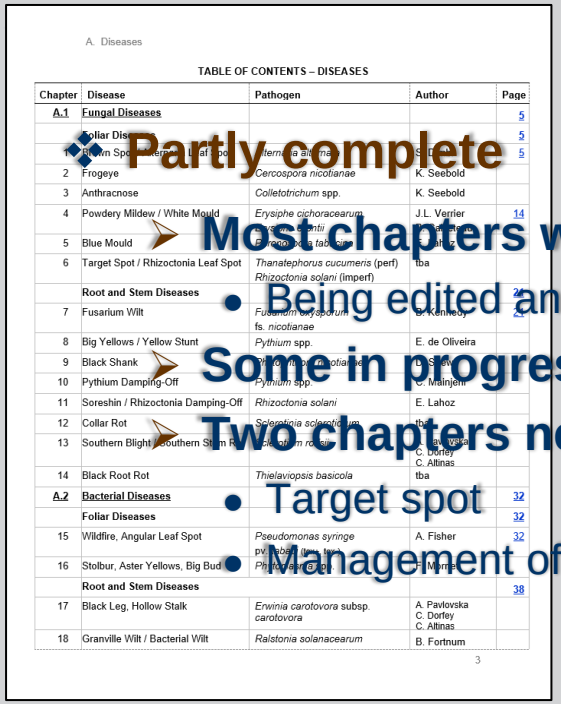
Root-knot nematodes (RKN) cause significant injury to tobacco, usually in the field but sometimes in the seedbed (Fig. 36.1). Southern RKN is the most common root-knot nematode found parasitizing tobacco, but three other species can also be important. These include *M. arenaria*, *M. javanica*, and *M. hapla*; however, a fifth species, *M. enterolobii*, is potentially important to tobacco production and may be causing damage in some areas, even though it has not been reported.

Unfortunately, southern RKN occurs as four distinct host races, two of which can reproduce on root-knot resistant tobacco possessing the *Rk* gene. Races 1 and 3 cannot reproduce on tobacco containing the *Rk* gene, but races 2 and 4 can. All four races cause injury to tobacco cultivars that lack this gene for resistance.

The peanut RKN occurs as two races, based on their ability to reproduce on peanut; however, both races can attack tobacco. Unfortunately, this species is more aggressive

Disease Group

INTEGRATED DISEASE MANAGEMENT

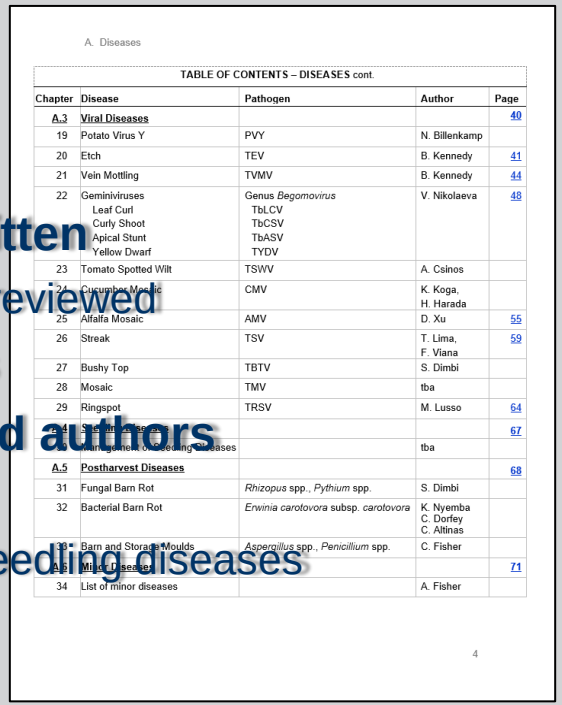


A. Diseases

TABLE OF CONTENTS – DISEASES

Chapter	Disease	Pathogen	Author	Page
A.1	**Fungal Diseases**			5
	Foliar Diseases			5
1	Frogeye Spot / Cercospora Leaf Spot	*Cercospora nicotianae*	K. Seebold	5
2	Frogeye	*Cercospora nicotianae*	K. Seebold	
3	Anthracnose	*Colletotrichum* spp.	K. Seebold	
4	Powdery Mildew / White Mould	*Erysiphe cichoracearum*	J.L. Verrier	14
		Leveillula taurica	tba	
5	Blue Mould	*Peronospora tabacina*	tba	
6	Target Spot / Rhizoctonia Leaf Spot	*Thanatephorus cucumeris* (perf) *Rhizoctonia solani* (imperf)	tba	
	Root and Stem Diseases			21
7	Fusarium Wilt	*Fusarium oxysporum* fs. *nicotianae*	B. Kennedy	21
8	Big Yellows / Yellow Stunt	*Pythium* spp.	E. de Oliveira	
9	Black Shank	*Phytophthora nicotianae*	C. Main	
10	Pythium Damping-Off	*Pythium* spp.	C. Malinjeni	
11	Soreshin / Rhizoctonia Damping-Off	*Rhizoctonia solani*	E. Lahoz	
12	Collar Rot	*Sclerotinia sclerotiorum*	tba	
13	Southern Blight / Southern Stem Rot	*Athelia rolfsii*	A. Pavlovska C. Dorfey C. Altinas	
14	Black Root Rot	*Thielaviopsis basicola*	tba	
A.2	**Bacterial Diseases**			32
	Foliar Diseases			32
15	Wildfire, Angular Leaf Spot	*Pseudomonas syringae* pv. *tabaci* (Wolf) Yarw.	A. Fisher	32
16	Stolbur, Aster Yellows, Big Bud	*Phytoplasma* spp.	C. Morris	
	Root and Stem Diseases			38
17	Black Leg, Hollow Stalk	*Erwinia carotovora* subsp. *carotovora*	A. Pavlovska C. Dorfey C. Altinas	
18	Granville Wilt / Bacterial Wilt	*Ralstonia solanacearum*	B. Fortnum	

3



A. Diseases

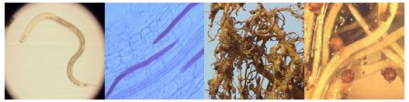
TABLE OF CONTENTS – DISEASES cont.

Chapter	Disease	Pathogen	Author	Page
A.3	**Viral Diseases**			40
19	Potato Virus Y	PVY	N. Billenkamp	
20	Etch	TEV	B. Kennedy	41
21	Vein Mottling	TVMV	B. Kennedy	44
22	Geminiviruses Leaf Curl Curly Shoot Apical Stunt Yellow Dwarf	Genus *Begomovirus* TbLCV TbCSV TbASV TYDV	V. Nikolaeva	48
23	Tomato Spotted Wilt	TSWV	A. Csinos	
24	Cucumber Mosaic	CMV	K. Koga, H. Harada	
25	Alfalfa Mosaic	AMV	D. Xu	55
26	Streak	TSV	T. Lima, F. Viana	59
27	Bushy Top	TBTV	S. Dimbi	
28	Mosaic	TMV	tba	
29	Ringspot	TRSV	M. Lusso	64
30	Stunt			67
33	Management of Seedling Diseases		tba	
A.5	**Postharvest Diseases**			68
31	Fungal Barn Rot	*Rhizopus* spp., *Pythium* spp.	S. Dimbi	
32	Bacterial Barn Rot	*Erwinia carotovora* subsp. *carotovora*	K. Nyemba C. Dorfey C. Altinas	
33	Barn and Storage Moulds	*Aspergillus* spp., *Penicillium* spp.	C. Fisher	
A.6	**Minor Diseases**			71
34	List of minor diseases		A. Fisher	

4

- **Partly complete**
  - **Most chapters written**
    - Being edited and reviewed
  - **Some in progress**
  - **Two chapters need authors**
    - Target spot
    - Management of seedling diseases

Nematode Group



INTEGRATED NEMATODE MANAGEMENT

B. Nematodes

TABLE OF CONTENTS – NEMATODES

Chapter	Common Name	Scientific Name	Author	Page
B.1	**Major Nematode Pests**			75
35	Javanese Rootknot Nematode	*Meloidogyne javanica*	J. Way	
36	Other Rootknot Nematodes Southern Nematode Peanut Nematode Northern Nematode Pacara Earpod Nematode	*Meloidogyne* spp. *Meloidogyne incognita* *Meloidogyne arenaria* *Meloidogyne hapla* *Meloidogyne enterolobii*	J. Eisenback	76
37	Tobacco Cyst Nematodes	*Globodera* spp.	J. LaMondia	
38	Lesion Nematodes	*Pratylenchus* spp.	J. Eisenback	84
B.2	**Minor Nematode Pests**			90
39	Migratory Ectoparasites Dagger Nematode Needle Nematode Spiral Nematode Lance Nematode Stubby-Root Nematode Stunt Nematode Ring Nematode	Various spp. *Xiphinema americanum* *Longidorus elongates* *Helicotylenchus, Scutellonema* spp. *Hoplolaimus* spp. *Trichodorus, Paratrichodorus* spp. *Tylenchorhynchus, Merlinius* spp. *Mesocricnema* spp. *Tetylenchus nicotianae*	J. Eisenback	90
40	Ecologically Restricted Nematodes Stem & Bulb Nematode Foliar Nematode Reniform Nematode	Various spp. *Ditylenchus dipsaci* *Aphelenchoides ritzemabosi* *Rotylenchulus reniformis*	J. Eisenback	96

76

- **Mostly complete**
  - **Only two chapters outstanding**
    - One – being edited and reviewed
    - One – writing in progress

Weeds Group

INTEGRATED WEED MANAGEMENT

D. Weeds

TABLE OF CONTENTS – WEEDS

132

- **Mostly complete**
  - **Only two chapters outstanding – parasitic weeds section**
  - **Both being edited and reviewed**

Insect & IPM Stategies Groups

INTEGRATED INSECT MANAGEMENT

IPM STRATEGIES

- **Not posted**
  - **Insect group leader changing**
  - **Seeking a new leader for the IPM Strategies group**

Links

Alternate Hosts

Many solanaceous weeds are hosts of this pathogen (Ch. 61). Examples are Apple of Peru (*Nicandra physaloides*) and Jimson weed / stinkblaar (*Datura stramonium*), shown in Fig.15.6. Such weeds should be removed from the proximity of the fields and especially seedbeds / greenhouses. This is particularly important in areas which do not have killing winter frosts, where weeds overwinter.

D.1. Field Weeds

61. Weeds as Alternate Hosts to Other Pests

Andy Bailey, University of Kentucky, USA

General

Weeds can act as a major host site for other tobacco pests such as diseases, nematodes, and insects. Many weeds that commonly occur around tobacco fields can harbor other pests and result in increased infection on tobacco crops. Generally, weed species that have the closest botanical relationship to tobacco, such as solanaceous weed species, are most likely to harbor pests that can infest tobacco. However, many plant species with little botanical relationship to tobacco can also serve as hosts.

Thanks and Appeals

- **Thanks to:**
  - **Photo contributors**
  - **Reviewers**
  - **Especially authors**
  - **CORESTA**
- **We need:**
  - **Leader for the IPM Strategies Group**
  - **Authors for:**
    - Target spot / Rhizoctonia leaf spot
    - Management of seedbed diseases

If you are interested, please contact me

anne.fisher@uky.edu