



IPM Sub-Group Report

Anne Jack: UK, USA

Izmir – 2015





Integrated Pest Management (IPM) TF History & Background

❖ Group set up in 2005

- Brazil AP meeting

❖ Membership consistently >90

- Academic – universities & research stations; researchers & extension
- Industry – leaf dealers & manufacturers

❖ Currently

- 140 members
- 26 countries
 - Need more Asian representation
 - Especially India & China



❖ IPM is defined by the American Phytopathology Society as:

- “A sustainable approach to managing pests by combining **biological**, **cultural**, **physical** and **chemical** tools in a way that minimizes economic, health and environmental risks”.

❖ Objectives

- To summarize available IPM strategies for each pest & disease
- To produce a document for agronomists & farmers
 - structured by disease or pest
 - with a common outline framework based on relevant IPM methods
- To make document available on **CORESTA website in pdf format**

Value of previous IPM work

❖ IPM is not new – INTEGRATED management

➤ Zimbabwe, TRB handbook 1950's recommended

- Rotation for nematode control
- Hygiene for TMV control
- Avoiding over-fertilization for bacterial foliar disease control

➤ US grower guides 1940's recommended

- Rotation & hygiene for black shank control
- Hygiene for TMV control

❖ Some new IPM strategies

➤ Mostly built on well-established principles





How this work helps the scientific community

- ❖ **Lower CPA residues – BIG issue for tobacco industry**
 - **CPAs may be replaced or partly replaced by other strategies**
 - **Lower levels applied**
 - Scouting
 - Proper application
 - Less disease



How this work helps the scientific community

❖ Lower CPA residues – BIG issue for tobacco industry

- CPAs may be replaced or partly replaced by other strategies
- Lower levels applied
 - Scouting
 - Proper application
 - Less disease



❖ Lower diseases/pest populations – resulting easier control, less CPAs

- Rotations, good hygiene etc.
 - Prevent or slow build-up of diseases / pests

❖ Sustainable production – soils, disease/pest levels, flora/fauna

- Will we be growing tobacco 20 years from now?

Members

- Authors
- Reviewers
- Contributors of photographs
- Observers, commentators

64 plant protection specialists

- 31 pathologists
- 24 entomologists
- 8 nematologists
- 6 weed scientists

4.2. *Electra* Tolerans
 18. *Wolffia angustifolia* (Pavlovskaya) Kuznetsov (1961) det. by
 Jean Suda, University of Kentucky, USA
General
 "This disease can affect tobacco in both the seedlings (the seedling and regular soil
 also plant in the field. Infected and regular soil used on the major portion of many
 tobacco producing areas, such as the USA, Brazil and Europe. In Africa, they are
 known of major importance which are causing increasing losses, especially in
 Malawi. It causes occasional infection with only a small amount of an outbreak of
 advanced symptoms, and is not usually recorded in areas such as the USA."
Symptoms
 "The symptoms of the four (four producing) and five forms of this disease are quite
 similar. "Wolffia" disease is characterized by a small brown or black water-soaked lesion,
 surrounded by a chlorotic halo (Figure 18.1). Infected plants are stunted, or severely
 chlorotic (Figure 18.2). The water-soaked lesions are small, dark brown or black,
 much larger than the healthy tissue. The size of the chlorotic halo and the angular
 margin form the basis for the four forms of the disease (Figure 18.2). In Africa, the
 disease is recorded in the form of the top of the plant (Figure 18.1, 18.2)."
Source and Transmission
 "Bacteria are spread within the field from field to field and from infected seedlings to
 seedlings under glass. "Chlorotic" form develops the greatest susceptibility. These
 symptoms can also be used to identify the disease. Extensive infected plants in a variety of
 tobacco, and a clearly recognizable water-soaked lesion in the same English area where these
 diseases are a problem, visitors are certain could be of all accompanying insects."
Site Selection

CORESTA
IPM Taskforce
 Home Taskforce Checklists Home Documents IPM Images Completed Documents IPM Presentations Final Report About Us Links

As each completed chapter has been reviewed and edited, it will be placed on this page for general review by the taskforce. Members will be notified by email when a document has been posted online. Please provide any documents prior one of proposed to you, and do not know if you have any comments.

We would encourage those of you with experience of any particular topic to comment and contribute, especially if you know of any IPM strategy which has been omitted, or are particularly interested in a given perspective are welcome suggestions of other strategies for our disease management.

Each document will be posted online for one month. The post date and expiration date included in the table below will also be in the notification email. Please send comments to the editor using the Comments in the table; these comments will be automatically copied to the section leader (see [Taskforce Checklist](#)) page for assessment; and the [editorial comments](#).

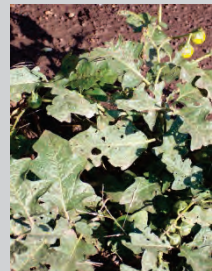
1/2015: There are currently no chapters for visible review, but editorial chapters will be posted shortly.

Document Name	Post Date	Expire	Author	Reviewer 1	Reviewer 2	Comments/press contact

*Note: email comments to the author will automatically be carbon copied to the [IPM Taskforce website](#) and to the relevant section leader.

Details of the [Taskforce Checklist](#), [Images Documents](#), [IPM Images](#), [Completed Documents](#), [IPM Presentations](#), [Final Report](#), [About Us](#), [Links](#)

[Return to home Page](#)



❖ Communication

- Email
- Yearly meetings at conferences

❖ Executives

➤ Editors

- Anne Jack, Colin Fisher (UK, USA)

➤ Group leaders

- Emily Pfeufer (UK, USA)
- Chuck Johnson (VT, USA)
- Paul Semptner, (VT, USA)
- Andy Bailey (UK, USA)
- Cecilia Dorfey (JTI, Germany)



❖ 80 chapters over 5 groups

- diseases
- nematodes
- insects
- weeds
- IPM strategies

❖ Each with a group leader

- organizes group
- collects chapters
- arranges reviews



Same approach for 3 groups

Diseases



fungal
bacterial
viral
seedling
post-harv

Nematodes



Insects



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

Weeds group

Field Weeds



Parasitic Weeds



Different approach

- Principles of weed control
- Specific weed problems

IPM Strategies

Biological Control



Rotation



Correct CPA Usage



➤ **Sections deal with general IPM principles**

❖ Final product

- Digital document
- Downloadable PDF
 - Continually updated



❖ Final product

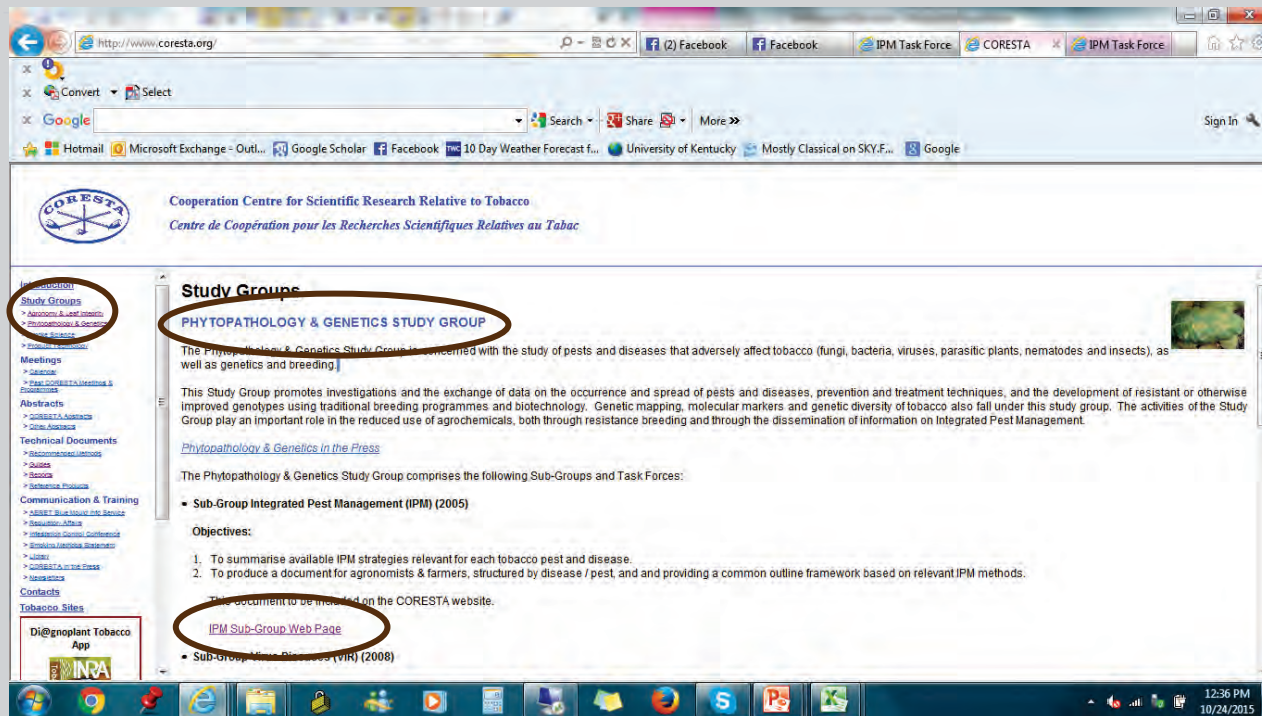
- Digital document
- Downloadable PDF
 - Continually updated
 - IPM website
 - Updated Oct 2015



The screenshot shows a web browser window displaying the IPM Taskforce website. The URL is http://www.uky.edu/Ag/Agronomy/IPM_Taskforce/finalReport.htm. The page features the CORESTA logo and the title "IPM Taskforce". Below the title, there is a navigation menu with links for Home, Taskforce Overview, Working Documents, Completed Documents, IPM Presentations, Final Report, and Useful Links. The main content area contains a message: "We have posted the final report with blanks for incomplete chapters, and as chapters are ready, we will slot them in." Below this message, there is a link for "Final Report Oct 21-2015". A red circle highlights the "Final Report" link in the navigation menu and the "Final Report" link in the main content area. The browser's taskbar at the bottom shows various application icons.

❖ Final product

- Digital document
- Downloadable PDF
 - Continually updated
 - IPM website
 - Updated Oct 2015
 - CORESTA website
 - Direct link to IPM



http://www.coresta.org

Cooperation Centre for Scientific Research Relative to Tobacco
Centre de Coopération pour les Recherches Scientifiques Relatives au Tabac

Study Groups

PHYTOPATHOLOGY & GENETICS STUDY GROUP

The Phytopathology & Genetics Study Group is concerned with the study of pests and diseases that adversely affect tobacco (fungi, bacteria, viruses, parasitic plants, nematodes and insects), as well as genetics and breeding.

This Study Group promotes investigations and the exchange of data on the occurrence and spread of pests and diseases, prevention and treatment techniques, and the development of resistant or otherwise improved genotypes using traditional breeding programmes and biotechnology. Genetic mapping, molecular markers and genetic diversity of tobacco also fall under this study group. The activities of the Study Group play an important role in the reduced use of agrochemicals, both through resistance breeding and through the dissemination of information on Integrated Pest Management.

[Phytopathology & Genetics in the Press](#)

The Phytopathology & Genetics Study Group comprises the following Sub-Groups and Task Forces:

- **Sub-Group Integrated Pest Management (IPM) (2005)**

Objectives:

1. To summarise available IPM strategies relevant for each tobacco pest and disease.
2. To produce a document for agronomists & farmers, structured by disease / pest, and providing a common outline framework based on relevant IPM methods.

This document to be included on the CORESTA website.

[IPM Sub-Group Web Page](#)

• Sub-Group Virus Diseases (VIR) (2008)

❖ Collect outstanding chapters

- **Some not done, some in progress**
 - Some new chapters received
 - New authors & leaders

❖ Complete outstanding reviews, editing

- **Currently in progress**
- **6 chapters ready for website review**

❖ Document posted incomplete

- **Task force → subgroup**
 - Add completed chapters
 - Update existing chapters



The screenshot shows the homepage of the CORESTA IPM Taskforce website. At the top, there is the CORESTA logo and the title "IPM Taskforce". Below the title, there is a navigation menu with links for Home, Taskforce Overview, Working Documents, IPM Images, Completed Documents, IPM Presentations, Final Report, and Useful Links. The main content area contains several paragraphs of text and a table. The text discusses the review process, encourages comments, and provides information about document posting. The table has columns for Document Name, Post Date, Expires, Author, Reviewer 1, Reviewer 2, and Comments: please contact. At the bottom, there are links for Return to Top, Taskforce Overview, Working Documents, IPM Images, Completed Documents, IPM Presentations, Final Report, Useful Links, and contacts, along with a Last Updated/ Created date and a Return to Home Page link.

Home
[Taskforce Overview](#)
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We would encourage those of you with experience of any particular topic to comment and contribute, especially if you know of any IPM strategy which has been omitted. We are particularly interested in a global perspective and welcome suggestions of different strategies from our diverse membership.

Each document will be posted online for one month. The post date and expiration date included in the table below will also be in the notification email. Please send comments to the author using the Comments link in the table; these comments will be automatically copied to the section leader (see [Taskforce Overview](#) page for assistance) and the [taskforce coordinator](#).

10/21/15: There are currently no chapters for website review, but several chapters will be posted shortly.

Document Name	Post Date	Expires	Author	Reviewer 1	Reviewer 2	*Comments: please contact

*Note: email comments to the author will automatically be carbon copied to the [IPM Taskforce coordinator](#) and to the relevant section leader.

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Final Document: Samples



FIELD GUIDE TO INTEGRATED PEST MANAGEMENT



Vol 109 - © 2009 - CORESTA

FOREWORD

CORESTA Integrated Pest Management Taskforce

The tenets of good agricultural practice are to provide the world's populace with affordable food now, and into the future. This will only be realized if agricultural production is both profitable and sustainable. Integrated pest management is one of the many components necessary to achieve this.

The only crop protection resources available to the first farmers about 12 000 years ago was some form of biological control, such as picking insects off the crop by hand. Perhaps the first IPM practice was securing the harvested grain in insect-proof earthen jars. Crops were first dusted with powdered sulphur 4 500 years ago, and selecting the best quality seed for the following season's crop was the first inadvertent plant breeding program. Through experience, agricultural practices progressed slowly until more recent times when science accelerated our understanding of crop production including pest and disease management. Early forays into pesticide use included mercury, arsenic and lead until as recently as the 1950's and then the overuse of DDT caused a major revision of policy by the agricultural community. Quite apart from any potential damage to the environment by the liberal use of pesticides, there are many other methods of reducing the impact of pest and diseases that have been used, often in local communities with some particular problem.

To this end, the CORESTA membership saw the need for an avenue of sharing this information within the tobacco community. Many of the world's leading tobacco specialists have been compiled into providing a resource that is intended as a practical guide that field technologists can use to provide advice to growers in all aspects of integrated pest management.

The information provided is not definitive because any recommendations to growers must take cognizance of socio-economic constraints unique to a specific production area, and must be adjusted for new developments.



Annie Jack, University of Kentucky, USA
Taskforce Coordinator
Editor



Colin Fisher, University of Kentucky, USA
Taskforce Coordinator
Editor

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Final Document: Better Samples

IPM Strategies



IPM STRATEGIES



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IPM Strategies

FOREWORD

IPM Strategies

Integrated Pest Management (IPM) has become a fundamentally integrated aspect of how tobacco is produced worldwide, since pests, diseases and weeds affect crop yield and quality, as well as lower income for the growers in the event of uncontrolled pest or disease outbreak.

To sustain a crop production in a business operating environment that is (and will be) ever more strictly regulated, the pursuit of more comprehensive adoption of Good Agricultural Practices (GAP) and the promotion and adoption of preventive and integrated measures to reduce the risk of pest and disease occurrence is crucial for an efficient tobacco production that meets the requirements of yield, quality and integrity, while also complying with environmental requirements and regulations.

An insect, a bacteria or a virus is not a pest or disease agent *per se* – they only become pests or diseases when optimal conditions for their development are provided. The fundamental concept of IPM is that each aspect of and within the agricultural ecosystem has a role to play and there is a tolerance limit that should be accepted before more extreme measures are required.

IPM strategies should take into account the environment, cultivation practices, and local socio-economic constraints, prioritizing the adoption of techniques that promote, enhance and/or protect the health and good quality of the agro environment as a whole thus contributing to the maintenance of ecological balance with reduced risk of pest/disease outbreaks. These techniques include the selection of suitable varieties, adoption of locally recommended cultural practices, soil and water conservation practices, use of biological control agents or other alternative methods in combination with responsible and rational use of Crop Protection Agents (CPAs).



Adequate and correct use of CPAs is a fundamental component of IPM. When CPAs are used only when necessary and in the recommended manner following appropriate application rates and methods, as well as complying with health and safety requirements, the challenges from pests and diseases are confined, there is reduced risk of pest and diseases developing resistance and minimized risk of excessive residue accumulation in the leaf. Selective products also allow natural enemy populations (predators and parasitoids) to develop to the detriment of pests.

Moreover, the effective implementation of any IPM strategy starts from raising awareness, training and engagement of field staff and the tobacco grower base.

Cecilia Dorley, JT International Germany GmbH
IPM Strategies Group Coordinator

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Diseases

FOREWORD

Integrated Disease Management

Tobacco may become infected by a number of different pathogens, from viruses to bacteria (fungi) and oomycetes, at every stage of production. Integrated disease management combines cultural and chemical approaches to provide reliable disease reduction. Since no single practice is guaranteed to reduce disease, a broad, integrated approach helps safeguard crops from total failure. Truly integrated disease management applies one or more control tactics to each of the three components of the plant disease triangle: the pathogen, the tobacco host, and the environment.

Pathogen-centric control tactics focus on preventing the introduction of the pathogen to transplant production or the field, reducing new plant infections once pathogens have been identified, and minimizing disease severity. The most obvious pathogen-centric control is fungicide application, which depending on the mode of action, can prevent new infections or slow disease development. In all cases, however, fungicides are most effective when applied preventatively to otherwise healthy, unstressed plants. Active cultural management can reduce or even eliminate the need to introduce chemical tactics for select common diseases. For instance, the sclerotium oomycete pathogen *Phytophthora nicotianae*, which causes black shank, may be spread by moving infested soil from field to field on tractors, settlers, or boots. Combined with an understanding of farm-specific disease history, simple cleaning of these materials between fields can significantly reduce the potential to spread *P. nicotianae* to an uninfested field.

Host-centric control tactics focus largely on varieties bred for resistance to common diseases. In addition to minimizing injury from insects, herbivores, and equipment, new tobacco variety releases have been bred for different resistance "packages," simultaneously possessing resistance to several plant diseases. For example, the Kentucky tobacco variety KT206 has high resistance to black shank, black root rot, viruses, and TMV. Starting transplants with a stacked resistance package gives tobacco an advantage over yield-limiting diseases before plants are even set in the field. Insect management not only improves quality, but also reduces viral and bacterial diseases, which may be vectored by insects or need a wound for infection, respectively.



Emily Pfeifer, University of Kentucky, USA
Disease Group Coordinator

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❖ Meeting Sunday October 25th in Izmir

➤ 21 attendees

➤ Appeals

- Help with editing (ideally native English speakers)
- Reviewers (need not be native English speakers – technical content)
- Authors for missing chapters
- Photographs

➤ New members always welcome



Agro-Phyto Joint Study Groups Meeting

25-29 October 2015



Acknowledgements

- ❖ Our many members
 - Especially authors
- ❖ CORESTA



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