



# **CORESTA**

## **Developments and Activities**

**Dr Stéphane Colard, Secretary General (Designate)**

**Mr Lea Scott, President Scientific Commission (Universal Leaf)**

**Dr Rob Stevens, Vice President Scientific Commission (ITG Brands)**

**October 2<sup>nd</sup>, 2019, FDA Center for Tobacco Products**



- ❖ **Introduction to CORESTA**
- ❖ **Key activities in the Study Groups**
- ❖ **The strengths of CORESTA**



STATUTES &  
RULES ARE  
PUBLICLY  
AVAILABLE

# CORESTA

Cooperation Centre for Scientific Research Relative to Tobacco

**A non-profit organisation created in 1956  
governed by French law**

## **Purpose\***

**To promote cooperation in scientific research relative  
to tobacco and its derived products**

\*Legally binding



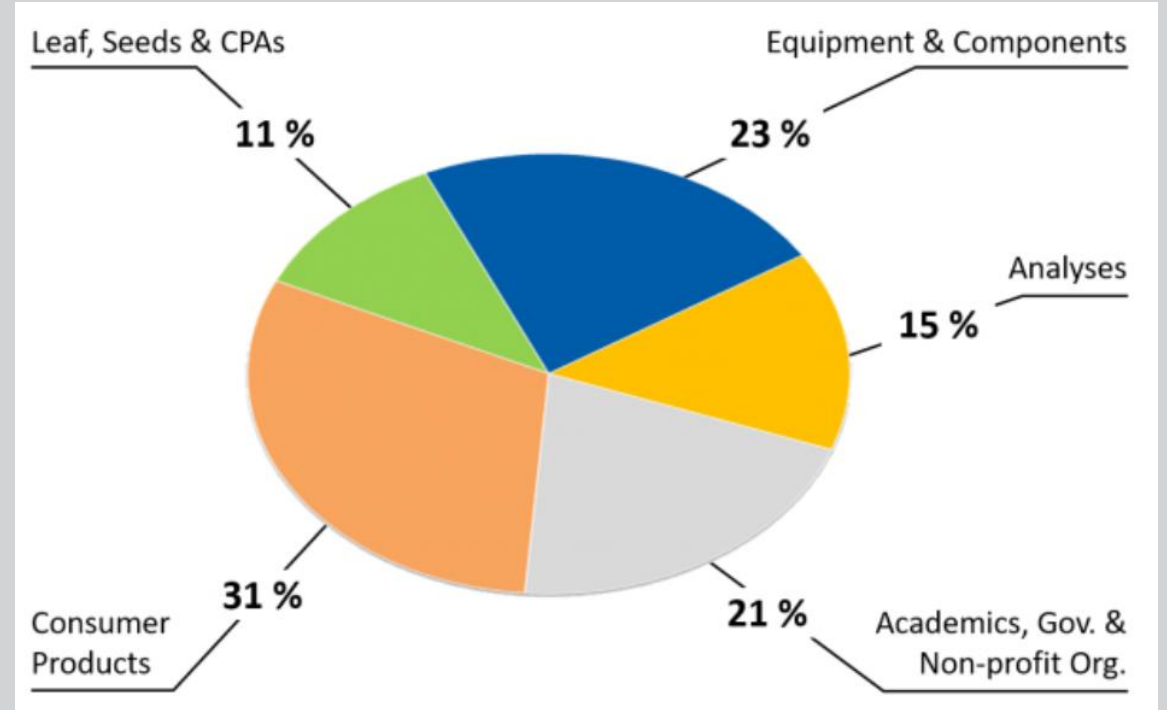
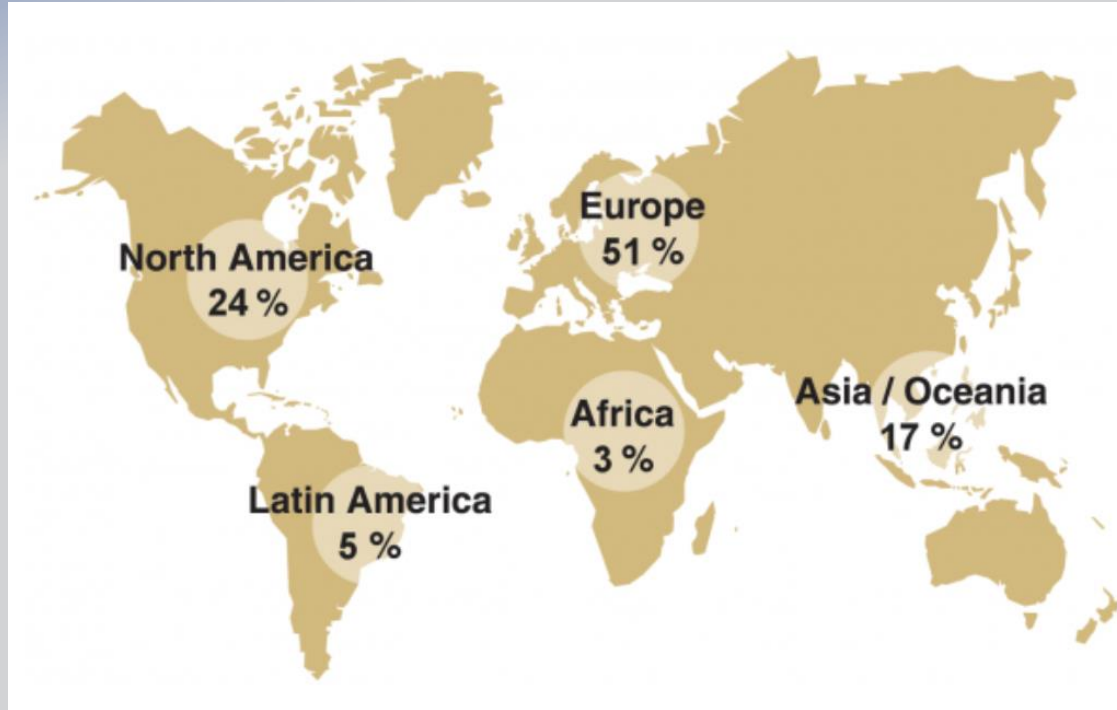
# The Vision

**“ To be recognised by our members and relevant external bodies as an authoritative source of publicly available credible science and best practices related to tobacco and its derived products ”**



# Membership

**162 members (September 2019)**

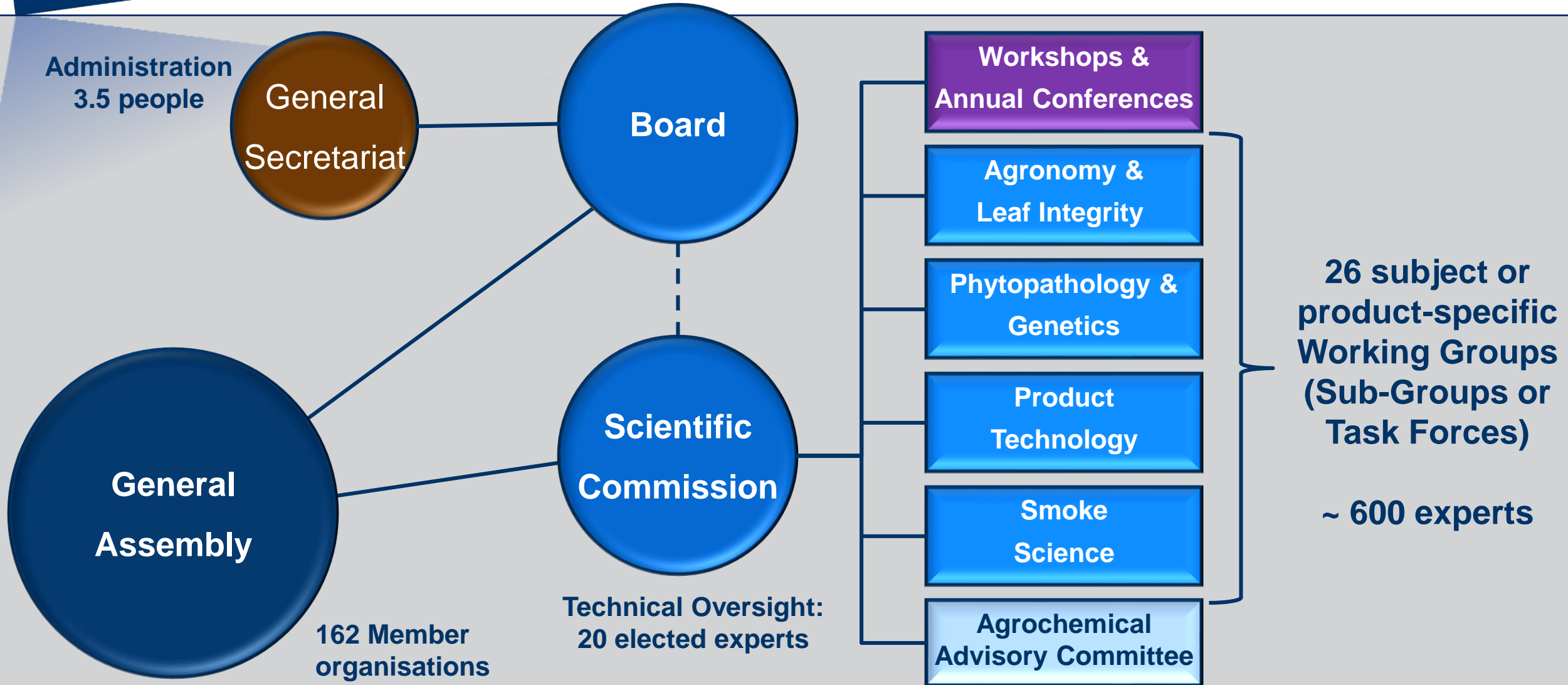


**>600 participants across 26 Sub-Groups and Task Forces**



Strategy and Policy:  
14 elected/co-opted  
organisations

# Governance & Structure





# Spectrum of Scientific Cooperation Topics

- Integrated Pest Management
- Virus Diseases
- Extended Diagnostic Expert System
- Efficacy of Biological & Eco-Friendly Crop Protection Agents
- Collaborative Study Black Shank
- **Tobacco Alkaloid Genetics**
- **Tobacco Biotechnology and Omics**

- Routine Analytical Chemistry
- Physical Test Methods
- Cigar Smoking Methods
- Tobacco and Tobacco Products Analytes
- E-Vapour
- **Cigarette Variability**
- **Heated Tobacco Products**

- Agrochemicals Analysis
- Pest and Sanitation Management in Stored Tobacco
- Proficiency Testing for Detection of Transgenic Tobacco
- TSNA in Air-cured and Fire-cured Tobacco
- Agrochemical Residue Field Trials
- **Collaborative Study of Low Nicotine Tobacco Agronomic Production Practices**

**Agronomy & Leaf Integrity**  
**Phytopathology & Genetics**  
**Product Technology**  
**Science**  
**Smoke**

**26**  
**Current Working Groups**

- Product Use Behaviour
- Smoke Analytes
- *In Vitro* Toxicity Testing
- Biomarkers
- **Consumer Reported Outcome Measures Consortium**
- **21st Century Toxicology for Next Generation Tobacco and Nicotine Products**





# The Process (Simplified)

CORESTA  
Members

PROPOSE

MORE DETAILS  
AT THE FDA  
STANDARDS DAY

Working  
Groups

DEVELOP

Scientific  
Commission

REVIEW  
PROPOSAL

REVIEW  
OUTPUTS

Board

General  
Secretariat

REGISTER

PUBLISH





# Publications

## Abstracts & Presentations

~ 9000 abstracts/presentations

[www.coresta.org](http://www.coresta.org)

## Technical Reports



Smoke Analytes Sub-Group

Technical Report

2012 Collaborative Study on B[a]P, VOCs, and Carbonyls in Mainstream Cigarette Smoke

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

ABOUT US • STUDY GROUPS • DOCUMENTS • ABSTRACTS

Home → Abstracts → A non-destructive rapid method for blend grade verification using visible-near infrared hyperspectral imaging, advanced data processing and classification algorithms

CORESTA Congress, Kunming, 2018, Agronomy/Phytopathology Groups, AP 18

**Documents**  
Presentation

A non-destructive rapid method for blend grade verification using visible-near infrared hyperspectral imaging, advanced data processing and classification algorithms

SAHU A.(1); DANTE H.(2); MORRIS J.W.(1); WAREK U.(1)

(1) Altria Client Services LLC., Biotechnology, Richmond, VA, U.S.A.; (2) Industrial Tumaround Corporation, Chester, VA, U.S.A.

**Authors**  
SAHU A. DANTE H. MORRIS J.W. WAREK U.

**Organisations**  
Altria Client Services Industrial Tumaround Corporation

The main objective of this study was to investigate the potential of hyperspectral imaging as a non-destructive, rapid, quality control method for grading cured tobacco bales. Cultivated tobacco plants were harvested and cured. Cured tobacco bales were brought to the stemmary and mixed into blend grades. Blend grades were then graded traditionally based on visual, physical and sensory characteristics. Hyperspectral images of cured tobacco bales were acquired using a visible near-infrared (VNIR) hyperspectral pushbroom imaging system (400-1000 nm). Multivariate calibration models were built using end-member extraction and linear discriminant analysis (LDA). The LDA model using Mahalanobis distance metric showed clear discrimination between the different tobacco grades. The relative classification accuracy of this method for flue-cured and Burley tobacco grades was 93 % versus the traditional grading method. This study demonstrates that hyperspectral imaging can be used as a reliable, rapid, non-destructive quality control method for tobacco bales.

Cooperation Centre for Scientific Research Relative to Tobacco

Agro-Chemical Advisory Committee

CORESTA Guide N° 19  
Responsible Use of Crop Protection Agents (CPAs) in Tobacco Leaf Production

April 2017

Author: H.D. Pipetta, Altria

## Guides

Cooperation Centre for Scientific Research Relative to Tobacco

Tobacco and Tobacco Products Analytes Sub-Group

CORESTA Recommended Method No. 91

DETERMINATION OF 15 PAHs IN TOBACCO AND TOBACCO PRODUCTS BY GC-MS/MS or GC-MS

April 2019

## Methods

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

Join CORESTA | Member Access

ABOUT US • STUDY GROUPS • **DOCUMENTS** • ABSTRACTS • MEETINGS • INFORMATION • MEMBER CONTENT

Join the new Task Force  
Low Nicotine Tobacco  
Agronomic Production Practices

0.4 %  
0.3 %  
0.2 %  
0.1 %  
0.09 %  
0.08 %

**Vision**  
To be recognised by our members and relevant external bodies as an authoritative source of publicly available, credible science and best practices related to tobacco and its derived products.

→ More about CORESTA

**News**  
CORESTA Residue Field Trials Sub-Group Poster Presentations at University of Kentucky Burley Tour, August 2019 published [RFT-235-CXP] 17/09/2019

**Latest Documents**  
Guides  
No. 26 - Technical Guide for Designing E-Vapour Product Stability Studies 05/09/2019

**Upcoming Meetings**  
5 October 2019  
SG SMA - Smoke Analytes  
Hamburg, Germany  
5 October 2019



# **Agronomy & Leaf Integrity Phytopathology & Genetics**

**Lea SCOTT**

**President of the Scientific Commission**



## Agronomy and Leaf Integrity

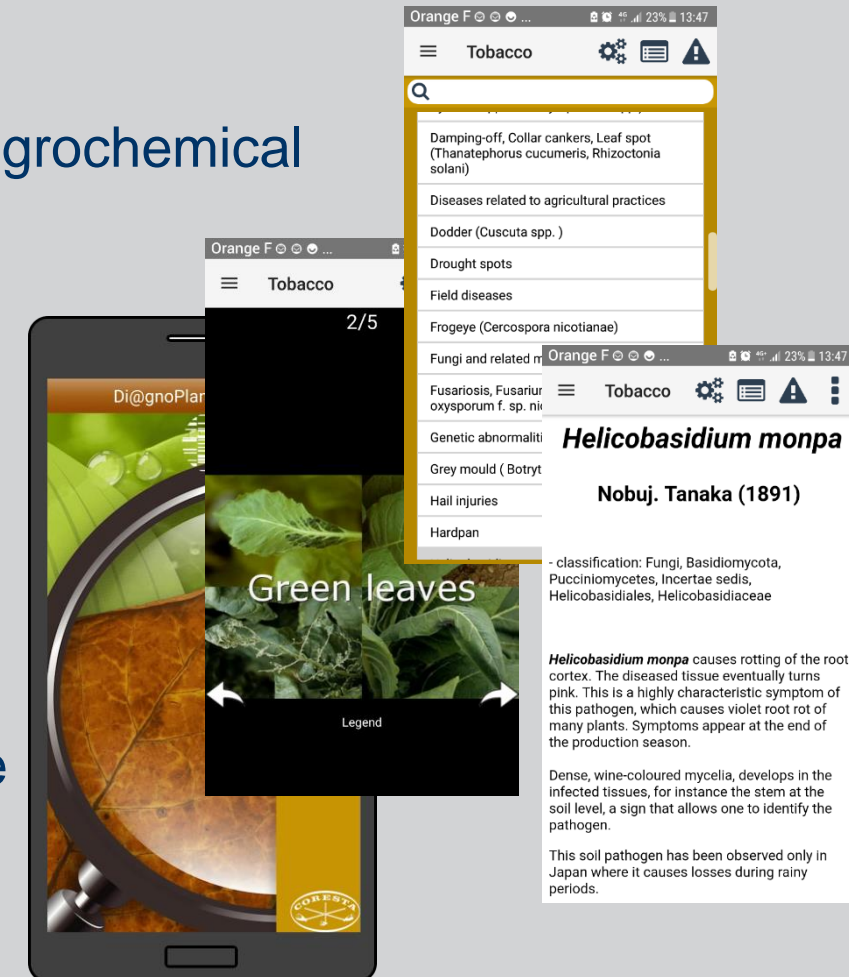
- ❖ Scientific study on the production of all tobacco leaf types
- ❖ Crop management practices and environmental factors that influence crop production
- ❖ Good Agricultural Practices for efficient, sustainable tobacco production and leaf supply
- ❖ Guidance on pest & sanitation of stored tobaccos

## Phytopathology and Genetics

- ❖ Study of tobacco pests and diseases and plant breeding
- ❖ Integrated Pest Management (IPM)
- ❖ Genetic mapping, molecular markers and genetic diversity

## Current activities

- ❖ Proficiency testing of multi-residue analytical methods for agrochemical residues and for detection of transgenic tobacco
- ❖ Agrochemical residue field trials to support setting/review of Guidance Residue Levels
- ❖ Investigation of low nicotine tobacco agronomic practices
- ❖ Regular Infestation Control Conferences
- ❖ Identification and evaluations of biological control products and methods
- ❖ Sharing of tobacco genetic materials for disease resistance
- ❖ Defining biotechnology terminology for non-scientists
- ❖ Data contribution to Di@gnoplant





## ❖ Objectives

- To address matters relating to agrochemicals\* and topics associated with product stewardship and integrity in tobacco by gathering relevant information and disseminating guidance to stakeholders.

## ❖ Guidance documents

- No. 1 - Agrochemical Guidance Residue Levels (GRLs)
- No. 3 - Good Agricultural Practices (GAP) Guidelines
- No. 19 - Responsible Use of Crop Protection Agents (CPAs) in Tobacco Leaf Production
- No. 21 - Best Practices and Crop Protection in Cigar Dark Air-Cured Tobacco
- No. xx - Technical Aspects of CPA Usage (underway)

*\* Agrochemicals are those substances used in farming to manage pests or to regulate plant growth. They are also referred to as crop protection agents (CPAs) and plant protection products (PPPs), including biopesticides.*





# **Smoke Science Product Technology**

**Rob STEVENS**

**Vice-President of the Scientific Commission**



# Smoke Science and Product Technology

## Smoke Science

- ❖ Responsible for the scientific study of emissions from, and exposure to, tobacco and related products.
- ❖ Development of specific chemical and biological methods and investigation of means to assess exposure and use.

## Product Technology

- ❖ Concerned with the study of processes and procedures relating to tobacco processing and manufacturing facilities.
- ❖ Description of tobacco and tobacco products in terms of physical properties, chemical properties and quality.
- ❖ Development of Reference Materials.





# Smoke Science and Product Technology

## ❖ Recommended Methods\*, Guides and Reports on tobacco, product and smoke analysis (biological, chemical and physical)

- Since 1956, 93 CORESTA Recommended Methods (CRMs) produced, of which 43 ISO standards based on CRMs
- + 3 CRMs currently in the process of becoming ISO standards
- Regular collaborative studies/proficiency trials to support member labs' accreditation (agrochemicals, TNCO, physical...)
- Protocols for *in vitro* toxicity testing of mainstream smoke



## ❖ Developed Reference Materials

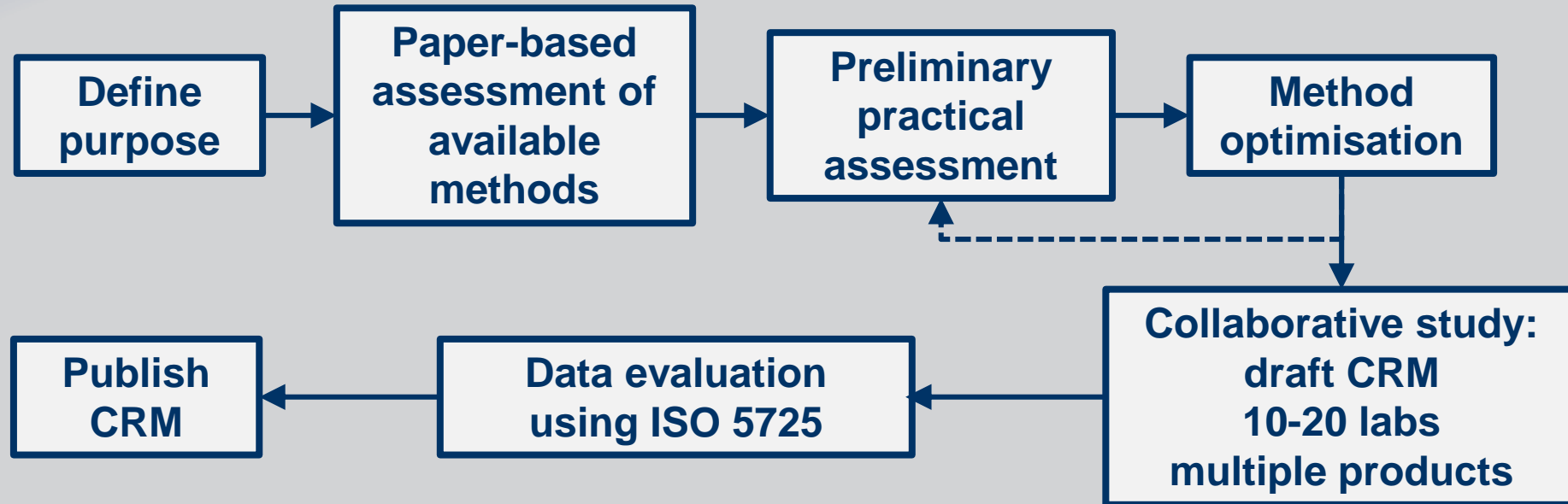
- 'CORESTA Monitor test piece' for smoking machine set-up + 1 for LIP testing
- 4 smokeless tobacco products

*\*71 out of 92 CRMs are currently active, due to obsolescence/replacement of older ones*



# Development of Recommended Methods

## ➤ Consensus-based process



- Discussions during process provide insight into causes/reduction of intra- and inter-laboratory variability
- Methods and Reports are made available on the CORESTA website



# Smoke Science and Product Technology

## Current activities

- ❖ Ongoing contribution to ISO TC126 standards development (CORESTA is a Liaison A member)
- ❖ Experimental evaluation of commercial cigarette variability over short term (one production week), medium term (production over one year), and long term (production over three years)
- ❖ Regular collaborative studies and proficiency tests
- ❖ E-cigarette and Heated Tobacco Product working groups
- ❖ Analytical methods for cigars
- ❖ Working groups on Consumer Reported Outcomes and 21<sup>st</sup> Century Toxicology (NGPs)



# **The Strengths of CORESTA**



# The strengths of CORESTA

- ❖ **Transparent and inclusive ways of working**
  - global inter-disciplinary participation
  - non-member expertise welcomed
  - annual meetings open to all interested parties
- ❖ **Focus on sharing and advancing scientific knowledge**
- ❖ **Proficiency testing activity supports laboratory accreditation**
- ❖ **Track record supporting development of International Standards**



**Thank you**