

CORESTA Sub-Group TSNA in Air-Cured and Fire-Cured Tobacco

Andy Bailey

Univ. of Kentucky / Univ. of Tennessee

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

- 6 original objectives
 - Subcommittees assigned to address each objective

- 3 objectives completed or dropped

Objectives Completed or Dropped

- Obj. 1: Survey of critical farmer practices – completed
- Obj. 2: Collaborative study to investigate standard deviation of moisture content of marketing packages – dropped
 - Initial moisture content of marketing package not as important as storage environment of marketing packages.
- Obj. 3: Develop standardized nornicotine screening protocol so that baseline levels of nornicotine are comparable in tobacco seed varieties used by investigators - completed
 - Agreed that Univ. of KY screening protocol could be used without adding “LC” to variety name, only include acknowledgement that this protocol was used. If “LC” is added to name, Univ. of KY protocol must be used.

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

■ Objective 4:

Develop a collaborative study which uses HOBO data loggers or similar instruments to collect curing conditions and possible impact of TSNA levels for tobaccos of diverse origins and curing environments. Attempt to standardize placement of equipment.

Chair: Vacant

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

- Objective 4 status: nearing completion
 - Cooperative study conducted in 2008 and 2009 by Virginia Tech and Univ. of TN:
 - directly compare the influence of growing and curing environments
 - compare environmental data from HOBO meters placed on tier rails between tobacco and within tobacco during air-curing of burley.

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

Objective 4 Status

- Results of collaborative experiment:
 - indicated that growing environment also impacts TSNA formation
 - Suggested that at low temperatures, RH has lesser influence on TSNA
- When evaluating TSNA across many environments, too much variability to confirm that higher RH and higher temp always result in higher TSNA.

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

Objective 4 Status

- Collaborative experiment did not directly compare placement of metering equipment.
 - Discussion:
 - meters should be placed in top and bottom tiers of barn
 - When tobacco is not all housed in barn at the same time, meters should be placed in tobacco at each time of housing
 - Meters should be placed within the tobacco
 - Hang from center of stick at same level on plant where sample will be collected
 - Meters should be calibrated each year for accuracy
- Draft will be written on recommendations for placement of meters

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

- Objective 5:

Resolve sample handling of post-cure tobacco for TSNA analysis.

Chair: Marlene Adams, R.J. Reynolds Tob. Co.

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

- Objective 5 status: reevaluation
 - Protocol developed but under reevaluation
 - Protocol should address methods for sampling plants and for sampling bales.
 - Concerns expressed over maximum temperature given on protocol for air-drying samples (35 C)
 - Group agreed to review sampling protocols from various companies to find consensus in sampling methodology.

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

■ Objective 5 status: reevaluation

■ 2 additional sampling protocols submitted for review

- Suggested that samples taken from bales should include 2 samples of at least 0.7 kg per 25 kg bale
- 4th leaf from top of multiple plants, as many leaves as possible
- Whole leaf or lamina can be used for analysis, as long as a homogenous ground sample is analyzed
- Maximum temperature for air-drying should be no more than 30 C
- Temperature for storing ground samples prior to analysis should be no more than -18 C
- At -18 C, storage time of ground samples prior to analysis should not be critical

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

■ Objective 6:

Review issues of post-cure tobacco storage and ventilation parameters.

Chair: Lowell Bush, Univ. of KY

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

■ Objective 6 status: near completion

Experiments have been conducted and data collected.
Report completed.

- Proposed that group should also evaluate post cure storage conditions in areas of Africa
- Checklist will be developed to help facilitate collection of general information on post cure storage practices in Africa

CORESTA Sub-Group

TSNA in Air-Cured and Fire-Cured Tobacco

- New initiatives of group:
 - Development of general guidelines/best production practices for reducing TSNA in air-cured tobacco
 - Future objectives relating to curing environments and post-cure storage for fire-cured tobacco