



TSNA Task Force in Air-Cured Tobacco Report

- **Joint Agronomy / Phytopathology
Study Group Meeting**
 - ◆ **Santa Cruz do Sul, Brazil**
 - ◆ **23 - 28 October 2005**



❑ Coordinator:

- ❑ Gary Palmer

- ❑ University of Kentucky, USA

❑ Liaison:

- ❑ Mark Nielsen

- ❑ GenApps, USA



Previous Meeting

- 2004 CORESTA Congress
 - Kyoto, Japan

Status of Objectives

Objective 1:



- ❑ Develop a standardized nornicotine screening protocol so that baseline levels of nornicotine are comparable in tobacco seed varieties used by investigators

- ❑ **Coordinator and Chair**
 - ❑ Lowell Bush, University of Kentucky

- ❑ The TSNA TASK Force determination
 - ❑ No action is required
 - ❑ Variability among procedures negligible



Objective 1: Revisited

- **Should the TSNA Task Force look at the actual screening process?**
 - ◆ **A process has been developed by the University of Kentucky**
 - ◆ **Principle investigators**
 - **Anne Jack, Lowell Bush, et al.**
 - ◆ **Copyrighted & trademarked**
 - **LC Designation**



Objective 3:

- ❑ **Develop a collaborative study to investigate standard deviation for moisture content within farmer marketing packages among origins**

- ❑ **No projects developed**

Objective 4:



- ❑ Develop a collaborative study which uses hobo loggers or a suitable substitute to collect curing conditions and possible impact of TSNA levels for tobacco of diverse origins and curing environments. Attempt to standardize placement of equipment and sample protocols
- ❑ Status:
 - ❑ A third year of studies is in progress
- ❑ Final report:
 - ❑ 2006 CORESTA Congress in Paris
- ❑ **Coordinator and Chair**
 - ❑ Christina Nicholas, ANITTA

Protocol



- **Air-curing process: record T°C and RH% in the curing place with hobo-loggers;**
 - ◆ describe the curing place (spacing, material, etc.) and the curing process (beginning, end, etc.).

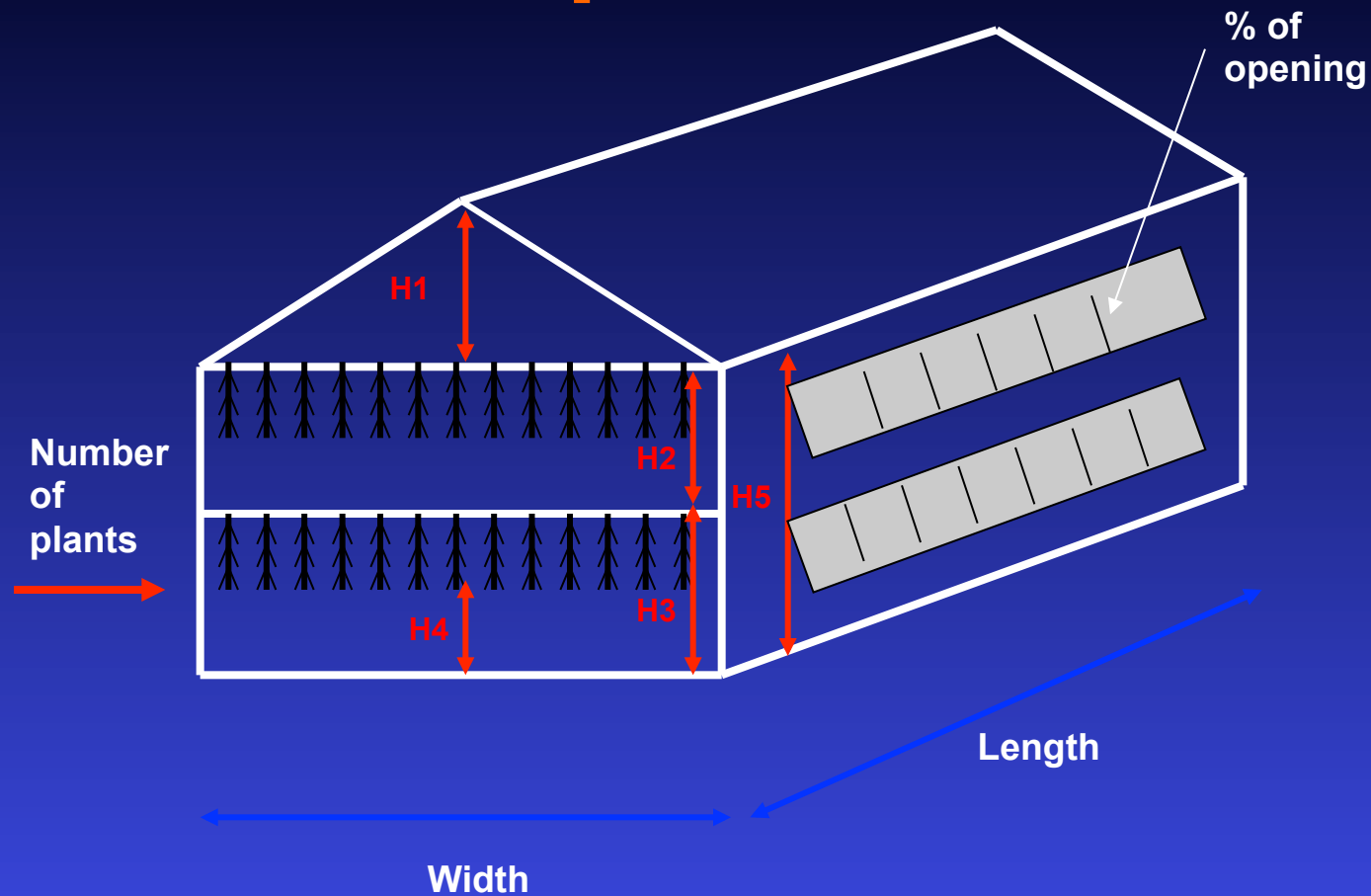
- **Taking-down: take tobacco samples (upper-middle leaves around the hobo-loggers) for TSNAs, NO₂, alkaloids, NN analyses and grading.**

- **On-farm storage: record T°C and RH% in the on-farm storage place with hobo-loggers;**
 - ◆ describe the place for storage (material, size, characteristics of the bales, etc.)

- **End of on-farm storage period: take tobacco samples (upper-middle leaves around the hobo-loggers) for TSNAs, NO₂, alkaloids, NN analyses and grading.**



Description of Barn





2004

- ❑ 4 participating Organizations:
 - ❑ Colombiana de Tabaco S.A., Columbia
 - ❑ Francisco Palacio
 - ❑ 3 sites
 - ❑ Reynolds American Inc., USA
 - ❑ Marlene Adams
 - ❑ 1 site
 - ❑ JTI, Japan
 - ❑ Hitoshi Saito
 - ❑ 2 sites
 - ❑ Altadis/ITB and ANITTA, France
 - ❑ Christian de Roton and Bruno Fontaine
 - ❑ 10 sites

Collaborators



- ❑ Christina Nicholas
 - ❑ ANITTA
- ❑ Christian de Roton
 - ❑ Altadis/ITB
- ❑ Bruno Fontaine
 - ❑ ANITTA
- ❑ Cliff Bennet
 - ❑ U.S. Smokeless Tobacco
- ❑ Hitoshi Saïto
 - ❑ JTI
- ❑ Francisco Palacio
 - ❑ Colombiana de Tabaco S.A.
- ❑ Colin Fisher
 - ❑ Universal Leaf Tobacco
- ❑ Marlene Adams
 - ❑ R. J. Reynolds Tobacco Company



Objective 5:

- To resolve sample handling of post cure tobacco for TSNA determination.
- STATUS:
 - ◆ Sampling Protocol was submitted to Scientific Commission for review.
- **Coordinator and Chair**
 - Marlene Adams, R. J. Reynolds Tobacco Company



Sampling Protocol

- For all samples regardless of type (stem, lamina, green, or cured) the most critical features to insure accurate data are:
 - ◆ Moisture content
 - ◆ Temperature (length of exposure time can interact to increase TSNA levels)
 - ◆ Sample size



Other Considerations

- **Stems should always be separated from lamina prior to analysis.**
- **For a representative sample, take a leaf from multiple plants at the 4 to 6 leaf position from the top.**
- **For sampling cured leaf, ensure the sample is as dry as possible, $< 18\%$; however, excess heat should be avoided. (In processing this may be done prior to re-drying)**



Sample Processing

- Preferred method
 - ◆ Freeze-drying
- If freeze-drying is not available
 - ◆ Dry with low humidity not heat
 - ◆ Air dry in low humidity environments but ambient temperatures should not exceed 35 C
 - ◆ 35 C should be the absolute maximum temperature, but should include forced air in humid areas or, if oven dried, as temperature approaches 35 C
 - ◆ Even samples with low moisture may have significant increases in TSNA if temperatures exceed 35 C
 - ◆ Do not over fill dryer, allow space for air flow



Sample Processing

- **A ground sample is best**
 - ◆ **More homogeneous and easily mixed**
 - ◆ **Cuts down on turn-around time for sample results**



Objective 6:

- To review the issues of post cure tobacco storage and ventilation parameters.
- STATUS:
 - ◆ A coordinator is need.



TSNA TASK FORCE MEETING

- Tuesday October 25, 2005
- 1:30 pm



Web Site

- www.uky.edu/Ag/Tobacco/CORESTA.htm