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

Victoria Falls

13 October 2019

Sub-group Objectives:

1. Document - placement of data loggers in curing barns
   - data logger calibration
2. Sampling
   (a) Sampling method of post-cure tobacco
   (b) Optimal method for sample preparation
3. Collect TSNA presentations and papers; publish on CORESTA website

2a. Bales sampling method development

Study objectives:

1. Clarify sampling protocol to optimize
   - ➢ sample size
   - ➢ number of samples

to best represent TSNA content of whole bale

2. Necessity of separating lamina from midrib for analysis

2a. Bales sampling method development

- Burley data from two years in US
- Develop a CRM (CORESTA Recommended Method)
- Data analyzed by Mike Morton, Altria
  - Suggested additional sampling
- Flue-cured sampling
  - August 2019 – Universal Brazil
    - 12 bales, 20 samples/bale
    - Data available 2020

2b. Sample preparation

i.e. drying of samples for TSNA analysis

Objective:

Standardize method and temperature within industry for drying samples for TSNA analysis

- 3-year study at University of Kentucky

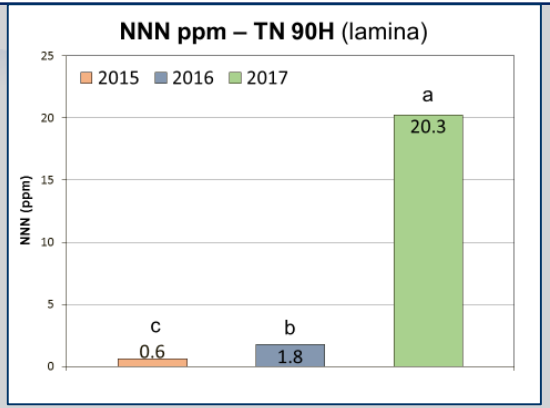
2b. Sample preparation

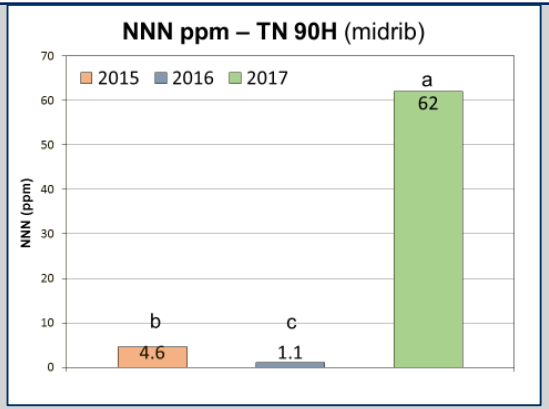
- Treatments
  - Drying
    - Air-dry
    - Freeze-dry
    - 30ºC
    - 35ºC
    - 60ºC
  - TN90 LC, TN90H

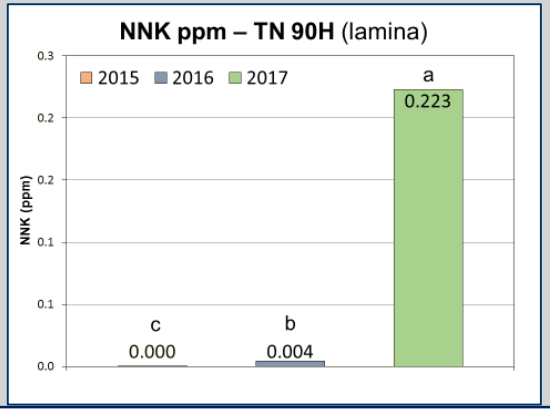
Test samples controlled for all other factors

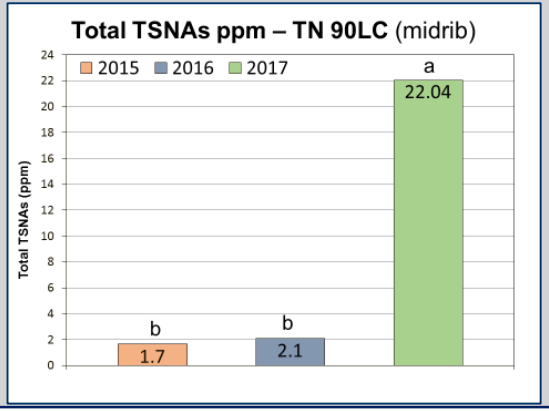
2b. Sample preparation - Results

Seasonal variability of TSNA



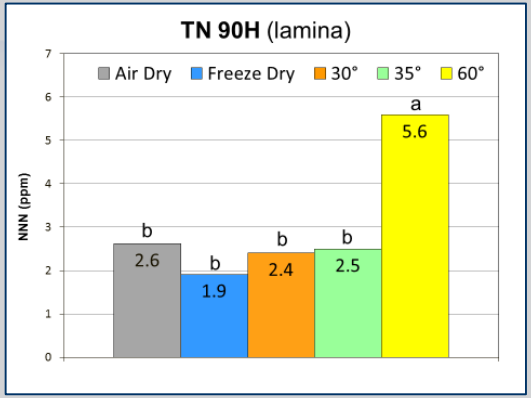


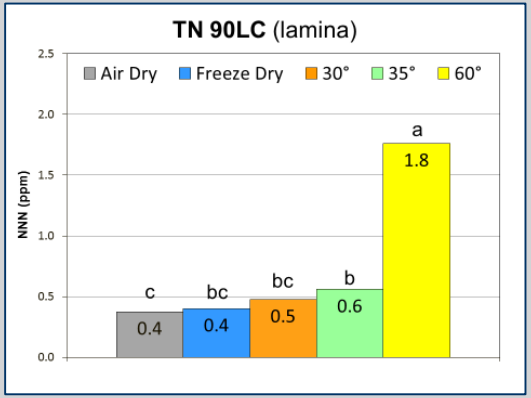


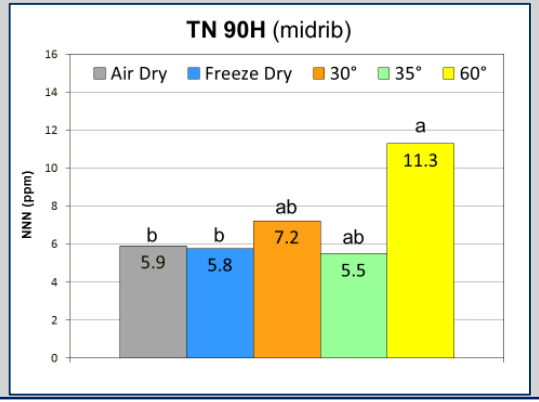


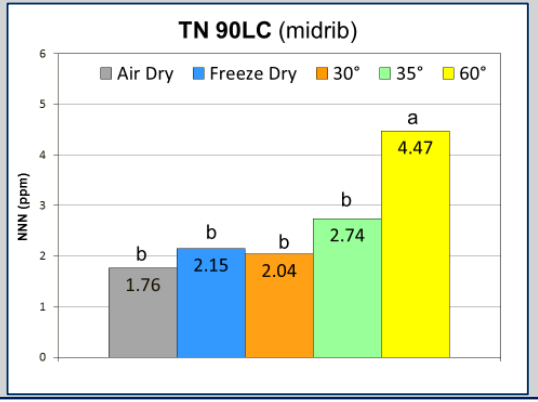
2b. Sample preparation (cont'd)

NNN ppm



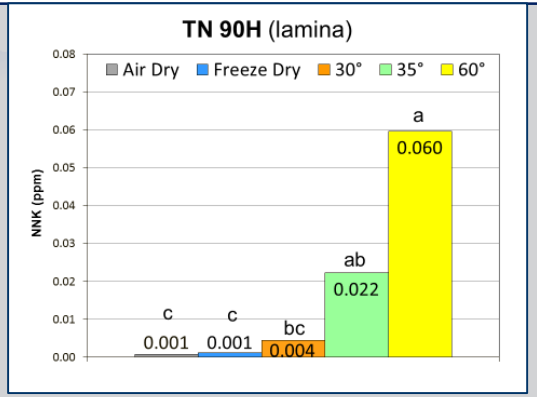


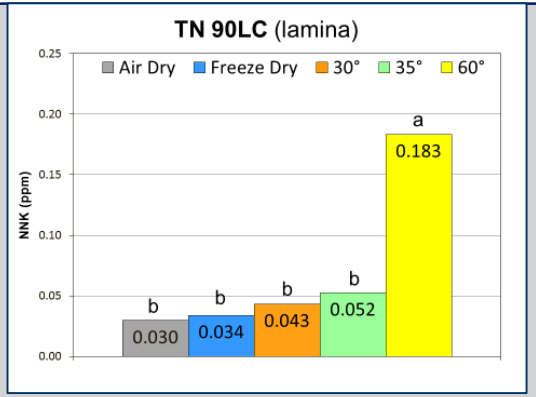


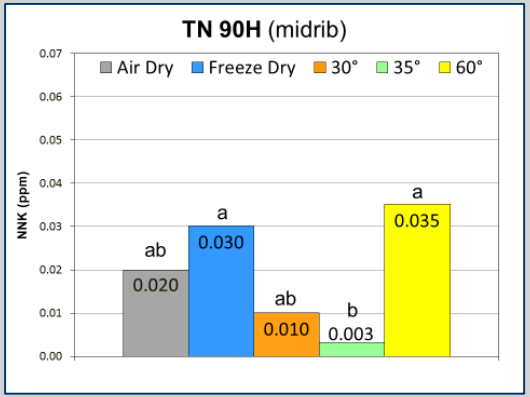


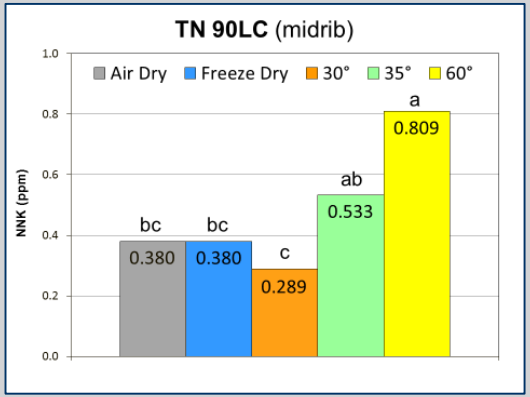
2b. Sample preparation (cont'd)

NNK ppm



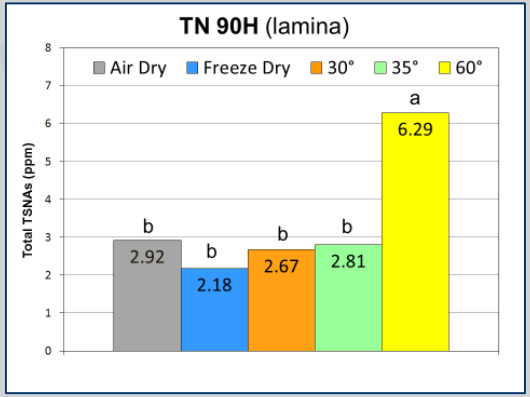


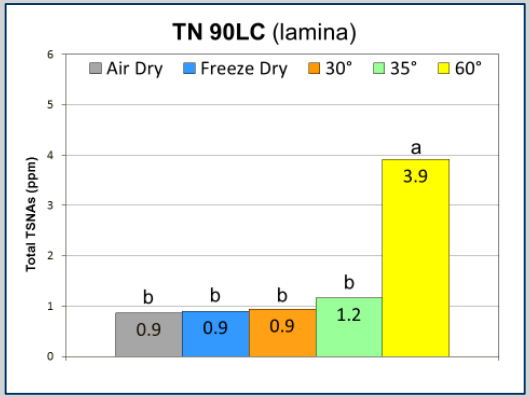


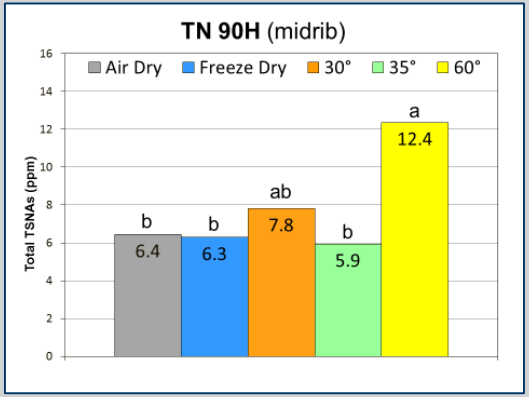


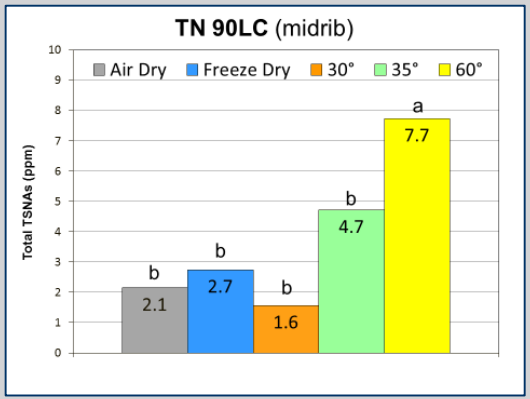
2b. Sample preparation (cont'd)

Total TSNAs ppm









2b. Sample preparation - Conclusion

- Air-dry & 30°C safe
- Freeze dry – necessary if samples are fresh green leaf studies
- TSNA increase if dried or stored at 60°C
  - Transporting samples for TSNA analysis
    - e.g. in car parked in sun for any length of time
- Store samples in cold room at least until dried