



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

Victoria Falls, Zimbabwe

14 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

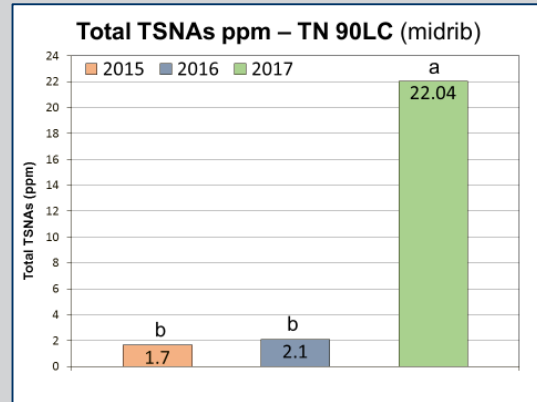
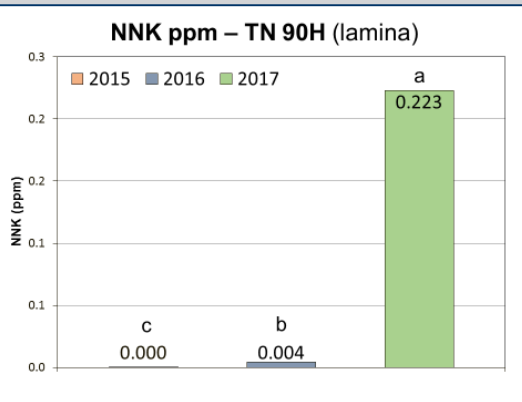
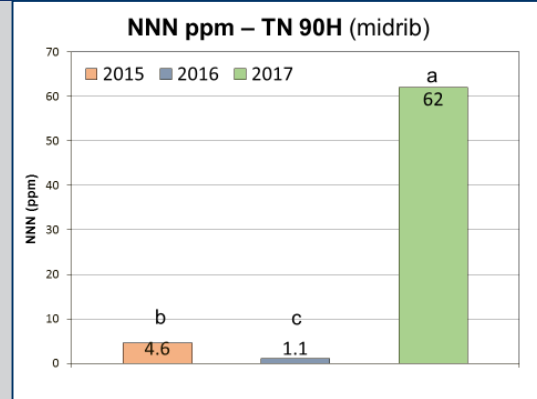
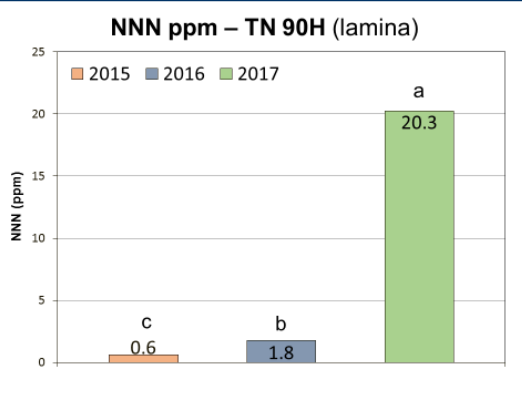
- ❖ Treatments
 - ❖ Drying
 - ❖ Air-dry
 - ❖ Freeze-dry
 - ❖ 30°C
 - ❖ 35°C
 - ❖ 60°C
 - ❖ TN90 LC, TN90H

Test samples controlled for all other factors



2b. Sample preparation - Results

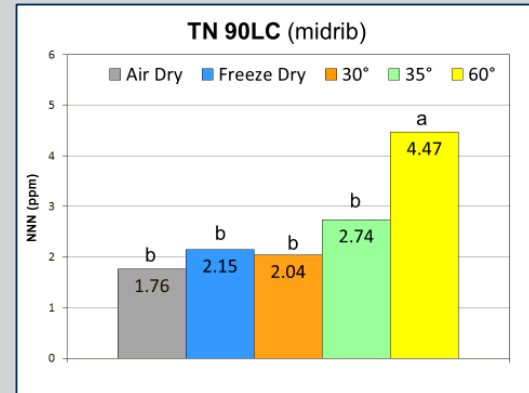
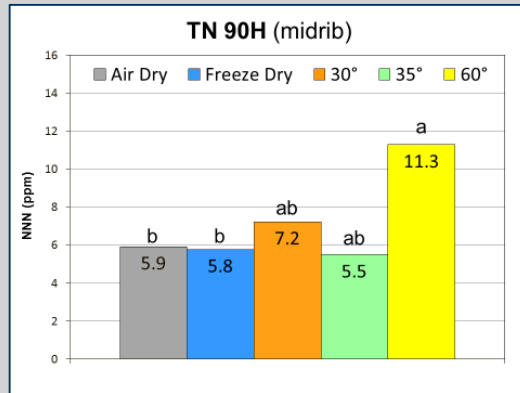
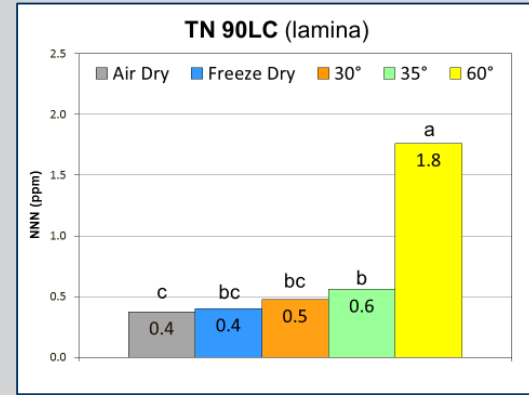
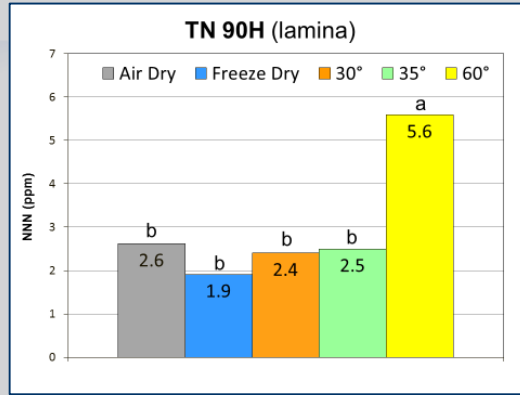
Seasonal
variability of
TSNA





2b. Sample preparation (cont'd)

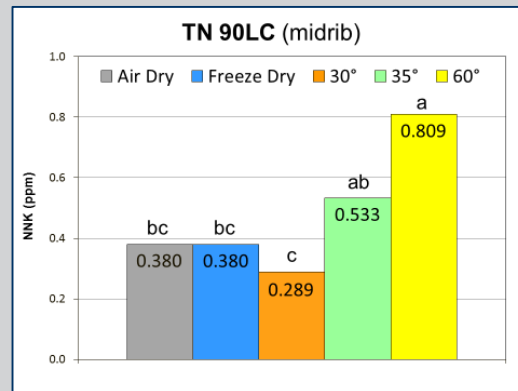
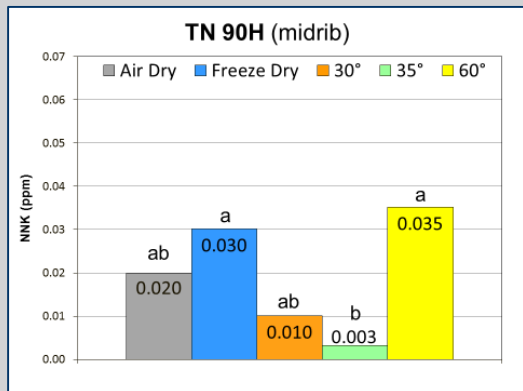
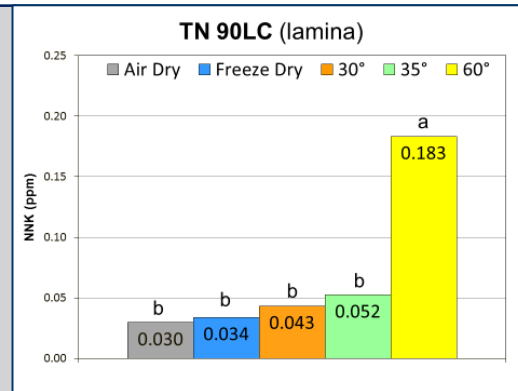
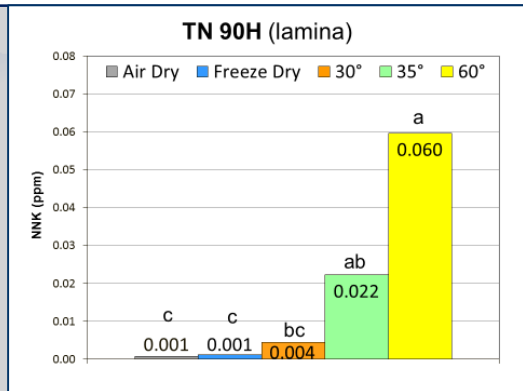
NNN ppm





2b. Sample preparation (cont'd)

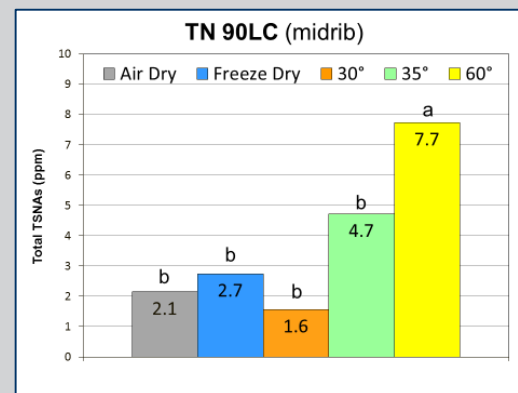
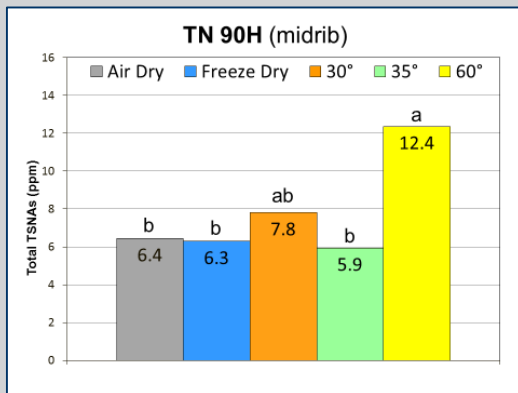
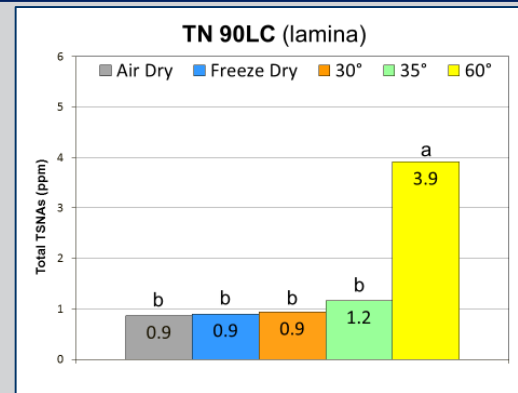
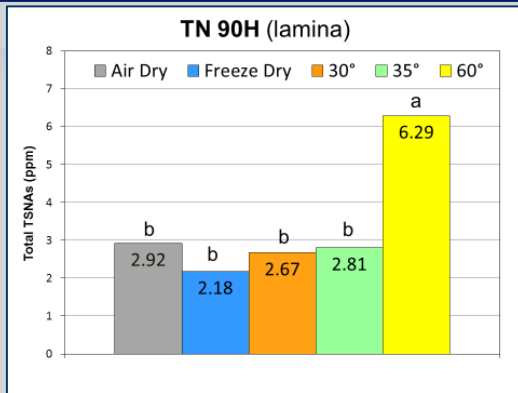
NNK ppm





2b. Sample preparation (cont'd)

Total TSNA_s
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



Comments, questions?