NNN Levels in Stable Reduced Converter (SRC) and LC lines cured under conditions that favor NNN formation.

M. Lusso; K. Lion; A. Adams; W. Morris; U. Warek and J. Strickland

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TSRC
2017

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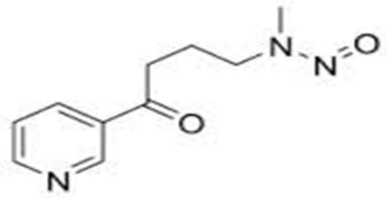
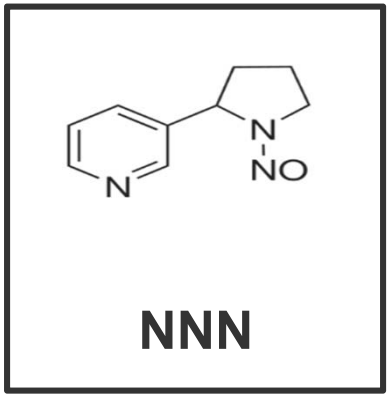
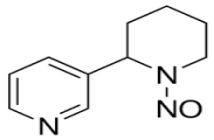
Introduction - TSNAs



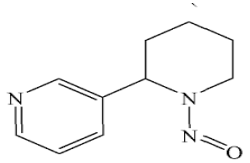
NNK



NNN



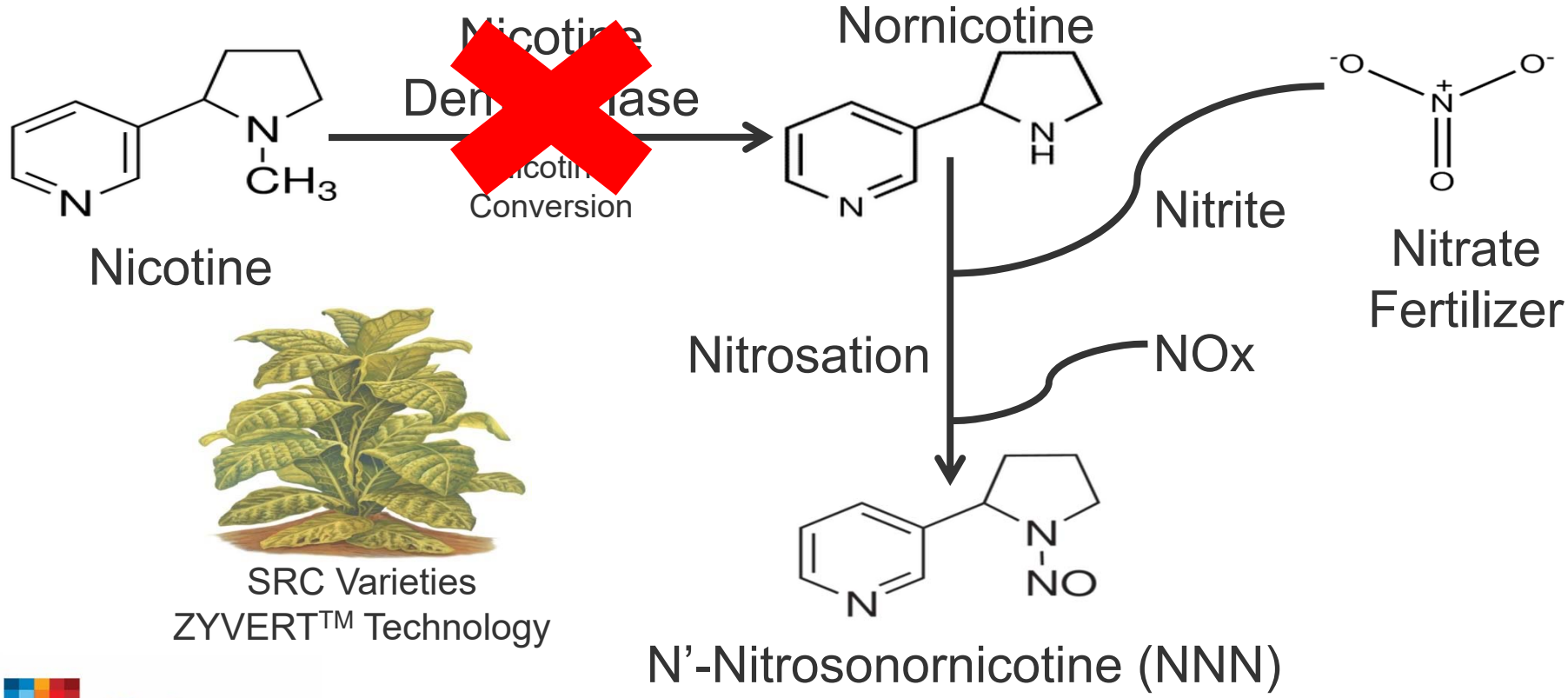
NAT



NAB

- NNN and NNK have been identified by FDA as harmful or potentially harmful constituents in tobacco products

NNN Formation and ZYVERT™ Technology



SRC Varieties
ZYVERT™ Technology

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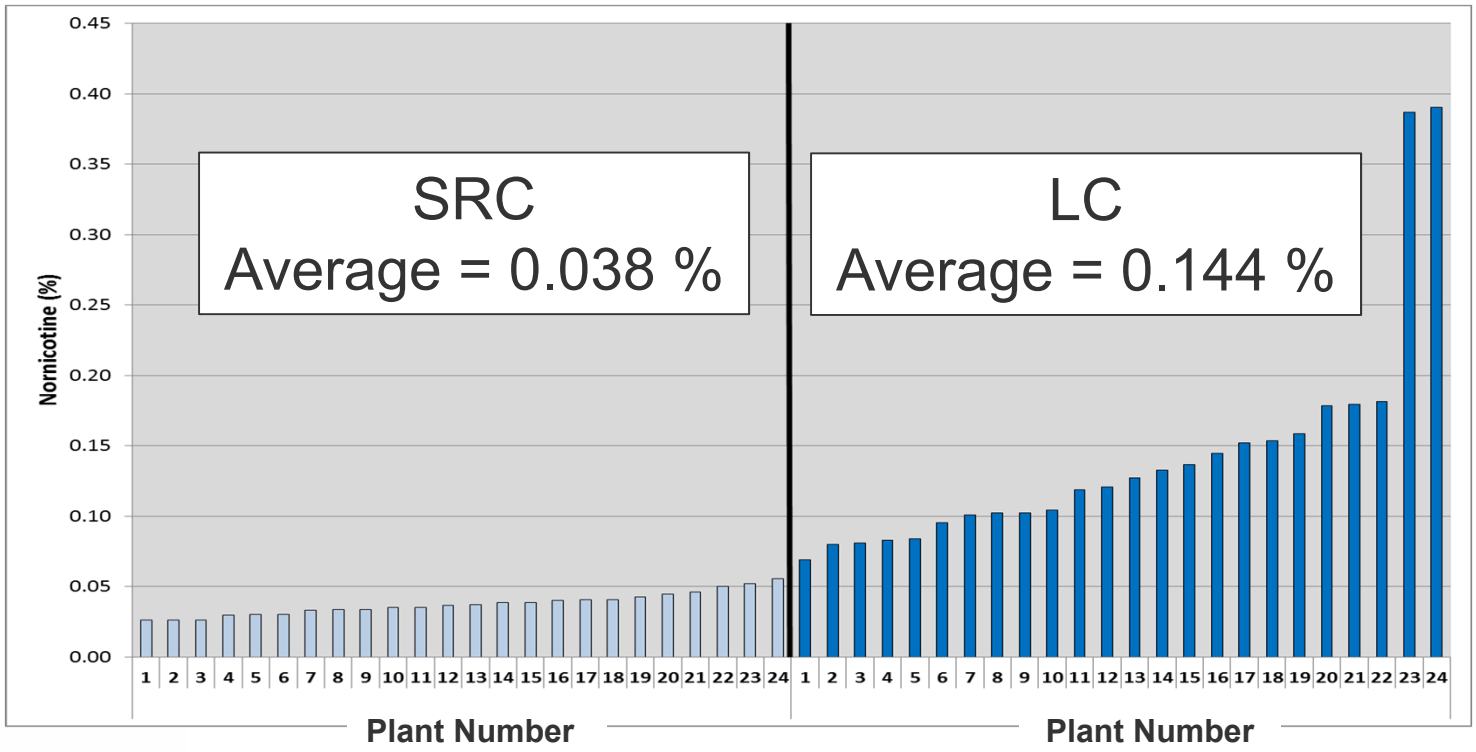
Nornicotine Levels in SRC and LC Plant Populations



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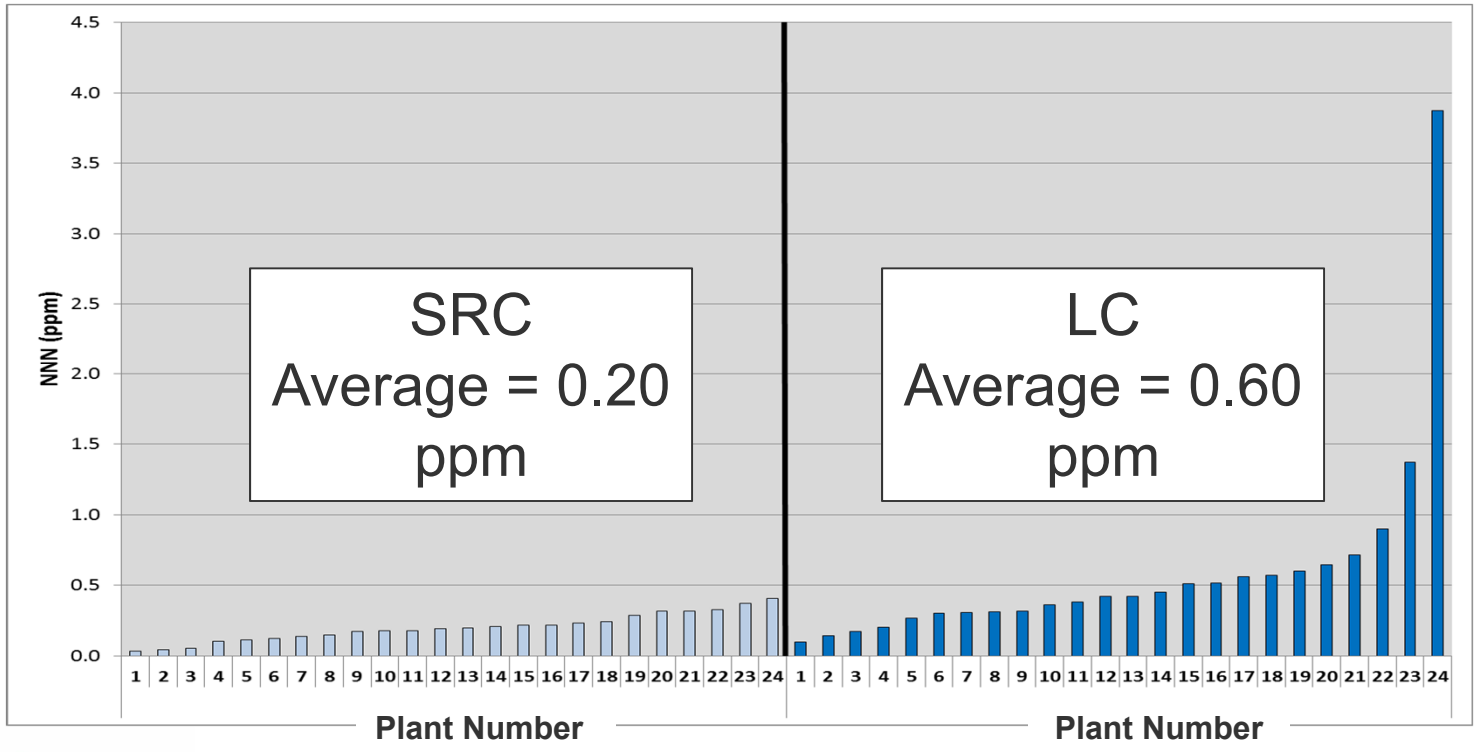
NNN Levels in SRC and LC Plant Populations



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Objective

Evaluate the impact of ZYVERT™ technology in SRC Burley air-cured and SRC Dark fire-cured lines cured under conditions conducive to NNN formation

Parameters:

- Barn Curing Conditions (RH or Temp)
- Nornicotine levels
- NNN levels

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Experiment Design – Burley Air-Cured

- Tobacco Varieties
  - TN90 LC
  - TN90 SRC with ZYVERT™ Technology
- 2 Curing Barns
  - Control Barn
    - Managed according to recommended curing practices
    - 72 sticks (36 LC and 36 SRC) – 6 replications
  - Experimental Barn (Stressed)
    - Managed to maintain high relative humidity during curing
    - 96 sticks (48 LC and 48 SRC) – 6 replications

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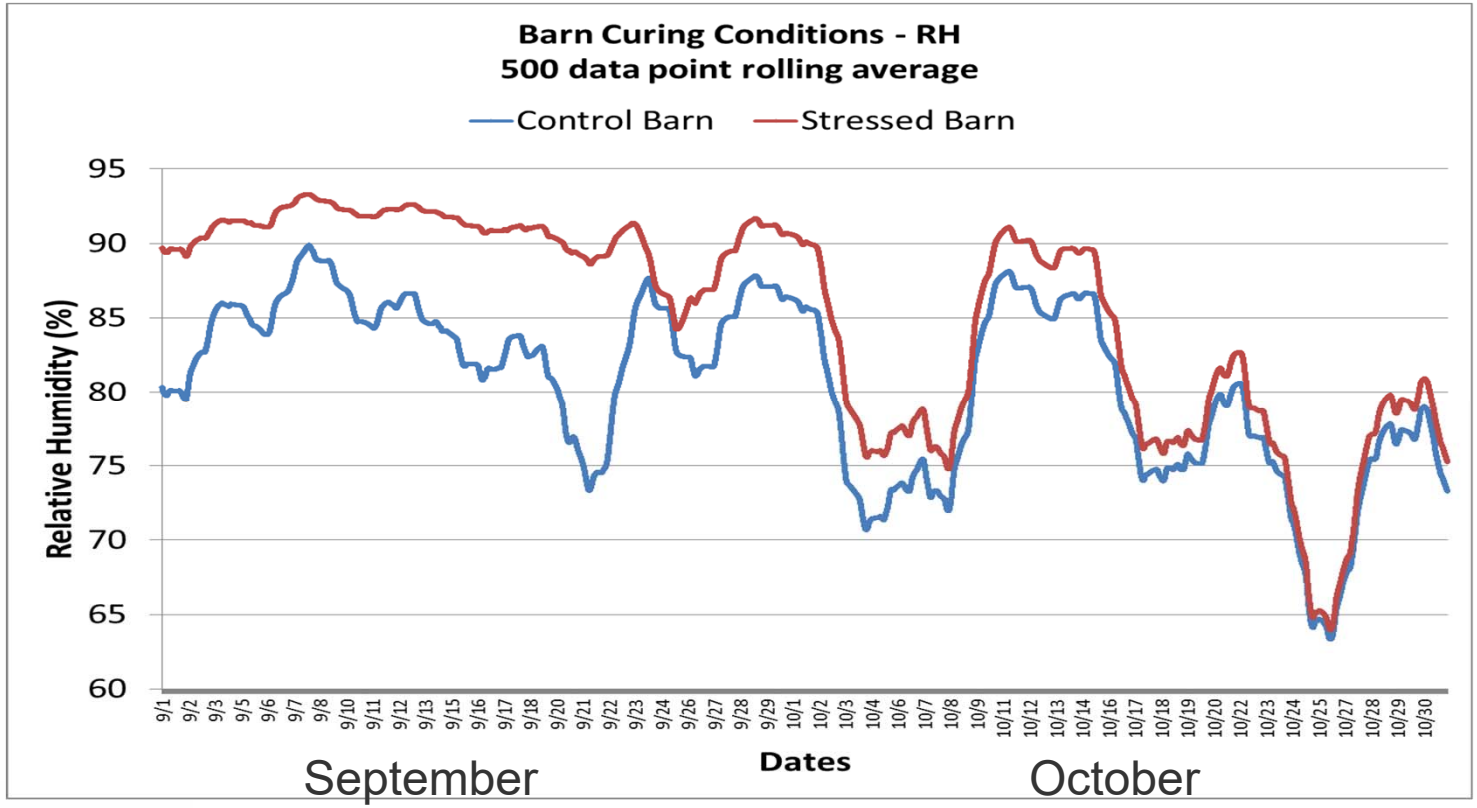
Burley Air-Curing Barn Conditions - RH



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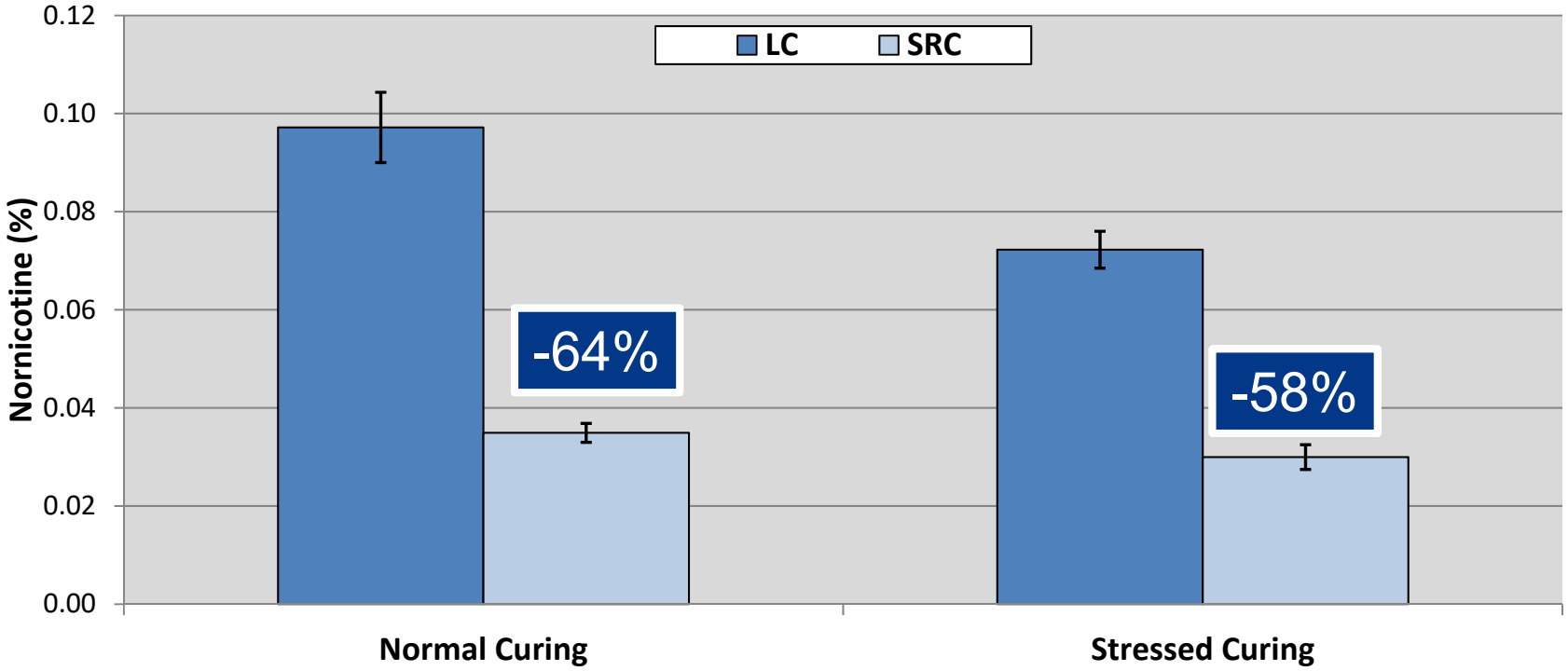
Nornicotine Levels – Burley Air-Cured



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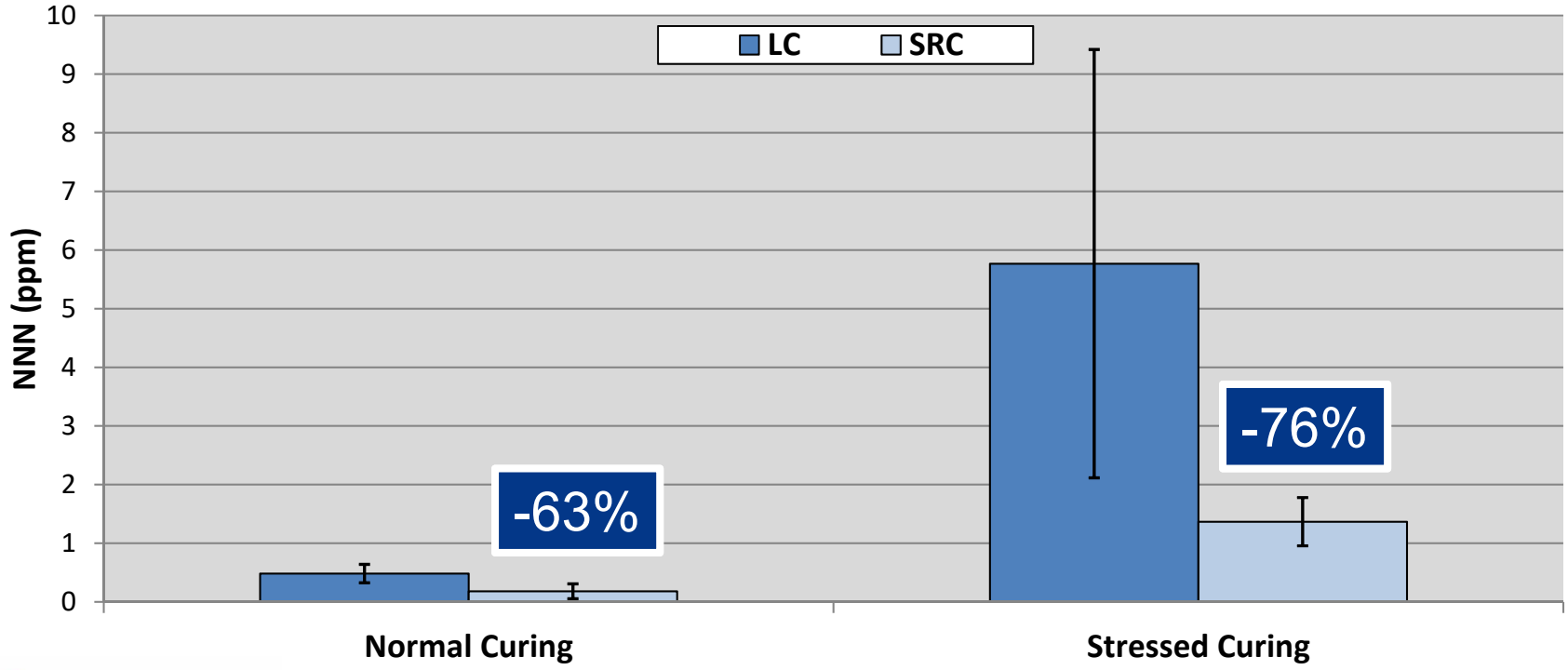
NNN Levels – Burley Air-Cured



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Experiment Design – Dark Fire-Cured

- Tobacco Varieties – grown under standard dark production practices
  - KY171 LC
  - KY171 SRC with ZYVERT™ Technology
- 2 Curing Barns
  - Control Barn
    - Managed according to recommended curing practices
  - Experimental Barn (Stressed)
    - Managed to reach higher temperatures during fires

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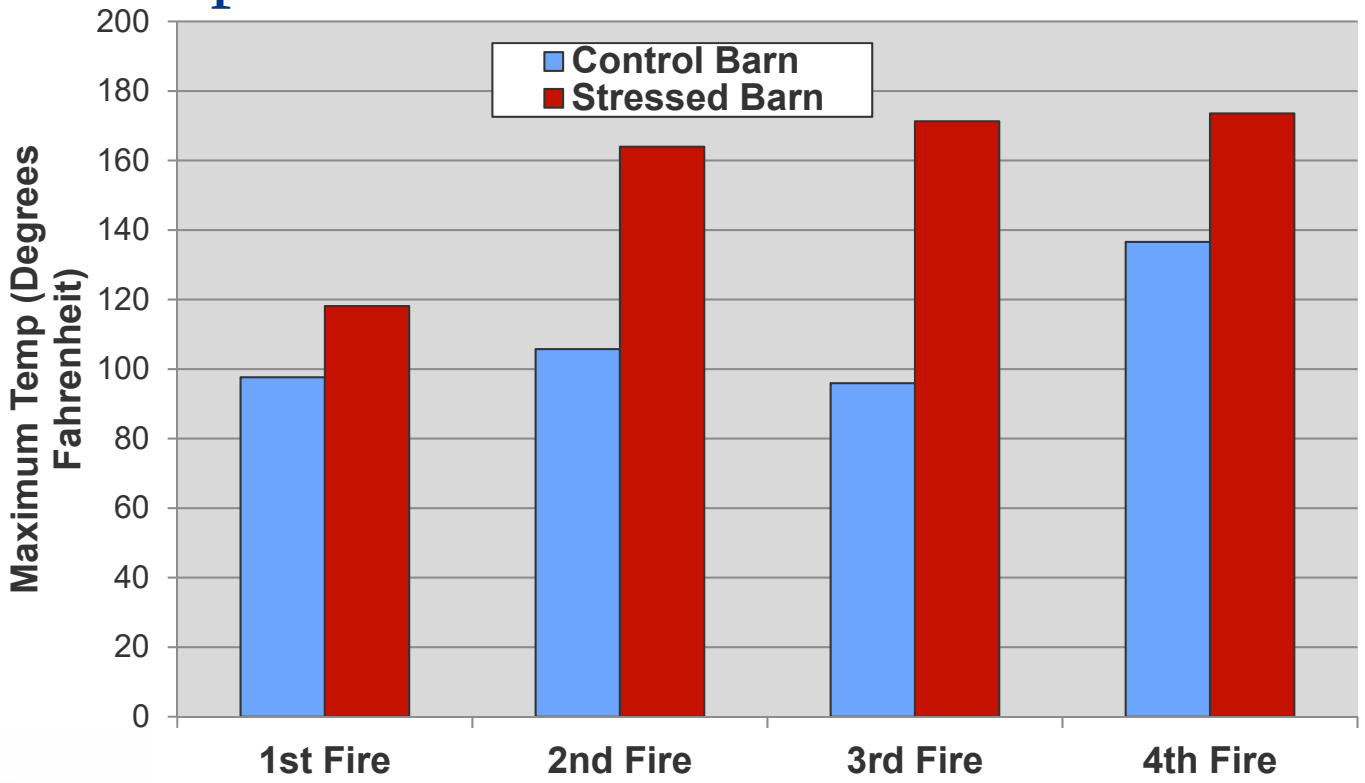
Fire-Curing Barn Conditions – High Temperature



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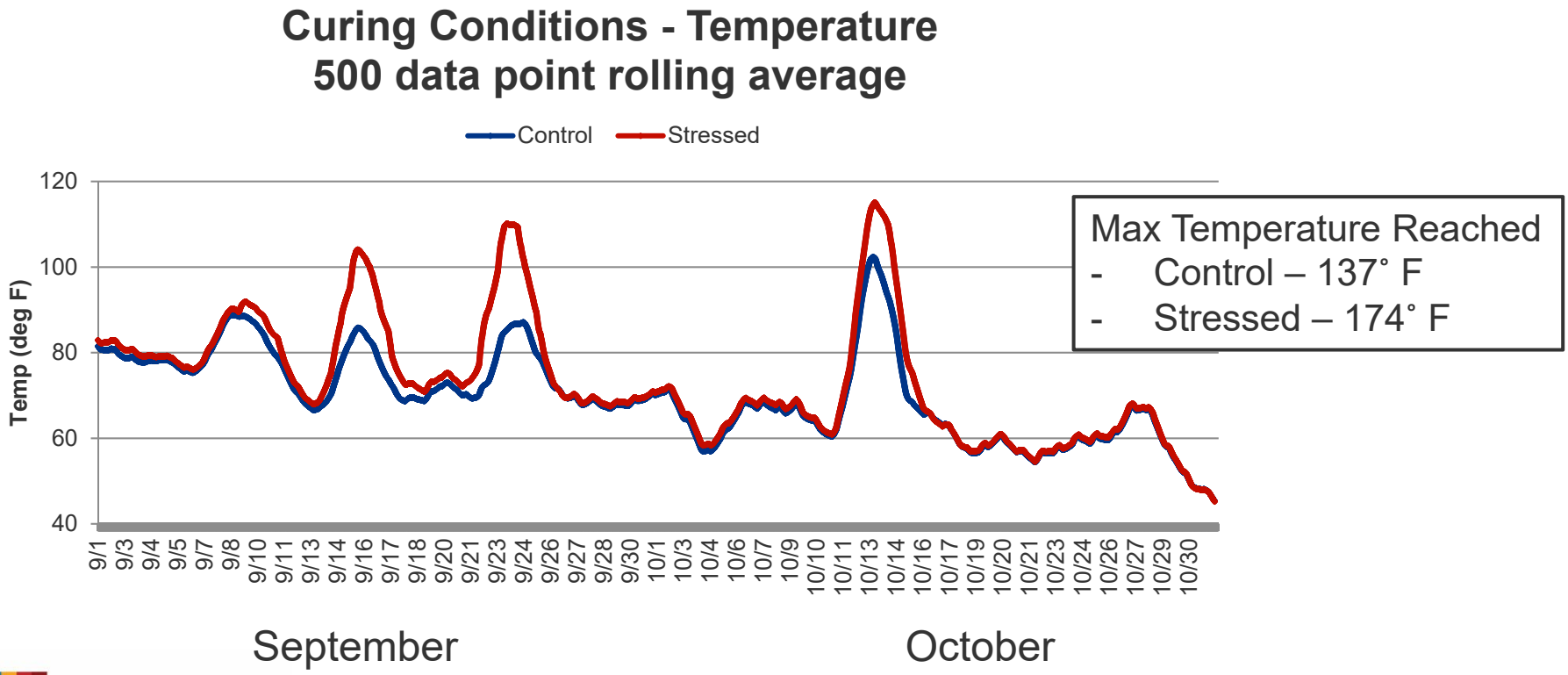
Fire-Curing Barn Conditions - Temperature



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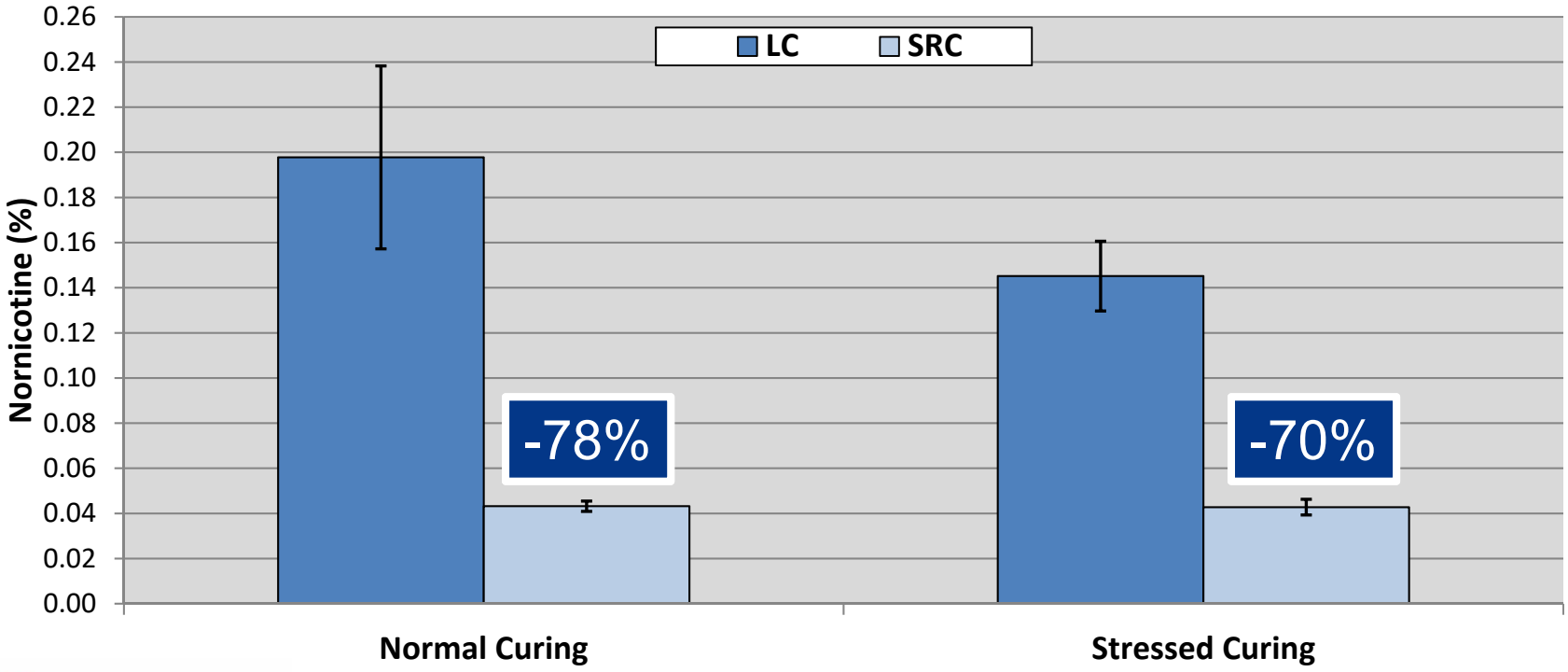
Nornicotine Levels – Dark Fire-Cured



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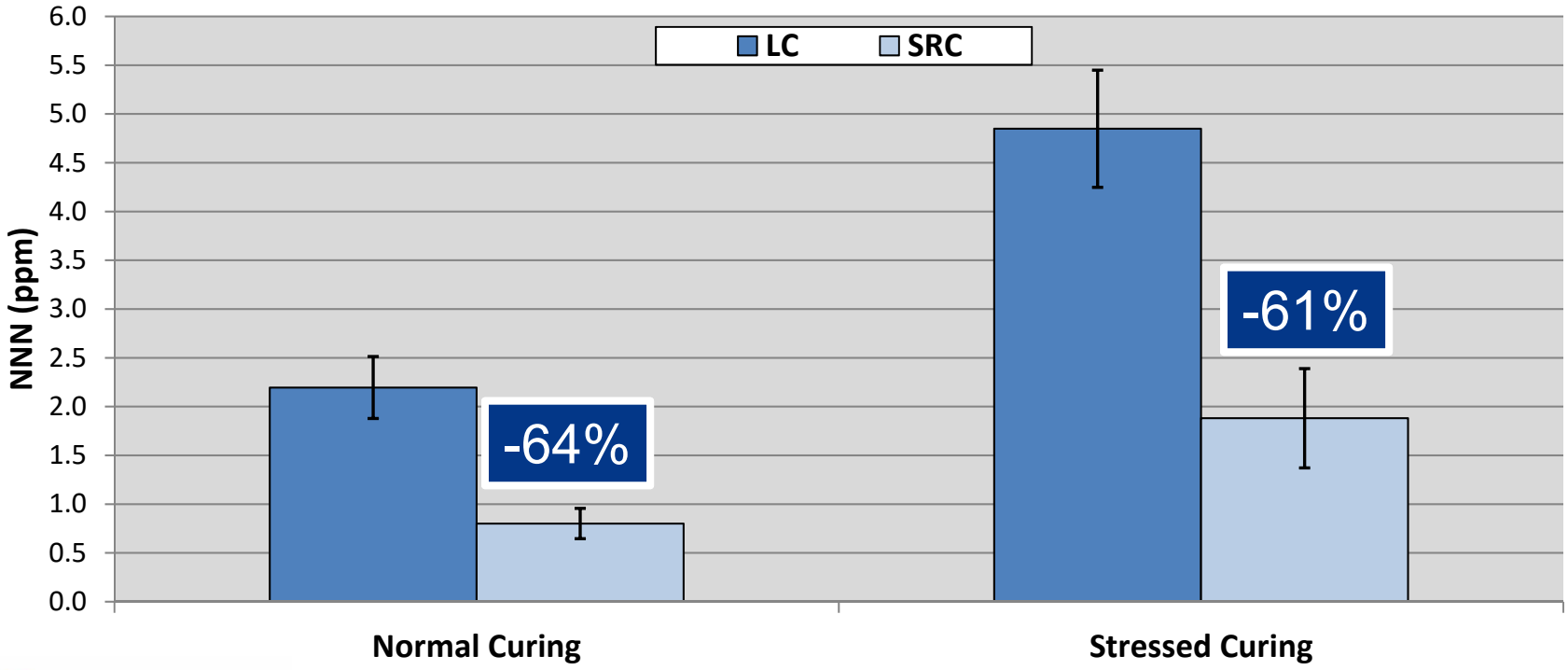
NNN Levels – Dark Fire-Cured



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Conclusions

- Burley and dark SRC tobaccos with ZYVERT™ technology exhibit significant reductions in nornicotine and NNN levels compared to LC variety when cured under recommended conditions
- When cured under conditions conducive to NNN formation, burley and dark SRC tobaccos with ZYVERT™ technology continue to show significant reductions compared to controls
- Curing conditions have a significant impact on NNN formation
- Regardless of curing conditions, SRC varieties with ZYVERT™ Technology reduce NNN levels relative to controls

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