Country-style Ham Technology

-66th Annual Reciprocal Meats Conference-

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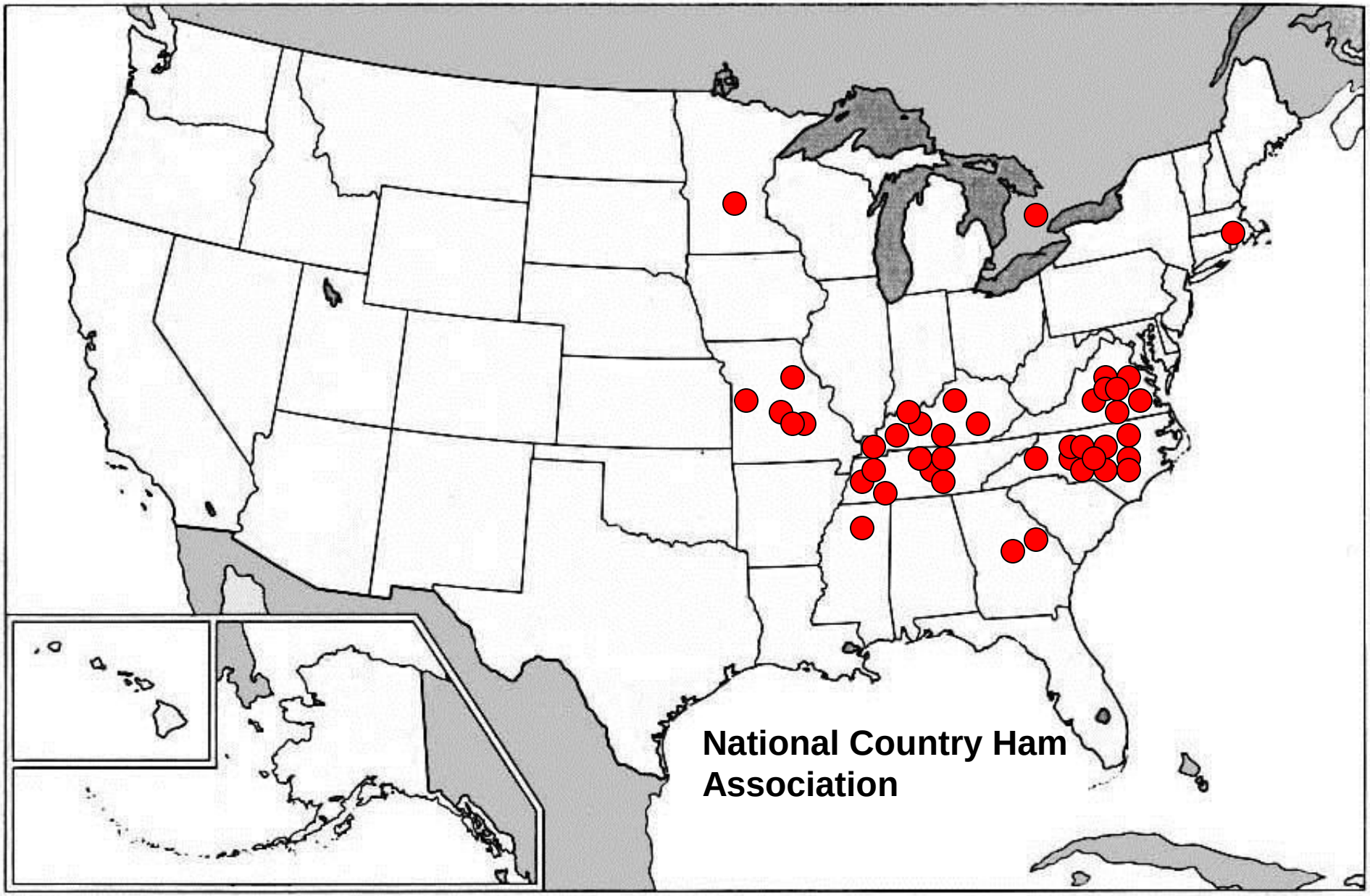
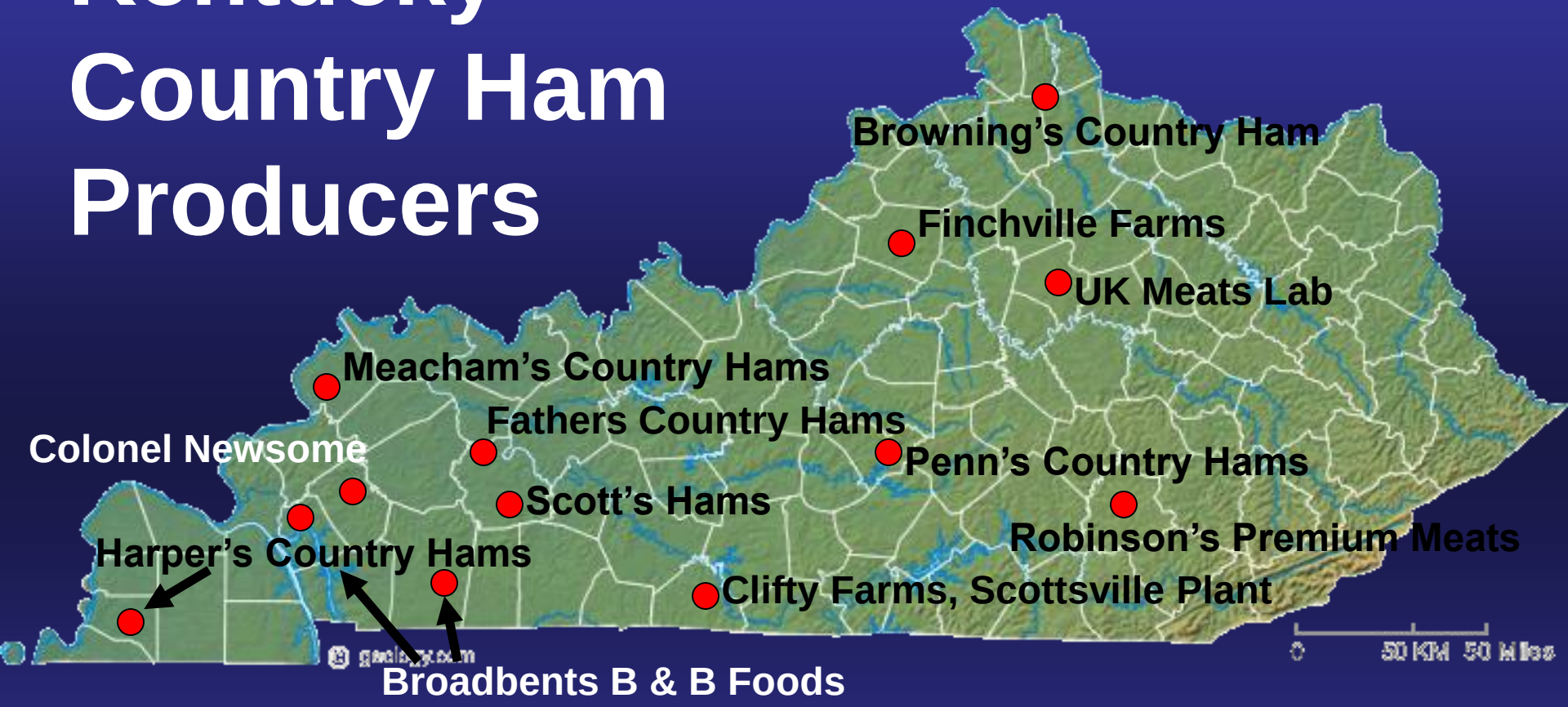
University of Kentucky

What is a Country Ham?

- USDA
  - Uncooked, dry-cured, smoked or unsmoked hind leg of a pig
- Dr. Dana Hanson, Ph.D.; NC-State
  - Redneck cousin to Prosciutto
- Dr. Benjy Mikel, Ph.D.; MS-State
  - Ummmmm good!!!
- A regional delicacy that is part of our heritage in the Southeast


National Country Ham
Association

Kentucky Country Ham Producers



Kentucky Farm Bureau Country Ham Breakfast

2009 Champion Country Ham sold for a record $1.3 million for charity

National Numbers

- Over 35 Country Ham Curers nationally
- Cure 5 – 10% of the ham supply
- Top Ham Producers
    1.) Smithfield Hams, North Carolina
    2.) Burgers' Ozark Country Cured Hams, INC, Missouri
    3.) Clifty Farms, Tennessee and Kentucky

Country Ham History

- Roots in European hams
- The basics have not changed for hundreds of years
- Traditionally, pig slaughtered in the cold months, hams, bellies, shoulders were cured 24h later

Country Ham

- 9 CFR 319.106
- Basic Cure (for 100# of ham)
  - 8lbs Salt, 2lbs Sugar(brown or white), Spices, Nitrate (optional)
- Two methods of curing:
  - Box (1”/week)
  - Bag (2d/lb)

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Harper’s Hams, Clinton, KY

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Clifty Farms, Scottsville, KY

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Salt Equalization

- Usually 10 - 20° F warmer than curing temperature
- Spring time temperatures
- 2 to 3 weeks
- Allow the salt to migrate throughout the ham

Clifty Farms, Paris, TN

Smoking Hams

- After salt equalization
- Cold Smoke
  - 12 hours to 7 days
- Temperatures around 90° - 106° F
  - Below 100°F for flavor and color
  - Above 100°F for Trichina protocol
    - 9 CFR 318.1

Scott's Hams, Greenville, KY

Aging

- aka “Summer Sweat”
- Develop flavor and aroma
- Proteolysis and lipolysis of the protein and fat contribute to the flavor and aroma
- ≈60% Relative Humidity

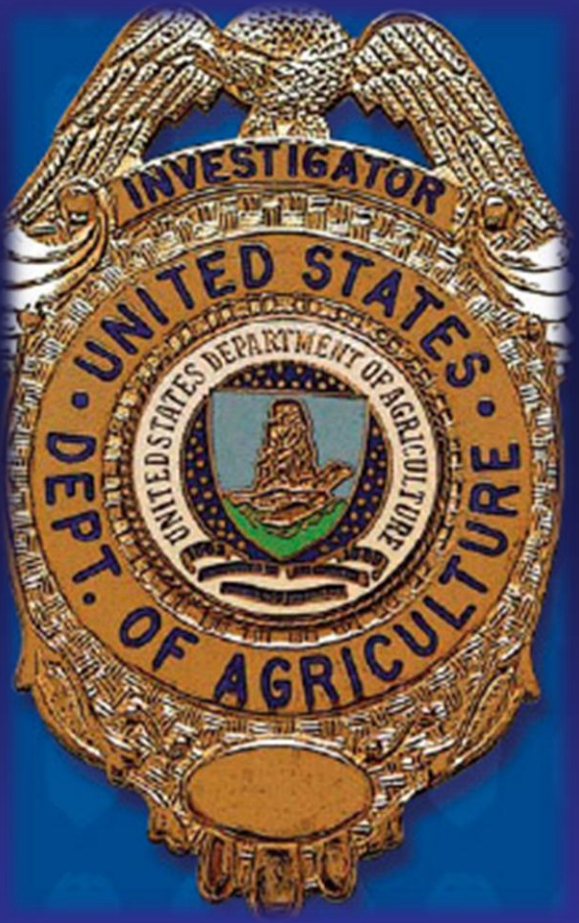
Finchville Farms, Finchville, KY

Finchville Farms, Finchville, KY

S. Wallace Edwards and Sons, INC, Surry, VA

The Law

- **To be labeled a Country Ham**
  - **Must have lost at least 18% of its green weight**
  - **Contain at least 4% salt**



Industry Averages

- Average
  - Aw = 0.88
    - Range 0.74 – 0.93
  - Salt content = 6.5%
    - Range 4 – 9.7%
  - ph = 6.1

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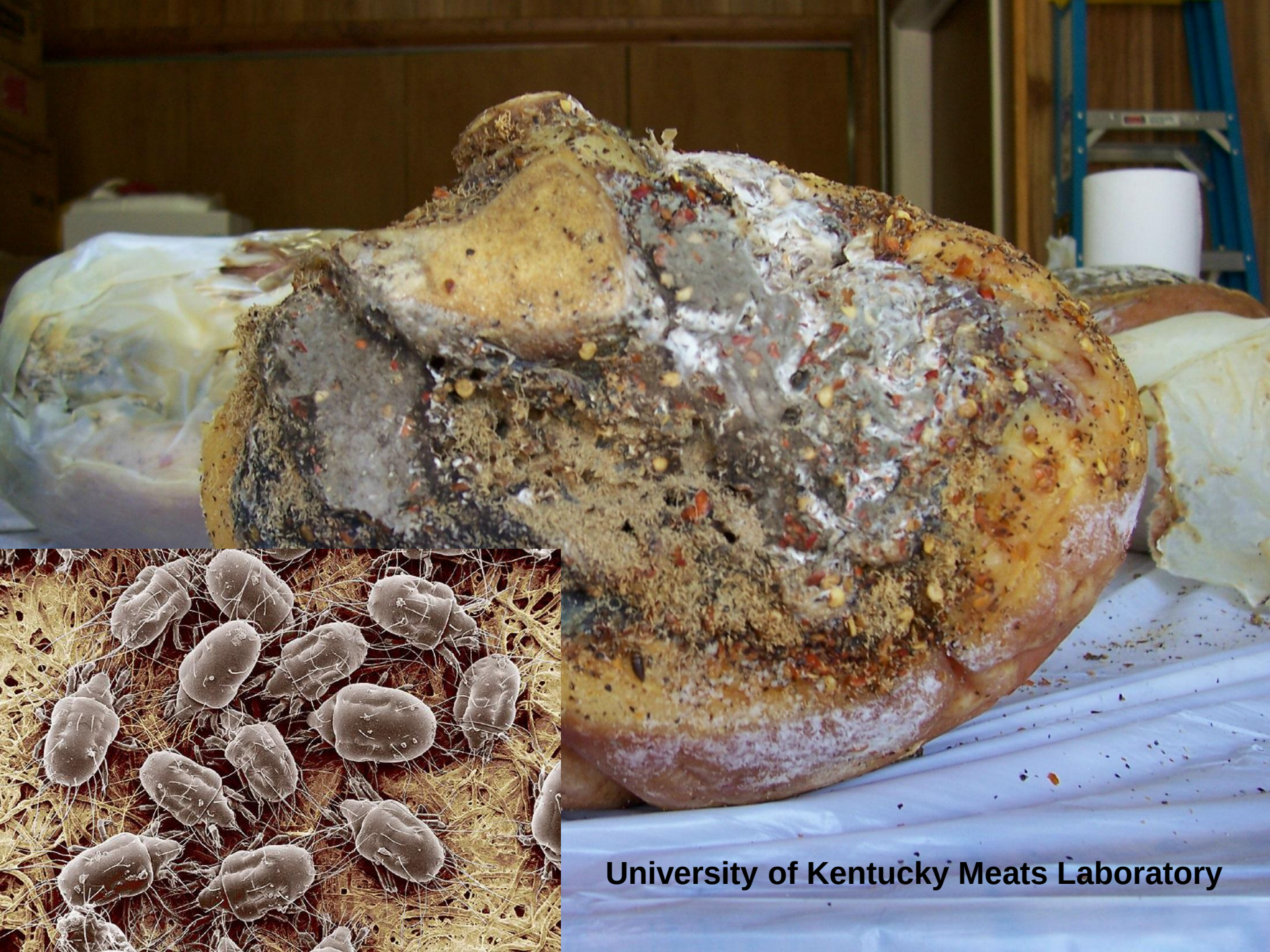

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Mississippi State University

Controlling Pests

- Ham Mites #1 concern
- ≥ 5 months
- Methyl bromide & Sulfuryl floride (ProFume)
- Freezing & Sanitation
- Unapproved/country remedies
  - Borax
  - Phostoxin

Alternatives for Methyl bromide

Fumigants	Ham mites	Red-legged ham beetles	Conclusions
Sulfuryl fluoride	Ineffective at egg stage even when applied at 3 times label rate	Effective at all life stages below the label rate (32.1g/m^3)	Has potential to control red legged beetles
Phosphine	100% mortality at 1000 ppm for 48hrs at 77 F Below legal residue limit (0.01ppm)	100% mortality at 400 ppm for 48hrs at 77 F	Potential alternative to methyl bromide Need further evaluation under real world conditions
Carbon Dioxide	100% mortality at 60% concentration for 144hrs at 77 F	100% mortality at >80% concentration for 144hrs at 77 F	Not practical to fumigate for 144hrs at high concentrations
Ozone	100% mortality at 175ppm for 48hrs at 77 F	100% mortality at 175ppm for 48hrs at 77 F	Not able to penetrate surfaces well, and therefore may not work well in real world applications

W. Schilling, MS-State University

S. Wallace Edwards and Sons, INC, Surry, VA

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Broadbent's B&B Foods, Katawa, KY

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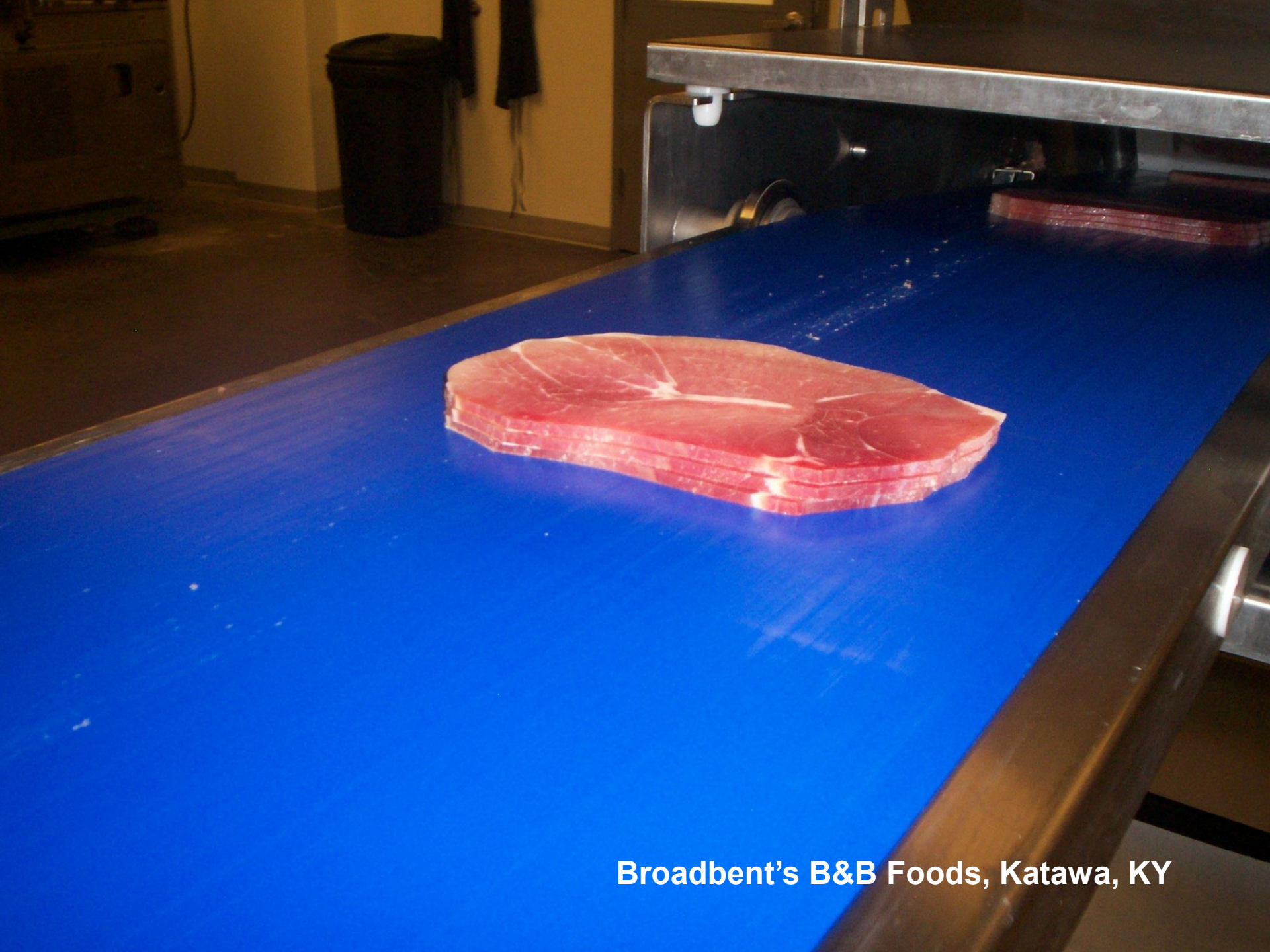
Broadbent's B&B Foods, Katawa, KY

Burger's Smokehouse, California, MO

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Father's Hams

Father's Hams

Broadbent's Hams

Father's Hams

S. Wallace and Sons

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Goodnight Hams