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# Innovation Center for U.S. Dairy Food Safety Committee Overview



Vinny Poduval  
October 28, 2019



**The Innovation Center for U.S. Dairy**  
works across the dairy value chain to  
**align, promote and speak with a unified voice**  
about the good work of farmers and the dairy community





## 27 Board Companies

200+ companies  
engaged

Committees/Taskforces

Sustainability Alliance

Common Voice Network



LAND O'LAKES, INC.



# Innovation Center for U.S. Dairy

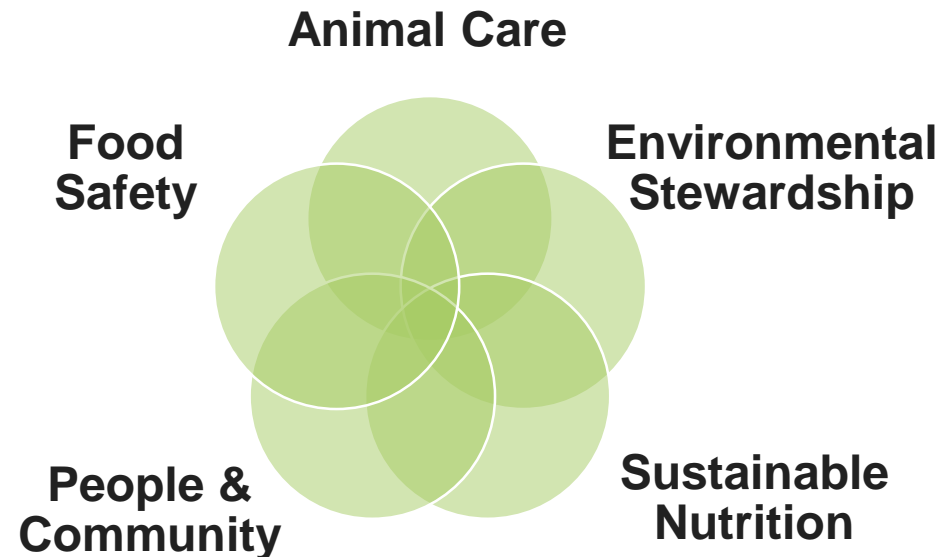
## Vision

- *People trust dairy as essential to their lives*

## Mission

- *Working together to ensure an economically viable and socially responsible U.S. dairy community from farm to table*

## CORE AREAS OF FOCUS



*Supported by Communications and Global Insights*



# Food Safety Committee

*Strengthen manufacturing practices in all dairy processing facilities and advance science-based tools to diminish food safety risks that could compromise the reputation of the U.S. dairy industry*

- Best Practice Sharing
- Training
- Guidance Tools
- Research
- Traceability
- Dairy's liaison



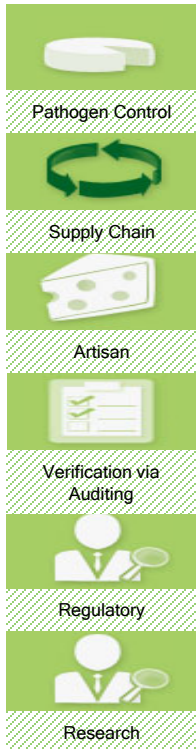
# Innovation Center Food Safety Team

- Jeremy Travis - **Hilmar Cheese & Ingredients**
- Dave Kedzierski - **Agri-Mark Cabot**
- Alejandro Mazzotta - **Chobani**
- Marie Tanner - **DFA**
- Eric Van Den Heuvel - **Foremost Farms**
- Jonathan Fischer - **HP Hood**
- Ben Warren - **Land O'Lakes**
- Edith Wilkin - **Leprino Foods**
- Joe Delaney - **Prairie Farms**
- Greg Desautels - **Saputo**
- Vijay Krishna - **Sargento Foods Inc**
- Vinith Poduval - **Schreiber Foods**
- John Boortz - **Tillamook**
- Steve Baxley - **United Dairymen of AZ**
- Brian Kraus – **Wells Enterprises**
- Steve Ballard - **Ballard Cheese**
- John Allan - **IDFA**
- Tim Stubbs, Chad Galer, Bill Graves, Greg Miller - **DMI**
- Dave Cook, Jim Mueller, Mary Wilcox - **Facilitators**
- **75+** additional Subject Matter Experts



# Food safety action platforms

Strengthen manufacturing practices in all dairy processing facilities and advance science-based tools to diminish food safety risks that could compromise the reputation of the U.S. dairy industry



- *Dairy Plant Food Safety* Workshops
- Supplier Food Safety Management
- Pathogen Control Guidance Documents
- *Listeria* Research Consortium
- Artisan / Farmstead Food Safety
- Verification via Auditing
- Regulatory Roundtable
- Traceability





# Innovation Center Food Safety Teams

## Innovation Center Committee



## Artisan Cheese Advisory Team



## Artisan Ice Cream Advisory Team



## Strategic/Activation Partners

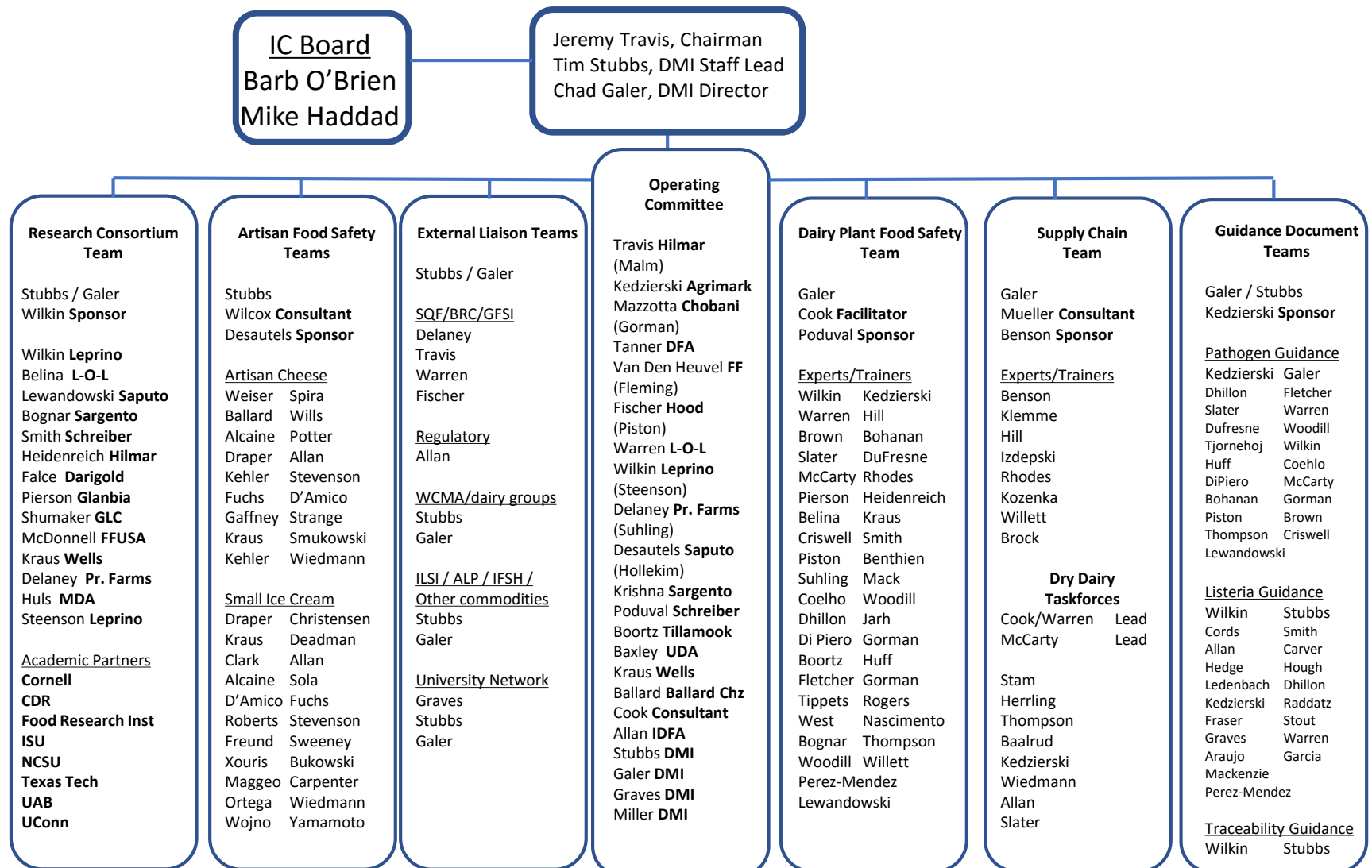


## Listeria Research Consortium



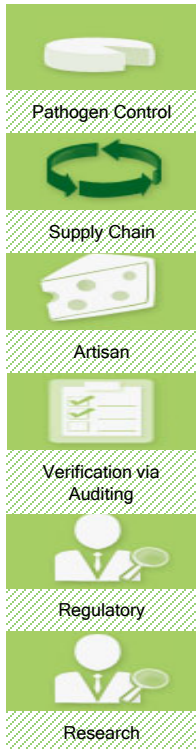


# IC Food Safety – Powered by Industry Volunteers



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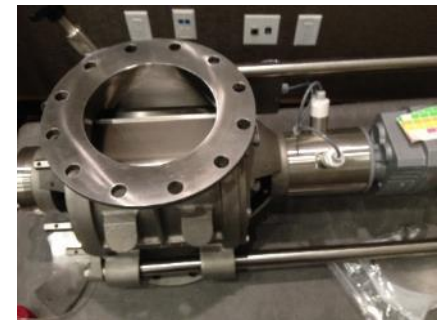
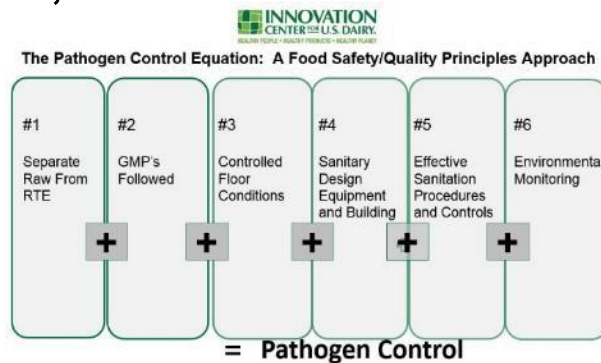
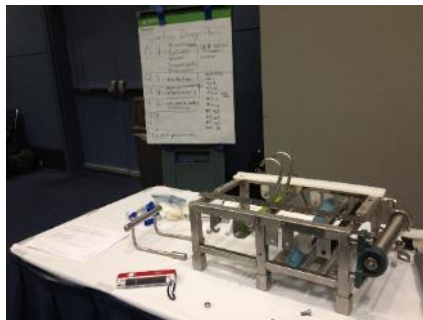
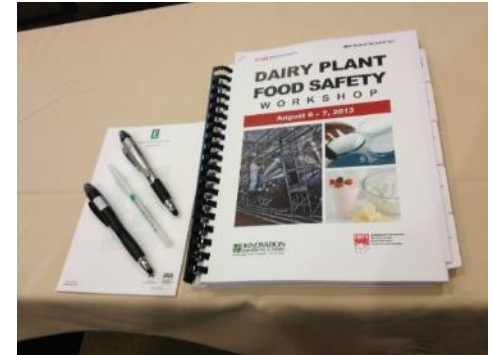


- ***Dairy Plant Food Safety Workshops***
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# Dairy Plant Food Safety Workshop

- Two day workshops
- Volunteer industry expert trainers
- Lectures, hands-on exercises, peer learning, expert Q&A
- Started 2011, 42 sessions, 2320 trained
- Traditional and “Dry / Powders” versions
- Online tools, guides, checklists





Food Safety Workshop

# Pathogen Equation

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# The Pathogen Control “Equation”: A Food Safety/Quality Principles Approach

## Food Safety Culture

#1

Separate  
Raw From  
RTE

#2

GMP's  
Followed

#3

Controlled  
Conditions

#4

Sanitary  
Design  
Equipment  
and Building

#5

Effective  
Sanitation  
Procedures  
and Controls

#6

Environmental  
Monitoring

+

+

+

+

+

= Pathogen Control

## # 3 Controlled Conditions - Infrastructure

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- Floors
- Roofs
- Walls
- Utilities
- Construction
- Unplanned Events



## #4 Sanitary Design – Equipment and Building

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### ■ 10 Point Sanitary Design Checklist

#### ■ Trained Professionals

- Quality team
- Sanitation team
- Engineering team

#### ■ Avoid

- Niches
- Sandwiches
- Threads

## #5 Effective Sanitation Procedures and Controls

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### ■ Policy and SOP

- Roles and Responsibilities
- Training
- Auditing

### ■ Maintenance and Construction controls

### ■ 7 Step Process

### ■ Validation and Verification

## #6 Environmental Monitoring

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- Zone Based
- Verify Effectiveness of Controls
- Seek and Destroy
- Data Trending and Analysis
- Escalation Plans

# I. Pathogen Control Programs (PCP)

## ■ Objective

- ❑ Raise the bar on environmental pathogen control by implementing the Pathogen Control Equation as a checklist of principles
- ❑ Use the checklist at your plant or company to bring a fresh perspective to pathogen control – gather a cross functional team to complete the checklist
- ❑ Establish Minimum Expectations

### Minimum Expectation

Cross traffic (RAW to RTE) is controlled due to effective procedures. Traffic barriers such as rails, fences, vestibules, walkways, are used as active control measures. Traffic plans and zoning maps are developed, implemented and followed for employee and other traffic in the facility

### Best Of Class

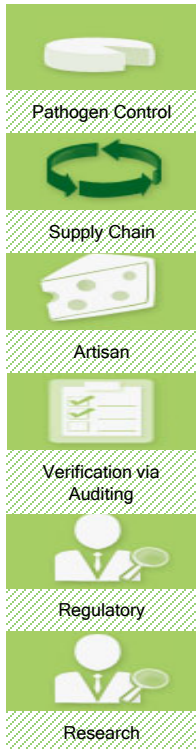
(Minimum Expectations +)  
There is clear active separation of RAW and RTE areas using physical walls or barriers which prevent undesired behaviors.

## ■ Key Elements

- ❑ **PCP checklist**
- ❑ **Internal Assessments** based on PCP checklist
- ❑ **Training program for the dairy industry** developed by SMEs based on PCP documents and hosted by IDFA
- ❑ **Continuous improvement** from SMEs, using surveys, together with the dairy industry

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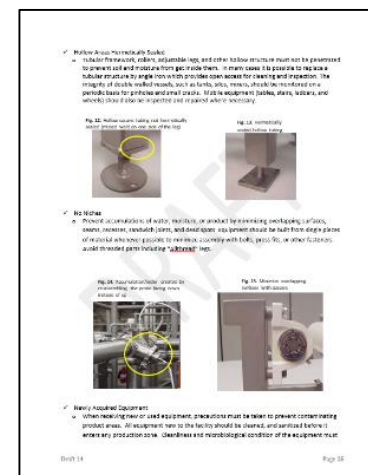
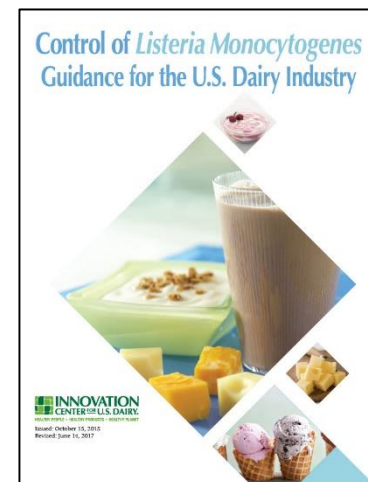


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# Listeria & Pathogen Controls Guidance Documents

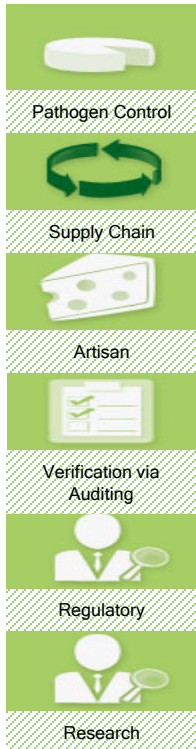
- Comprehensive guides to control Pathogens
- Built on “Pathogen Equation” & Workshops
- Industry wide effort
  - Industry expert authors
  - Industry, Academic, Government reviewers
- Expands activation beyond workshops
- Significant industrywide adoption as a core tool
- *Listeria* guide published October 2015
- Revised version and Spanish 2017
- Expanded Pathogen Guidance October 1, 2019
- Available at [www.usdairy.com/foodsafety](http://www.usdairy.com/foodsafety)





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# Listeria Research Consortium



- Established January 2015, ~ \$1.1MM funding from
  - Core companies with \$50K contribution
  - National Dairy Council
  - IC board company \$5K each “greater good” contribution
  - 12 projects funded to date
- Targets
  - Listeria controls for products and plant environments
  - Listeria virulence research
  - Critical risk mitigation - surface ripened & fresh cheeses



Global experts convened '14, '16, '17, '19



Industry scientists



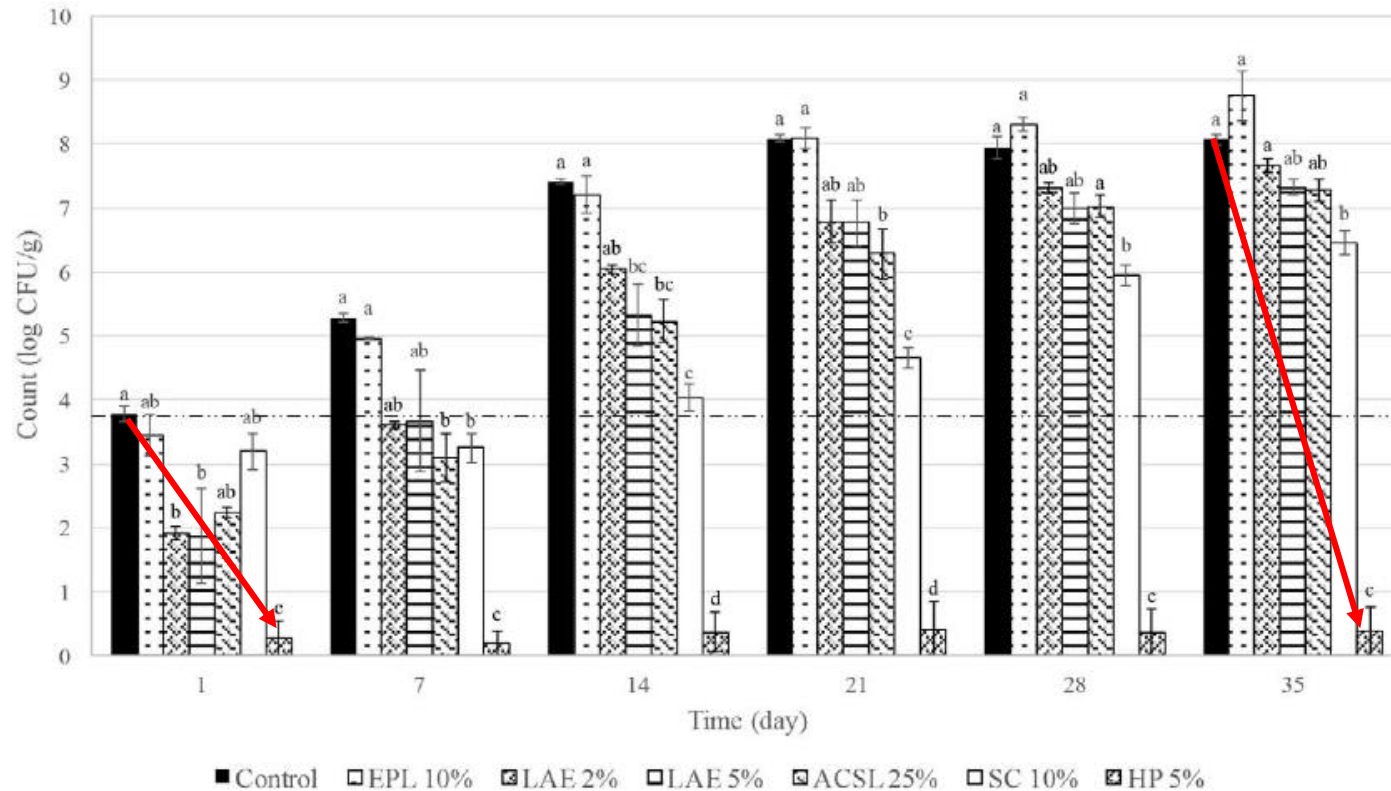
Cornell University



# UConn/D'Amico Lab –

## GRAS compound antimicrobials to control *Lm* on high moisture cheese

### Systematic evaluation of known antimicrobials in Queso Fresco



e-polylysine (EPL), lauric arginate ethyl ester (LAE), acidified calcium sulfate with lactic acid (ACSL), and sodium caprylate (SC), hydrogen peroxide (HP)

# Iowa State/Keener – Controlling Listeria with Cold Plasma

**2019 Paper:** Effect of high voltage atmospheric cold plasma on inactivation of *Listeria innocua* on Queso Fresco cheese, cheese model and tryptic soy agar LWT - Food Science and Technology 102 (2019)



**Abstract:** High voltage atmospheric cold plasma (HVACP) is a novel technology which has shown microbial inactivation at low temperatures. In this study, *Listeria innocua* spot inoculated tryptic soy agar (TSA), cheese model (CM), and Queso Fresco cheese (QFC) were treated with HVACP ... for 5 min...a **reduction of 5.0, 3.5 and 1.6 log<sub>10</sub> CFU/g** was observed respectively.

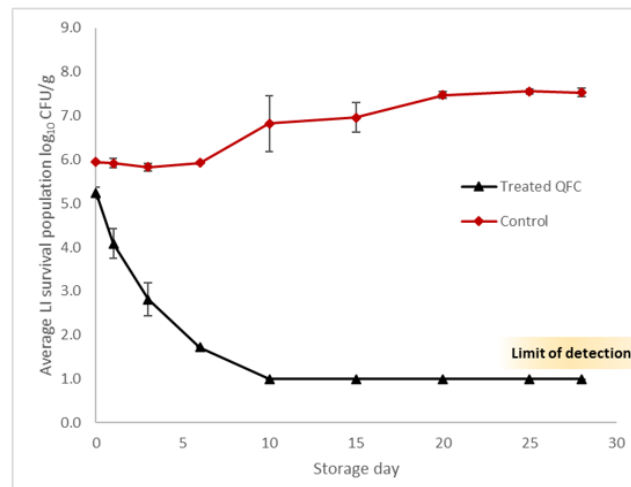
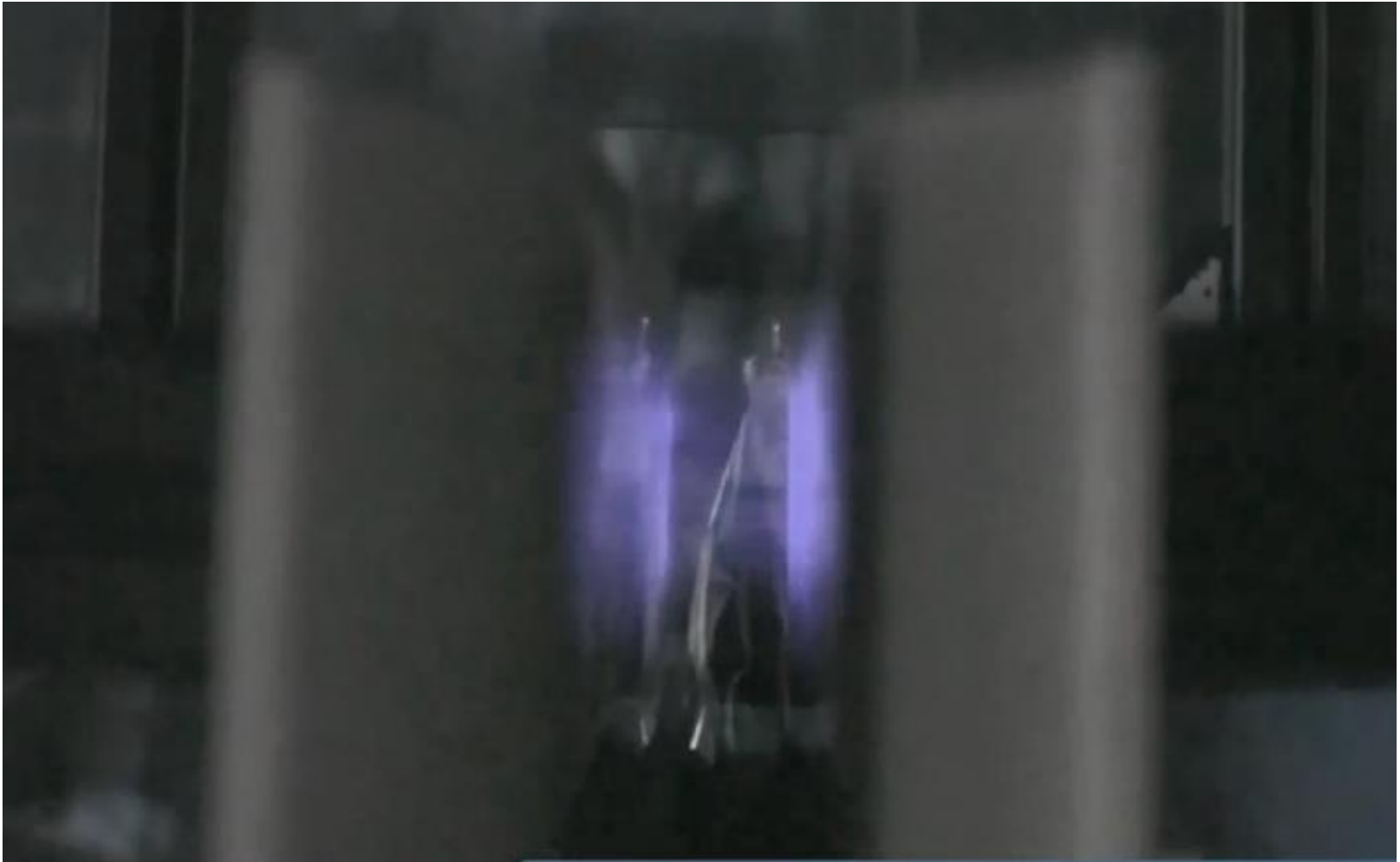


Figure 10. *Listeria innocua* population (log<sub>10</sub> CFU/g) in QFC after HVACP (Direct) treatment in dry air at 100 kV (228 watts) for six minutes within 28 days storage at 4°C. Detection limit is 1.0 log<sub>10</sub> CFU/g.



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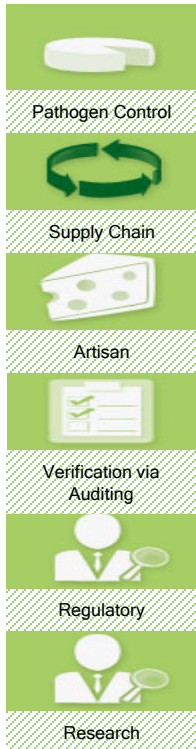
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# Artisan Cheese Food Safety Advisory Team

- Deliver accessible training and tools for artisan/farmstead dairy
- Introduction to Food Safety 1-day class
  - 2012 - 2016, 21 sessions, 750 Artisans and Regulators trained
- Launched [FS Basics for Artisan Cheesemakers](#) June 2017
- Collaboration with ACS, Academia, Artisans, Suppliers & Retailers
- Consolidated guides and resource website [www.safecheesemaking.org](http://www.safecheesemaking.org)
- Online training and resources [www.usdairy.com/artisan](http://www.usdairy.com/artisan)
- Food Safety Coaching and FS Plan writing sessions
  - 3 year, \$400K USDA NIFA Grant to run class nationwide
  - National FS center at Cornell [www.dairyfoodsafetycoalition.com](http://www.dairyfoodsafetycoalition.com)
  - Support /consulting at [DairyFoodSafety@Cornell.edu](mailto:DairyFoodSafety@Cornell.edu)



# Key Take-Aways

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- We work together on a pre-competitive basis
- We are able to access the best minds across a variety of areas of expertise
- Focus is on “Best practice sharing”
- A variety of tools and classes are available to help everyone
- We believe we have made an impact through increased awareness and changed practices in plants

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**THANK YOU!**

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