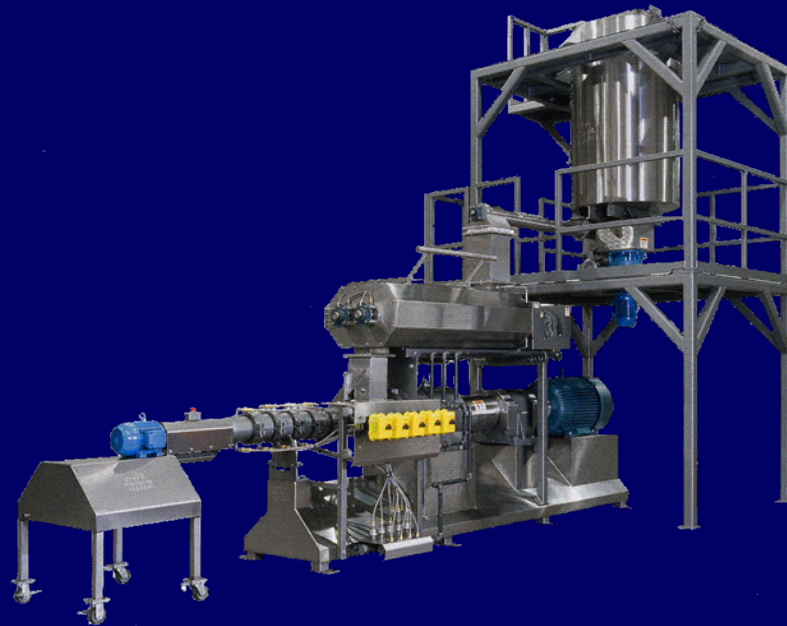


PET FOOD SAFETY

Validation 101

Pet Food Forum 2013 - Chicago, IL



Will Henry

Director of Technology, R&D



Pet Food Recalls

[Steve's Real Food Recalled Due to Salmonella \(3/8/2013\)](#)

[Publix Chicken Tenders Dog Chew Treats Recall \(1/11/2013\)](#)

[Waggin' Train and Canyon Creek Ranch Chicken Jerky Treats Recall \(1/9/2013\)](#)

[Warning Issued for Bravo! and Steve's Real Raw Pet Foods \(3/13/2013\)](#)

[Jones Natural Chews Recalls Woofers Beef Patties for Dogs \(3/12/2013\)](#)

[Honest Kitchen Recalls Five Lots of Dog Food \(2/21/2013\)](#)

[Hy-Vee Dog Food Recall \(2/23/2013\)](#)

[IMS Trading Group Withdraws Chicken Jerky Dog Treats Due to Drug Residue \(1/11/2013\)](#)

[Nutri-Vet Recalls Chicken Jerky Dog Treats \(2/21/2013\)](#)

[Kasel Recalls Multiple Brands of Dog Treats Due to Salmonella \(2/20/2013\)](#)

[Nature's Variety Announces Dog Food Recall \(2/15/2013\)](#)

[Kasel Dog Treats Recall Expands to Include More Products and Retailers \(2/22/2013\)](#)

[Hartz Recalls Contaminated Dog Treats \(1/26/2013\)](#)

[Milo's Kitchen Recalls Chicken Jerky and Chicken Grillers Dog Treats \(1/9/2013\)](#)





QUESTIONS

Am I doing enough to protect my business?

How far should I expand my cost/benefit ratio limits for safe pet food?

How can I further mitigate my risk of an event?

Am I being a good steward to the pet food industry?





QUESTIONS

Where should I design my CCP ?

Validation or verification ?

Which studies should I trust ?

What is Validation ?

What is Verification ?



First Element of Validation

Scientific evidence that proves specific control measures are capable of controlling an identified hazard within the designed process

Peer-reviewed scientific journal articles, published processing guidelines, in-house data, regulatory guidelines, challenge study

Section 417.4 requires that each establishment proves/validates the adequacy of its HACCP plans



Second Element of Validation

Practical demonstration that scientifically proves the system can perform as expected

Consists of records/data which demonstrates the plan in operation and goals of HACCP are achieved

Must include practical data reflecting actual experience and circumstance



Parameters of Validation

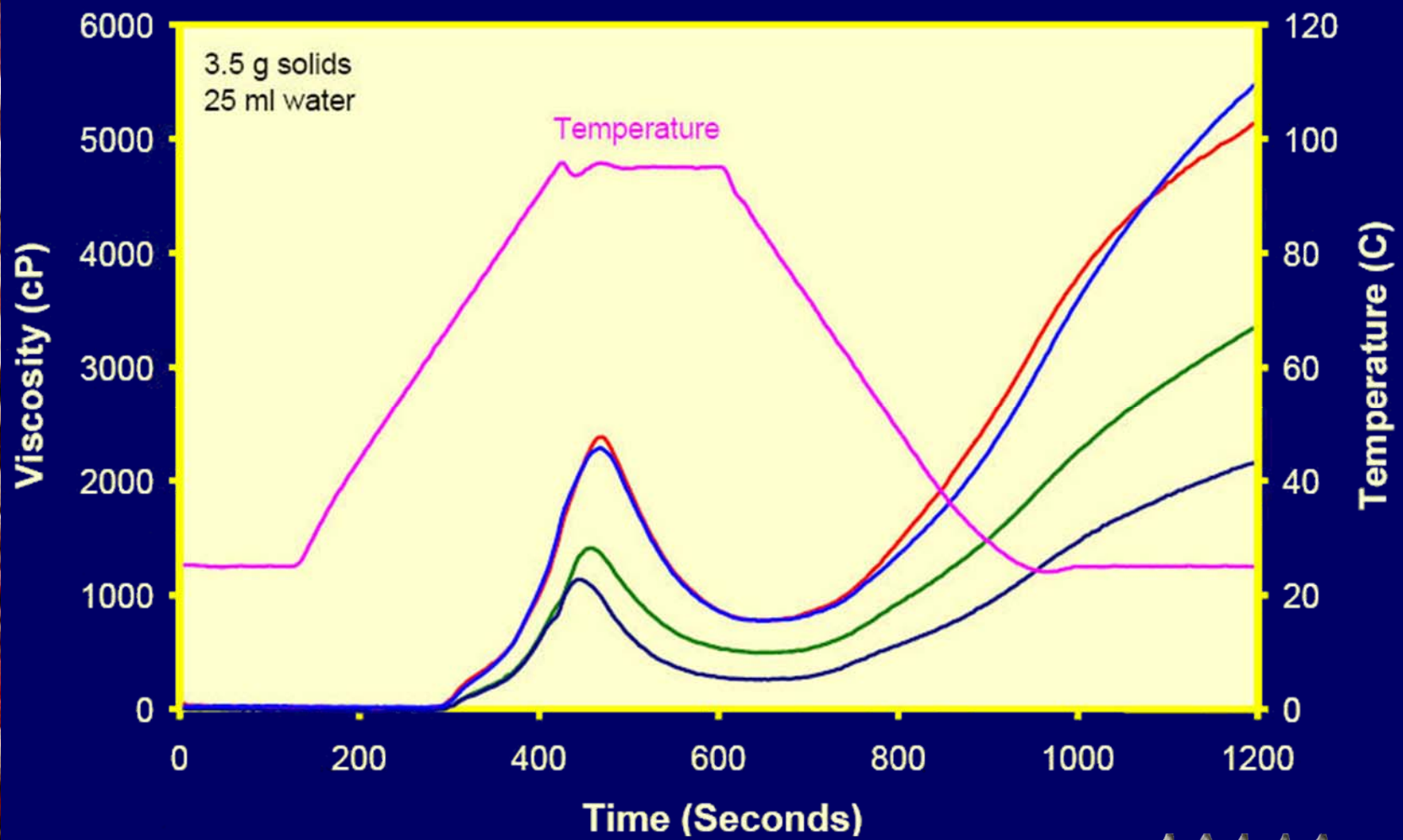
Product Definition – formula, size, shape, density, water activity, moisture, etc...

Process Architecture – capacity, L/D, SOPs

Process Operation – rate, retention time, temperature, moisture, energy

Pathogen Target & Delivery – cocktail, dry-based

Ingredient Variance



Architecture



Stand-alone Extruder KE 19
Laboratory food extrusion

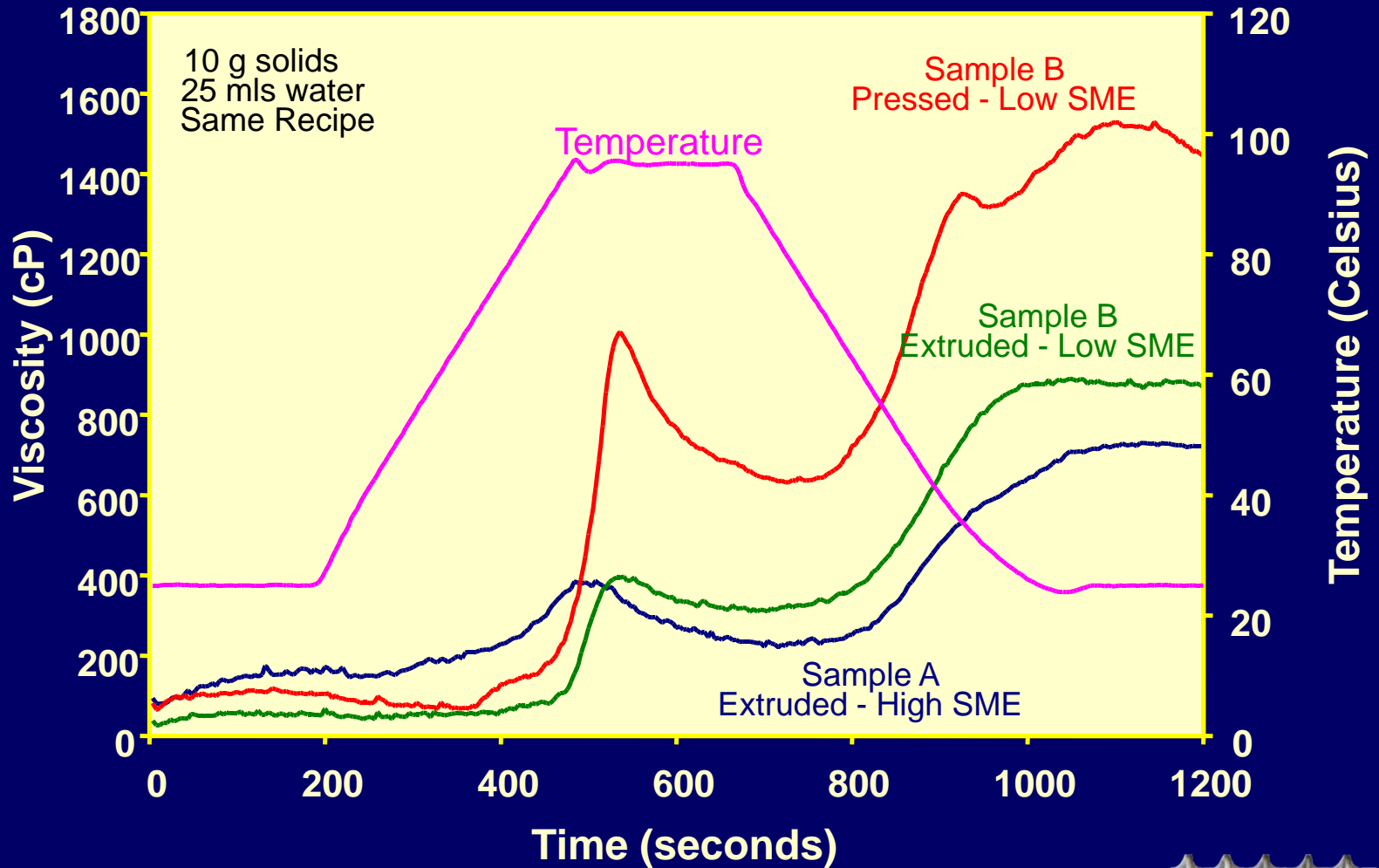




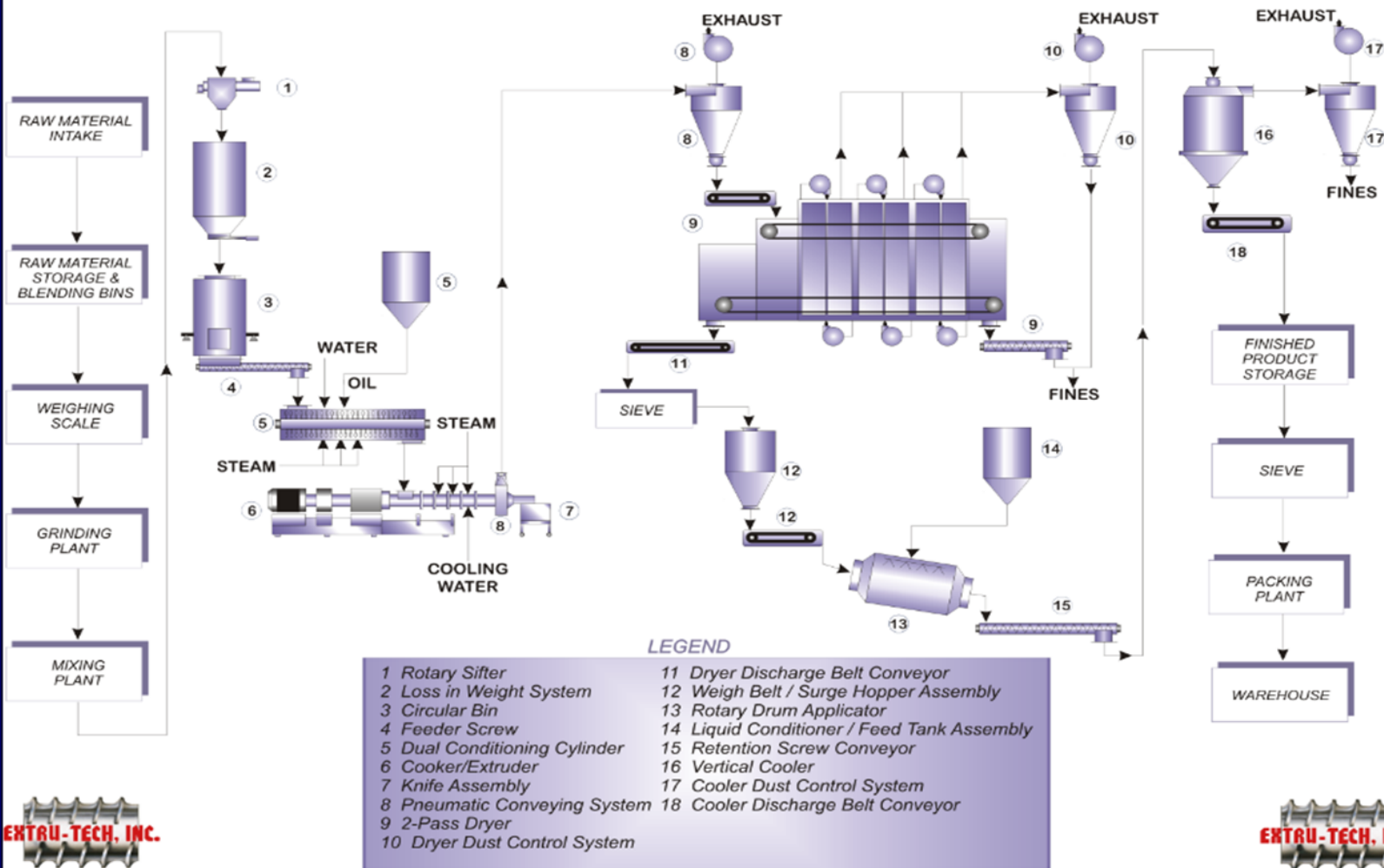
EXTRU-TECH, INC.



Equipment Variance



TYPICAL PROCESS DIAGRAM FOR THE PRODUCTION OF PETFOOD



EXTRU-TECH, INC.

EXTRU-TECH, INC.

EXTRU-TECH, INC.

EXTRU-TECH, INC.

Correlation

L/D – 8 to 11

DCC Ret. Time – 15 to 30 sec.

Barrel Ret. Time – 6 to 12 sec.

Capacity – 400 to 700 lbs/hr



L/D – 12 to 13

ADP Ret. Time – 25 to 145 sec.

Barrel Ret. Time – 10 to 15 sec.

Capacity – 1,000 to 8,000 lbs/hr

Parameters of Validation Worst Case Scenario



Production at the low end of the operational window.

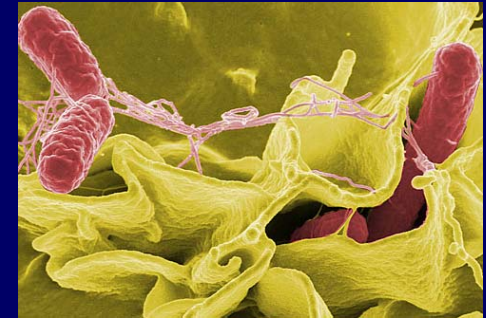
Realistic LIW upset/cycling
Reduced ADP Retention &
Efficiency



“Trouble creates a capacity to handle it. I don’t embrace trouble....But I do say meet it as a friend, for you’ll see a lot of it and had better be on speaking terms with it “ Oliver Wendell Holmes

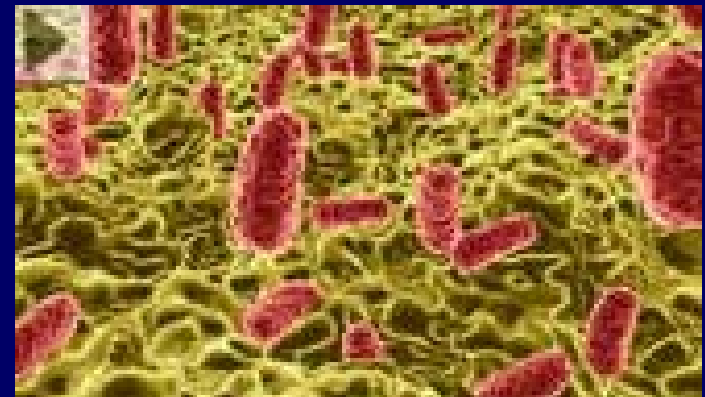
Parameters of Validation

S. Senftenberg – ATCC 43845
temperature resistance

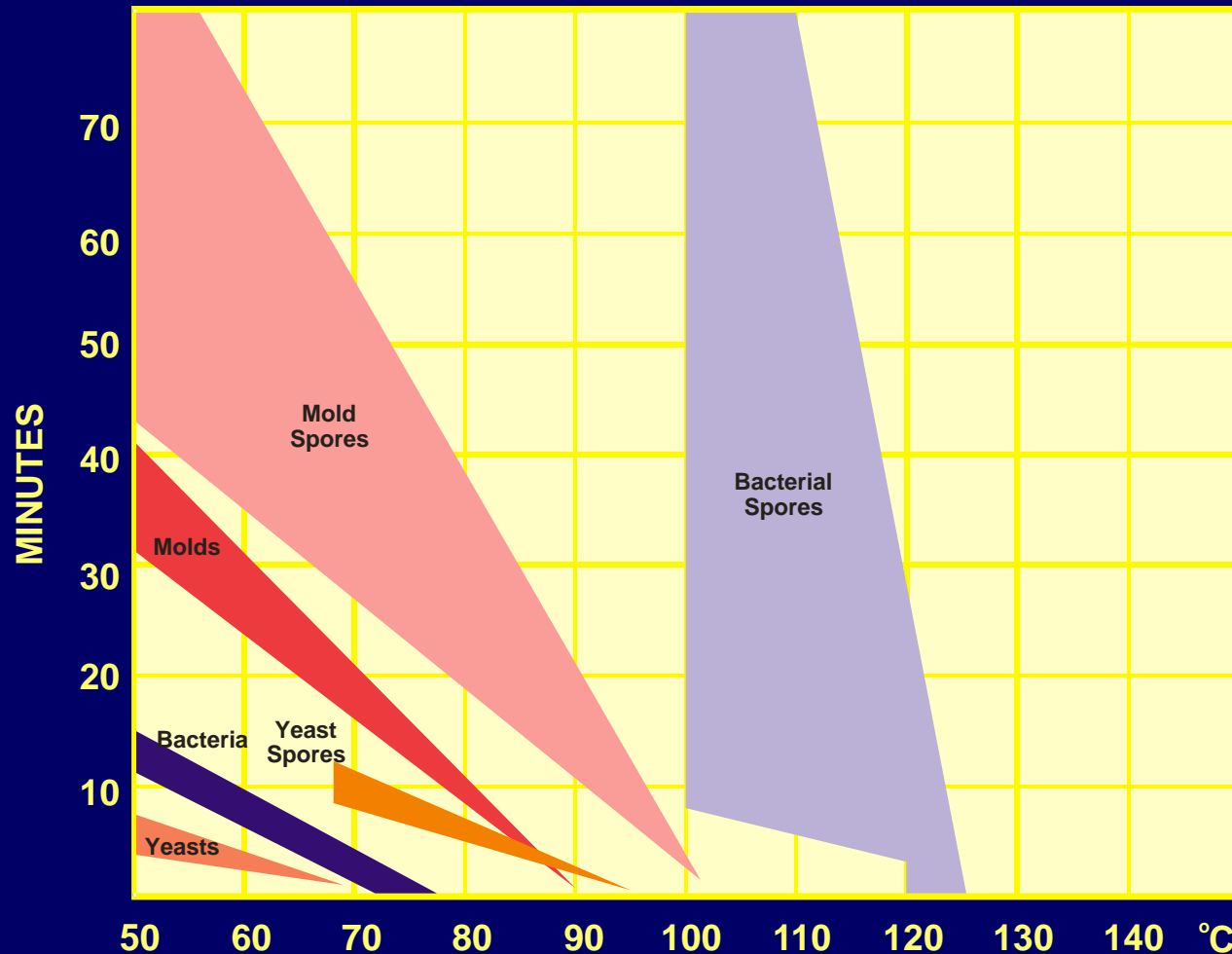


S. Typhimurium – ATCC BAA191
nalidixic acid resistance

S. Infantis – ATCC 51741
dry pet food



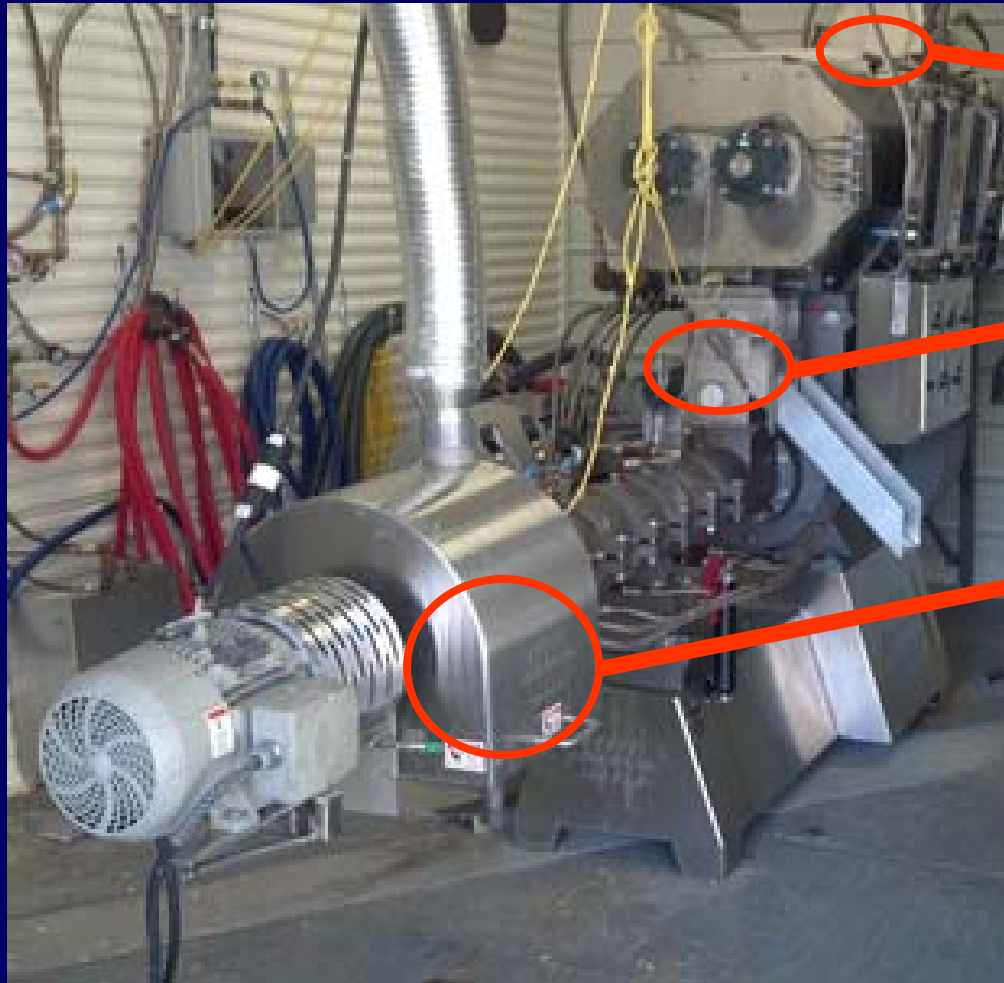
Parameters of Validation



Source: 2008, January, Dr. Daniel Fung, "Synopsis of Food Microbiology" Seminar



Inoculation Methods/Procedures

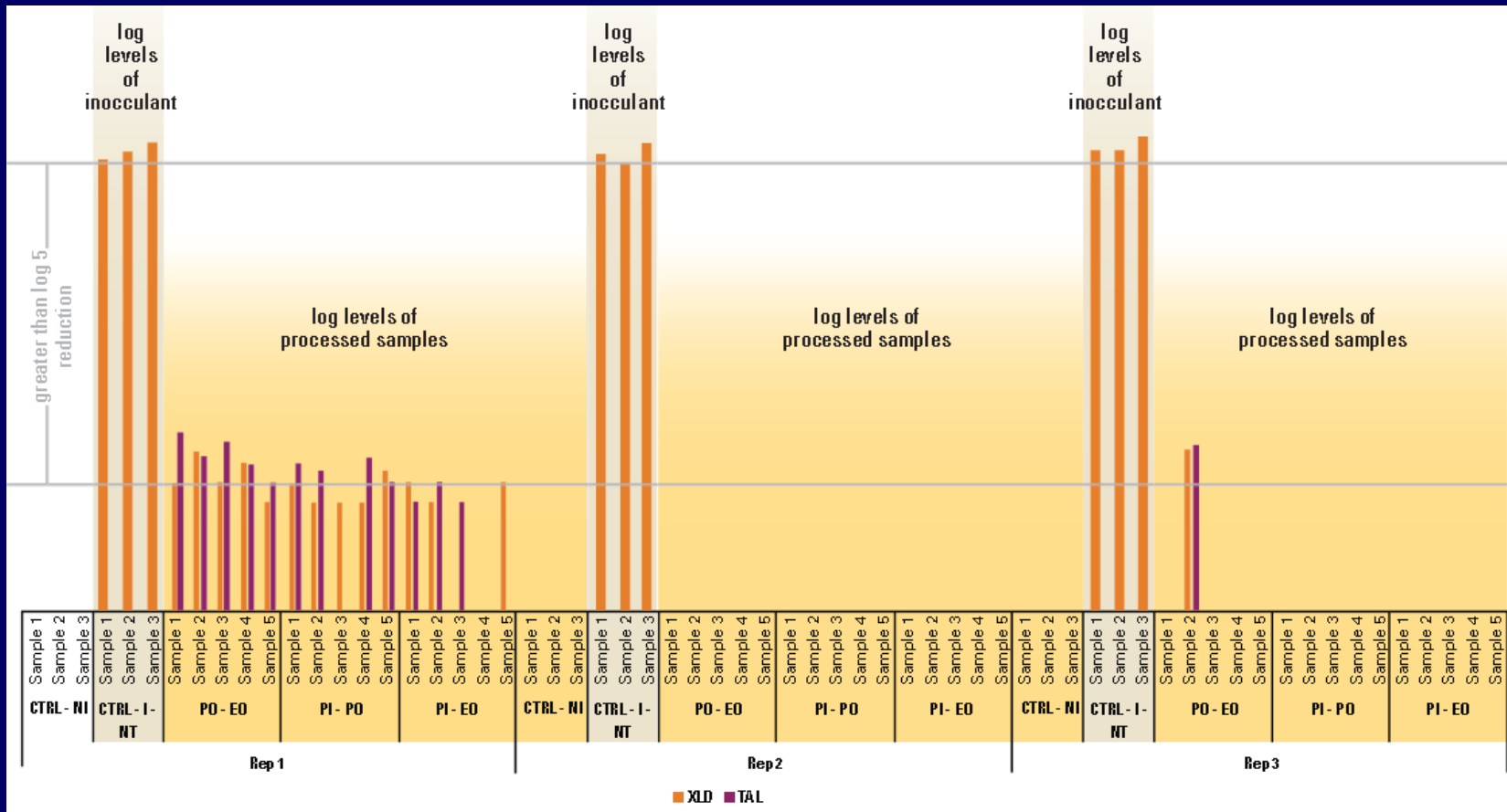


ADP Inoculation

ADP Sampling
Extruder Inoculation

ADP & Extruder
Sampling

VALIDATION RESULT



Implementation

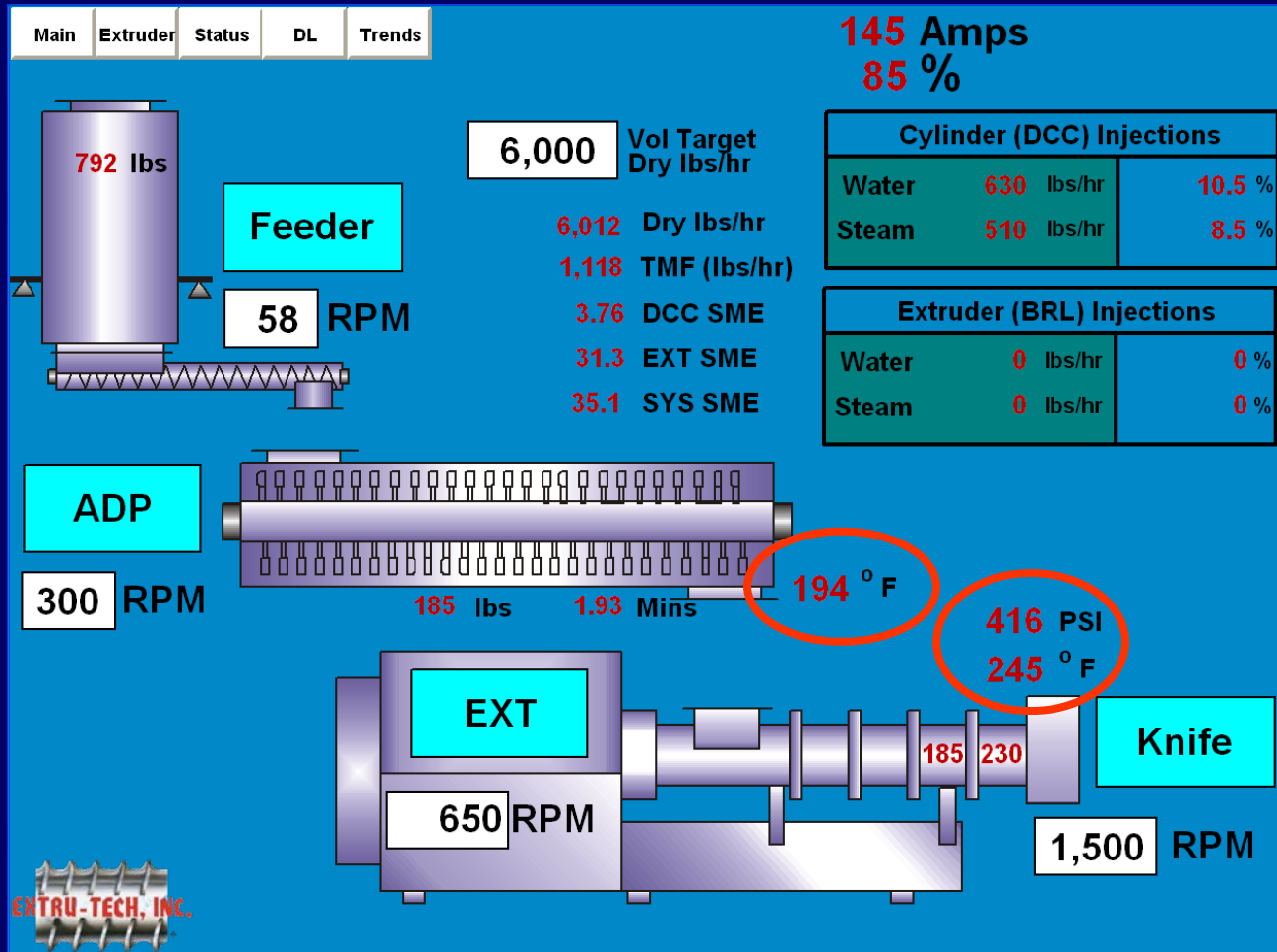
% Retracted*	Product Temp (C)
0	140
33.3	139
50	138
66.7	135
83.3	122
100	104



* 0% retracted = center of product flow; 100% retracted = flush with sidewall



Verify & Document



COST/BENEFIT

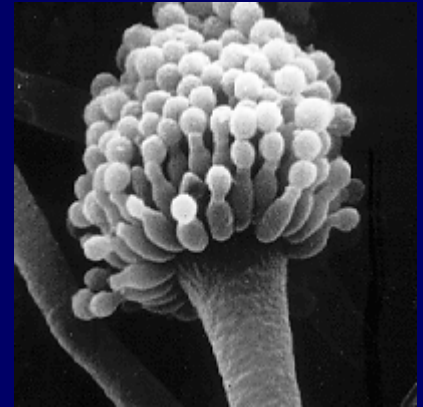
What is the Cost?

...\$0.91 - \$3.86 USD per ton^[1]

...loss consumer/client confidence

...\$70,000,000.00 ^[2]

What is the Benefit?



Questions?

