

Protecting Dairy Quality

*Game changing, Proactive solutions for
superior quality in dairy production*



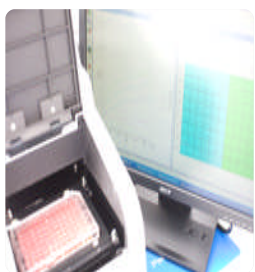
Who we are and what we do:



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Cell Biology / Life Science Research Tools



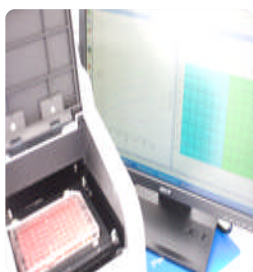
- High performance assay kits for the measurement of cell metabolism and drug toxicity
- Used by major pharma/biotech and academic life scientists



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Food and Industrial Package Testing



- Analysis of package integrity and microbial growth
- Invasive and non-destructive solutions - superior quality & safety

OpTech®

mocon®

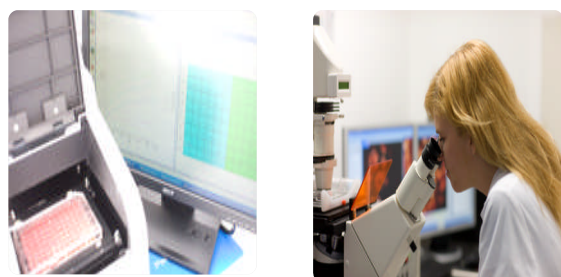
*Technology
in development*



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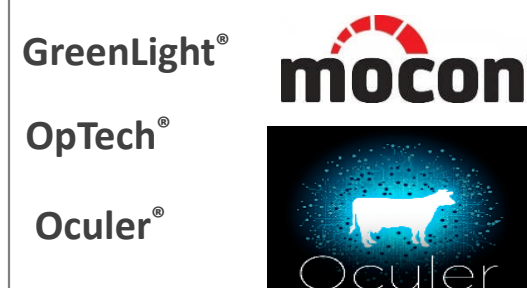
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Rapid Microbiology Testing



- Same-day high and medium throughput quality and bacterial contamination testing
- Focused on bacterial growth testing in dairy and water



The Drivers for Superior Quality in Dairy:



- The dairy industry is changing.....it's getting bigger, fast
- Long term “Dairy Boom” Dennis Jonsson, CEO TetraPak
- Increased Production / Increased Exports

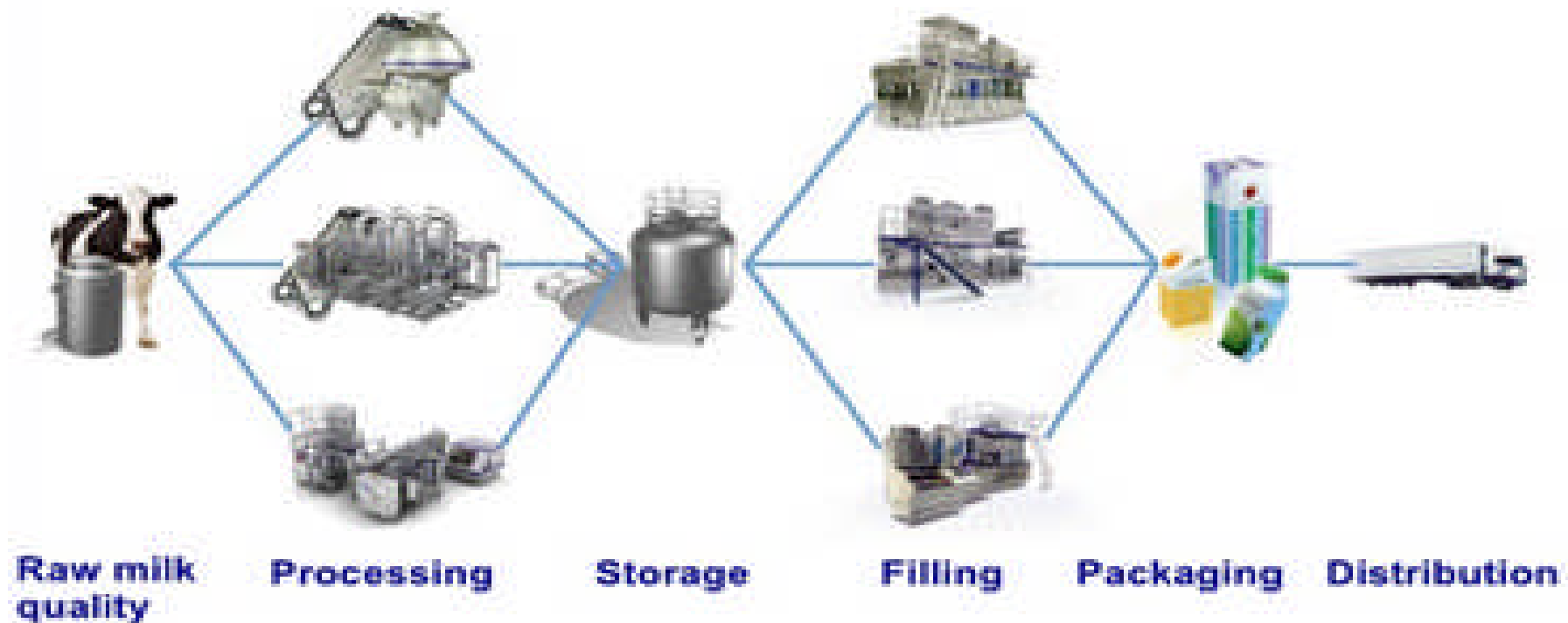
As the dairy markets expands at a rapid pace, competition and the resultant drive and **demands for superior quality and safety has never been greater**

The Barrier to Superior Quality in Dairy Production:



The Entire Process is Vulnerable.....Why?

Standard 'Reactive' technologies missing significant levels of spoilage



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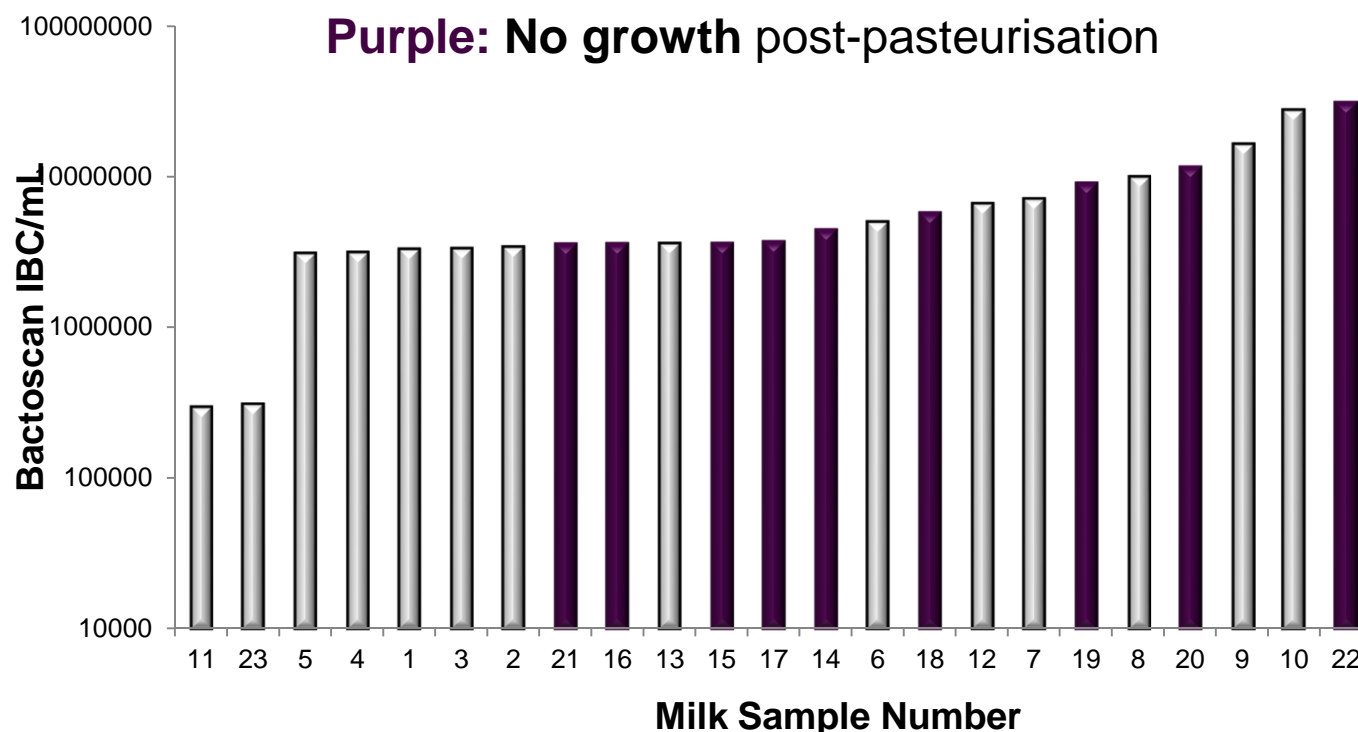
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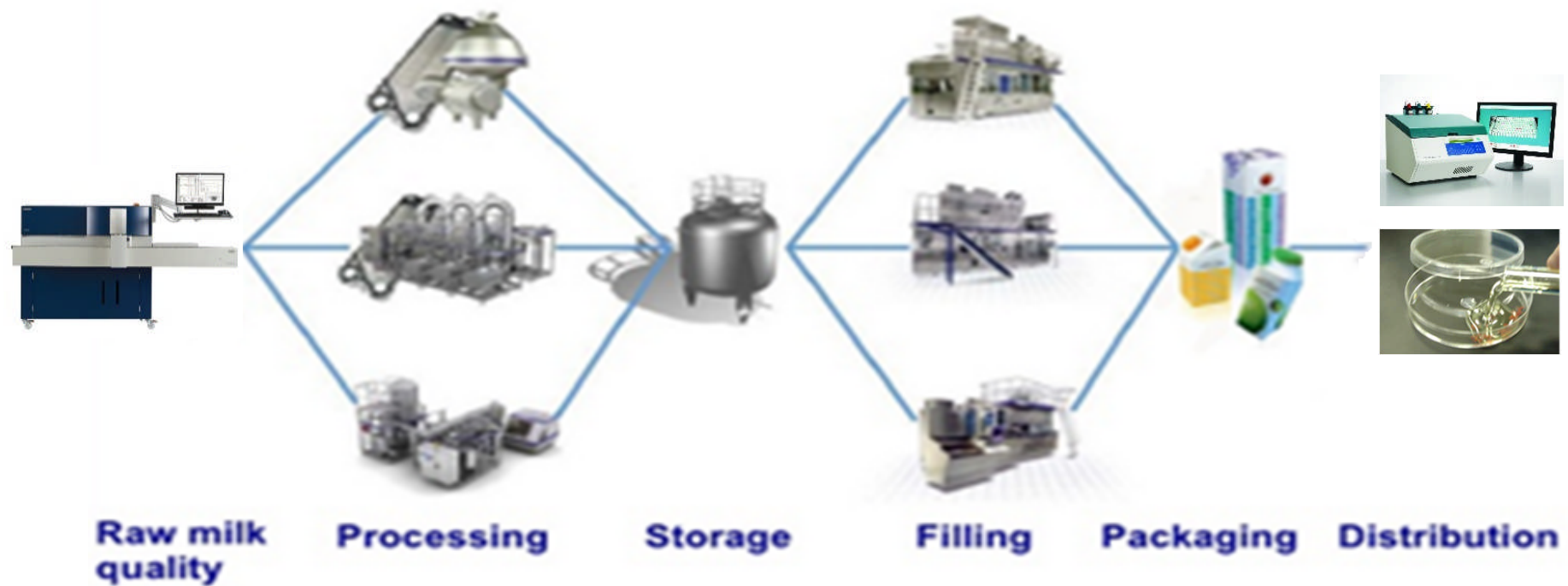
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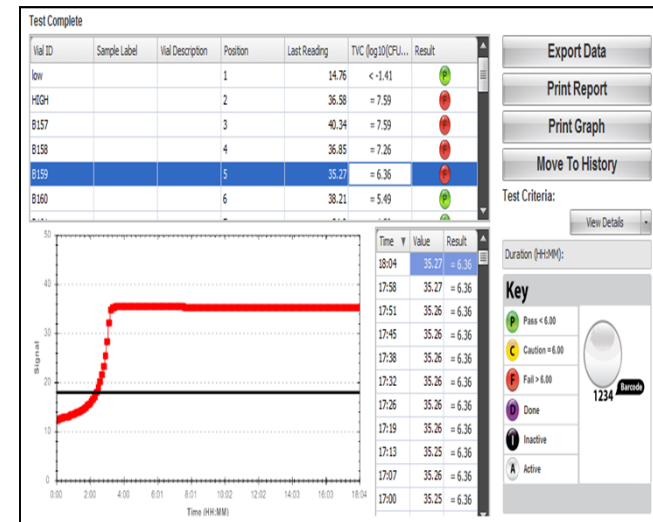


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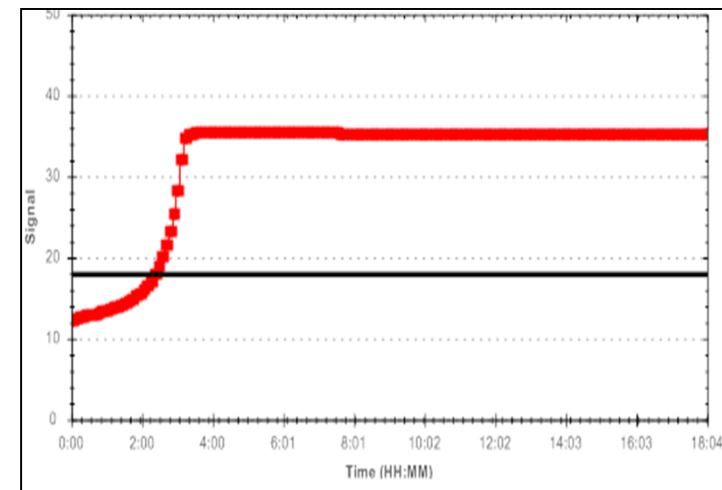
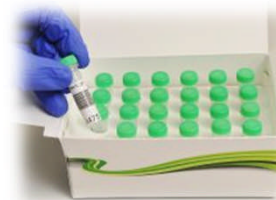
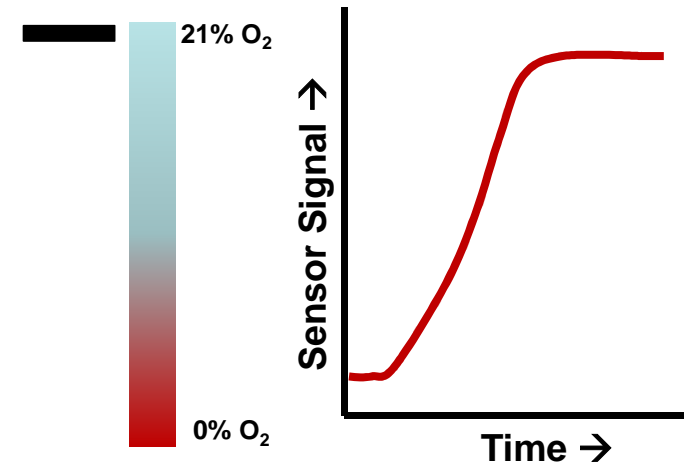
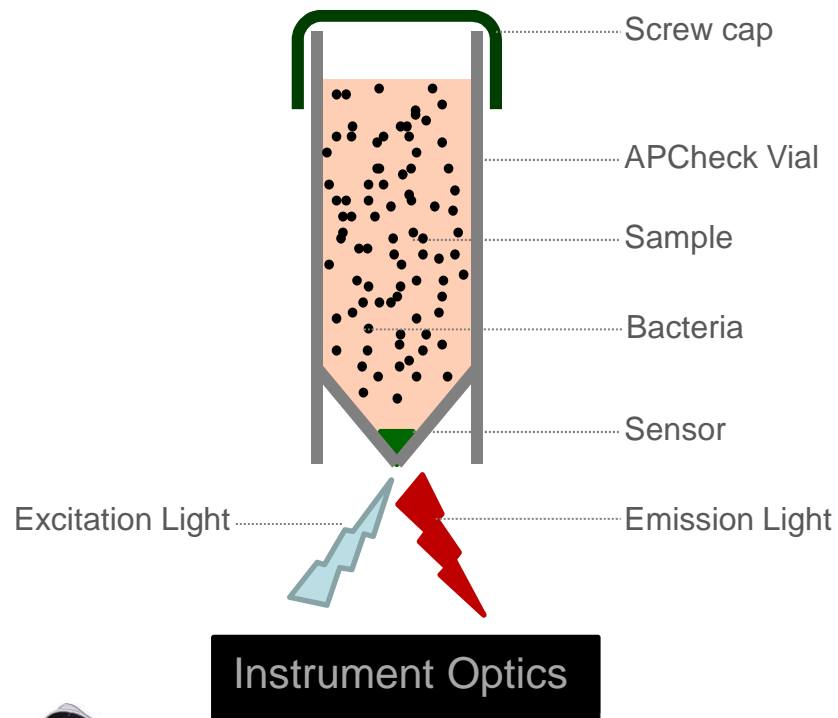


The Solutions for Superior Dairy Quality



- Growth 'in the dairy product'
- Fast (same-day) Results
- Data Analytics: See patterns & trends quickly
- Sensitive (<0.4 CFU/ml)
- Easy to implement
- Holistic end-to end solution

How it works: GreenLight® 930: Measuring Growth



Solutions Developed for Customers...

GreenLight®



Case Study 1: Major Global Dairy (GreenLight® ESL Product Release)

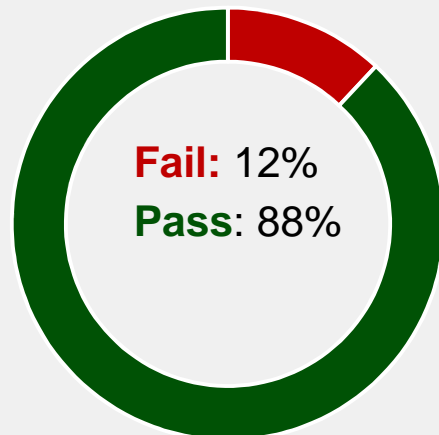


The Problem: Standard testing missing significant levels of contamination and spoilage in Extended Shelf-Life (ESL) finished product

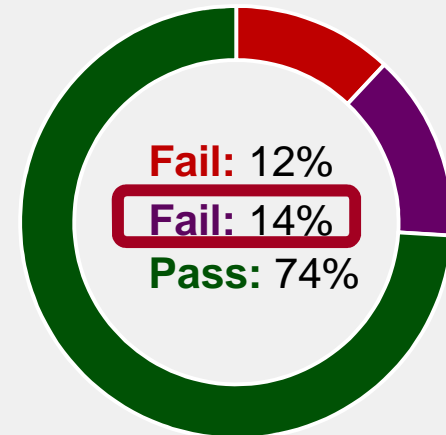
The Solution: GreenLight® ESL Test

Real-time analysis of bacterial growth in the final product (neat milk)

Agar ESL Testing



GreenLight ESL Testing



"The visibility that GreenLight® provides, will help drive improvements to hygiene and quality of the product"
quote from early adopter – major global dairy

Case Study 2: GlanBia (Oculer™ Thermoduric Platform)



The Problems: Issues with standard agar and water-bath based method (LPC) include:

- Data from dairies showing that **agar missing *at least* 20% of thermoduric contamination**
- Laborious with low throughput and poor control of pasteurisation

The need: Ultra high-throughput measurement of **thermodurics** post pasteurisation

The Solution: Oculer™



- ✓ Increased throughput – 4,800 test runs
- ✓ Controlled, convenient pasteurisation
- ✓ Fast time to result
- ✓ Measures growth rates post pasteurisation
- ✓ Novel dual well assay differentiates 'fast' & 'slow' growers
- ✓ Provides more predictive information on spoilage potential
- ✓ **Selective Bacillus Assay in development**

Case Study 3: Powders (IMF)

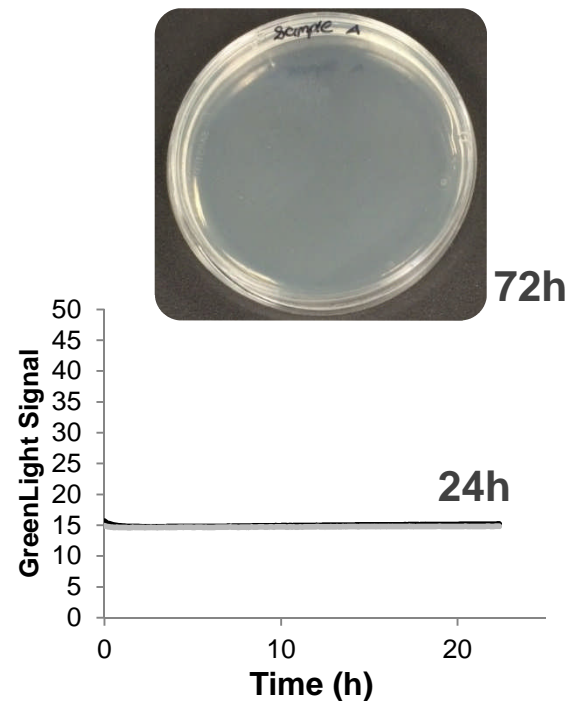


The Problem: Standard testing required 72h to identify a bacterial load problem & not amenable to rapid in-process testing

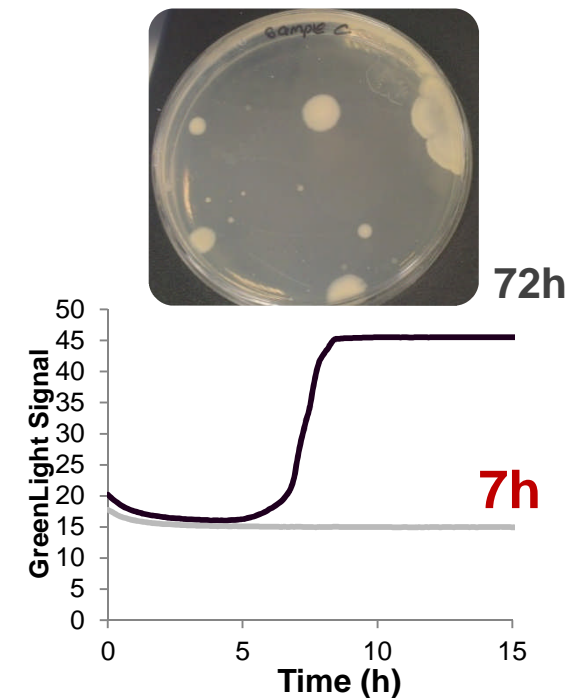
The Solution: GreenLight® Whey Assay: Real-time analysis of bacterial growth in suspended powder & in-process samples.



'Clean' Sample



Bacterial Sample



Case Study 4: In process concentrates



The Problem: Standard testing require up to 72h to identify a bacterial load problem & not amenable to rapid in-process testing

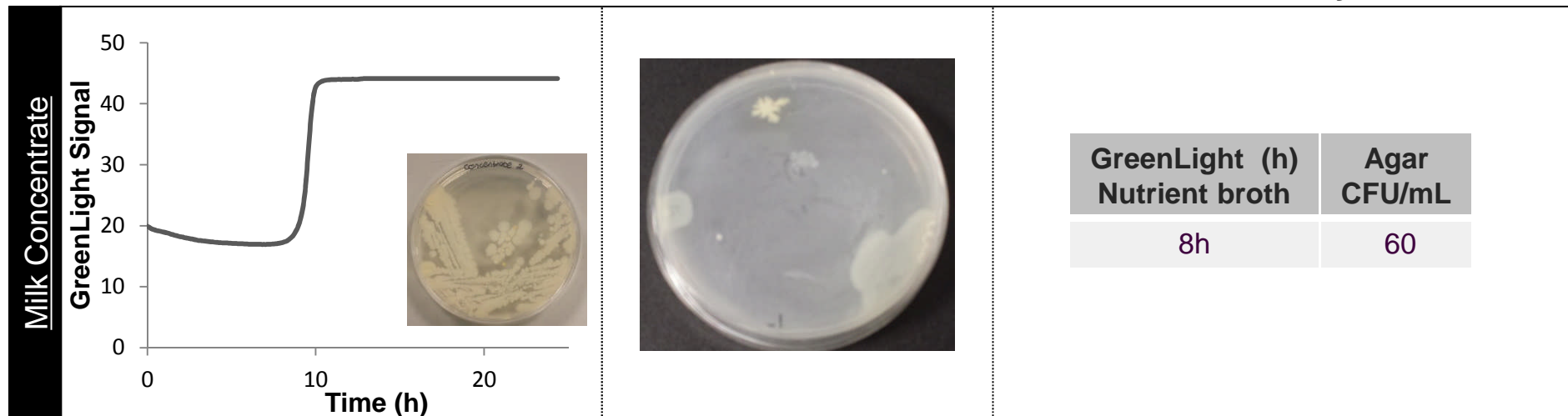
The Solution: GreenLight® Milk Concentrate Assay: Real-time analysis of bacterial growth in concentrate samples destined for spray drying



Greenlight (8hrs)

Agar (48-72hrs)

Summary



Rapid detection of *Bacillus* spp in 8h on GreenLight compared to 48-72h on agar

Case Study 4: Holistic Line Thinking

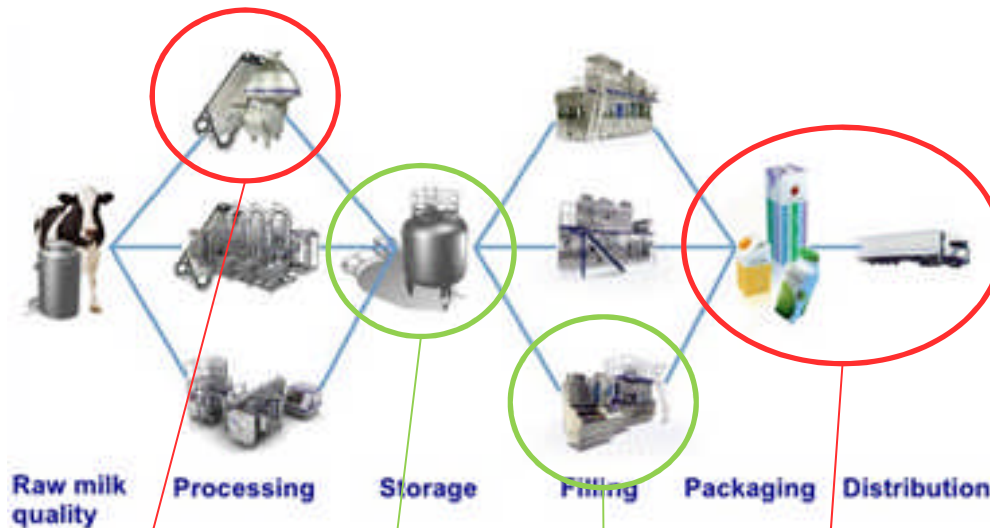


"The key to ESL technology is hygiene. The shelf life of a chilled dairy product cannot be extended without first raising the levels of hygiene across the whole dairy". *Tetra Pak, 2014*

GreenLight
900 SERIES



Incoming Milk Quality
• Growth / spoilage



GreenLight



Product Release Test
• ESL & UHT
• Psychrotrophs

GreenLight® Swab & Vial Hygiene Suite



Problem identified



Recall prevented



Type strain
B. cereus





The Result: Proactive Solutions for Dairy Quality

- Measure microbial *growth* IN the actual Dairy Product with increased sensitivity and results in real-time
- Can measure right through the process
- 100% improvement in detection of bacterial contamination in packaged milk
- **Providing QA managers a good night sleep!**



Thank You

