Understanding Tech Traceability

May 13, 2021

Organized by the Food Fraud Professional Development Group

Sponsored by the IAFP FOUNDATION

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Understanding Tech Traceability

May 13, 2021
Today's Panelists

Kelly Kell, GS1 US - Presenter
TJ Gupta, TagOne - Presenter
Karen Everstine, FoodChain ID - Moderator

Speakers

Kelly Kell

Director, Community Engagement

GS1 US

TJ Gupta

Co-Founder & CEO

TagOne LLC

Understanding Tech Traceability: How it Reduces Food Fraud (and Other) Risks

Presentation for IAFP

Kelly Kell, Director Community Engagement

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*If applicable

Agenda

- **Who is GS1**
- **What are GS1 Standards**
- **Leveraging GS1 Standards for Traceability**
- **Standards in Action: FDA Leafy Greens Pilot**

More than
6 billion
GS1 barcodes are scanned everyday

GS1 US® serves more than **300,000 businesses** in the United States.

Over
1.5 million
companied around the world use GS1 Standards

GS1 US serves over **25 industries** including retail grocery, food service, health care, apparel, and general merchandise

More than
30 million
products are registered by brand owners in the GS1 Global Data Synchronization Network™ (GDSN)

Over
25 million
products are assigned U.P.C.'s in the GS1 US Data Hub Product Tool

GS1 is made up of
110+ member organizations
serving businesses around the world

Identify, Capture & Share in the Supply Chain

GS1 Standards make it possible to **identify**, **capture**, and **share** information automatically and accurately about products, business locations, and more. This way anyone who wants that information can understand it, no matter who or where they are.
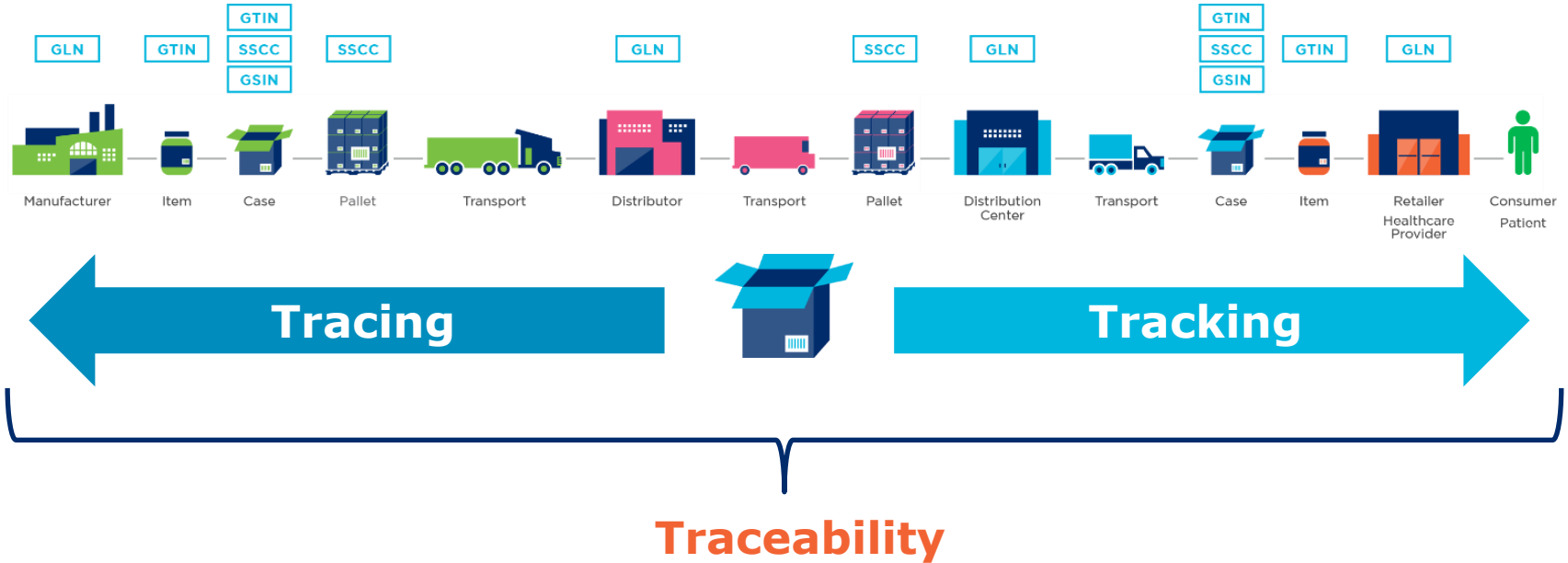
Identify

Capture

Share

Foundation of Traceability is Unique Identification

GS1 Standards

Identify
GS1 Identification Numbers

Company
- Global GS1 Company Prefix
- Global Location Number (GLN)

Product
- Global Trade Item Number® (GTIN®)
- Serialized Global Trade Item Number (EPC®/SGTIN)

Location
- Global Location Number (GLN)

Logistics
- Serial Shipping Container Code (SSCC)
- Global Shipment Identification Number (GSIN)

Assets
- Global Individual Asset Identifier (GIAI)
- Global Returnable Asset Identifier (GRAI)

Services and Other
- Global Service Relation Number (GSRN)
- Global Document Type Identifier (GDTI)

Capture
GS1 Data Carriers

Barcodes

EAN®/UPC

6 14141 98765 8

GS1 DataBar®

(01) 0 06141 41 987658

GS1 DataMatrix

(01) 00614141987658
(17) 120831
(10) A1B2C3D4E5
(21) 00098522

ITF-14

2 06 14141 98765 2

GS1-128

(01) 0 06141 41 987658 (11) 120715 (10) ABC123

EPC-Enabled RFID Tags

Electronic Product Code (EPC) RFID Encodings

HF RFID

UHF RFID

Share
GS1 Data Exchange

Master Data
- Global Data Synchronization Network™ (GDSN®)
- GS1 US Data Hub | Location

Transactional Data
- Electronic Data Interchange (EDI)

Physical Event Data
- Electronic Product Code Information Services (EPCIS)

Supply Chain or Supply Web?
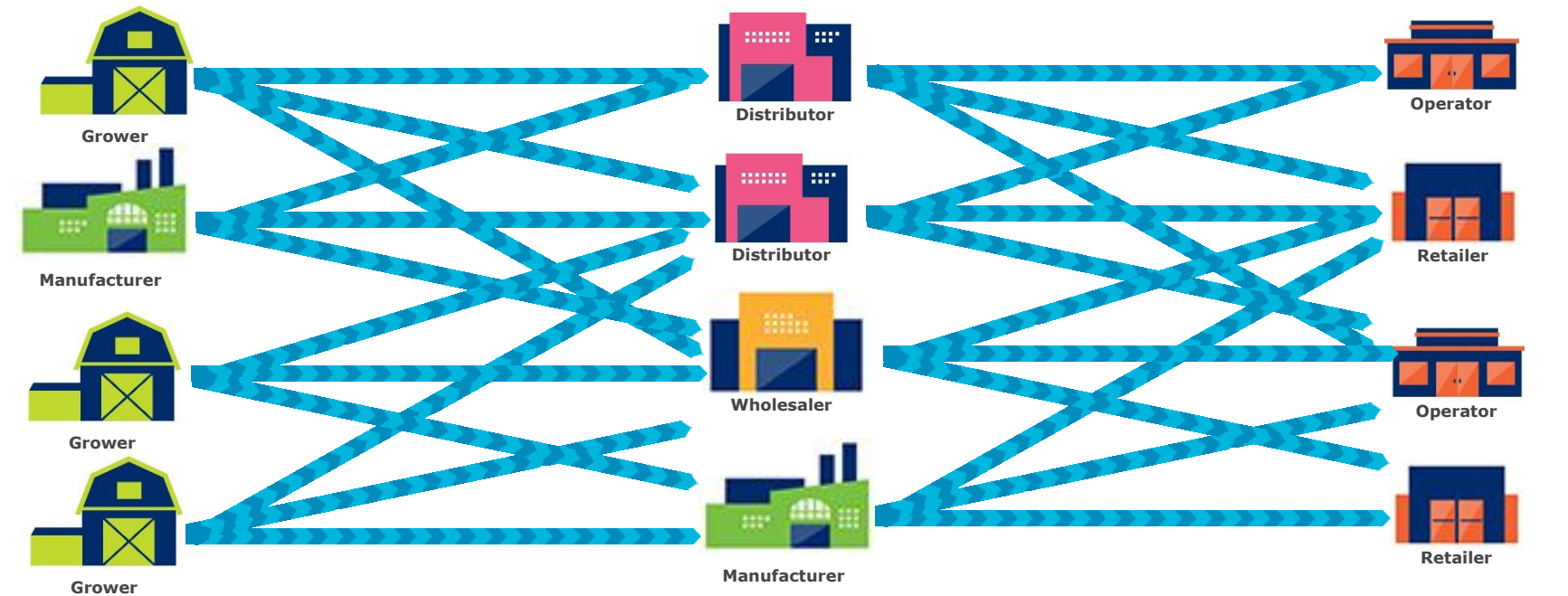
Where Did it Come From …Where Did it Go?
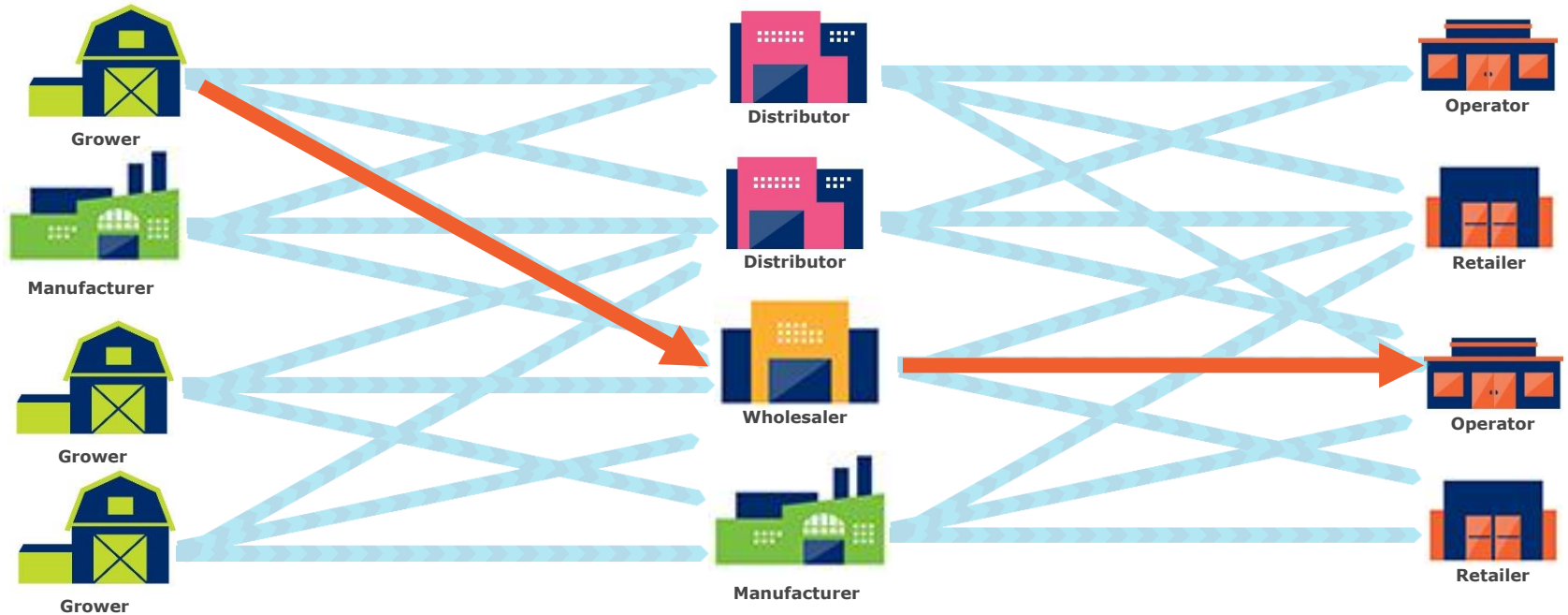
GS1 Standards in Traceability

Critical Tracking Events	Transform	Transport	Receive	Deplete	Deplete
	Create Finished Goods	Ship Finished Goods	Receive Finished Goods	Finished Goods Sold at Point of Sale	Destroy Unsaleable Finished Goods
Key Data Elements	When? What [Input]? What [Output]? Where? Why?	When? What? What? Where? Why?	When? What? What? Where? Why?	When? What? What? Where? Why?	When? What? What? Where? Why?

Regulatory Food Safety Landscape

"The pilots provided valuable insights that will inform future outbreak response and recall protocols, helping industry to work together to support the FDA's focus on tech-enabled traceability."

- *Bryan Hitchcock, Executive Director of IFT's Global Food Traceability Center, on behalf of the six organizations*

Leafy Green Traceability Pilot

Overview & Goals

- Prioritize work with leafy green stakeholders to design and initiate a pilot on concepts needed for traceability to further scale, such as testing **interoperability** of tracing systems and **public-private data sharing.**

Goals

- Provide industry with better visibility into Federal Regulator's traceability challenges
- Help Romaine Task Force refine their CTE/KDE template

The pilot created a space for collaboration among a diverse group of participants- all building on existing momentum and previous work within industries.

Leafy Green Traceability Pilot

Who: Six Associations

What: Developed and executed three leafy green traceback pilots.

- focused on various romaine-containing products; consideration for different product/supply chain configurations

- planned, initiated, and worked with identified volunteers/industry experts to execute each pilot scenario

- reviewed and synthesized the data in this final report to be shared with the US Food and Drug Administration FDA and leafy green stakeholders

Produce Traceback Template

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Produce Traceback Template**													
2														
3	Industry Descriptor	Example	Data											
4	Item Description	Hearts of Romaine												
5	Commodity	Lettuce												
6	Finished Product Variety:	Romaine												
7														
8	Inquiry Date: From YYMMDD	200508												
9	Inquiry Date: To YYMMDD	200510												
10														
11	Company Name / Information Provider:	Produce Suppliers, Inc.												
12	Company Contact:	Sam Smith												
13	Company Phone #:	555-555-1212												
14	Address: Street	456 Main Drive												
15	Address: City	Anytown												
16	Address: State or Province	CA												
17	Address: Zip Code or Postal	93902												
18	Address: Country Code	USA												
19	GLN (Optional)	1234567890123												
20														
21	Facility Name:	Produce Packing Co.												
22	Facility Address: Street	457 Main Drive												
23	Facility Address: City	Salinas												
24	Province	CA												
25	Facility Address: Zip Code or Postal Code	93902												
26	Facility Address: Country Code	USA												
27	GLN (Optional)	1234567890135												
28														
29														
30	Outgoing Shipments:													
31	Item Description	Shipment Date YYMMDD	Invoice #	PO#	BOL #	Customer Name	Customer GLN	Customer: Street Address	Customer: City	Customer: State or Province	Customer: Zip or Postal Code	Customer: Country Code	Ship To: Location Name (if different)	Ship To: GLN
32	Romaine Lettuce Hearts	200508	9429101	ABC123	PP-12345	My Grocery Store, Inc.		123 Main Street	Anytown	PA	12345	USA	My Grocery Store	
33														
34														
35														
36														
37														
38														
39														

> This template was initiated as part of the Romaine Task Force and finalized by Produce Traceability Initiative (PTI) working group is designed to transmit traceability data to regulators when a company is involved in a traceback investigation.

https://www.producetraceability.org/documents/Produce_Traceability_Template_20200624.xlsx

Start with a consumer purchase & trace it back

Successfully able to trace back 3 product types, all containing romaine lettuce

New Era of Smarter Food Safety

The U.S. FDA has released a strategic blueprint that outlines how the U.S. FDA plans to leverage technology and other tools to create a more digital, traceable and safer food system.

- Tech-Enabled Traceability and Foodborne Outbreak Response
- Smarter Tools and Approaches for Prevention
- Adapting to New Business Models and Retail Food Safety Modernization
- Food Safety Culture

https://site.gs1us.org/New-Era-of-Smarter-Food-Safety.html

TagOne is a SaaS based Blockchain enabled, Traceability Management System delivering comprehensive transparency to the food and natural products industry

Our History

Dreamweaver Launched

TJ Gupta and Manish Gupta leave SAP to start a track and trace integration consulting firm, serving major enterprises including J&J, Roche and Bristol Myers Squibb.

Paradigm Shift

After family health issues, the team begins innovation in cloud and blockchain solutions for natural ingredients providing consumers with product source provenance.

TagOne:Enterprise Beta & Partner Pilot

Blockchain enabled cloud solution is launched and first ingredient supplier is onboarded.

GS1 Pilot Program

Entered in to pilot program partnership with GS1 to develop standards for hemp and CBD.

2014

Spring 2018

Summer 2019

2013

2016

Fall 2018

Jul 2020

Innovation Begins

Recognizing that excessive cost for integration consultants, and lack of traceability systems available for Pharma, initiated development to simplify enterprise track and trace integration.

TagOne:Harvest Beta with SSCI

Collaboration with SSCI (Supplement Safety Compliance Initiative), a mobile/cloud technology was developed working with enterprises including GNC, Amazon and Walmart.

TagOne:Connect Beta

"Seed to sale" transparency is now possible with a QR code technology sharing science, source, safety and stories of brands.

TAGONE

Improve Operational Efficiencies

Address Legal and Regulatory Risks

Food Safety and Consumer Protection

Need for Comprehensive Transparency in the Food Industry?

TAGONE

What is Comprehensive Transparency?

Full visibility of all supporting information (data and documents) for a product as it moves through the supply chain

- **Master Data**
  - E.g., Supplier/Customer/Product/Location/Other

- **Transaction Data**
  - E.g., Receiving/Processing/Manufacturing/Shipping/Other

+

- **Master Documents**
  - E.g., Product Specs/MSDS/ GMP/GAP/USDA Organic/Allergen/ Gluten Free/Kosher/Halal/ Vegan/ Fair Labor/Fair Trade/Pictures/Other

- **Transaction Docs**
  - E.g., Batch Production Records/Certificate of Analysis/Bill of Lading/ Packing Lists/Country of Origin/ Pictures/Other

How Does TagOne Work

Our 3 Core Tenets

IoT/Smart Devices
Capture data from any location globally

Global Cloud Backbone
Share data instantly

Blockchain
Data is secure and authenticated

Industry Best Practices

+

Latest Technologies

+

Global Data Standards to ensure Interoperability

GS1

TAGONE

How Does TagOne Work

3 Solution Components Capture KDE's from Seed to Sale Seamlessly

TagOne:Harvest

Farm application to help you capture the first mile data crucial for comprehensive traceability
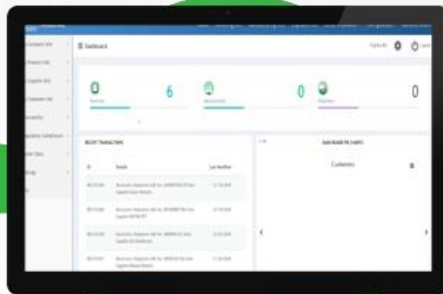
TagOne:Enterprise

Cloud based platform helping you capture key supply chain transaction from the farm to the consumer. Track your Supplier/Buyer transactions, Manufacturing, Recalls & Returns, Document management and more!
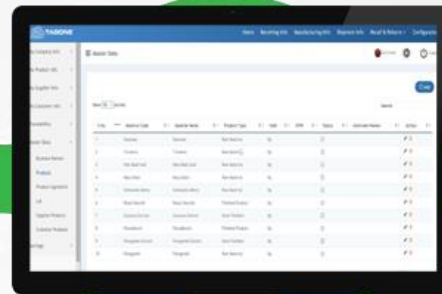
TagOne:Engage

Consumer application allowing you to share the safety, science, source and story of your brand at the scan of a QR code or click of a button

TAGONE

The Food Supply Chain
Global, Complex and Potentially Risky

Inconsistent standards for international organic and non-GMO

Lack of consistent industry standards

New Regulations mean tighter Controls: NESFS /PTI /FSMA /Other

CONSOLIDATOR

IMPORTER

BRAND OWNER

RETAILER

GS1

FDA

GROWERS/ FARMERS

PROCESSOR

MANUFACTURER

DISTRIBUTOR

CONSUMER

Low systems maturity esp. upstream

Potential risk with Pathogens with some products

Presence of bad actors indulging in unethical practices (food fraud/adulteration)

Increasingly Demanding consumer: Looking for more transparency in our foods

The Food Supply Chain
Sometimes, Local/Predictable – Still Potential Risk

Presence of Bad actors indulging in unethical practices (food fraud/adulteration)

Lack of consistent industry standards: Need for cross industry collaboration to ensure interoperability

PROCESSOR

RETAILER

Increasingly Demanding consumer with a Megaphone (social Media): Looking for more transparency in our foods

GROWERS/ FARMERS

DISTRIBUTOR

CONSUMER

Potential risk with Pathogens with some products: Salmonella/E-Coli/ Listeria/Norovirus/Other

New Regulations mean tighter Controls: NESFS /PTI /FSMA/Other

Key to Comprehensive Transparency

Linking every Transfer of Ownership & Transformation Event across the Supply Chain along with its supporting data and docs (CTE's and KDE's)

REGIONAL CONSOLIDATOR

IMPORTER

BRAND OWNER

RETAILER

GROWERS/ FARMERS

REGIONAL PROCESSOR

MANUFACTURER

DISTRIBUTOR

CONSUMER

"Who? What? Where? When? Why?"

TAGONE

Linking every Transfer of Ownership & Transformation Event
Identify, Capture, Share

GROWERS/FARMERS
- Farm Info/specifications
- Farm Block Info/GPS Coordinates
- Farmer Info
- Crop Cycle details – Planting/Harvest
- Sustainability Info
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Planting/Harvest/BIUB)
- Quality Report
- Pictures
- Other Info

REGIONAL CONSOLIDATOR
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
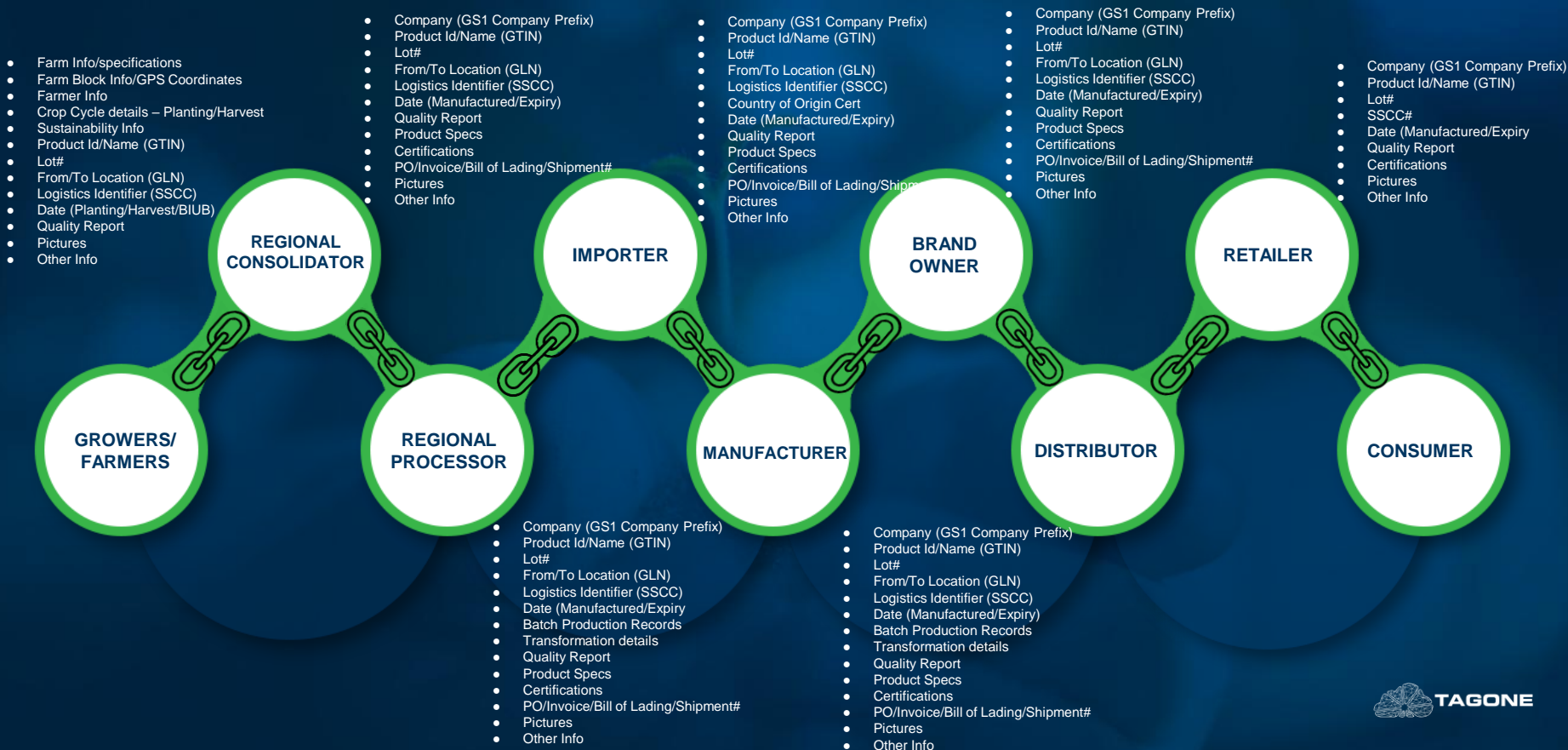- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Manufactured/Expiry)
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

REGIONAL PROCESSOR
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Manufactured/Expiry)
- Batch Production Records
- Transformation details
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

IMPORTER
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Country of Origin Cert
- Date (Manufactured/Expiry)
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipm...
- Pictures
- Other Info

MANUFACTURER
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Manufactured/Expiry)
- Batch Production Records
- Transformation details
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

BRAND OWNER
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Manufactured/Expiry)
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

DISTRIBUTOR
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Manufactured/Expiry)
- Batch Production Records
- Transformation details
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

RETAILER
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- SSCC#
- Date (Manufactured/Expiry
- Quality Report
- Certifications
- Pictures
- Other Info

CONSUMER

TAGONE

Tying the Supply Chain Together in the TagOne AWS Cloud
Identify, Capture, Share

- Farm Info/specifications
- Farm Block Info/GPS Coordinates
- Farmer Info
- Crop Cycle details – Planting/Harvest
- Sustainability Info
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Planting/Harvest/BUB)
- Quality Report
- Pictures
- Other Info

- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

- Logistics Id
- Date (Manufactured/Expiry)
- Quality Report
- Product Specs
- Certifications
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- Pictures
- Other Info

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- Lot#
- SSCC#
- Date (Manufactured/Expiry)
- Quality Report
- Certifications
- Pictures
- Other Info

REGIONAL CONSOLIDATOR

IMPORTER

BRAND OWNER

RETAILER

GROWERS/ FARMERS

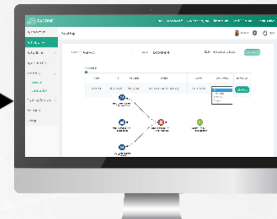**REGIONAL PROCESSOR**

MANUFACTURER

DISTRIBUTOR

CONSUMER

- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (Manufactured/Expiry
- Transformation details
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
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- Other Info

- Company (GS1 Company Prefix)
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- From/To Location (GLN)
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- Transformation details
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

TAGONE

# Tying the Supply Chain Together in the TagOne AWS Cloud
Identify, Capture, Share

Enabling Supply Chain Oversight

Managing Ingredient Life Cycle Data: Ashwagandha Herb in Supplement Example

Farmer → **Processor** → **Distributor** → **Manufacturer** → **Consumer**

Farmer
- Farm Info/specifications
- Farm Block Info/GPS Coordinates (GLN)
- Farmer Info
- Crop Cycle details – Planting/Harvest
- Sustainability Info
- Product Id/Name (GTIN)*
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)*
- Date (Seeding/Harvest/BIUB/Other)
- Quality Report
- Pictures
- Other Info
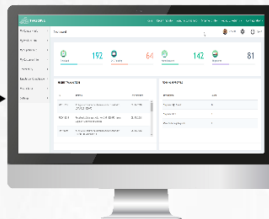
Processor
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)*
- Date (Processing/Expiry/Other)
- Transformation details (Input/Output)
- Batch Production Records
- Quality Report/Certifications
- Product Specs
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info
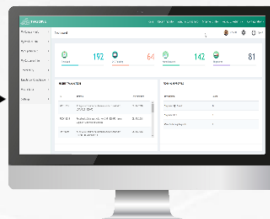
Distributor
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)*
- Date (Processing/Expiry/Other)
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

Manufacturer
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)*
- Date (Manufacturing/Expiry/Other)
- Transformation details (Input/Output)
- Master Manufacturing Record/ Batch Production Records
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

Consumer
- Detailed Product Info
- Product Ingredients
- Ingredient Traceability
- Origin of Supp.
- Supplier Details
- Sustainability
- CoA/Quality Reports
- Date (Manufacturing/Expiry/Other)
- Social Media Ref.

Enabling Supply Chain Oversight – Blockchain View

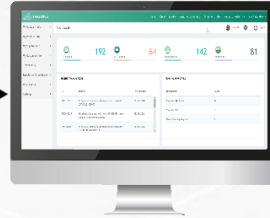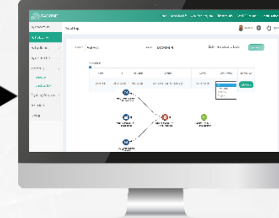## Managing Ingredient Life Cycle Data: Ashwagandha Herb in Supplement Example
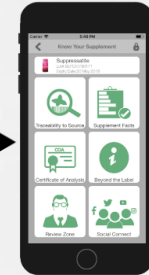
Farmer → **Processor** → **Distributor** → **Manufacturer** → **Consumer**
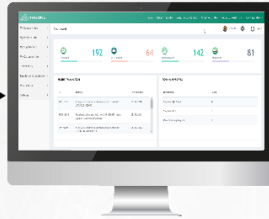
Farmer
- Farm Info/specifications
- Farm Block Info/GPS Coordinates
- Farmer Info
- Crop Cycle details – Planting/Harvest
- Sustainability Info
- Product Id/Name (GTIN)
- Lot#
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- Logistics Identifier (SSCC)
- Date (Seeding/Harvesting/BIUB/Other)
- Quality Report
- Pictures
- Other Info

Processor
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (BIUB/Production/Other)
- Transformation details (Input/Output)
- Quality Report/Certifications
- Product Specs
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

Distributor
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (BIUB/Production/Other)
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

Manufacturer
- Company (GS1 Company Prefix)
- Product Id/Name (GTIN)
- Lot#
- From/To Location (GLN)
- Logistics Identifier (SSCC)
- Date (BIUB/Production/Other)
- Quality Report
- Product Specs
- Certifications
- PO/Invoice/Bill of Lading/Shipment#
- Pictures
- Other Info

Consumer
- Detailed Product Info
- Primary Ingredients
- Ingredient Traceability
- Origin
- Supplier Details
- Sustainability
- CoA/Quality Report
- Social Media Ref.

TAGONE 38

2020 FDA's New Era of Smarter Food Safety Blueprint

As part of FDA's NESFS Blueprint pre-defined specific CTE's & KDE's need to be tracked across the Supply Chain

Summary of FDA's recommended CTE's & KDE's:

- Growing – Approx. 11 KDE's proposed (including sprouts)
- Receiving – Approx. 10 KDE's proposed
- First Receiver – Approx. 7 KDE's proposed
- Transformation – Approx. 8 KDE's proposed
- Creation – Approx. 6 KDE's proposed
- Shipping – Approx. 10 KDE's proposed

Microsoft Excel
Worksheet

*TagOne covers 100% of the FDA proposed CTE's and KDE's across the Supply Chain

TAGONE

2019 Leafy Green Pilot

Pilot 3: Private label salad (under USDA) from national chain store

Pilot team reviewed following info from Retailer to make connections
- Purchase date and time
- Purchase location
- Items purchased
- UPC
- Brief description of product
- PO numbers
- ASN Info
- Sell or Purchase by dates
- Shelf-life info
- Store POS data
- On-hand inventory in store

Pilot 2: Romaine hearts sold at Independent retailer using 3rd party distributor

Pilot team reviewed following info from Distributor to make connections
- Receipt data from brand owner
- Shipment data to Retailer
- Possible ranches and fields data – based on Distributor PO
- Inventory rotation practices
- Typical daily velocity
- Inventory on-hand by date
- Shipping protocol (e.g., FIFO, Code date)
- Delivery frequency

PROCESSOR

RETAILER

GROWERS/ FARMERS

DISTRIBUTOR

CONSUMER
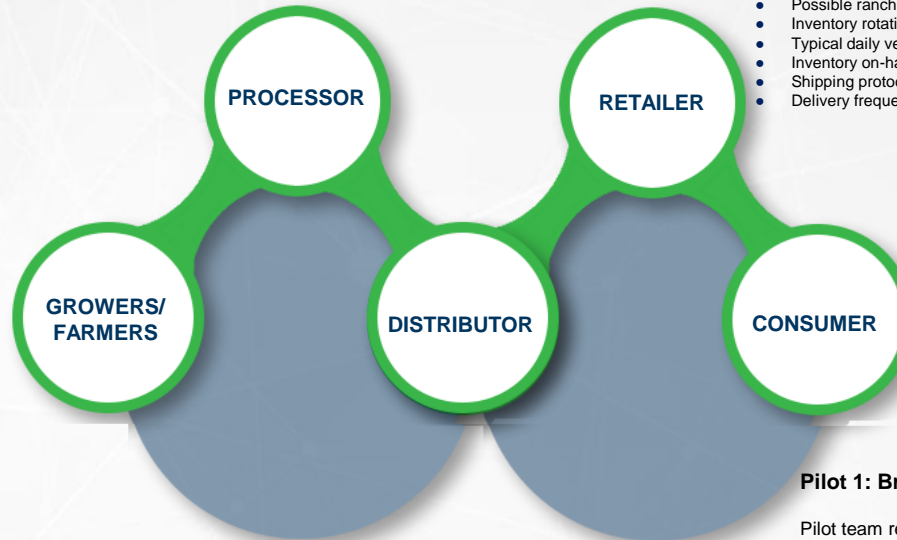
- Date of purchase
- Location of purchase
- Product description
- Brand (as applicable)
- Identifying Info (e.g., UPC, harvest region, Lot#)
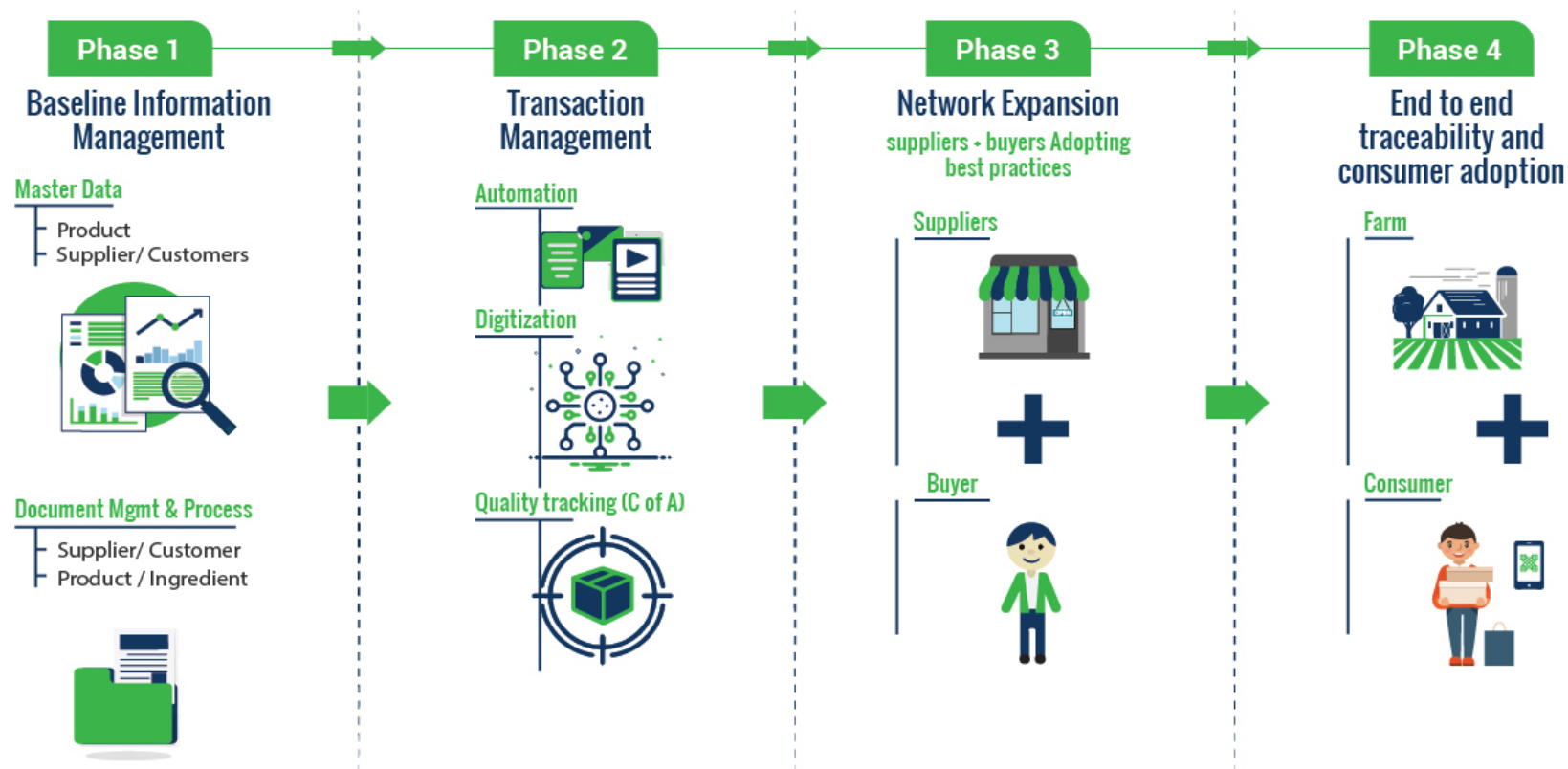- Shopper info
- Photographs of receipt and product

Pilot 1: Branded bagged salad from regional chain grocery store

Pilot team reviewed following info from Retailer to make connections
- Lot # received at Retailer DC (BIUB Date)
- Daily Sales date from specific Store
- Delivery Times from DC to Retail store
- Shelf Stocking Patterns
- Inventory Reconciliation

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The Path to Full Traceability

Phase 1
Baseline Information Management

Master Data
- Product
- Supplier/ Customers

Document Mgmt & Process
- Supplier/ Customer
- Product / Ingredient

Phase 2
Transaction Management

Automation

Digitization

Quality tracking (C of A)

Phase 3
Network Expansion
suppliers + buyers Adopting best practices

Suppliers

+

Buyer

Phase 4
End to end traceability and consumer adoption

Farm

+

Consumer

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DELIVERING TRANSPARENCY

Comprehensive Supply Chain Transparency
Long List of Business Benefits…

Address Legal & Regulatory Risks

- Provides a Single regulatory repository for both company Data & Documents
- Enables full tech traceability compliance with the New Era of Smarter Food Safety
- Enables compliance with FSMA/FSVP
- Automated Recalls & Returns
- Helps you expedite your GMP/GAP/Other certifications
- Eases your GFSI/SQF Audits
- Addresses multiple state labeling regulations (QR Code)
- Helps you warn consumers of recalls via the QR Code label warning functionality

Improve Operational Efficiencies

- Gives companies visibility across supply chain and dramatically improves decision making ability
- Enables industry best practices across core transactions (CTE's) like Buy/Transform/Sell
- Implements MDM best practices and interoperability standards
- Gives you tighter operation linkages and control - Buy/Transform/Sell
- Improves supplier mgmt. by tracking supplier performance on product quality over time
- Helps you drive Internal (one-up, one-back) & external(beyond one-up one-back) product traceability

Food Safety & Consumer Protection

- Ensures companies follow best practices in operations (GMP/GAP/GHP/other)
- Quality visibility (CoA/Certifications/other reports) at each step of product life cycle
- Audit trail of every transaction across the supply chain (identify bad actors easily)
- Higher confidence in food item produced
- Recalls and Returns faster
- Consumers get access to detailed food info before they buy (QR Code/other)
- Recall warnings via QR Code labels

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Closing Thoughts

- Tech Traceability is key to ensuring comprehensive transparency across the food supply chain

- More transparency ensures better supply chain oversight and control on food movement across its life cycle including all its supporting data and documents

- This dramatically reduces the possibility of 3rd party food fraud, adulteration or diversion

- Comprehensive Transparency is a journey in which Tech Traceability solutions need to work closely with the right processes, standards and company culture to be successful

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Questions?

Questions should be submitted to the presenters via the **Questions section** at the right of the screen.

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- **May 26** Digitalizing Environmental Monitoring Programs to Unlock Their True Value in Ensuring Safe Quality Products

- **June 9** Low Water Activity Food Safety Series Part 4: Grain Based Foods and Ingredients

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