



Investing in Agriculture – What Does the Future Hold?



Today's webinar is made possible by a grant from Farm Credit

Investing in Agriculture – What Does the Future Hold?

Shari Rogge-Fidler

President and CEO

Farm Foundation



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- Participants can submit questions by clicking on the Q&A button at the bottom of their screens.
- When submitting questions, please include your name and company so questions may be contextually understood.
- Due to time limits, the moderator may not be able to ask all questions submitted.
- This forum is being recorded and will be posted on our website at farmfoundation.org.
- If there are any connectivity issues during the forum, we ask that you stay on the forum as those generally rectify themselves after a few moments.
- When the forum concludes, participants will receive a link to a short survey—Farm Foundation appreciates you taking the time to complete it.

Farm Foundation

Farm Foundation is an accelerator of practical solutions for agriculture. Our mission is to build trust and understanding at the intersections of agriculture and society. We accomplish this by leveraging non-partisan objective dialogue, information and training, catalyzing solutions and creating multi-stakeholder collaboration.

Our vision is to build a future for farmers, our communities and our world.

Since 1933, we have connected leaders across agricultural sectors—farming, business, academia, organizations and government.

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Farm Foundation

Investing in Agriculture – What Does the Future Hold?

Panelists



Seana Day

Partner
Better Food Ventures



Cristina Rohr

Principal of Investments
S2G Ventures



Kiersten Stead

Managing Partner
DCVC



Joelle Faulkner

Founder and CEO
Area One Farms



Seana Day

Partner
Better Food Ventures



Farm Foundation Forum:
Investing in Agriculture – What Does the Future Hold?

September 2020

The AgTech Investment Arc

Today's Agenda:

- Where Have We Come From?
- Where Are We Today?
- Where Are We Going?
- What Have We Learned and Why is it Important?

The Better Food Ventures Team:

Expertise Across AgTech, Indoor Ag, and Food Tech



Rob Trice

15+ years in global IT
venture investing, six
years angel investing in
Food & Ag Tech



Seana Day

15+ years of
investment, M&A
advising, tech
experience in US & EU,
Ag roots in Central
Valley



Michael Rose

25+ years in US & EU
new venture creation
and corporate
innovation in the tech
and restaurant sectors



Brita Rosenheim

15+ years of
investment, M&A, and
strategic planning
experience within the
Food / FoodTech
verticals

**We uniquely leverage our years of working closely as a team,
exclusive focus, deep industry experience, institutional backgrounds,
and extensive global network**

FARMTECH LANDSCAPE 2020



Digital Agronomy & Production

Field Monitoring Sensors & Solutions



Precision Irrigation



IoT Monitoring Platforms



Soil Sensing / Analysis



Precision Applications



Imaging Analytics



Imaging Systems & Services



Pest Sensing / Monitoring



Bee Keeping / Pollination



OEM / Input Digital Agronomy Platforms



Automation/ Robotics Row Crops



Automation/ Robotics Specialty Crops



Planning & Farm Management

Crop / Farm Management Software



FMIS (Farm Management Information Systems)



Farm ERP



Retail ERP



Sustainability Tools



Water Management



Farm Data Management



Labor Management



Smallholder Farms



Market Access and Financing

Farmland Analysis



Yield Forecasting



Finance & Insurance



Crop Marketing / Trading Platforms



Food Recovery



Digital Marketplace (Input)



Integrated Solutions



Digital Marketplace (Offtake)



Farm Data Aggregators, Integrators, Analytics



FOODTECH & MEDIA LANDSCAPE 2020



/// IN-HOME ///

/// OUT-OF-HOME ///

Digital-First Recipe/Food Content



"Smart" / Connected Food Content



Nutrition / Wellness



Digital CPG Mktg, Ad & Sales Insights



Grocery eCommerce



Omnichannel Grocery (B2B2C)



Meal Delivery (eCommerce)



Catering & Corporate Meals



Ordering & Delivery Marketplaces



Wine, Beer & Spirits Content / eCommerce



Restaurant Reviews & Local Discovery



Local Deals, Loyalty, Rewards



Restaurant CX, Mktg & CRM (B2B)



Reservations / Event Mgmt



Restaurant Staffing / Workforce Mgmt



On-Premise + Retail Alcohol Tech (B2B)



On-Premise Ordering/Payments



Food Rescue / Waste Mgmt (Foodservice)



Restaurant Mgmt & Business Analytics



/// ENABLING TECHNOLOGIES ///

Supply Chain Transparency/Sustainability Tracking



AI/ML Food & Bev Product Innovation



Next Gen In-Store Grocery Tech



Food Procurement Marketplaces & Platforms



Ordering & Delivery Platforms (B2B)



Restaurant Cloud POS



Conversational Platforms: Voice & Bots



Shared / Cloud Kitchen Platforms



Supply Chain Transparency/Sustainability Tracking



AI/ML Food & Bev Product Innovation



Next Gen In-Store Grocery Tech



Food Procurement Marketplaces & Platforms



Ordering & Delivery Platforms (B2B)



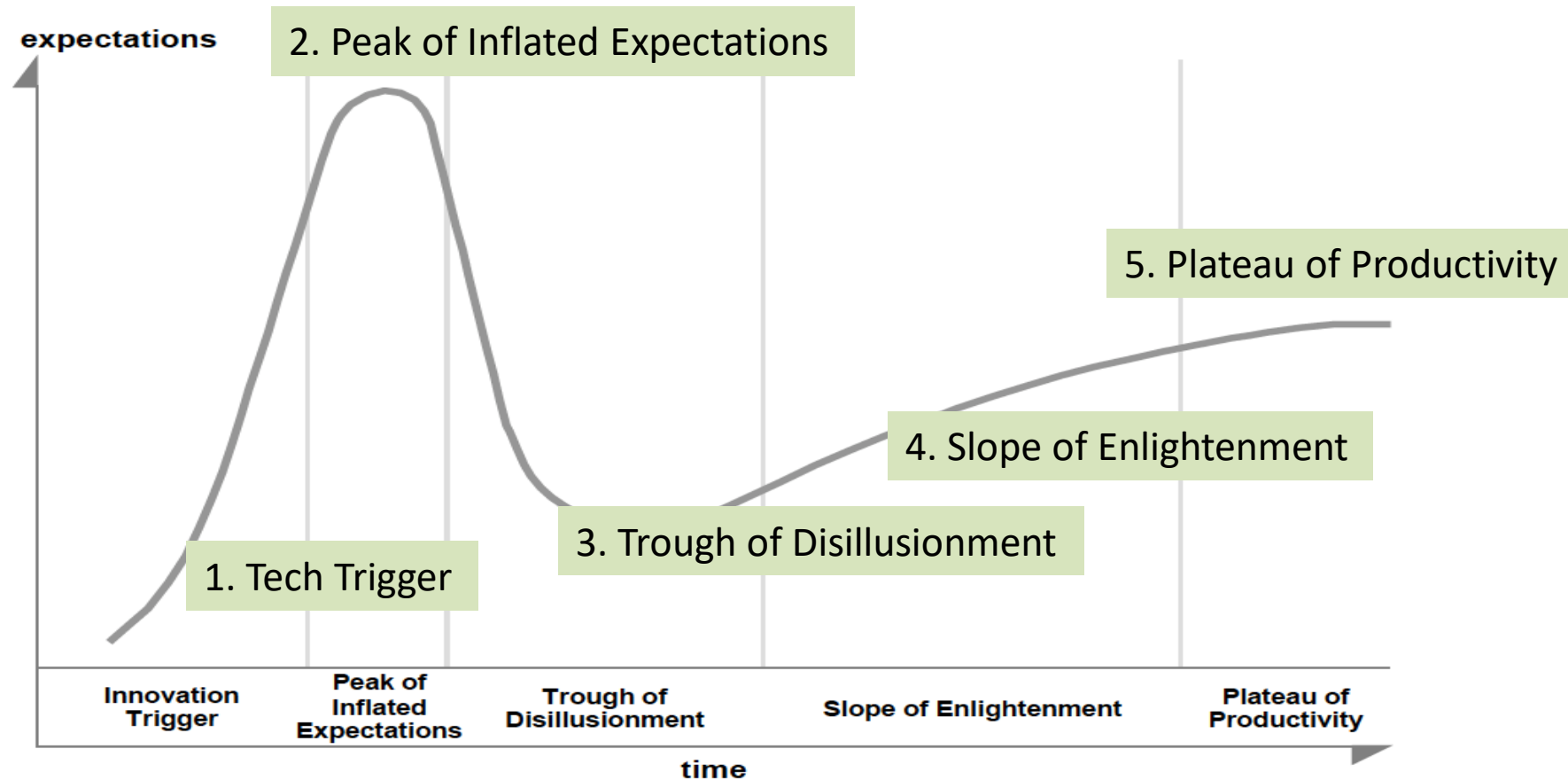
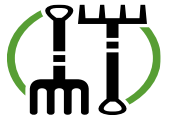
Restaurant Cloud POS



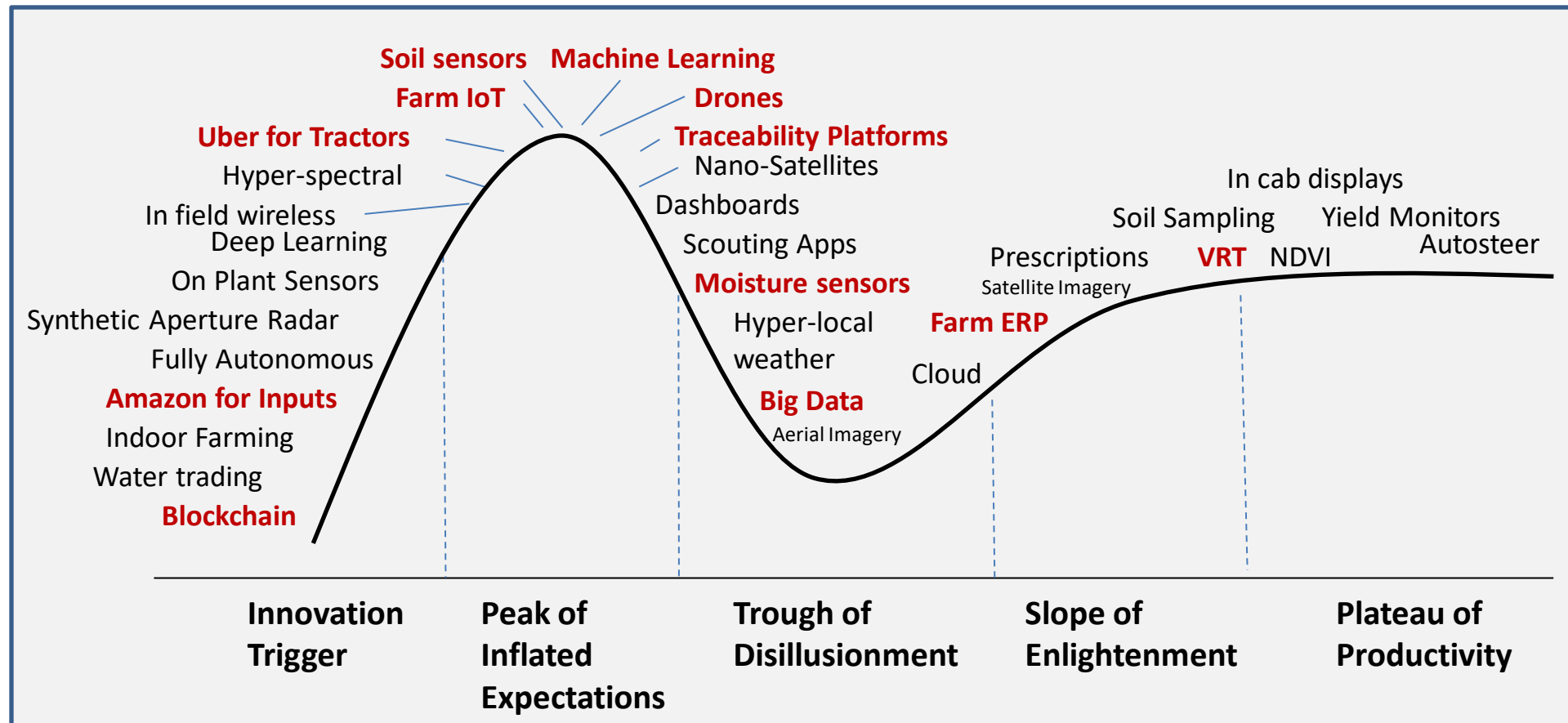


QUICK
RETROSPECTIVE

The Technology Adoption Curve (or Gartner Hype Cycle)

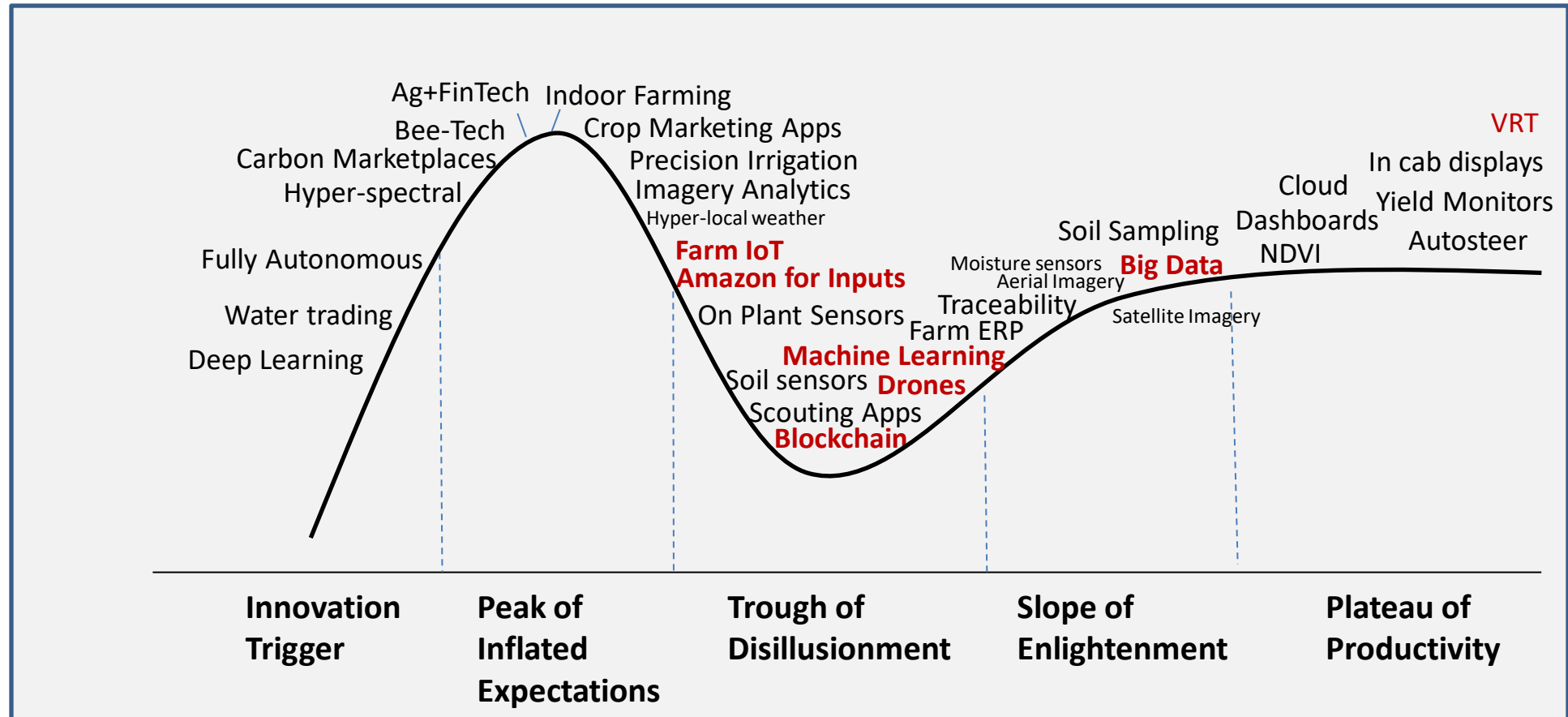


Precision Ag Innovation Hype Curve (2016)

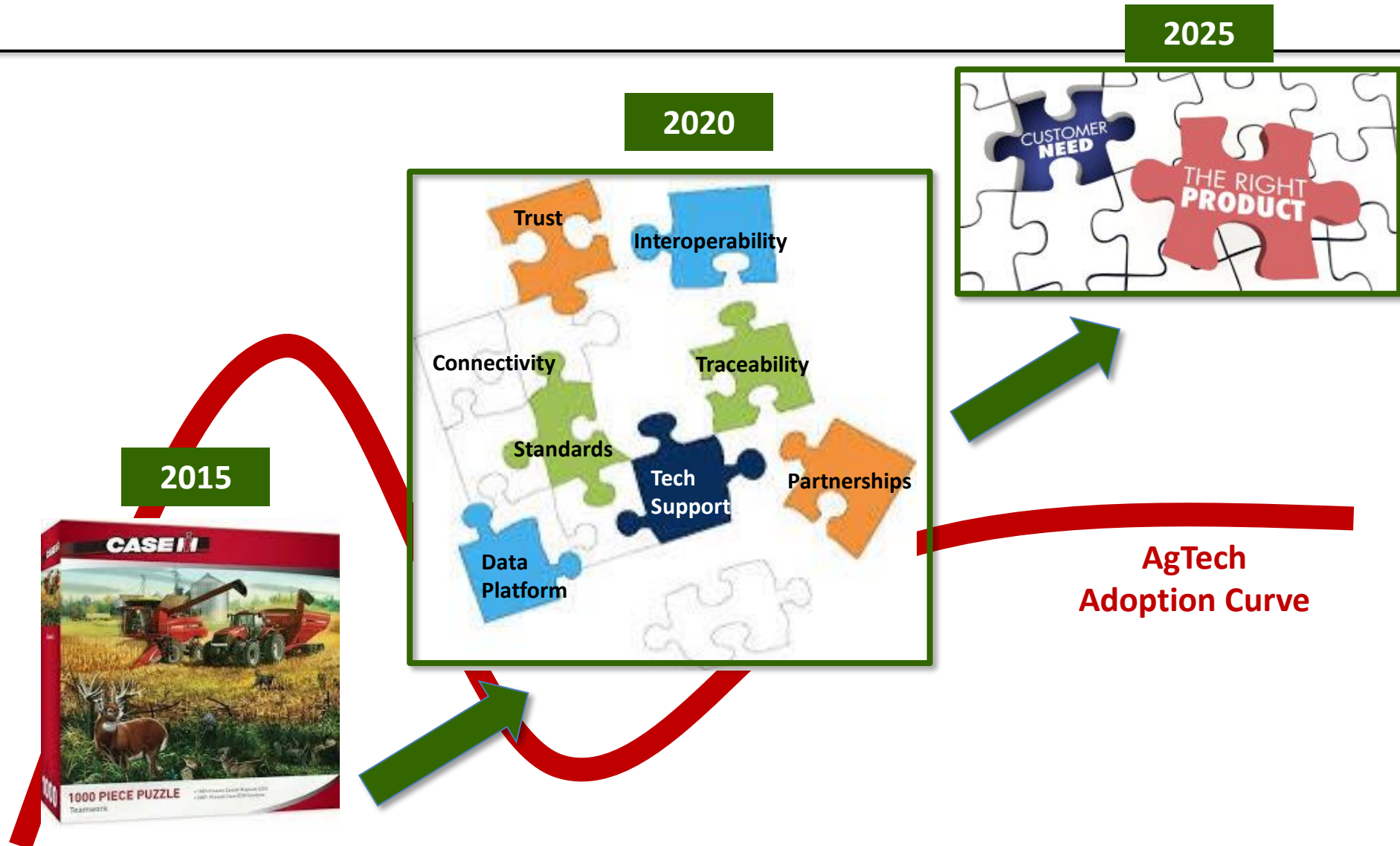


Source: Monsanto Growth Ventures

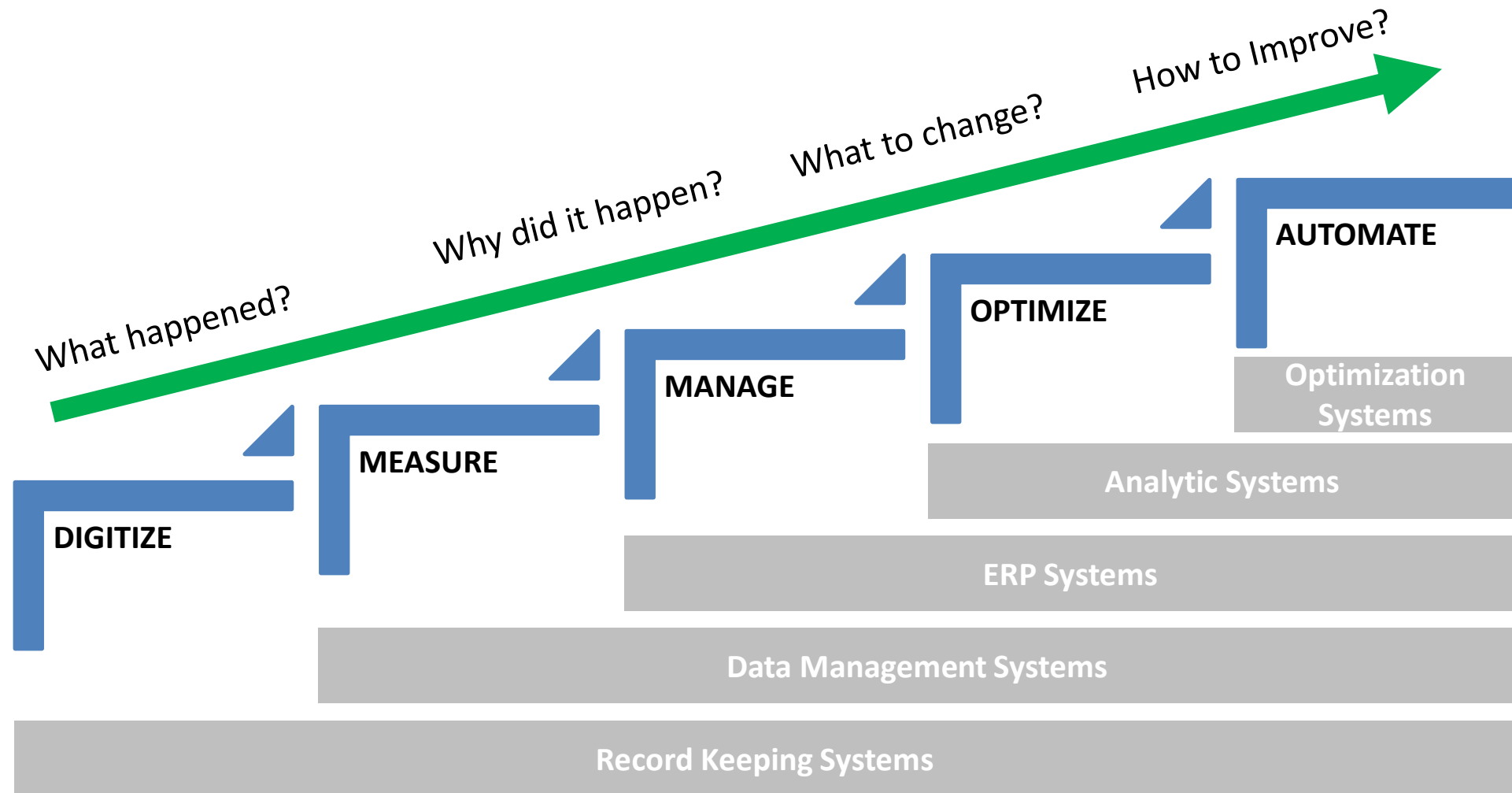
Precision Ag Innovation Hype Curve (2020)



The AgTech Adoption Puzzle



Today, Where Are We on the Digitalization Journey?



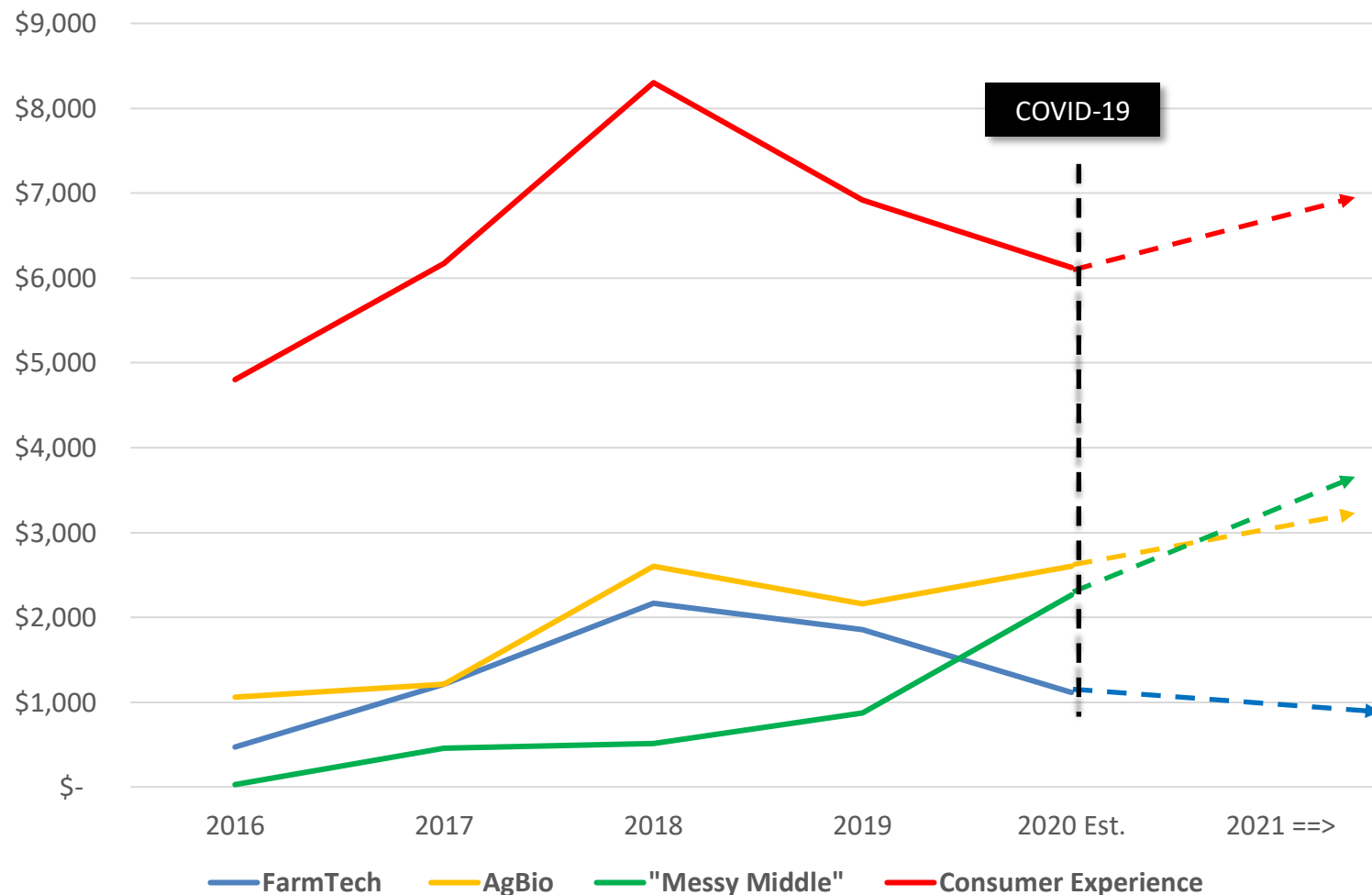
**Where have we come from
and where are we going?**



Investment Trends 2016-2020 (and Beyond)



AgTech & Food Tech Investment Dollars



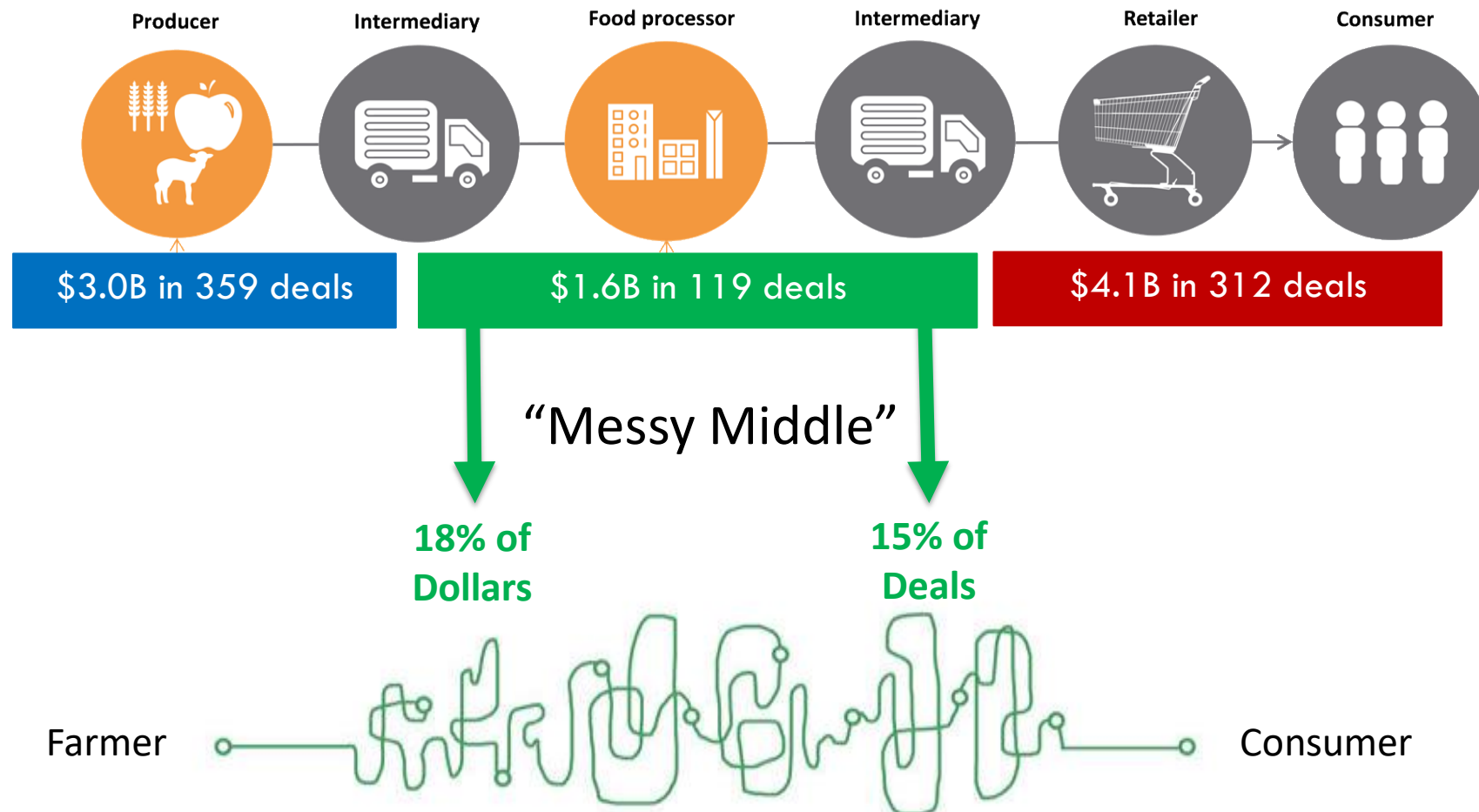
Potential Accelerators:

- **Gov't stimulus used for F&A infrastructure investment and key initiatives** (e.g. soil health, inland waterways / storage, digitize regulatory reporting)
- **New Sources of Capital**
- **Investment & Adoption in Developing Markets**

Is Venture Capital Aligned with Market Needs?







1H 2020 Global AgriFood Investments



2021 Investable AgTech Themes: Beyond the Farmgate

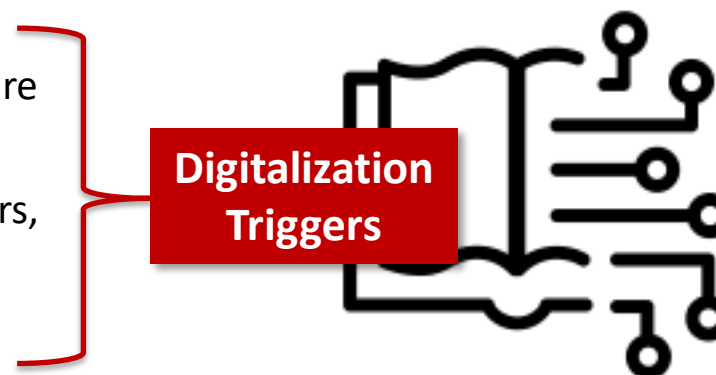


Data User	Data Set Examples	Used For
Institutional Ag Land Investors 	Soil / Crop Productivity Yield Forecasting Crop Planning / Modeling	Valuation Risk Investor Reporting
Farm Lenders 	Farm ERP Asset Utilization Water Availability / Quality Imagery / Weather	Reporting Automation Risk Appraisals / Underwriting Insurance
Handlers Processors 	IoT ERP / MRP / MOM QA/QC	Industry 4.0 Supply Analytics Procurement Logistics
CPGs Brands 	Crop input reporting (FMS) Mgmt. Practices 3 rd Party Verification	Sustainability Traceability

Key Learnings...From Then to Now



- The importance of Trust
- Data isn't worth much without insights
- User Experience / User Interface (UX/UI)
- Understanding the totality of a farming operation and all of the support systems (Point solutions vs. System of Systems)
- Tech's role in biological advancements (farming for yield) and tech's role in profitability (farming for cash flow)
- **Post-COVID?**
 - Sharper focus on “need to have’s” vs. “nice to have’s” (wallet share and access to VC)
 - Remote worker dependence on cloud and mobility (sales, advisors, learning tools)
 - eCommerce and omnichannel experiences



**WORK ON THE BUSINESS,
NOT IN THE BUSINESS.**

- Sir John Hargrave (quoting Michael Gerber)

Thank you!

Seana Day

Seana@betterfoodventures.com

@seanahull (twitter)



Cristina Rohr

Principal of Investments
S2G Ventures

S2G Ventures Company Overview

Healthy planet, healthy people, healthy profits.





We're harnessing the power of food innovation to create better outcomes for people and the planet.



We invest holistically
from soil to shelf.



We back and support
trailblazing entrepreneurs.



We act as a hub – convening
diverse partners and perspectives.

S2G Ventures

Founded in 2014. Located in Chicago and San Francisco.

We invest holistically
from soil to shelf.

\$500K-\$20M

Investment size

**Seed, venture and growth stage
companies.**

Full value chain mandate.

We back and support
trailblazing entrepreneurs.

50+

Portfolio Companies

5

Countries

We act as a hub – convening
diverse partners and perspectives.

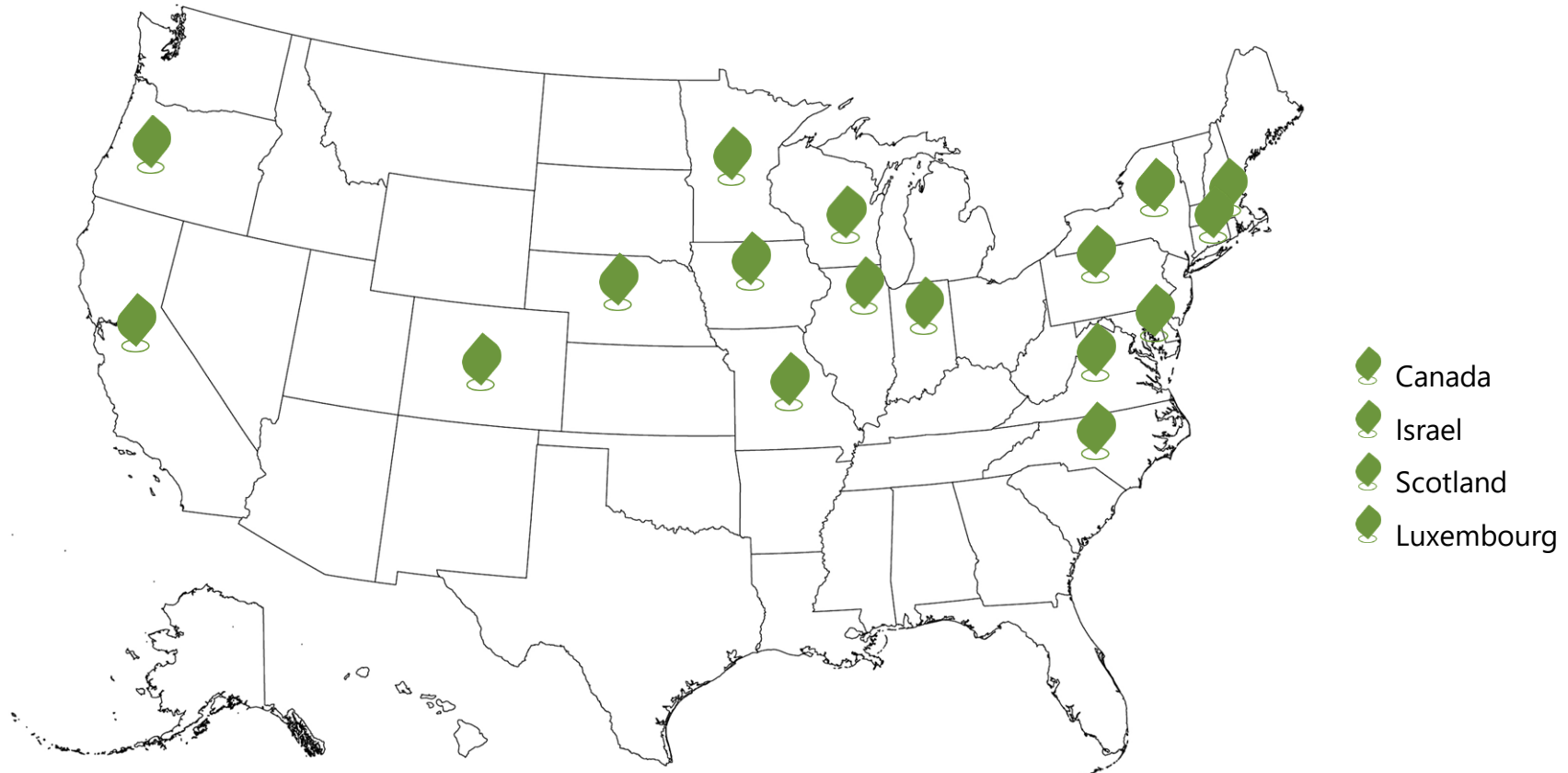
250+

Co-investors including
40 corporates

250+

Strategic relationships
with key players in
food production,
processing, and
retailing

Backing and supporting entrepreneurs across the United States and beyond.



Impact investing combines financial returns with positive long-term **social and environmental impacts**.

Financial Returns

150%

Average Portfolio Company
Revenue Growth

1.2B

Total Portfolio Company
Revenues in 2019

1.6B

Of Total Capital
Added to the
System Overall

Social & Environmental Impacts



Climate Change



Farmer Profitability



Food Access & Affordability



Human Health

White Space

Early stage risk has significant catch up in order to reach levels seen in adjacent venture backed sectors.



We are active investors.

One of the largest and most active AgriFood venture and growth funds.

Number of deals, 2019



\$700m

Manage \$700m of capital

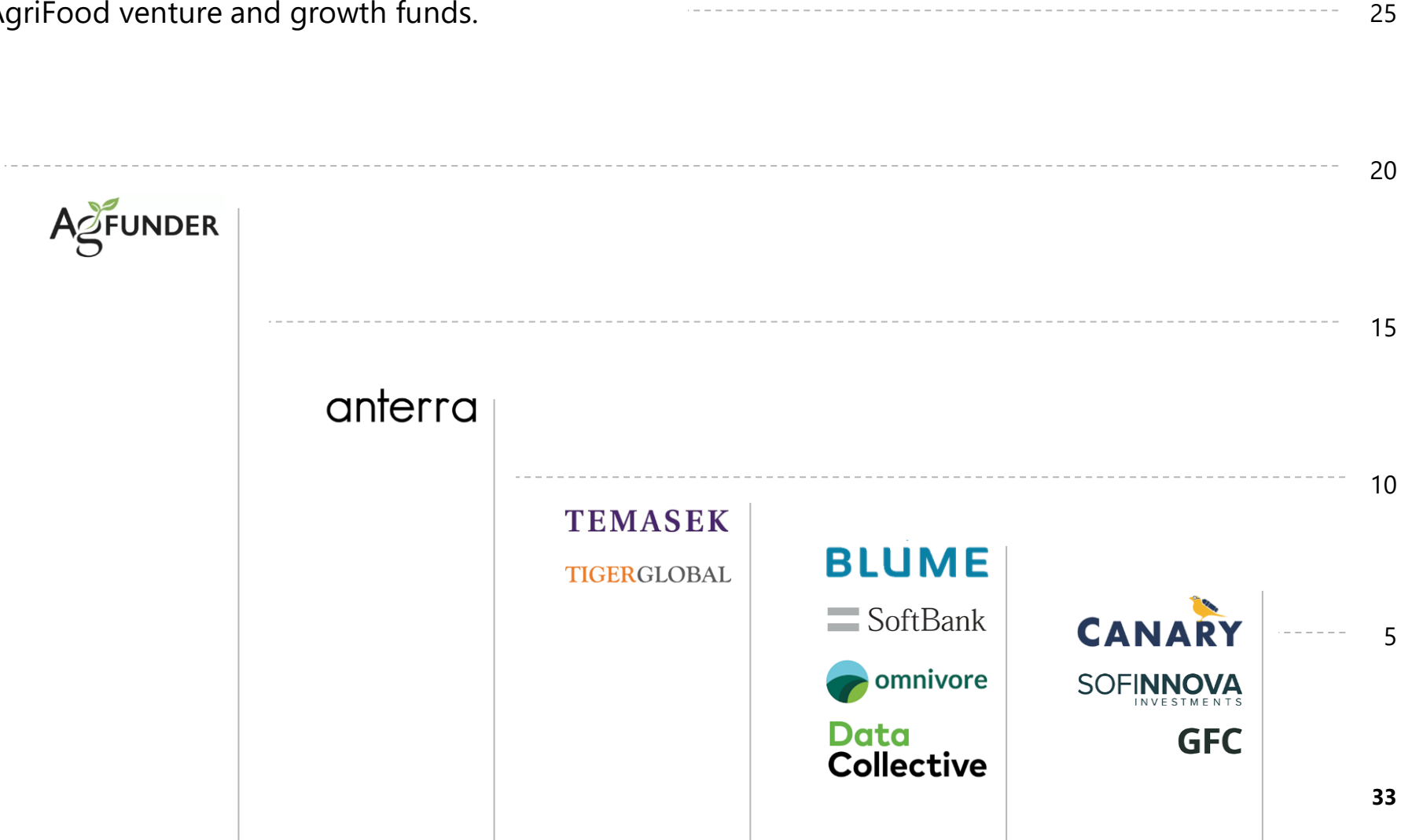
1000+

Evaluate 1000+ deals annually

250+

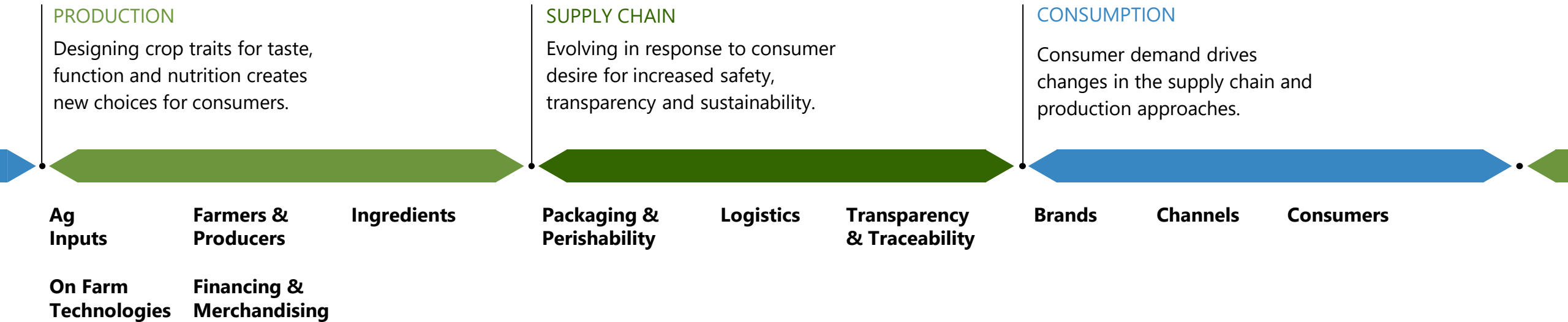
Strategically co-invest with 250+ syndicate partners

Agfunder Agri-FoodTech Investing Report - 2019



Investing from Soil to Shelf

By connecting the dots between the consumer and farm, we have an outsized impact on all aspects of the ecosystem.



Our portfolio

PRODUCTION

SUPPLY CHAIN

CONSUMPTION



Our Ecosystem

S2G sits at the center of a community that collaborates to transform and improve the overall food system.



Our thesis





Thesis underpinned by a **changing consumer**

Nutrition

More Natural &
Functional

More Clean
Label

4x
the growth of
conventional

62%
shoppers changed
what they buy to
reduce exposure to
chemicals

Access

More
Decentralized

More Digital /
Online Grocery

95%
single urban
households willing
to pay premium for
local

57%
5-year CAGR of
food and drink
sales through
online retail

Assurance

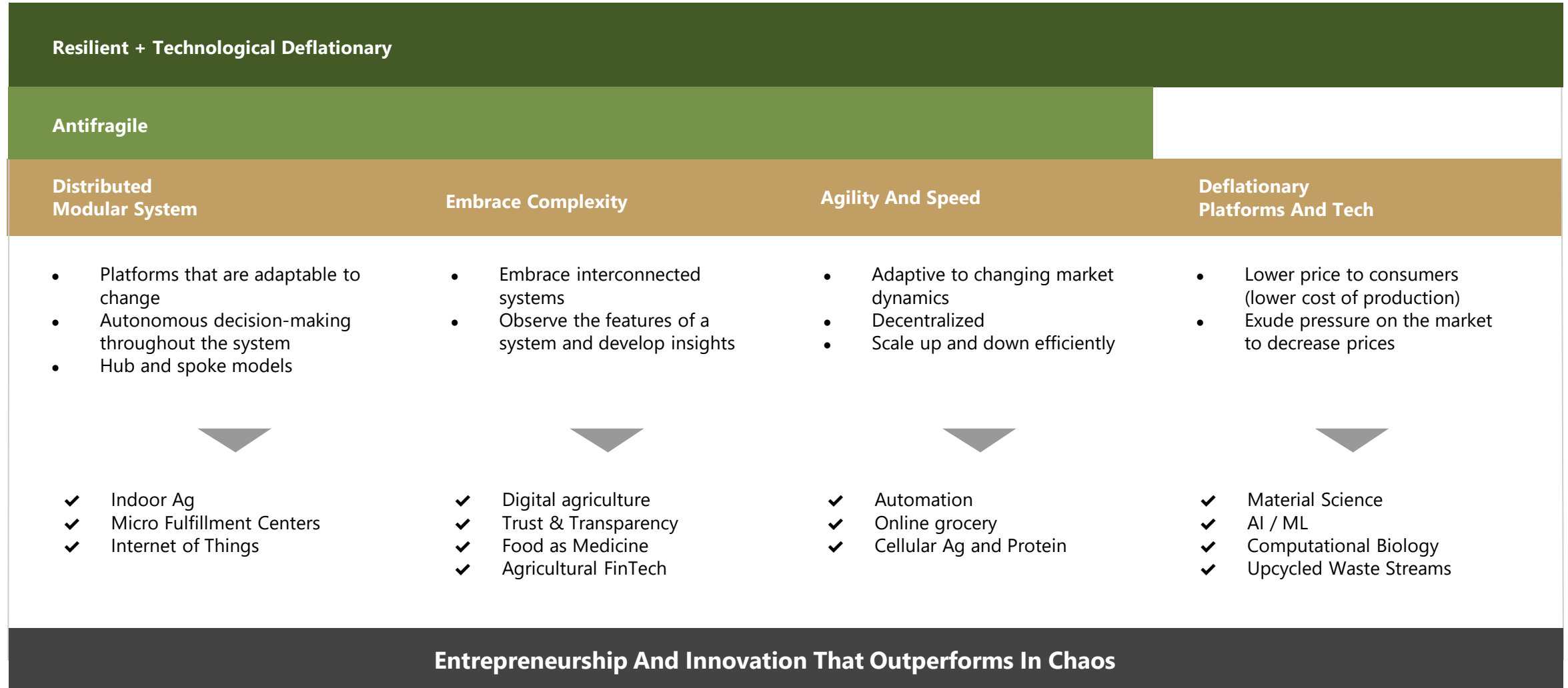
More
Traceability

Less Loyalty to
Mega Brands

81%
consumers want to
know where their
food comes from

90%
of Top 100 CPG
Brands losing
market share

The Future of Food – Antifragile and resilient innovations outperform in chaos.



Although few trends have begun during coronavirus, it has catalyzed the adoption of existing trends.³²

PRE-CORONAVIRUS TRENDS THAT HAVE ACCELERATED BY CORONAVIRUS

ALTERNATIVE PROTEIN



7.9% growth per year
in meat alternatives

INDOOR AGRICULTURE



\$49.6 billion by 2025
size of global indoor farming
market

DIGITAL AG



\$240 billion by 2050
digital ag market including sensors,
drone, AI, etc.

ONLINE GROCERY DELIVERY



3% of the grocery
market is online, but is expected to
quadruple by 2023

FOOD AS MEDICINE



\$277 billion in growth
for the functional food and
beverage market between 2020
and 2024



\$14.2 billion by 2022
estimated size of the plant-based
meat sector



\$13 billion by 2023
estimated size of vertical farming



\$12.9 billion market by 2027
precision agriculture market in the
United States



\$365 billion by 2030
estimated size of the online
restaurant delivery



80% of consumers
believe functional foods help
prevent / delay the onset of some
diseases

Alternative Protein

The next generation of protein production will be driven by production speed, price, and taste.

Animal agriculture is a large, growing market globally; however, the pandemic has exposed challenges with the long production cycle and centralized processing facilities. Beef takes between 18 and 24 months, chicken between six to eight weeks, and pork around six months from birth to slaughter.

Covid-19 Catalytic Factor

Processing facilities disruption:

- Smithfield's pork facilities shutdown impacts nearly 5% of the U.S. pork supply
- JBS closed a ground beef facility in Pennsylvania until at least mid-April due to COVID-19 cases

Asymmetrical relationship between just-in-time inventory through grocery and the long-cycle production for animal production

Centralized processing facilities expose further food safety and pathogen risks



Innovation Opportunities



Cellular protein



Plant-based protein



Fungi



Algae



Other biomass concepts



Indoor Agriculture

Stability through decentralized production, automated and integrated systems, and redefining a perishable supply chain.

Advantages of Indoor Growing

- Locally produced with fewer miles – arbitrage to imports and alignment with food nationalism
- Year-round availability of seasonal crops
- Faster organic scaling than outdoor transition and certification



Innovation Opportunities



Integrated facilities with machine learning to optimize all aspects of grow environment



Contactless food with automation from planting to harvest to packaging



Food safety and traceability solutions

Digital Agriculture

Innovation in light of field labor shortages.

Innovation Opportunities

- On-farm sensor technology to monitor key variables to monitor grow environments (local weather, leaf temperature, photosynthesis, et al)
- Drone technology to help farmers monitor and analyze crops quicker than current technology allows
- Robotics and automation to enhance harvesting – either augmenting or replacing current labor constraints
- Precision application of pesticides and fertilizers
- Targeted use of nutrients and water use
- Shelf-life extension technologies

“ California’s nearly \$50-billion agricultural industry is bracing for a potential labor shortfall that could hinder efforts to maintain the nation’s fresh produce supply amid the widening coronavirus outbreak.”

Los Angeles Times

Channel Digitalization

Food distribution will be more agile, traceable and personalized.³⁵

- Online grocery has grown from 4% pre-COVID-19 to around 8% with expectations of reaching 10% by the end of the year
- Safety and social distance practicing have been important for both consumers and employees – to-date there have been at least 41 grocery store employees (there are 3 million grocery store employees in the U.S.) that have died of COVID-19
- Amazon (owner of Whole Foods) has stopped accepting new customers for Amazon's online grocery delivery and shifted hours at select Whole Foods locations to prioritize customers purchasing online
 - Whole Foods' stores offering pick-up services grew from 80 to 150 locations in the pandemic's start
- The current food system is tens of thousands of arrangements of supply and demand; however, as the system has broken down there is significant supply with minimal demand (caused by the deterioration of food service) leading to significant food waste
 - Dairy Farmers of America estimates farmers are dumping as much as 3.7 million gallons of milk per day



Innovation Opportunities



Online Grocery Ordering



Micro-fulfillment centers



Traceability

Food As Medicine

The convergence of food, science and technology to build a resilient population.

- Approximately 90% of hospitalized patients identified through COVID-NET had one or more underlying condition – the most common being obesity, hypertension, chronic lung disease, diabetes mellitus, and cardiovascular disease
- Approximately 42.4% of the population falls in the obese category
- In the United States, there is only 2.2 hospital beds per 1,000 people (not set up for emergency situations)
- Consumers continue to look for reformulation – reduced sugar, trans fat, and sodium along with clean label and outcome-based food solutions
- 80% of consumers believe functional foods help prevent or delay the onset of heart disease, hypertension, osteoporosis, and type 2 diabetes
- 60% consumers associate functional foods with benefits linked to age-related memory loss, cancer, and Alzheimer's disease



Innovation Opportunities



Microbiome



Functional ingredients



Precision and personalized nutrition



Medical foods

Catalysts From The Pandemic, Pressure On Business, And Secular Themes:

A redefined baseline for innovation in a post-COVID-19 world

POTENTIAL CATALYSTS FROM COVID

Fragility

The Breakdown Of Labor And Logistics

Behavior Change

Massive Changes Are Possible In Short Order

Relationship With Interdependency

The Nature Of Globalization Redefined

Data Failures

Making Decisions With Anecdotal Evidence And Little Systematic Data

COMMERCIAL CONSIDERATIONS

Increased Importance Of Mass Customization With Agility

Reduction In Risk – Flattening The Volatility Curve In Demand And Supply

Increased Focus On Profitability And Differentiation

Race For Productivity (With Reduced Externalities) – Survive, Thrive Or Die

Digitalization

Decentralized Food Systems

De-commoditization with Deflation

Food as an Immunity

The Future Of Food In The Age Of Covid:

Innovation and Entrepreneurship in the New Food System

Themes	Digitalization	Decentralized Food Systems	De-commoditization with Deflation	Food as an Immunity
Second Order Consequence	Dis-intermediation Allows for new customer relationships, through new channels, and disruption of incumbent market share	Automation of Local Protein (cell, plant) and Produce (Vertical, Greenhouse, et al)	Profit Per Acre Incumbent farming culture to change, shifting from maximizing yield to maximizing cashflow	Food Care Food as a treatment of chronic lifestyle disease – obesity, type 2 diabetes, et al.
	Productivity & Knowledge Adopters of digitalization gain productivity and knowledge, enabling survive and consolidate or die	Reduce Shrink and Waste Marrying inventory at the store with global/local inventory production	Cellular Ag Biomass Affordability of new non-commodity biomasses – fungi, algae and many other concepts	Personalized Food E-commerce, food, medicine and technology to enable food prescriptions
	Reduced Risk Data as way to reinsure business productivity and profitability	Omnichannel Congruent Decentralization shifts existing system to distribution and fulfillment centers for greater e-commerce demand	Polyculture Threatening the prevalence of monoculture systems through the rise of food/energy nationalism	Future of Brands Unique and functional ingredients or processes as a platform to differentiate in the aisle
	Computational Food Allows for greater capacity of AI / ML-enabled systems	Perishability Changes Reduced complexity of managing perishable supply chain – more profitable, less cost, less labor	Beyond Yield Breeding for flavor and nutrition aligned with shifting consumer preferences	Pandemic, Plants, Animals Current and future pandemics under way - African swine flu, locusts in Africa and other abiotic risk increasing going forward



Thanks.



Kiersten Stead

Managing Partner
DCVC



DCVC | Bio

Farm Foundation 2020
Kiersten Stead, MBA, PhD
Managing Partner DCVC Bio

DCVC Bio

- Early investors in Agriculture, Healthcare & Industrial Biotechnology
- Uniquely leveraging Deep Tech, AI, robotics and advanced computing –and DCVC’s dominant franchise in these areas
- Driven scientists, founders and investors who have delivered commercial and venture results together for a decade



The team at DCVC Bio built the first generation of Deep Tech life science companies

Novel Chemistry & Modalities



Microbial Frontiers



Antibodies



Genome Editing



Biomaterials



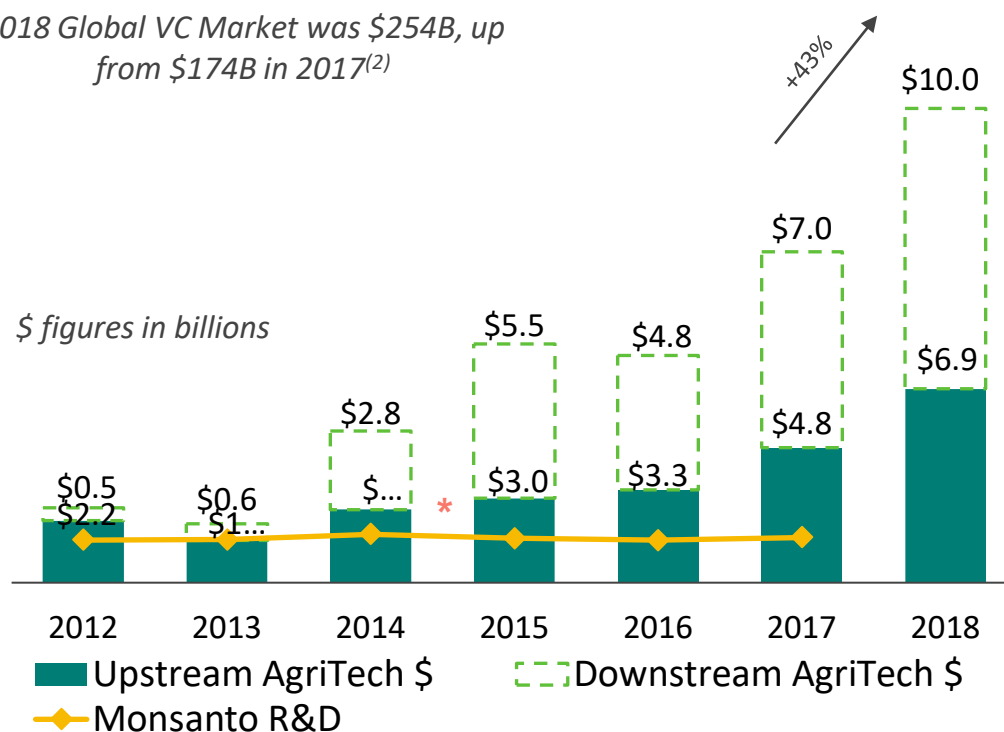
Super-Human Agriculture



AgTech VC funding over time

Upstream vs. Downstream AgTech Financing (\$B) ⁽¹⁾

2018 Global VC Market was \$254B, up from \$174B in 2017⁽²⁾



Overview

Agri-FoodTech Funding Breakdown 2019

\$19.8bn	1858	-4.8%	-15%	2344	\$1bn
INVESTMENT	DEALS	INVESTMENT GROWTH	DEAL GROWTH	UNIQUE INVESTORS	LARGEST DEAL

AgFunder

Upstream

Ag Biotech, Farm Management SW, Farm Robotics & Equipment, Bioenergy & Biomaterials, Novel Farming, Agribusiness Marketplaces, Midstream, Innovative Food

\$7.6bn	+1.3%
INVESTMENT	GROWTH (%)

1039	-7%
DEALS	GROWTH (%)

1336	\$400m
UNIQUE INVESTORS	LARGEST DEAL

Downstream

In-store Restaurant & Retail, Online Restaurants, eGrocery, Restaurant Marketplaces, Home & Cooking

\$12bn	-7.6%
INVESTMENT	GROWTH (%)

781	-24%
DEALS	GROWTH (%)

1130	\$1bn
UNIQUE INVESTORS	LARGEST DEAL

Source: AgFunder 2017 and 2018 reports, Statista.

(1) Upstream includes ag biotech, ag market places, bioenergy & biomaterials, farm management, robotics & equipment, novel farming, midstream technologies and innovative food. Downstream includes retail, restaurant marketplaces, eGrocery, home & cooking tech, meal kits & online restaurants.

(2) Per KPMG Venture Pulse report for 2018.

Challenges for innovating in agriculture

- Consolidation and de-leveraging
- M&A? IPOs? Venture Capital returns?
 - *\$19.3B in (2017-2019) and X Out?*
- Forces working against science-based improvement in agriculture
- Can new companies be disruptive in agriculture?
 - *"AgTech has been more than just the God that failed, it is the Rebel that has been tamed"*
(Shubhang Shankar, Syngenta Ventures, LinkedIn)

Reimagination of agriculture in the current economic cycle

- 3 of the top 10 most dangerous jobs
- Labor shortages
- Vast opportunities available to build climate resiliency
- Aggregation of land/ stewardship a challenge in small-holder environments
- Fully robotic systems
- Emerging biotechnologies & compute applied to new crop protection and genetics
- New therapeutic chemistry modalities and metabolic engineering





DC | Bio



Joelle Faulkner

Founder and CEO
Area One Farms

Area ne Farms

Partners in Growth

INVESTING WITH OPERATORS TO BUILD GREAT CANADIAN FARMS.

Disclaimer

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Introduction

Area One:

- Founded in 2012 by Joelle Faulkner (CEO), a multi-generation farmer.
- More than \$300 million in committed and invested equity and 140,000 acres under management.
- Focuses on capital improvements, bringing land back into production or increasing its productivity.
- Unique approach: Partners with farmers and shares income AND appreciation. Joint ownership and doing well by farmers makes us a desirable addition to the agricultural sector.

Canadian Farmland: Real Assets with Stable Long-term Returns



Farmland Return: Real & Uncorrelated

Asset Type (20-Year Average)	Annual Return (p.a.)	Standard Deviation (p.a.)
Canadian Farmland	10.1%	3.7%
Canadian Long-term Bonds	3.95%	7.3%
Canadian Stocks	7.6%	17.0%

Canadian Farmland Value Drivers

- **Commodity prices might not increase:**
 - While most believe that the separation between supply and demand will drive higher prices, we believe that innovation will keep up – so invest in a region where yields can increase.
 - The Canadian dollar hedges commodity prices.
- **Increased yields add to profitability:**
 - Canola: 5.7% p.a. (2008 to 2017)
 - Wheat: 5.1% p.a. (2008 to 2017)
- **Higher value crops add to profitability:** Soybeans, corn, and lentils increased by 20% between 2014 and 2018.

Canadian Investment Opportunity

Restrictive market:

- About 85% of Canadian farmland sells 'off-market' (privately and without any public listing).
- Legislation requires an exemption for the acquisition or ownership of farmland by any entity that has a non-Canadian beneficiaries.

Need for private equity:

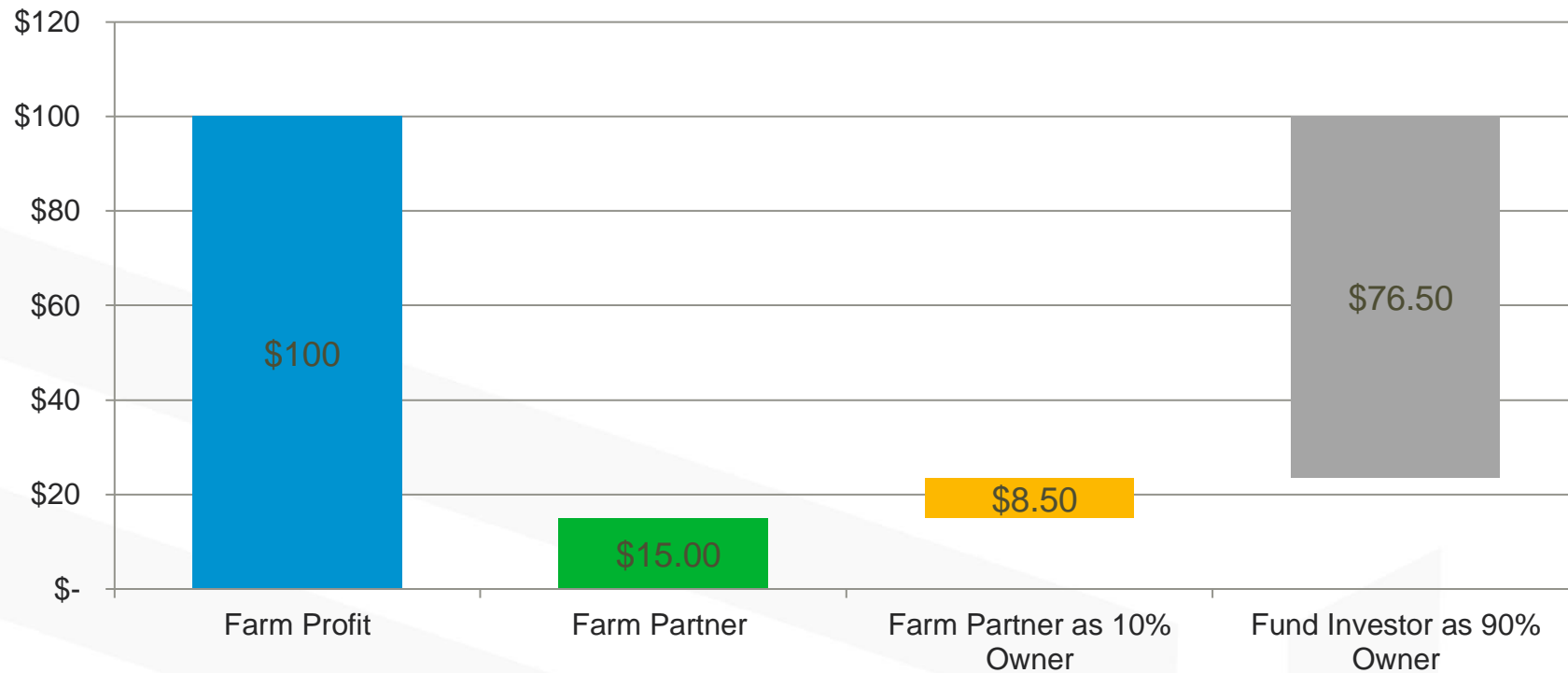
- Consolidation of farmland, increase of young farmers, and growing farm families are driving the need for equity.
- Canadian family farms require capital to bring their land-base to scale, add machinery, and make capital improvements to infrastructure and land in order to become efficient.
- Area One finances capital improvement projects (like land conversion) that traditional lenders do not because the value of such project only translate to additional cash-flow at completion.

Investment model:
Designed to Attract
Top-Tier Operating
Partners &
Investors



Investment Model

- Area One's 'partnership model' allows Farm Partners to grow without risk.
- The Farm Partner earns income and appreciation for *managing* and earns income and appreciation for their *investment*.



Why it Works

- Working together, using capital wisely, we make more money, so we have more money to share.
 - Associated businesses:
 - Land improvement and reclamation;
 - Hay exporting, as contract grower;
 - Seed production, as contract grower;
 - Anything else that a farmer does and brings.
- As a desirable partner, who is helping farmers increase their long-term ability to own the land, we are being approved as an investor acting in the “public interest”.

An Impact Investment: Farmer First

ENVIRONMENT

- The firm's partnership approach incentivizes its local Farm Partners to make operating decisions that maximize long-term sustainability.
- Area One seeks strategic investments with farmers who are leaders in sustainable farming.

SOCIAL

- Area One's model builds more stable and prosperous rural communities:
 - Farm staff have living wages.
 - Farm Partners build equity, enabling them to acquire a significant portion of their Area One farm upon exit.

GOVERNANCE

- Area One supports professional management.
- Area One shares best practices across Farm Partners.

Questions?

Joelle@areaonefarms.ca



Thank You



**FARM
FOUNDATION[®]
FORUM**

Investing in Agriculture – What Does the Future Hold?

Q & A



Today's webinar is made possible by a grant from Farm Credit



Investing in Agriculture –
What Does the Future Hold?

Thank You