Horizon 2020 Societal Challenge 2 Infoweek
Digitising agriculture and food value chains
17 November 2017

Big Expectations from Big Data

REFLECTIONS FROM INTERACTING WITH STAKEHOLDERS ACROSS THE EUROPEAN AGRIFOOD VALUE CHAIN

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BioSense INSTITUTE

Ready, Tech, Grow: Agrifood and Emerging Technologies

Mega Trends Driving Agrifood Transformation

CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE GROWTH

New consumer preferences

Rising consumer demand for personalized, on-demand products and increasing awareness for product traceability throughout the supply chain

Emerging technologies

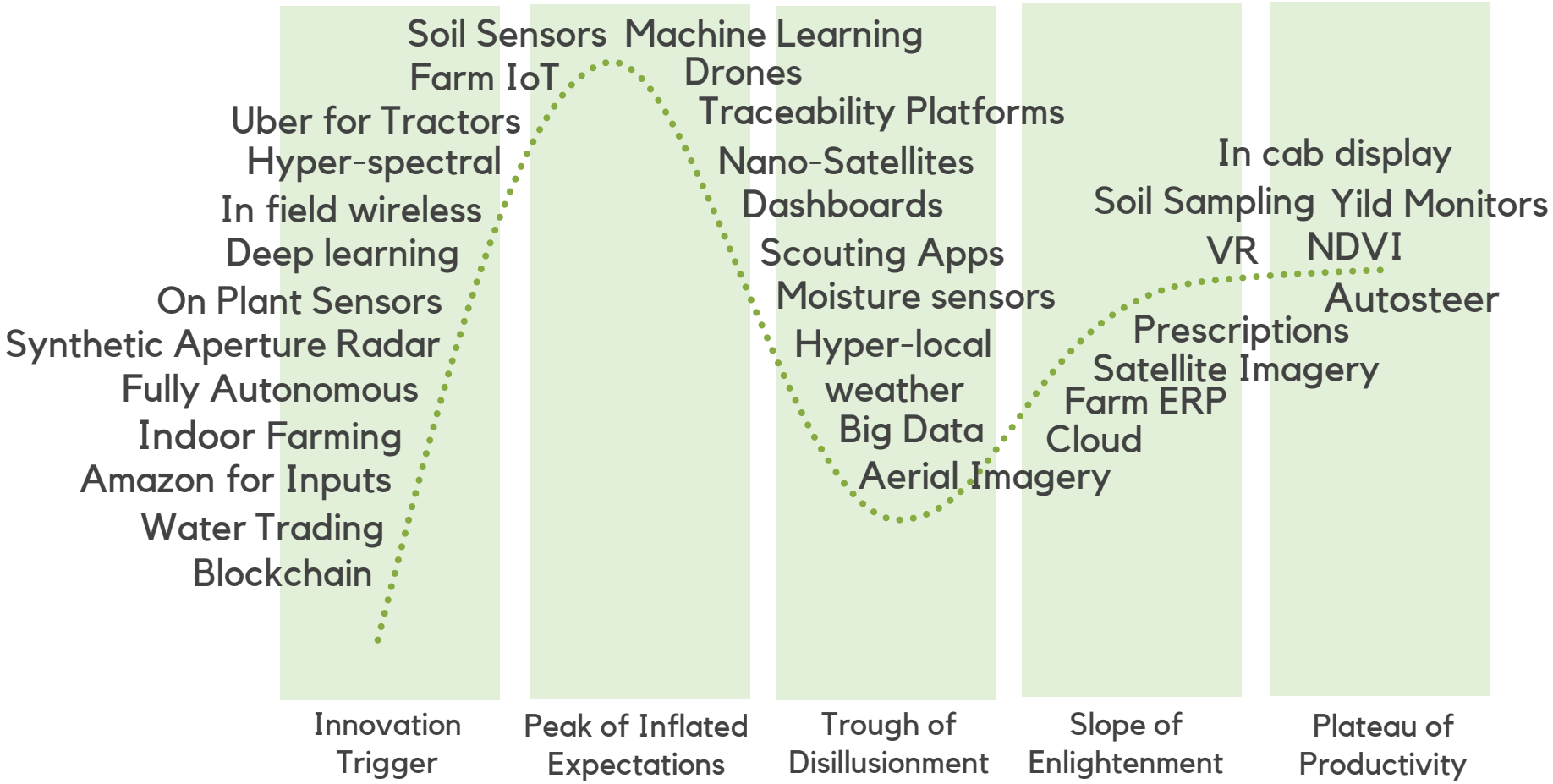
Big inefficiencies suggest finding big opportunities in emerging technologies. On average, 35% of the initial production is lost or wasted at different stages

Changing value chain configurations

Growing trend towards horizontal and/or vertical consolidation across the ecosystem, with new data technologies being a powerful driver

Precision Ag: The Big Data Landscape

WHAT'S READY? WHAT'S NEXT?



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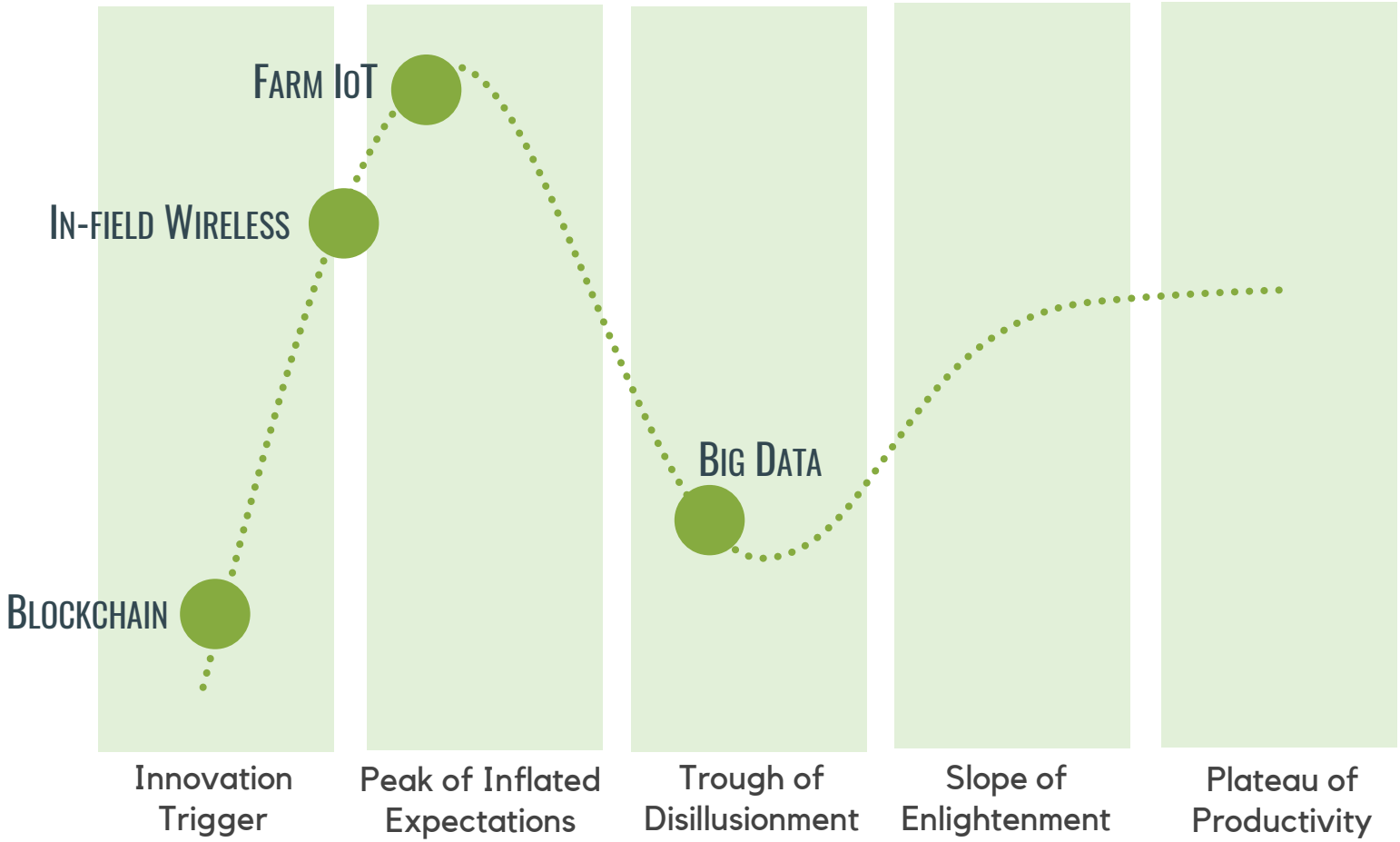


Information Asymmetry and a Crisis of Trust

The place of blockchain in the supply chain

Building Provenance

REAL-TIME, TRUSTWORTHY DATA, FROM SUPPLIER TO SHELF

Linking Provenance's blockchain-backed technology with Soil Association Certification's databases, **a product's journey enters the blockchain in real time**. Shoppers can see information on their chosen organic product **in real time**, including the certification's validity, the organic criteria met by a product, a map of its journey, and photographs from the farm.

> How can I trust that verified data if I am two steps down in the supply chain?
>
> - Provenance.org

OriginTrail: Going beyond Agrifood

- PRODUCT AUTHENTICATION & BRAND PROTECTION

The OriginTrail Decentralized Network is applicable to **any product supply chain**;

- UNIVERSAL ACCESSIBILITY

A wide set of business applications, from supply chain optimization, fraud detection/prevention,

- ENSURING ACCOUNTABILITY AND PRODUCT JOURNEY

Ensures **transparency, security and trust in products and certificates**.

Turning Data into Decisions: How to Manage Uncertainty and Rising End-user Expectations

"When it comes to AgTech, farmers have an information arbitrage advantage... they can play around with different technologies and can quickly separate the wheat from the chaff."

— Rob Leclerc, chief executive of AgFunder

THE PROMISE

- Plant optimization
- Pest and disease identification
- Creating top-yielding hybrids

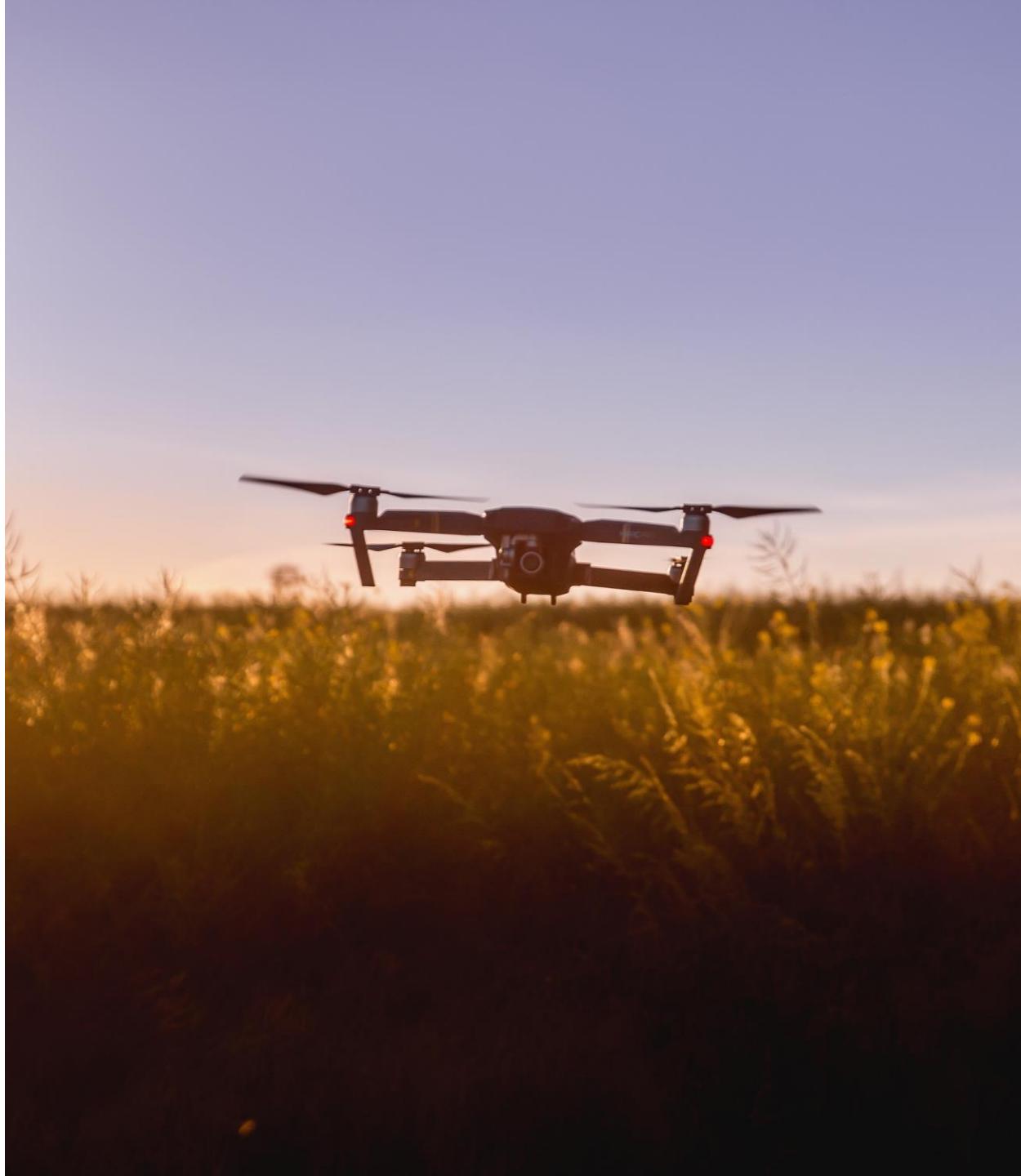
THE QUESTIONS

- Who can access my data?
- Did I get a fair deal?
- Is the data safely stored?

The Data-Hungry AgTech World

- Soothing farmers' concerns about data misuse while at the same time enabling data collection across the entire value chain;
- Ensuring seamless interoperability between applications and/or agri-services in building a robust Food and AgTech ecosystem;
- Creating a framework that simplifies decision making in a wide range of business applications;

Investors see promise in agricultural technology that goes beyond data. Venture-capital investments in the agricultural sector overall rose to $560 million last year from $201 million in 2015.



FARMOBILE

DATA AS A SERVICE

An ag data collection and software service, Farmobile empowers farmers with complete year-over-year data gathered in real-time and data ownership

1

2

ROI GUARANTEE

Data buyers and farmers enter into relationships wherein both can participate in value creation. Revenue is evenly split with farmers.

3

FROM DATA TO PRODUCT

Farmers decide whether to approve offers. Data buyers such as dealers, agronomists, crop insurance agents only pay for the information they desire.

4

EQUITABLE TERMS

Farmers decide whether to approve offers. Data buyers such as dealers, agronomists, crop insurance agents only pay for the information they desire.

5

BOTTOM LINE OWNERSHIP

Farmobile offers farmers legal agreements that govern the ownership and control of their agronomic data

6

THE RISK VS. REWARD

Buyers get a direct link for data collection with baseline customers , utilizing unique field data to create value and growth for their own clients (e.g. AgI)

End-user Engagement: Delugged with Data, Hungry for Insights

Connecting the Dots: Toward an AgTech Ecosystem

fractals

KATANA
CUTTING EDGE TECH IN AGRIBUSINESS

IOF 2020

Living Labs: Harnessing Smart Interactions

Best Living Lab Project Award 2016

COOPERATION IS KEY

An open innovation environment between ICT & agricultural industries

DEFY STEREOTYPES

Broken stereotypes between technology developers & end-users

CO-CREATION AT THE TOP

Co-creation and validation of ICT solutions for agriculture in real-life setting

The Innovation Funnel: From Idea to Market

IDEA

MARKET ACCEPTANCE

FUNDING

SUPPORTING SERVICES

Applying Lean Principles in a Multi-Actor Context

TECHNOLOGY CHAIR
IMPROVEMENTS
Finetuning

ECOSYSTEM CHAIR
END-USER FEEDBACK
Involvement & Co-Creation

BUSINESS CHAIR
KPIs EVALUATION
Measurement & Monitoring

MVP1 → MVP2 → MVP3 → DEMO

Feeding the Big Data Supply Chain

Syngenta: Open Innovation & Crowdsourcing Platform

Improving analytics capabilities through crowdsourcing

Using the knowledge and expertise of bright individuals outside the organization to accelerate internal innovation;

Harnessing the power of ecosystem-based innovation

Tapping into diversity directly through online open innovation platforms for idea generation and solving complex business problems;

Using the crowd as an innovation partner

Getting people to work on clearly identified challenges, collaborate and submit solutions through open innovation platforms;

Open innovation in agriculture as a challenge

The 2017 Syngenta Crop Challenge addressed the need to feed a growing world population with decreasing agricultural land;

The Big Question: Is Deep Learning Ripe for Evaluation?

The commodity measured in bytes, not bushels

The potential for deep learning in agriculture

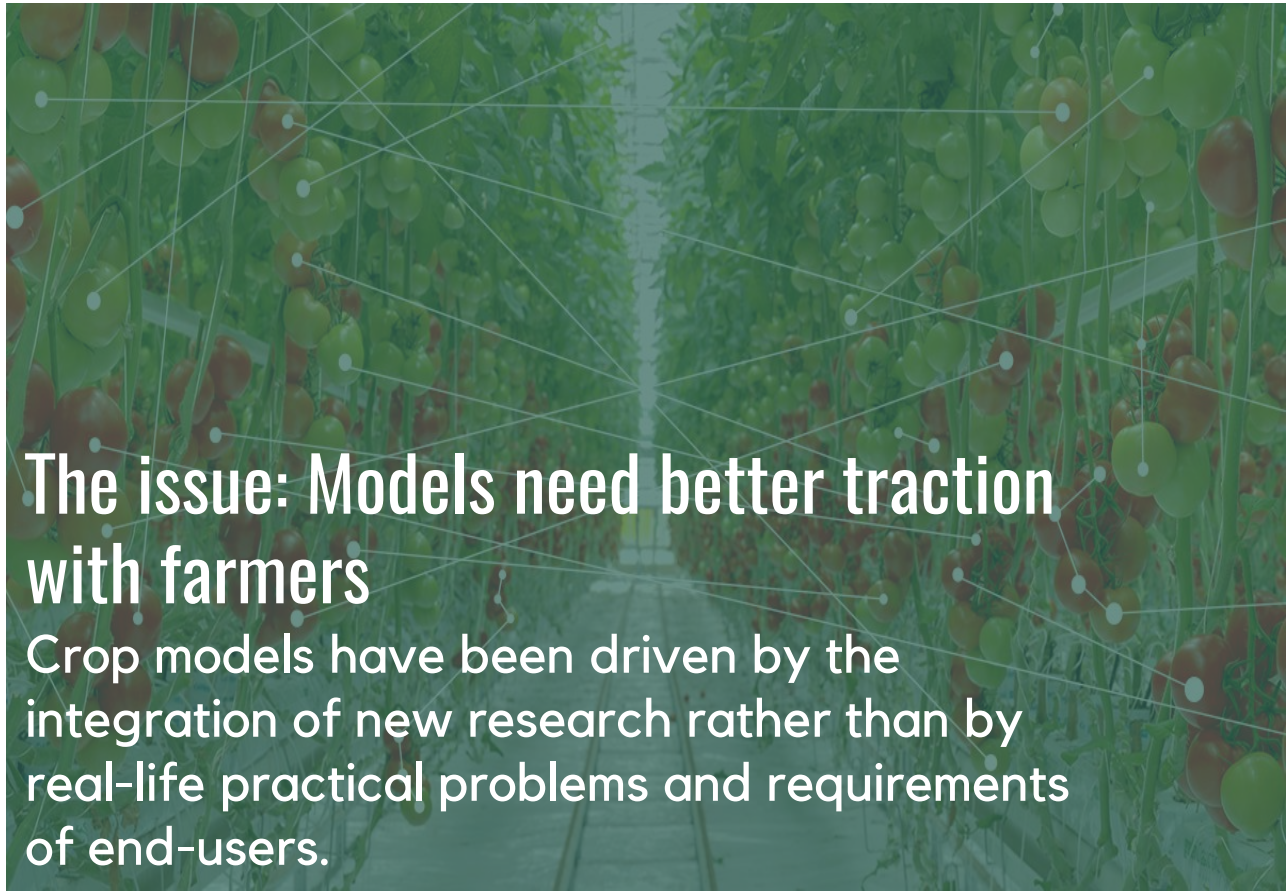
- Handle uncertainty, offer context- and location-based decision support;

Agriculture is one of the most uncontained environments to manage

- More rapid adoption for development of new seeds, fertilizers, or crop protection products than for in-field precision agriculture applications
- Automatized condition monitoring in automated / programmable greenhouses

Open questions

- Feeding the algorithm with data and training it;
- Addressing large gaps in data collection, preparation & benchmarking capabilities;
- Scaling to a real world farm through open infrastructures, open innovation models & collaborative spaces;



The issue: Models need better traction with farmers

Crop models have been driven by the integration of new research rather than by real-life practical problems and requirements of end-users.

Tradition and AgTech: Finding the Right Balance

INCLUSIVE

SUSTAINABLE

CIRCULAR

And who can pick winning AgTech better than the people who matter most: farmers? Fostering farmer-driven, market propelled innovation, fueled by collaboration and experimentation in open real environments must be an integral part of creating sustainable AgTech products and services.

La Matanza – A hundred year tradition rooted in sustainability

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Thank you!

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