



ANNUAL EVENT & GENERAL ASSEMBLY 2018

24-26 APRIL 2018
AARHUS, DENMARK

SUSTAINABILITY THROUGH TECHNOLOGY AND INNOVATION

HOW TO ADVANCE SUSTAINABLE AGRICULTURE AT LANDSCAPE LEVEL

POST EVENT REPORT

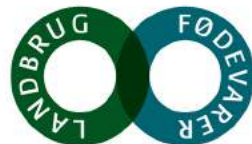
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CANADA
BRAZIL

TOP 5 ATTENDEES PROFILE

39% Sustainability
20% Agriculture/Procurement
11% Executive
6% PR
5% Business Development

TOP 5 ORGANISATION PROFILE

51% Food and drink
24% Academia, research, NGOs, start-ups
11% Audit, certification
8% Farmer cooperatives
3% Retailers



In the debate, our current food system is increasingly described as broken, causing environmental stress and malnutrition. That is a very gloomy picture. Not very attractive to consumers, employees or future farmers. We need to change that. I believe it is possible, by dialogue inside and across sectors, by using technology and innovation to push sustainability performance and transparency in the value chain. And by working collaboratively, closely engaging farmers. I am very happy to see so many here at the SAI Platform meeting in Aarhus. Because joining forces is the way forward.
Extract from keynote speech Peder Tuborgh, CEO, Arla Foods



2018
ANNUAL EVENT
& GENERAL ASSEMBLY

Participants
133 Members
66%

Organisations
90 Members
63%

Speakers
24

MESSAGE FROM THE SAI PLATFORM PRESIDENT



Jan Kees Vis
SAI Platform President

On behalf of the Executive Committee and the Secretariat I would like to thank all of our members, Advisory Committee representatives and invited guests as well as key speakers, host, panellists and moderators for joining us in Aarhus and making our Annual Event 2018 the success that it was. Special thanks go to our sponsors Mars, Arla Foods and Marks & Spencer and partners the Danish Agriculture and Food Council and VisitAarhus.

We all know the challenges ahead in terms of being able to feed 9-10 billion people by 2050 in the face of increasing weather variability, decreasing soil health and dwindling biodiversity.

The theme of #SAIPlatform2018 **“Sustainability Through Innovation & Technology: How to Advance Sustainable Agriculture at Landscape Level”** started with field visits in and around Aarhus and Copenhagen. Each of the site stops offered valuable insights into the reality of farming on the ground. The road trips provided the perfect opportunity for conversation and discussion.

The seminar focussed on the role of big data and the efficacy of technology in sustainable farming.

Innovation has a big role to play in tackling the obstacles ahead, but there is still uncertainty as to what technology and which data solutions will turn out to be the end winners. One certainty is the importance of pre-competitive collaboration to navigate through this significantly different way of working.

#SAIPlatform2018 provided a great opportunity to share knowledge and learn together ensuring that sustainable agriculture meets the demands of our future.

Finally, I am honoured to have been elected President of SAI Platform. I am committed to driving the implementation of our new vision and mission and to harness the power of collaboration amongst our members.

Enjoy the moments captured in this Post Annual Event 2018 Report and I look forward to seeing you at the next SAI Platform Annual Event 2019!

Jan Kees Vis
SAI Platform President
Global Director Sustainable Sourcing
Development, Unilever

SUSTAINABILITY THROUGH TECHNOLOGY & INNOVATION

THE ANNUAL EVENT

On 24-26 April the SAI Platform Annual Event 2018 in Aarhus, Denmark, brought together sustainability gurus, farmers and experts from a broad range of companies across the food and drink industry.

FIELD VISITS

Over the course of the two days, #SAIPlatform2018 examined practical and potential solutions for the challenges that lie ahead in agriculture. On-the-ground field visits looked at the technology and innovation already in use or in experimental phase in Danish agriculture.

SEMINAR

Inspiring and motivational international speakers and discussion panels addressed this unique gathering of global food industry leaders. Current topics included big data, technology for smallholder farmers and the functioning, possibilities and constraints of agri-food blockchains.

NETWORKING AND KNOWLEDGE-SHARING

The purpose of the SAI Platform Annual Event is to promote the exchange of knowledge and experiences between our members and invited guests. This post event report offers an overview of the key topics, guest speakers, field visits, reactions, insights and dialogues.

OPEN DISCUSSION ABOUT TECHNOLOGY AND INNOVATION

The key questions are highlighted surrounding technology and innovation as applied to sustainable agriculture around the globe (e.g. Brazil, Canada, US) as well as the solutions and techniques that Danish farmers are using.



INNOVATION RUNS IN THE DANISH DNA

Producing 3 times its domestic consumption of food, Denmark has one of the most efficient agriculture sectors in the world (*Danish Agriculture & Food Council*).

Visiting Aarhus today shows the Danish agriculture industry at the cutting edge in terms of state-of-the-art farming models as well as ongoing research and experimentation.

WHY AARHUS?

Aarhus is the second-largest city in Denmark and home to some of **Denmark's leading food companies:** Arla Foods, Danish Crown, Danish Agro, DuPont, KMC, Hamlet protein.

One hour's drive from Aarhus there is a high concentration of **food-related expertise** in Europe, such as the Arla Foods Innovation Centre in the Agro Food Park.

The food innovation hub **Agro Food Park** is home to 75 companies and 1,000 knowledge-intensive workers.

Aarhus boasts **more than 700 researchers and scientists** specialised in food and agriculture.

Photo courtesy of Visit Aarhus
Your Rainbow Panorama
ARoS Aarhus Kunstmuseum



FIELD VISITS

AARHUS AND COPENHAGEN

One of the highlights of SAI Platform's Annual Event is the field visits which provide a unique opportunity to network with fellow members while observing and learning first-hand different practices at farm and processing level.

The key themes that underpinned the field visits included "inadvertent sustainability" whereby sustainable farming practices take place for better yields and profit margins. Other themes were innovation and use of new technology; the collection and use of data for farm management; the ongoing collaboration and research with Aarhus University and other academic institutions; and the problem facing every farm, namely labour and the reluctance of young people to choose farming as an occupation.

Organic vs Sustainable

A concurrent theme across the field visits was that sustainable agriculture practices are implemented inadvertently as and when there is a business case to do so. Organic production is subsidised by the Danish government providing incentive for growers and producers. The end goal being to obtain Denmark's own state sponsored organic label. This theme was overarching across the arable, vegetable and fruit field visits all of which displayed a strong focus towards organic farming practices and produce rather than sustainable production.

“ I thought the most interesting take-away was the overall efficiency with which the Danish companies approached sustainability and sustainable agriculture. Aside from potentially reducing costs, there seemed to be an overall feeling that it was the right thing to do... ”

Brian Nash, Ingredient Arable Field Visit

In the case of the Vejlskovgaard dairy farmer, sustainability is whatever you want it to be. Measures were taken that could fall under the sustainability banner but are actually done for a better outcome and margin.

At the Danish Crown beef abattoir sustainability measures were embedded in processes such as energy efficiency and water use.



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Most people will agree that you can't manage what you don't measure. But not everyone agrees to what length we should go for data. Understandably, many will prefer dedicating their resources to action rather than data management, but this field visit was a good reminder of the true potential that data can provide in maximizing operational efficiency and spurring innovation.

*Kalee Sanino, PepsiCo
Beef Field Visit*

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FIELD VISITS

AARHUS AND COPENHAGEN



Innovation and new technology

Innovation and the use of new technology are key components to modern agriculture in Denmark. In the example of the Vejlskovgaard dairy farm, farm management practices included the use of data to inform decisions on type and volume of feed. A state-of-the-art barn design was conceived to maximise animal welfare while optimising the circulation flow for cows to access feed, water, robotic milkers and resting areas.



In the case of the Roskilde Tekniske Skole farm with Jesper Skovgaard during the sugar beet field visit, the FSA was used to demonstrate its sustainability performance, which was easy to set in place as they had a state-of-the-art farm management system with detailed records.

From lab to field

Industry and research institutes are significant partners and the field visits highlighted a number of examples of ongoing or conclusive research in practice. The dairy field visit to the Vejlskovgaard farm revealed a partnership being led by Aarhus University on a pilot to extract protein from fresh grass.

Such technological innovation, if made affordable for the sector, could become a game changer for all dairies located in grass-producing regions in Europe.

On the beef field visit, Viking Genetics also working with Aarhus University had won an award for a collaborative project demonstrating that it is possible to breed for lower methane emissions.

When I grow up...

A major modern-day sustainability issue lays with the general image of farming as an occupation. From the sugar beet field visit, both farmers mentioned the struggle to find farm workers. It's a tough, arduous job that is not attracting young Danes, even those from rural areas. Here the mechanisation of field labour is providing the solution, as shown on the Roskilde Tekniske Skole farm during the sugar beet field visit, which enables a staff of just 5 to manage a 700-hectare mixed cropping estate. At the Axel Månsson farm host of the vegetable and fruit field visit, the labour issue was resolved as farm workers were brought in from Latvia, and with a decent wage are able to enjoy all the benefits of the Danish system.



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The future for farming is Artificial Intelligence, remote sensing, new innovations and technology. However, collaboration is key to creating a future where people, the planet and sustainable business solutions act in harmony to nourish everybody.

Hans Jöhr, Nestlé

SAI Platform Honorary President

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THE SEMINAR CHALLENGES



In the photo:
Sasha Twining, Moderator

From the use of big data to blockchain in practice, we were challenged to ask ourselves - what exactly is technology doing? How will it impact socially, economically and environmentally? And where is the evidence? We were told that Artificial Intelligence will transform the food industry just as industrialisation did. However, as an industry, how can we ensure that this transformation and the need for scale maintains a commitment to sustainable practices?

The core themes of the seminar addressed technology and innovation in advancing sustainable agriculture.



Experts are predicting the global population to hit 9 billion by 2050 (UNPF 2005). This exponential **population growth** results in greater demand for resources such as food, energy, and water – resources that are already in scarce supply.



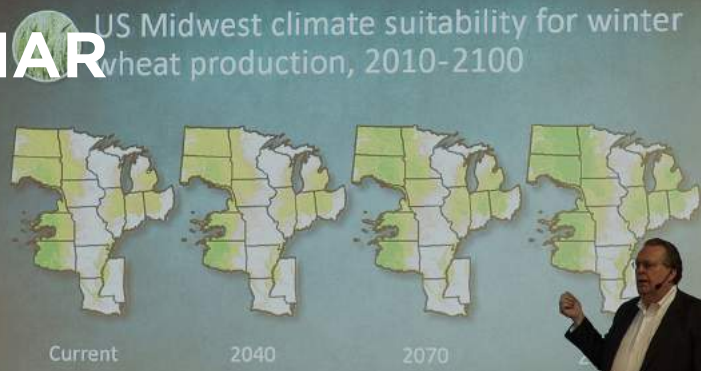
Consumers are more aware about the origins and production process of the products they buy. **Animal welfare and the impact livestock has on climate change** due to GHG emissions are high on the list of concerns along with the pressure to eat less meat. In the case of Denmark, for 25-years it has displayed its organically home-grown stamp to reassure the consumer of a healthier product. Furthermore, Denmark is considering introducing tax on red meat as another climate change mitigation solution.



Feeding this population has become the planet's greatest threat as the scale of global production over the next forty years is estimated to be equal to that produced over eight thousand years (Jason Clay, WWF). The reality is, we are coming to a period where climate change is happening faster than expected.

As for **smallholder farmers**, the challenges may differ to those faced by larger scale, industrial farmers. In the case of technology providing the answers, for smallholders these are often ad hoc responses to deeply embedded problems. Finding solutions that are replicable and/or scalable remains an ongoing challenge. Solutions for smallholders rely on working together to ensure the technology is tailored for their situation and specific challenges.

THE SEMINAR SOLUTIONS



In the photo: Jason Clay, WWF during the Keynote Speech



Farmers looking to the future need to think of **big data** and apply **sustainable techniques**. Unmanned Ariel Vehicles (UAVs) are gathering on the ground data to calculate problem areas. With the use of yield monitors and soil maps decisions can be made for the following year's crops (*Jeff Barlow, Corn, Soybean and Wheat Farmer*).



Disease can be detected using **apps** that take images of crops enabling control measures to be taken.

Technology can contribute through sharing, empowering and growing



Satellite data is also predicting crop yields which could potentially help manage social or political unrest arising from threats of food scarcity.



Big data and data flow are having impact on start-ups focussed on **food waste reduction** as well as offering **transparency** to the consumer regarding animal welfare.



On smart farms today, innovative farmers are using technology to **improve and speed up their ways of working**. Manual labour for example, is not smart, and will disappear more and more to be replaced by sensory robotization. In the context of dairy farming, focussing on creating a positive environment for both livestock and employees is ultimately how business success and sustainability can grow (*Jan Toft Nørgaard, Arla Foods*).



For smallholder farms bringing the right mix of partners on board early on to develop viable propositions is critical to the long-term success of any intervention. In the context of new technology in smallholder farming, understanding and **adapting to the cultural context** is critical, as it can make or break a project (*Catharinus Wierda, Solidaridad & Tina Barsby, NIAB*).

KEY THEME

BLOCKCHAIN



In the photo:
Raja Ramachandran, Ripe.io
during the session 'Blockchains
Technology To Ground-Breaking
The Food Supply Chains'

Blockchain repositories and software are already in operation (*Deloitte, Evolution of blockchain technology*). However, the reality of blockchains becoming the modus operandi in the immediate future is still a long way off. Nevertheless, the added value and pioneering change that blockchain technology will one day bring to supply chains across agriculture and indeed all industry, is becoming increasingly clear.

In the case of blockchain for food, the advantages point to greater transparency across the supply chain raising levels of trust and intelligence (*Raja Ramachandran, CEO, Ripe.io*).

Ready for Blockchain?

Not quite. Despite the anticipation of this revolutionary food supply ledger, a Deloitte study (*November 6, 2017 - Insights from the GitHub Platform*) recently noted that 92% of the 26,000 blockchain projects created over the past two years are defunct.

The breakdown of the functioning and running order of blockchain as described by Raja Ramachandran (CEO, Ripe.io) and Marieke de Ruyter de Wildt (Founder, The Fork) describe a logical and evolutionary advancement in a digital age. Those arguing in favour of what blockchain can and will do are clearly devoted and convincing.

Whether or not this will be the answer to delivering a more secure and transparent system for food supply, we shall have to wait and see.

In the photo:
Marieke de Ruyter de Wildt, The Fork
during the session 'Blockchain Lab'

A BLOCKCHAIN IN BRIEF

A blockchain is a **database** with four distinct characteristics: **open, distributed, auto-synced, and permanent.**

Each block **contains** a cryptographic hash of the blockchain history, public and private key access, the transaction data and a timestamp.

The **hash**, which is the mathematical seal, proves and validates the content.

Each blockchain starts with a **smart contract**, which equates to a set of criteria that all stakeholders need to be in accordance with at the start.

Similar to a software programme, a smart contract is written on the blockchain and the system works on the **if/then premise**. As the programme runs the code, conditions are automatically validated while the direction of an asset going from one person to another, or back to the previous person, is automatically determined.

Once a smart contract is activated, it **runs automatically**, and there is no way back.

There is **no need for an independent or third-party verification**. The decentralised ledger stores and replicates the document, giving it security and immutability.

research, innovation and technology environment and their profitability

CONCLUSIONS

WHAT'S NEXT?



In the photo: Jeff Barlow (Corn, Soybean and Wheat Farmer in Southern Ontario) during the session 'Big Data: Unlocking the Future for Agriculture'

Innovation and Technology March On

During our own life-times, basic farming equipment has rapidly progressed into highly advanced machinery. Increasingly, technology will be accessible and employable in real-time for farmers in the foreseeable future. In a provocative vision of agriculture in the coming years, David Hunt, founder of Cainthus predicts an increase of vertical farming in order to meet city living needs and guarantee freshness. Products that are easy, quick, scalable and nutritious will be on the menu, such as insects and algae. Synthetic meat and milk are to follow.

The Data Debate

The big event is not the creation of data, it's what we do with it that makes the difference (*Aart van 't Land, Lely*). Data will need to be shared, but there's a big debate about ownership and how it will be used. What role will farmers have? How will smallholders stay in the race and still have access to this technology? Big data in agriculture could fall into the hands of the limited few. Use and ownership of data is a concern and will become a key factor in the very near future.



When climbing the tree of life, grab the branches not the blossoms. Innovation and technology are tools. There are many forms of innovation and technology. The real question is what are the key problems we need to solve? If we can agree on 3-5 of them, we can actually solve them and move on to the next ones. I think many are using innovation and technology for a very narrow type of advantage. What happens when we see sustainability as a pre-competitive issue? How does that change our approach?

**Jason Clay
WWF**





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The seminar was fantastic. There was a wide range of speakers and topics. There was a lot of great discussion which really was the best part. It is great when the audience gets so engaged in a topic, presentation or panel. With increased interest on Blockchain it was very pertinent to have included this in the session. I thought the breaks and lunch were long enough and allowed time to network. Both the keynote speaker and the final remarks speaker were very good and really opened and closed the seminar well. Job well done on a fantastic seminar!

Mike Buttenham
Grain Farmers of Ontario

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THANK YOU

From the murmurs in the room it was evident that #SAIPlatform2018 was an immediate success. Over the course of two-days the event had showcased SAI Platform's work on a global scale and demonstrated the value of membership. The field visits and seminar delivered on-the-ground insight, first-hand experience, and key learning points that our members can apply today and think about some more for tomorrow.

We would like to thank our sponsors Mars, Arla Foods and Marks & Spencer, and our partners Nordzucker, VisitAarhus and the Danish Agriculture and Food Council for helping us deliver a very successful event.

The SAI Platform Annual Event is an integral part of pre-competitive collaboration with our members to address global sustainability challenges facing farms today, and those throughout the food and drink industry supply chain.

We look forward to seeing all of our members at our next Annual Event 2019!



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