



Investment in Agriculture: Opportunities Across the Value Chain

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Alumni and guests at the latest INSEAD Private Equity Club event in October learned from a panel of experts that many of the commonly held assumptions and perceptions about agricultural innovation and investment are far from accurate. Even investment and business communities have incorrect assumptions!

Three startup founders and two seasoned investors engaged with guests and each other in a panel discussion, moderated by Pan Pan, MBA 03J, revealing agriculture tech trends, challenges and opportunities. The sold-out Geneva event was organized by INSEAD alumni, Pan Pan, Pantèra Ventures, and Roman Pelka, MBA 00J, Montfort Capital. Read on to discover more . . .

Panelists



Alfred Evans, Founder & Director, Islan Investments

Alfred is an investment advisor focusing on opportunities that deliver financial returns with environmental and social benefits. He has 25 years of professional experience including serving as CEO of Climate Change Capital Alfred has a JD from Columbia Law School and a Master of International Finance (Mathematics) from the University of Amsterdam.



Carlo Farina, Head of Real Estate & Private Markets, CERN Pension Fund

Carlo Farina is CERN pension Fund's Head of Real Estate and Private Markets. In 2002 he completed a postgraduate course in financial markets at Bocconi University, Milan.



Peter Frohlich – CEO and Founder, AgriCircle

Peter has more than 20 years of experience in the agribusiness. In the last years, Peter has been focussing on digitisation in the agribusiness. Peter studied agronomy and holds an MBA from the University of St. Gallen.



Francisco Norris – Co-founder, ZELP

Francisco Norris is the co-founder of ZELP (zero emissions livestock project), a company focused on reducing the environmental impact of the livestock industry. He has worked in leading design firms in London, and has an MA in Information Experience Design (IED) from the Royal College of Art (RCA). His main areas of expertise lie in design technologies and making.



Sean Peters – CEO, DryGro

Sean Peters is the CEO of DryGro, an agritech startup that has developed new techniques to grow animal feed. Sean holds an MBA from Oxford University and splits his time between London and Kenya.

21 Things to Know About Agtech Investment & the Future of Food



Perception: Agriculture investing is not more prevalent or popular because it doesn't offer returns.

Insight: Farmlands and forests are very attractive to institutional investors. The Mark Twain adage to “buy land, because they're not making any more” holds true even today. Farmlands are attractive compared to other assets, like real estate or oil, because they are not subject to speculation and uncorrelated with other asset classes.

Farmland offers an excellent risk/return profile and reliable long-term investment. However, these investments are for long term, patient investors-- the holding period is between 10 and 15 years. Anything less is considered speculation. Farmlands have provided institutional investors good return on investment, although net returns a decade ago were higher, between 8 and 9%, it is still competitive today at between 2% and 3% above the index.

Perception: If one wanted to invest in institutional-grade farmland assets, there is an abundance of choice.

Insight: A limited supply is the truth about this type of investment. Because smart portfolio managers avoid investing in agricultural assets that are exposed to currency volatility, government subsidies, leaky supply chains, riskier weather, and geopolitical environments, there is only a handful of countries with farmland assets exhibiting that kind of risk profile. Countries such as Turkey, New Zealand, US, and Denmark, are attractive but the opportunities to invest in them are few. Opportunities in the US have already been exhausted.

Perception: It would be easy for institutional investors to build a portfolio of agricultural and food equities.

Insight: There are listed food stocks. Pretty much every portfolio manager has blue chips like Nestlé in their portfolio. But beyond that there is a scarcity of pure-play listed equities that could go into the agricultural or food supply chain bucket. About 70% of global agricultural production goes through four companies which have dominated the market for almost 50 years: Archer Daniels Midland, Bunge, Cargill, and Dreyfus (known as ABCD). One is privately owned, one is illiquid which leaves just two majors. Several other listed agri-equities exist but are considered risky, requiring exposure to emerging markets, FX volatility, weather, and geopolitical disruptions.

Perception: Given the scarcity of listed agri-related equities then alternative asset class managers, such as hedge funds and private equity groups (LBO, Growth, VC) -- have stepped up their game to meet investor demand.

Insight: Not true. Here again scarcity rules. There are few successful specialized agri-oriented hedge fund managers. There have been commodities hedge funds but performance has been spotty. Structural issues abound. For example, owning commodities does not mean owning real crops or animal stock, it means owning contracts for future pricing, which are subject to timing, trading, and speculation. Such funds often lack the kind of track record institutional investors desire. And even if one could buy crops, it is different from owning a stockpile of milled steel. A silo of soy beans or wheat will perish if not processed, shipped, and forwarded to markets in a timely manner. LBO and growth funds are preferred over VC but here again there is a lack of targets for pension funds.

Perception: Agriculture investing is not popular because it doesn't offer high potential for deal flow and growth.

Insight: Agribusiness companies are attractive to pension funds but there are few fund opportunities to invest in. Between USD4 and 5bn is raised per annum by PE teams that could invest in agricultural deals but only a few of these funds are specialized in agricultural-only investments. You might have energy funds that back climate change related businesses, or software-specialized teams that make precision farming investments but there is still few early stage VCs and agriculture-specific buyout houses. Agriculture is an attractive investment opportunity, but it is not perceived that way by the investment community and remains fragmented.



Perception: Food supply and demand are still in balance today but will be an issue in the future.

Insight: Demand already exceeds supply today and it will be worse in the future. Unlike other industries facing technological disruption and market extinction, demand for agricultural products is growing. We might not be burning coal in the future. We might not be driving cars in the future, but we are going to need food. Estimates based on demographics and wealth distribution suggest at least 50% more food must be produced by 2050? to feed the world.

Perception: Emerging markets and poverty-stricken populations do not have a significant impact on demand.

Insight: In 30 years two billion more people will inhabit the earth. Wealth is becoming better distributed, especially in emerging markets, which means more demand for food. Exacerbating the growth trajectory is that populations that previously subsisted on grains are changing their diets. If you have any doubts, note that China used to be a country of tea drinkers but is now a huge consumer of coffee (known as the Starbucks effect). Such trends mean a growing demand for meat and dairy products, both of which consume more resources in production, not to mention the accompanying increase of climate change impact. A key challenge is engaging with farmers, the decision-makers about technology adoption, as they tend to be economically driven and resistant to change. They want to see it in their neighbor's field working well before adopting it themselves.

Perception: Demand for agricultural products can mostly be met using current means and technology.

Insight: There are several bottlenecks in the supply chain that demands new ways and means to produce and process agricultural products. At the risk of over-simplifying the situation, there are basic two approaches to achieve the world's food and animal feed demand. 1) Grow more and produce more with what we have (by boosting efficiency); 2) Grow produce and feed in untraditional environmental ecosystems. Both approaches require massive investment in innovation.

Perception: Farming in mature economies is at peak efficiency.

Insight: There are still plenty ways that innovation can address yields. If you could achieve the “maximum” potential of a wheat field, it would deliver 40-42 tons per hectare per annum, but today's average yield is between 2 and 10 metric tons per hectare. Crop yields in EU compared to Russia are very different. Another example is in the usage of Nitrogen which is used for fertilizer. There is a huge gap between potential impact of a given amount of nitrogen and its actual maximum potential. In other words, if nitrogen use was better optimized, then farmers could be using a lot less fertilizer (consuming up to 60% less nitrogen per hectare), reducing costs and environmental impact.

Perception: Given the real opportunity and knowledge about demand for certain feedstocks and agricultural products, it is easy to raise capital.

Insight: It's a “constant hustle” to raise funding for early stage agtech start-ups. Private equity and venture capital investors are spread out geographically and not necessarily specialized in agricultural investments. An agtech cluster or ecosystem for early stage companies (incubators, angel investors, commercialization specialists, investment banks, industrial giants) has yet to emerge, unlike Silicon Valley's current SaaS and digital clusters or medtech clusters in Boston, Cambridge and Oxford. This makes it difficult for startups in the early and scaling phases to access the resources required.

Unappreciated is the fact that agtech startups have a longer research & development cycle. The time to revenue is longer than a typical tech-oriented VC fund manager is willing to wait. This is also the reason that agtech is less suitable for crowdfunding platforms. It is more like biotech and pharma timeframes. And yet the opportunity awaiting successful startups is large and current. For example, the demand for animal feed is huge, prices are known. Startups with a proven crop solution will need capital to build up the capacity to scale to meet demand.

Perception: Public money is working well to de-risk and support innovations in agriculture.

Insight: Although public funding is available to support innovations in agriculture, misguided policy and poor design and execution of public-private funding schemes hinder accelerating investment into the sector and prevent the fulfilment of potential. We need to figure out how to use public money to better attract private capital. There is a need for an estimated USD 80 to 100bn annual investment into the sector to enable necessary progress. Currently many agricultural innovations are stuck in seed stage, particularly in Europe. Public money needs to take on more risk to fund early stage disruptive technology.

Perception: Corporate venturing will supply capital for innovation and ease market introduction.

Insight: Strategic investors are indeed actively investing in startups but it is primarily a way of outsourcing their own R&D, innovation, and improving their own operations. Corporates such as John Deere, Monsanto, Bayer Crop Science, and Syngenta, are examples. The corporate approach relies on economy of scale in farming, which in some countries is achieved only at 40,000 hectares, and it is not necessarily sustainable.

Perception: Another Green Revolution to transform agricultural output is just waiting to unfold.

Insight: Unfortunately, the nature of the “revolution” is not going to be a set of methodologies around chemicals, seeds, or crop solutions as was the case in the 20th century. Rather it will be much more emergent in nature, a range of innovative solutions and newly invented systems, customized for all

kinds of environmental conditions, that not only improve yield but also conserve and preserve resources and inputs in a long-term sustainable way.

Perception: There is no low-hanging fruit, no pun intended, for venture capital style investing.

Insight: While many of the truly innovative technologies have a longer path to profitability, there are at least six areas where investing could be rewarding within the lifecycle of a venture capital fund.

1) **Trade finance** is an opportunity now that banks have been regulated out of the market. Providing capital and structuring products for trades has potential for fintech, and disruption or disintermediation is ahead thanks to blockchain technology.

2) **Aquaculture (fish farms)** presents an exponential potential for growth. But two supply chain bottlenecks exist: feed supply is not high enough (fish need special food that corresponds to its metabolism and stage of development) and fish-farming practices need to be fine tuned to address environmental impact. Current practices lead to disease and pest infestations.

3) **Logistics** - public-private partnerships for building ports, railways, rail stocks, and storage. A case in point: Bunge raised capital to build a Western US port and it was deemed successful, both in terms of asset value increase and returns.

4) **Food tracing and food security** technologies have very high potential. Mycotoxins are a worry. Organic ("bio") foods are laden with mycotoxins. Fake food is an issue in some countries. Tech solutions to address these challenges are emerging such as blockchain.

5) **New proteins for animal feed.** Insects and growing non-traditional crops at scale have high potential. The hurdle to enter the supply chain is the ability to deliver more than 20K tons per annum, which means growth capital opportunities.

6) **Financing instruments to provide smallholder farmers with micro-loans.** Interest rates for farmers in many regions are not affordable. There is microfinancing experience in the market, best practices, and the potential is far from being exploited.

IPEC Event Organizers

Pan Pan, MBA'03J, Moderator Pan Pan currently manages the Climate-smart Agriculture innovation programme and fund for Climate-KIC, EU's largest public-private climate innovation initiative. Pan has a MBA from INSEAD, a BA in Economics from Northwestern University and is a Chartered Alternative Investment Analyst (CAIA).

Roman Pelka, MBA'00J, CEO, Montfort Capital Roman Pelka has been active in the alternative investment industry for over 17 years. He is the founder and CEO of Montfort, a FINMA regulated provider of Swiss fund representation to the hedge fund and private equity industry. Before founding Montfort in 2009, Roman was Managing Director at The Carlyle Group. Prior to that Roman held positions with Aspect Capital, HgCapital and EBRD. He received his MBA from INSEAD (France) and is a Chartered Alternative Investment Analyst (CAIA).

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