

Accelerating Sustainability-Oriented Innovations in Agribusiness:

A Set of Proposed Best Practices for Corporations, Investors, and
Entrepreneurs

by

Sarah V. Nolet

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EXECUTIVE SUMMARY

“With agribusiness, you have to understand the market. Just like cleantech investors needed to understand that you’re selling electrons to a utility. People are increasingly investing and starting companies in food and agriculture because they want to make a difference in the world. That makes the space more interesting. But everyone has an opinion about food, and if they don't do their research to understand the technologies and the context in which they will operate they will bust. And similarly they can't lose focus on creating a financially stable business. We're already seeing it – some will go big, some will go home, and the smart ones will be left to pick up the pieces”

-- Serial Entrepreneur and VC investor

Overview. The agribusiness industry is under pressure and on the brink of transformation. My thesis aims to provide actionable insights to help private sector stakeholders improve food system sustainability by enabling and accelerating sustainability-oriented innovations (SOIs) within the agribusiness¹ industry. This is pertinent given not only the importance of feeding a growing population while reducing the industry’s environmental and social impact, but also the industry’s extreme vulnerability to climate change. New sources of demand and supply constraints challenge the industry, but they also create opportunities for corporations, investors, and entrepreneurs. Through 50 semi-structured interviews and review of academic and gray literatures, I analyze private sector strategies to accelerate agribusiness SOIs and identify where existing approaches are insufficient. I then propose a series of best practices that can help to address identified gaps and challenges.

The Impact of Agribusiness. Agribusiness has significant economic impact in the U.S.: food accounts for 12% of household spending; agriculture and related industries produce \$835 billion/year, or 4.8% of GDP; and the industry provides 9.3% of total employment, or 17.3M jobs². Agribusiness also has significant environmental and social impacts. Some impacts are beneficial: the current system produces large quantities of food at increasingly affordable prices, creates jobs, and practices can improve ecosystem health. However, it also has negative impacts including soil erosion, biodiversity loss and ecosystem destruction, and natural resource degradation³. Further, the current system contributes to negative social outcomes such as obesity, malnutrition, and slave labor. There is consensus that status quo practices need to become more sustainable – “business as usual is not an option”⁴.

Agribusiness Under Pressure: Demand Drivers and Supply Constraints. The agribusiness industry’s sustainability impacts are huge, increasingly visible, and problematic. As demands on this system increase, supply is simultaneously constrained and agribusiness struggles to meet market expectations. Packaged food companies lost \$4 billion in market share in 2014 alone, and since 2009 the top 25 packaged food firms have lost \$18 billion in market share⁵. The challenges shown in the table below create

Demand Drivers	Supply Constraints
<ul style="list-style-type: none"> • Population growth • Demographic shift, urbanization • Changing consumer preferences <ul style="list-style-type: none"> ○ Sustainability ○ Health and Wellness ○ Shifting purchasing behavior 	<ul style="list-style-type: none"> • Climate change • Quality/availability of natural resources • Biofuels

opportunities for disruption by sustainability-oriented innovators. This potential is evidenced by the number of investors whose mission or investment thesis includes a desire to change food systems.

¹ I use a broad definition of agribusiness, including business involved with agricultural activities and associated outputs from production to ready-for-consumption. This definition encompasses many different players along the value chain, but does not include food retailers such as supermarkets, convenience stores, and restaurants.

² <http://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy.aspx>

³ Reynolds, L., & Nierenberg, D. (2012). *Innovations in sustainable agriculture: Supporting climate-friendly food production*.

⁴ MacIntyre, B. D., Herren, H. R., Wakhungu, J., & Watson, R. T. (2009). *Agriculture at a Crossroads: International Assessment of Agricultural Science and Technology for Development Global Report*. Washington, DC: IAASTD.

⁵ Moskow, R., Nabatian, R., Crumbliss, C. (2016). *2016 Packaged Food Preview*. Credit Suisse.

In 2015 alone, private investment activity in the agribusiness industry⁶ nearly doubled. Compared with \$2.36 billion in 2014, agribusiness attracted \$4.6 billion from 672 unique investors across \$499 ventures⁷. But there is still room for additional capital and disruption. A 2015 Fortune special report summarizes, “as in every other legacy industry, Disruption (with a capital “D”) is here. Big Food is under attack from Startup Granola”⁸

Existing Approaches To Innovation are Insufficient. Financially viable innovations have the potential to close the supply-demand gap and to meet changing consumer expectations. Private sector actors are working to accelerate SOIs, but current approaches are insufficient. **Corporations** are deploying strategies such as M&A, R&D, and internal process updates in an attempt to acquire companies that can help target new market segments and invent new products. However, existing corporations are losing consumer trust and market share as they struggle to change operations and manage reputations. **Investors** are paying attention to the industry’s challenges and yet, attracting the best entrepreneurs, finding partnerships, and nurturing financially viable SOIs from idea to exit remains difficult. **Entrepreneurs** know consumers no longer trust “Big Food”, and recognize related opportunities. Nonetheless, they too struggle to identify and secure expertise and capital. **Corporate Venture Capital (CVC)** is emerging to help corporations expand innovation strategies and establish roles within the innovation ecosystem. CVCs show potential, but agribusiness firms have not figured out how to effectively implement CVCs, nor have CVCs established credibility as strategic investors. The table below summarizes current private sector approaches, and their associated limitations.

Approach	Examples	Limitations	Approach	Examples	Limitations
Corporations	Marketing	Packaging with idealistic pictures of farms	Sustainability-oriented subsectors	Alternative protein (e.g., Beyond Meat, Muufri)	Lack of sophisticated investors who can provide future funding Limited exit pathways
	CSR Commitments	Source only cage-free eggs by 2020	Investment thesis communicates sustainability-orientation	“improve yields; be more efficient and use fewer resources”	Meaningful impact metrics are not practical or cost-effective Fear of scaring away potential LPS
	Cost Cutting	Cut \$X/year for 3 years	Investing in upstream subsectors	Precision agriculture, biologicals	Lack of domain expertise Lack of historical data Slower market adoption, conservative users, high regulatory barriers, slow pace of natural systems
	R&D	Remove artificial colors and flavors from specific product lines	De-risking themselves	Building brand recognition through showcase events, accelerators	-Unable to demonstrate technical, business, and domain expertise -Over-pitching susty. aspects -Do not understand investor types -Navigate resources with ltd. time
	M&A	ABInBev and SABMiller, Hormel and Applegate	Minimal impact on total revenue Expensive Integration challenges	Seeking aligned capital	Mission-focused ventures; Increase in alternative corporate forms
Corporate Venture Capital	Monsanto Growth Ventures, General Mills 301 Inc.	Hard to determine strategic vs. financial objectives Lack strategy-driven structure Must establish/maintain credibility			
					Investors
					Entrepreneurs

⁶ The AgFunder definition is global and includes e-commerce, though without including ecommerce deals the sector still saw over \$2.9B of investment, up from \$1.9B in 2014.

⁷ AgFunder AgTech Investing Report 2015. *AgFunder*. Retrieved March 2016 from AgFunder.com.

⁸ <http://fortune.com/2015/05/21/the-war-on-big-food/>

Emerging Best Practices. My data suggest best practices for how leading corporations, investors, and entrepreneurs can address these limitations and challenges.

Agribusiness corporations need to embed sustainability considerations, including objectives and metrics, early in internal product design and development. In many cases, sustainability experts and explicit sustainability criteria are brought in only in later stages, when incorporating changes is too costly or takes too long. Incorporating sustainability as early as idea conception can help ensure the inclusion of ideas that meet sustainability criteria, and can help foster build-up, buy-in, and momentum across the organization.

Externally, corporations can contribute to the innovation ecosystem. For example, corporations can collaborate with accelerators, entrepreneur showcase events, and prizes as sponsors, mentors, advisors, or partners. Engaging with the ecosystem provides corporations a platform to share their internal innovation challenges, thereby seeding SOI entrepreneurship (and providing guidance around solutions they would pay for).

Corporations should also consider

Corporate Venture Capital (CVC) to fill a gap between M&A and R&D. As one investor summarized, “CVC arms are particularly effective at relieving pressures on existing firms to innovate, especially for innovations where they cannot do it in house, or when they cannot afford to wait longer.” There is no current consensus

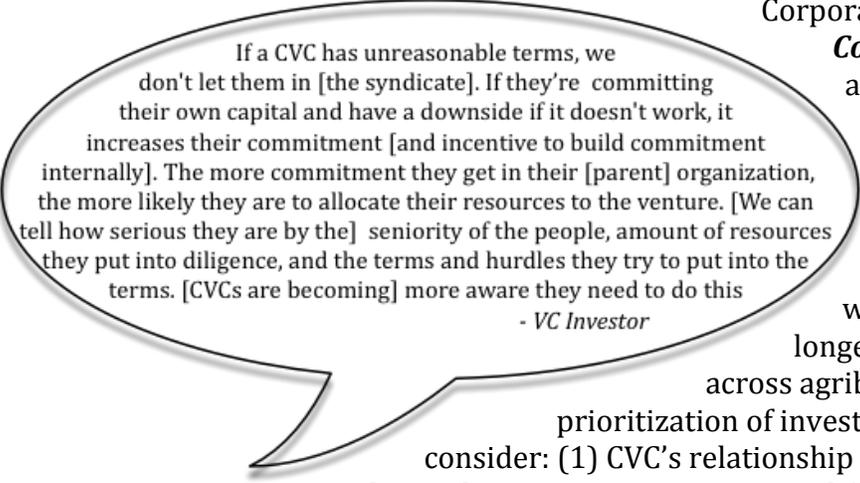
across agribusiness CVCs around the prioritization of investment objectives. CVCs must therefore

consider: (1) CVC’s relationship to the external system; (2) CVC’s relationship to parent company; and (3) CVC personnel. In addition to

determining objectives and implementing an appropriate structure, CVCs need to establish credibility and prove they are value-add contributors. This includes developing a strong reputation among co-investors and entrepreneurs, as well as with their parent corporations.

While agribusiness **investors** are interested in sustainability, they primarily focus on financial returns. Just as investors define a minimum viable return (e.g., IRR) for financial value, a minimum impact framework can help them think about sustainability impacts beyond risk assessment. A minimum impact framework is integral to a Theory of Change, which enables investors to evaluate portfolio companies in the context of their potential interactions with other portfolio companies and collective impact. This approach helps SOI investors make investment decisions by articulating the impact they want to make, using language that does not imply tradeoffs with financial performance.

Investors must also differentiate themselves by making their value proposition (e.g., technical or domain expertise; access to deal flow) clear to potential co-investors and entrepreneurs. Successful investors must carefully build their own reputations and track records.



If a CVC has unreasonable terms, we don't let them in [the syndicate]. If they're committing their own capital and have a downside if it doesn't work, it increases their commitment [and incentive to build commitment internally]. The more commitment they get in their [parent] organization, the more likely they are to allocate their resources to the venture. [We can tell how serious they are by the] seniority of the people, amount of resources they put into diligence, and the terms and hurdles they try to put into the terms. [CVCs are becoming] more aware they need to do this

- VC Investor

Additionally, investors must ensure that funded ventures have a high probability of attracting subsequent funding. To do so, they should create funding pipelines that attract additional capital with sufficient resources and appreciation for relevant sustainability considerations. Creating such pipelines requires collaboration between investors of all types and across investment stages. Funding pipelines create value for the entire innovation ecosystem – benefiting investors by de-risking early stage investments and reducing the cost of nurturing a venture to maturity; benefiting entrepreneurs who receive such funding, and can thus spend less time raising capital and more time developing ideas and growing companies; and benefiting existing agribusiness corporations who can gain early access to new ventures through their CVCs.

The investment environment is a sellers market. Entrepreneurs can get money anywhere these days. Increasingly, they are looking for value-add investors. I sit on boards and act as mentor. I am a real resource. I form lots of relationships. I am valuable because I understand how [the industry] works. This is absolutely a differentiator for our firm... we have no issues with deal flow. [And, because I] mentor a lot of entrepreneurs that I'm not investing in, when it comes time for a raise, we're already comfortable with each other. We don't need to hire anyone to do the deal, we just trust each other"

-VC, Former Agribusiness Executive

Finally, investors should syndicate – enabling them to combine resources and ultimately to decrease risk. Investors have to decide what role they want to play and what types of investors they want to collaborate with. They should make these decisions according to type and area of investment and the skill sets of other investors.

We always lead, but we want to see complementary skills in our syndicates. [We bring domain expertise, so] we want to see financial investors looking for returns, and we want to see [that they are investors with] technological expertise

-CVC Investor

Entrepreneurs have to be clear about their mission and desired sustainability impact, and tailor this message to fit the sustainability orientation of potential investors. Entrepreneurs also need business acumen to realize their vision and secure capital from investors. Entrepreneurs must understand what type(s) of capital will enable them to achieve their vision by being aware of investor motivations and initiating a dialog with potential investors about expectations (e.g., timeline, returns, scale, control, participation). Lastly, entrepreneurs should collaborate with each other to share experiences and discuss investor types and even specific investors.

Alternative legal forms are emerging to help entrepreneurs preserve the sustainability orientation of their ventures. Examples include cooperatives, low-profit limited liability companies (L3Cs) and Public Benefit Corporations (PBCs). Entrepreneurs should be cautious, though, as many venture investors are still skeptical of these business models due to fears around profitability. SOI entrepreneurs should also consider alternative financing mechanisms beyond equity, such as debt financing, grant funding, bootstrapping using personal investments and/or sales revenue, and program related investments (PRIs).

Entrepreneurs want to change the world but they're not getting that you have to make money to be sustainable or have an impact. People are drawn to [agribusiness] because of societal benefit. Yes, this is a game changer and makes the space more interesting. But you have to have a monetization strategy

- VC Investor and serial entrepreneur

Finally, entrepreneurs should identify accelerators that will help build skills, identify and address gaps, develop and maintain visions for sustainability impact, and provide access to funding pipelines. Factors to consider include the services, skill set and experiences of the accelerator's operating team, sustainability-orientation, track record of attracting aligned capital, and whether the accelerator has a vested interest in the long-term success of each cohort (e.g., does the accelerator itself make investments).

Stakeholder	Proposed Best Practices
Corporations	<ul style="list-style-type: none"> • Embed sustainability requirements early • Add value to the innovation ecosystem • Consider CVC to fill a gap between R&D and M&A
Corporate Venture Capital Investors	<ul style="list-style-type: none"> • Determine objectives and let them dictate structure • Manage external and internal reputation • Communicate and leverage unique value proposition
Investors	<ul style="list-style-type: none"> • Use a Theory of Change approach to ensure positive, holistic impact <i>and</i> financial gains • Differentiate • Develop domain expertise • Create funding pipelines • Lead or tag-along in a syndicate
Entrepreneurs	<ul style="list-style-type: none"> • Tailor pitch to sustainability orientation of audience • Find and secure aligned capital • Leverage the right accelerator

Limitations and Future Research. My thesis provides an exploratory look at the emerging innovation ecosystem within agribusiness. The best practices I propose represent a post-hoc analysis of what the subjects interviewed perceive to be effective and ineffective, and future research is necessary to systematically validate the efficacy of the proposed best practices. Additionally, I did not include the public sector perspective in this thesis, though undoubtedly public sector actors have a critical role to play, as accelerating SOIs requires collaboration across sectors.