VENTURE CAPITAL PERSPECTIVE

InfoAg
August 4, 2016
Ryan Rakestraw

- Grew up Bridgeport, WV
- Electrical Engineering BS (Rose-Hulman), MS (Johns Hopkins)
- Systems Engineer, Northrop Grumman
- MBA WashU
- Cultivation Capital – St. Louis Venture Firm
- Yield Lab – Ag Accelerator
- Monsanto Growth Ventures

ryan.rakestraw@monsanto.com
@RyanRakestraw, LinkedIn
Venture Capital
Drivers of Product Innovation have Changed Significantly Over the Past Few Decades

In the 60s/70s, most of the innovation came from **few big companies** and the government which had the resources to commit large investments into R&D.

Today, large companies are not the only ones playing that role; **Venture Capital** backed startups are increasingly driving innovation – from the **cell-phone** in your pockets to **drugs treating cancer**.
VC Backed Companies

“Annual venture investment, on average, equals less than 0.2% of U.S. GDP. However, annually VC-backed companies generate revenue equal to 21% of U.S. GDP. Also, VC-backed firms account for 11% of private sector jobs, and VC backed companies are responsible for 10-12% of privately funded innovations with spending of only 3% of corporate R&D.”

“….over 60% of IPOs are VC backed. This is an extraordinary percentage considering that only 1/6 of 1% of all companies are VC-backed. “


A dollar invested in venture capital is three times more effective in creating patents than a dollar invested in corporate R&D (2012, Booth, B.L.).
Venture Capital Funding Continues to Grow

$77B invested in US startups in 2015 is an easy high for the past decade

2015 was the year of the Unicorns (startups with >$1B valuation) – 50 startups joined the club this year alone!

Today, there are a total of 163 unicorns globally with a total valuation of $569B

Source: PitchBook
Where Does Venture Capital Money Come From?

- Professional Venture Capital Firms raise money from Insurance Companies, Educational Endowments, Pension Funds and Wealthy Individuals.

- These organizations have an investment portfolio which they allocate to various asset classes such as stocks (equities), bonds, real estate etc.

- One of the assets classes is called “Alternative Investments”- venture capital is such an investment. Perhaps 5% to 10% of the portfolio might be allocated to Alternative Investments.

- The portfolio owners seek to obtain high returns from these more risky Alternative Investments.

$7.5B in investment assets
$1.2B towards Private Equity
What Do Venture Capitalists Do?

- Raise Funds
- Source Deals
- Invest in Companies
- Manage the Investment
- Harvest the Investment
What Rate of Return do VC’s Want?

VCs seek to return 20-30% IRR back to their investors

Note: 10x at 10 years is 26%
Founded in 2006 as WeatherBill by two former Google employees: David Friedberg and Siraj Khaliq. The company began as a startup focused on helping people and businesses manage and adapt to climate change, by providing weather insurance to ski resorts, large event venues, and farmers. In 2010 it decided to focus exclusively on agriculture, and launched the Total Weather Insurance Product in fall 2010 for corn and soybeans.
Climate Venture Funding History

- **Jan-2006:** Raised **$4 million of seed funding** from Index Ventures, New Enterprise Associates, Atomico Investments, Sean Park, First Round Capital Joshua Schachter.
- **Oct-2007:** Raised **$15 million of Series A venture funding** in a round led by New Enterprise Associates and Index Ventures.
- **Feb-2011:** Raised **$42 million of Series B venture funding** from Khosla Ventures, Google ventures, New Enterprise Associate, Index Ventures, Allen & Company, First Round Capital, Atomico and Code Advisors, putting their pre-money valuation at **$150 million**.
- **June-2012:** Raised **$50 million of Series C venture funding** from lead investor Founders Fund putting their pre-money valuation at **$322 million**.
- **Nov-2013:** Acquired by Monsanto for ~$1 B.

- **Total capital raised - $118M, ~26 investors**

Source: PitchBook
Corporate Venture Capital is Increasingly Playing a Bigger Role in Startup Financing

1 out of every 5 investments in US startups in 2015 was financed by Corporate Venture Capital

CVCs are leading some of the largest rounds in Venture:

- **Google** invested $1B in SpaceX
- **GE** invested $105M in Pivotal
- **GM** invested $500M in Lyft

Source: CBInsights
Venture Capital in Agriculture
Sources of Innovation in Agriculture up to 2012

- VC-backed AgTech funding minimal – less than $500M per year up to 2012

Source: AgFunder, TechCrunch, MGV team analysis
2015 was a Record Year for AgTech Funding
Startups Likely to Drive Future Innovation

672 unique investors invested $4.6B in 526 deals in 2015 in AgTech; almost 2x over 2014 levels and 4x over 2013

Total AgTech financing* outpaced Monsanto’s annual R&D spend for the first time in 2014; in 2015, AgTech venture financing was ~3x Monsanto’s annual R&D spending

*Does not include at least 15% of $9B invested in BioTech/Life Sciences in 2015 which has applications in Agriculture

*AgFunder Data Excluding food eCommerce:
2014: 205 deals/$1.681B invested (compared to the $2.4B total)
2015: 375 deals/$2.855B invested (compared to the $4.6B total)

Source: AgFunder, Statista
### Investment Categories

**$M's Invested**

<table>
<thead>
<tr>
<th>Category</th>
<th>Invested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Ecommerce</td>
<td>$1,653</td>
</tr>
<tr>
<td>Irrigation &amp; Water</td>
<td>$673</td>
</tr>
<tr>
<td>Drones &amp; Robotics</td>
<td>$383</td>
</tr>
<tr>
<td>Bioenergy</td>
<td>$305</td>
</tr>
<tr>
<td>Decision Support Technology</td>
<td>$295</td>
</tr>
<tr>
<td>Biomaterials &amp; Biochemicals</td>
<td>$190</td>
</tr>
<tr>
<td>Soil &amp; Crop Technology</td>
<td>$168</td>
</tr>
<tr>
<td>Sustainable Protein</td>
<td>$160</td>
</tr>
<tr>
<td>FoodTech</td>
<td>$110</td>
</tr>
<tr>
<td>Food Safety &amp; Traceability</td>
<td>$95</td>
</tr>
<tr>
<td>Waste Tech</td>
<td>$91</td>
</tr>
<tr>
<td>Indoor Agriculture</td>
<td>$77</td>
</tr>
<tr>
<td>Farm to Consumer</td>
<td>$70</td>
</tr>
<tr>
<td>Animal Nutrition &amp; Health</td>
<td>$50</td>
</tr>
<tr>
<td>Smart Equipment &amp; Hardware</td>
<td>$26</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>$227</td>
</tr>
</tbody>
</table>

- Food services were a major component: $1.65B through late stage growth investments in Blue Apron and Revolution Foods; rest of the $3B are more core Agriculture.

- **Sectors of Particular Interest:**
  - Soil Crop Tech: $168M, 35 Deals, 44 Unique Investors
  - Precision Ag: $661M, 96 Deals, 167 Unique Investors

Source: AgFunder
Why Food E-Commerce?
Technology is good at simplifying distribution

Input Suppliers
- Equipment
- Seeds
- Crop Protection
- Animal Health
- Fertilizer

Farmers
- Crops
- Livestock

Collection/Trading
- Storage
- Transport
- Import/Exporting
- Commodities Exchange

Processing
- Animal Feed
- Food Ingredients

Food Production
- Meat Processing
- Processed Food and Beverage

Retail
- Grocery
- Restaurants

John Deere
Monsanto
DuPont
BASF
Dow
Koch

2.2 M Farms in the US,
570 M farms worldwide

Cargill
ADM
Bunge

Cargill
ADM
Bunge
Purina

JBS
Tyson
PepsiCo
Kraft
General Mills
Kellogg
ConAgra

Walmart
Costco
Kroger
Yum Brands
Global Investment: Number of Deals by Country

- **25** $176M (Canada)
- **19** $121M (United Kingdom)
- **303** $2.2B (United States)
- **11** $63M (France)
- **13** $547M (Israel)
- **64** $505M (India)
- **8** $480M (China)
- **6** $48M (Australia)

#Deals Funded
Log Scale

Source: AgFunder
Similar to Other Areas of VC, California Received the Most Investment

While its portion of deal activity fell in 2015, **California** was still by far the busiest state for agtech investment activity with $1.25 billion raised across 96 deals.

**New York** overtook **Illinois** and **Colorado** to become the second most active hub for agtech investment as **$483 million** worth of funding across **34 deals** took place there during 2015.

Source: AgFunder
Sources of Innovation in Ag

Innovation in Agriculture up to 2012

- **VC Backed Companies**
- **Big Companies**
- **Universities and Governments**

- **Application of Existing Technology**
- **Incremental Innovation**
- **New Tech**

- VC-backed AgTech funding minimal – less than $500M per year up to 2012

Innovation in Agriculture Going Forward

- **VC Backed Companies**
- **New Tech**

- VC-backed AgTech funding growing fast– $2.4 B in 2014 and already $4.6B in 2015

**VC Backed Companies will be an Increasingly Important Source of Innovation in Agriculture**

Source: AgFunder, TechCrunch, MGV team analysis
MGV Investment Professionals

John Hamer  
Managing Director

Kiersten Stead  
Investment Director

Ryan Rakestraw  
Investment Principal

Darren Streiler  
Venture Partner
Monsanto Growth Ventures Mandate

Goal: Drive Innovation in Agriculture

1. Strategic return: Market insight, Partnerships, Testing, Licensing, M&A

2. Financial return: Maximize ROI, Invest in the best companies

Great Company = Great technology = Great ROI
## Disclosed Investments

### Digital Agriculture

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgSolver</td>
<td>Sub-Field Profitability Management</td>
</tr>
<tr>
<td>Blue River</td>
<td>Machine Vision Based Weeding</td>
</tr>
<tr>
<td>HydroBio</td>
<td>Irrigation Decision Support</td>
</tr>
<tr>
<td>Vital Fields</td>
<td>Field Notes, Benchmarking, and Compliance</td>
</tr>
<tr>
<td>Understory</td>
<td>Robust, Next-Generation Weather Station</td>
</tr>
<tr>
<td>Resson</td>
<td>High Resolution Image Analysis and Anomaly Detection</td>
</tr>
</tbody>
</table>

### Biologicals

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgBiome</td>
<td>Biological Based Crop Protection</td>
</tr>
<tr>
<td>PivotBio</td>
<td>Next-Generation Microbial Inoculants</td>
</tr>
<tr>
<td>Plant Response</td>
<td>Crop Protection, Trait &amp; Biologicals platform</td>
</tr>
<tr>
<td>RaNA</td>
<td>RNA-Targeted Therapeutics</td>
</tr>
</tbody>
</table>

### Crop Technology

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arvegenix</td>
<td>New Cover Crop for Corn - Soy Rotations</td>
</tr>
</tbody>
</table>

### Crop Protection

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nimbus</td>
<td>Computer Aided Approaches for New Chemistry</td>
</tr>
</tbody>
</table>
What's Next?

Gartner Hype Cycle

- Peak of Inflated Expectations
- Plateau of Productivity
- Slope of Enlightenment
- Trough of Disillusionment
- Technology Trigger
Ag Innovation Hype Curve

- Innovation Trigger
- Peak of Inflated Expectations
- Trough of Disillusionment
- Slope of Enlightenment
- Plateau of Productivity

Technologies:
- Soil sensors
- Machine Learning
- IoT Middleware
- Drones
- Traceability Platforms
- Nano-Satellites
- Dashboards
- Scouting Apps
- Moisture sensors
- Hyper-local weather
- SaaS Per Acre Models
- Cloud
- In-cab displays
- Variable Rate
- Farm ERP
- NDVI
- Soil Sampling
- Autosteer

Industries:
- Amazon for Inputs
- Uber for Tractors
- Hyper-spectral
- Fully Autonomous
- Indoor Farming
- Synthetic Aperture Radar
- In-field wireless

Applications:
- Water trading
- Blockchain
- Grain Trading
- Deep Learning
- On Plant Sensors
- Machine Learning
- In-cab displays
- Smart Tractors
- Variables Rate
- Moisture sensors
- Farm ERP
- Nano-Satellites
- Hyper-local weather

Models:
- Models
- SaaS Per Acre
- Cloud
We need to increase our customers' ROI

ROI = \frac{\text{Return}}{\text{Investment}}

Reducing our price to $0 per acre will dramatically increase ROI

Let’s not get stuck here
THANK YOU!