

Strategic Partnerships and Financing Panel

**DOE BETO Demonstration &
Deployment Workshop
Argonne National Laboratory
March 12th, 2014
Ron Meeusen**

Intro: Cultivian Sandbox Food & Ag Fund II

- Only pure play, private VC fund focused solely on food and ag technologies.
- Fund I: \$34 MM, Fund II: \$90+ MM
- Midwest-based (Chicago, Indianapolis, Ann Arbor, Kansas City). Invest globally.
- Strategic Partnerships/LP's
- **Partners**

Bob Shapiro (Fmr Monsanto CEO)	Matt Downs (Bain, Highland)
Andy Ziolkowski (Fmr First Boston)	Ron Meeusen (Dow, SYN)
- **Focus**

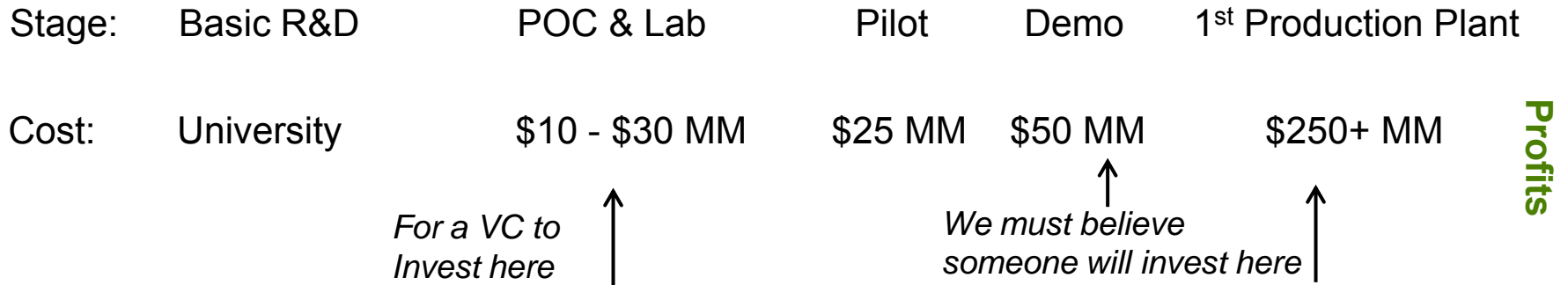
Animal Health	Crop Production	Water
Food/Food Safety	Cleantech	
- **Investments** Robotics, Synthetic Biology, Renewables, Water Treatment, Irrigation Control/Precision Ag, Sugar Production (Algal), Animal Therapeutics, Crop Genetics, Fermentation Technologies

Financing: Early Stage

- 1. Early investors must see a path to success**
- 2. Most biofuel paths include one or more very large, later stage investments which pose serious risks to early investors.**
- 3. Technologies with stair step markets are lowest risk, and most readily funded.**

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OR.... VC's can look for technologies which have earlier, smaller and higher margin products... stair step.

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3. **Technologies with stair step markets are lowest risk, and most readily funded.**

Stage:	Basic R&D	POC & Lab	Pilot	Demo	1 st Production Plant
Cost:	University	\$10 - \$30 MM	\$25 MM	\$50 MM	\$250+ MM

Technologies able to start with smaller markets with higher margins can pay for the optimization of the technology to reach the large, lower margin commodity markets.

Profits

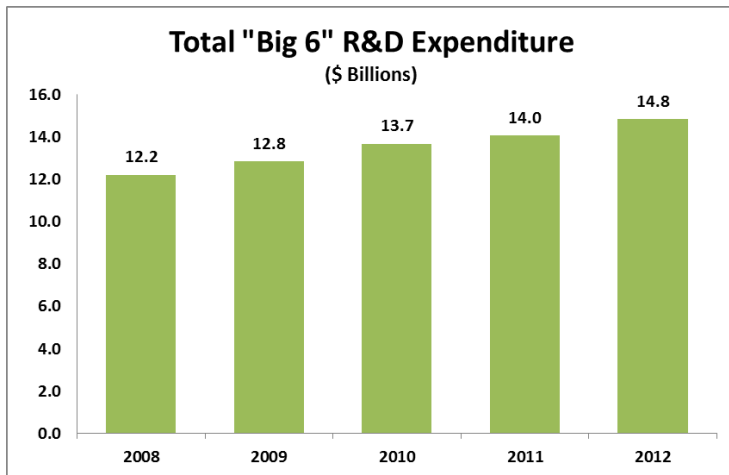
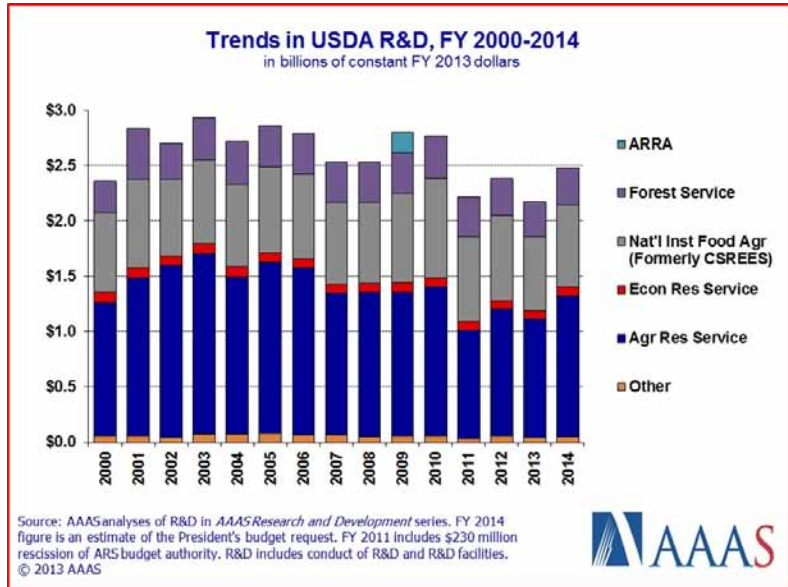
Profits

Profits

How Are New Ag Technologies Being Funded?

Governments

- Funding flat to down in key countries
 - Most innovation from US, CAN, West EU, AUS, NZ, Israel



Big 6: BASF, Bayer, Dow, DuPont, Monsanto, Syngenta
Source: CapitalIQ

Corporations

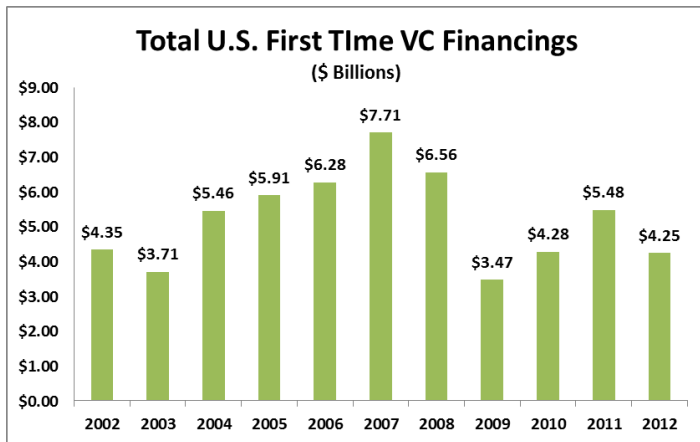
- Expanding both internally and externally
 - Open Innovation (e.g., P&G)
 - Captive VC Funds (e.g., Shell, DuPont)
 - Private VC Collaborations (e.g., MON/Atlas)

How Are New Ag Technologies Being Funded?

Investment Community

- Engaging but gradually
 - Traditionally overlooked agtech for healthcare, IT, etc.
 - Overall VC \$ down, but increasing in agtech

- New Innovation
 - Cultivian Ventures – First pure play food & Agtec VC fund (2008)
 - First agriculture exclusive crowdfunding platform: AgFunder
 - First agriculture accelerator programs – TN, RTP, St. Louis, (CA?)



COMPANY	\$ RAISED	ENTERPRISE VALUE
Athenix	\$45 M	\$400 M
Agraquest	\$38 M	\$425 M
Aratana Therapeutics	\$47 M	\$358 M
Beelogsics	< \$10 M	\$114 M
Divergence	\$21 M	\$76 M
Gevo	\$47 M	\$500 M
Metabolix	\$44 M	>\$200 M
Pasteuria Bioscience	\$8 M	\$113 M
Precision Planting	N/A	\$250 M

Source: National Venture Capital Association

Source: CapitalIQ, Investment Banker Estimates & Personal Information

Example: Robotics Replacing Scarce Labor

Harvest Automation: Replacing seasonal labor in the nursery Industry.



Example: Precision Ag Reducing Water Use



Remote, continuous soil moisture monitoring

Maximizes irrigation:

- Less water used
- Less fertilizer lost
- Less energy used
- Higher crop yields

Example: Precision Ag Replacing Labor

Autonomous UAV's replacing manual monitoring or applications of fertilizers/pesticides. Information replacing labor/materials/energy.



Automated aerial crop monitoring. ≥ 350 acres/hr.



Remote applications of

- In season fertilizer
- Insecticides

Example: Diagnostics for Food Safety

Problem:

Listeria – higher hospitalization and death (20%) rate than E.coli or Salmonella. But extremely slow growing, so detection has always required 72 – 96 hours. Results:

- Perishable inventory held for days, or
- Shipping product at risk of recalls



[Garden Fresh Foods Recalls Chicken And Ham Products On Listeria ...](#)

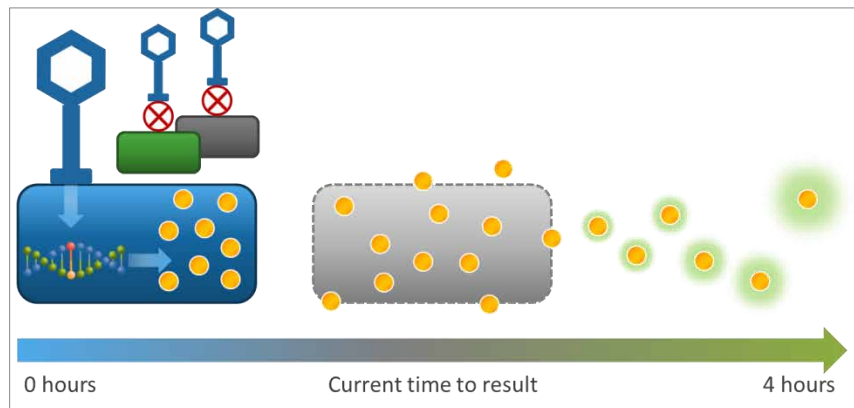
Huffington Post - by Caroline Fairchild - Sep 29, 2013

[Farmers arrested in cantaloupe listeria outbreak that killed 33](#)

KSDK - by Brandie Piper - Sep 26, 2013

New Technology:

sample6



- 3-4 hours to results
- Based on synthetic biology
- NO enrichment – on site testing
- Can be performed by untrained staff
- Comparable performance to current tests