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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For a VC to Invest here

We must believe someone will invest here

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

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)

Source: CapitalIQ
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 & Agtech VC fund (2008)
  - First agriculture exclusive crowdfunding platform: AgFunder
  - First agriculture accelerator programs – TN, RTP, St. Louis, (CA?)

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<th>COMPANY</th>
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<th>ENTERPRISE VALUE</th>
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<tr>
<td>Athenix</td>
<td>$45 M</td>
<td>$400 M</td>
</tr>
<tr>
<td>Agraquest</td>
<td>$38 M</td>
<td>$425 M</td>
</tr>
<tr>
<td>Aratana Therapeutics</td>
<td>$47 M</td>
<td>$358 M</td>
</tr>
<tr>
<td>Beelogics</td>
<td>&lt; $10 M</td>
<td>$114 M</td>
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<tr>
<td>Divergence</td>
<td>$21 M</td>
<td>$76 M</td>
</tr>
<tr>
<td>Gevo</td>
<td>$47 M</td>
<td>$500 M</td>
</tr>
<tr>
<td>Metabolix</td>
<td>$44 M</td>
<td>&gt;$200 M</td>
</tr>
<tr>
<td>Pasteuria Bioscience</td>
<td>$8 M</td>
<td>$113 M</td>
</tr>
<tr>
<td>Precision Planting</td>
<td>N/A</td>
<td>$250 M</td>
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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

New Technology:

- 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