Trends and New Market Opportunities in Ag Biologicals

Pam Marrone, PhD
CEO/Founder

February 2014
Forward-Looking Statements

This presentation may include forward-looking statements. These statements reflect the current views of the Company’s senior management with respect to future events and financial performance. These statements include forward-looking statements with respect to the Company’s business and industry in general, including statements regarding potential market size of Company products, anticipated product launches, target geographic markets, factors for the barriers to entry into the market, and strategies for growth. Statements that include the words “expect,” “intend,” “plan,” “believe,” “project,” “forecast,” “estimate,” “may,” “should,” “anticipate” and similar statements of a future or forward-looking nature identify forward-looking statements for purposes of the federal securities laws or otherwise. Forward-looking statements address matters that involve risks and uncertainties such as the timing of and costs associated with the launch of products, the difficulty in predicting the timing or outcome of product research and development efforts and regulatory approvals. Accordingly, there are or will be important factors that could cause the Company’s actual results to differ materially from those indicated in these statements. The statements made herein speak only as of the date of this presentation.
The Need for More Sustainable Food Production

<table>
<thead>
<tr>
<th>Year</th>
<th>World Population</th>
<th>Arable Land Per Capita</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>6 Billion</td>
<td>2,700 sqm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Decline in crop yield annual growth rate</td>
</tr>
<tr>
<td>2050</td>
<td>9 Billion</td>
<td>2,000 sqm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rising global food demand</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Failure to meet increasing global food demand</td>
</tr>
</tbody>
</table>
Corporate Overview

Company Highlights

- Founded April 2006 in Davis, CA
- 3 commercial products, 1 add’l approved, 3 add’l submitted for EPA approval
- Library of 18,000+ proprietary microorganisms
- 151 FTEs (19 Ph.D.; 65 in R&D)
- Strategic investors: DSM, Syngenta, Mitsui
- Fermentation facility in Bangor, MI coming online (17 employees)
- Revenue anticipated to more than double in 2013*
- Listed on NASDAQ as MBII August 2, 2013

Marquee Partners / Distributors

- Syngenta, FMC, Scotts, CNI, IAP, Simplot, Crop Production Services, ENGAGE AGRO, Titanpro

Robust Pipeline

- Opportune™ bioherbicide targeted launch Dec 2013
- Venerate™ bioinsecticide, MBI-011, bioherbicide, MBI-302 bionematicide submitted for EPA approval
- Additional nematicides, herbicides, fungicides and plant health products in development
- 21 issued patents and more than 200 patents pending

Commercial Products Today

- REGALIA, GRANDEVO, ZEQUANOX

*Guidance as of September 12, 2013 for fiscal 2013
Definitions

- **Biopesticides**
  - *Crop Protection*

- **Biostimulants**
  - *Crop Enhancement*

- **Biofertilizers**
  - *Crop Nutrition*
What are Biopesticides?

**Microbials**
- Fungi, Bacteria, Viruses, and Protozoa

**Biochemicals**
- Plant Extracts, Pheromones, Soaps, and Fatty Acids

**Biologicals are highly effective and less expensive to develop, safer and subject to less regulation than conventional chemicals (65 year history of safe use)**
Biologicals –
The Third Leg of the Crop Production Toolbox

Biologicals stand with GM crops and chemicals to feed the world ... more sustainably
Compelling Value Proposition of Biopesticides

- Yield/quality
- Performance (alone or mixed)
- No residues
- Pest resistance
- Worker safety and production flexibility
- Environmental footprint
- Can be used in organic

Source: BCC Research and AgroPages.

(1) To compare Biopesticides and Ag Chemicals growth, AgroPages' 2016E of $58.43B is discounted by two periods of the ’11-’16E CAGR of 5.3% to yield an extrapolated value of $52.7B.

(2) The ’10-’14E CAGR figure reported is calculated based on AgroPages' 2010A value of $42.47B and the extrapolated value of $52.7B (see footnote 1) to yield the 5.54% extrapolated CAGR.
The Shift to Bio-based Pest Management

- Chemically Intensive
- “Sustainable” Biopesticides + Chemicals (bio-based products as base of the program)
- Organic
Biologics: Shorter Time and Lower Cost to Develop

- Shorter statutory timeline for EPA approval of biopesticides
- Reduced toxicology requirements if no direct toxic effects
- MBI’s experience allows shorter development time

**Average Chemical Pesticide**

Development Time & Cost$^{(1)}$ – Years: $\sim$10  Cost $256$mm (USD)

(1) Source: Crop Life America.
Big Companies Jump Into Ag Biopesticides (2012-2013)

- **Syngenta**
  - Acquires Multiple RNAi Providers
  - Syngenta, Novozymes Ink Deal To Commercialize Taegro

- **BASF**
  - $1 billion

- **Bayer CropScience**
  - Prophylta
  - $425+ million

- **Novozymes**

- **TJ Technologies**

- **Natural Industries**

- **FMC/JV**
  - Center for Agricultural and Environmental Biosolutions

- **Monsanto**
  - Acquires Multipl RNAi Providers

- **American Vanguard**
  - Invests in TyraTech Natural Product Technologies

- **Gowan**
  - ... becomes exclusive distributor of Polyversum biofungicide
Why Biopesticides?

“Biopesticides are mainstream. We know we are all going to need a biopesticide play.”

Biopesticides are increasingly required in pest management programs to meet customer needs
- e.g., Exported produce; Covered vegetables in Europe – retailers demand no or few residues. SYSCO, Wal-Mart and other food companies developing sustainable farming requirements.

Biopesticides provide added benefits or fit where few chemicals exist
- e.g., Nematode control; Bayer’s Poncho/Votivo seed treatment, MBI’s ZEQUANOX for invasive mussels in open water; GRANDEVO for resistance mgt

Biopesticides meet growing consumer demand for health and wellness
- e.g., Low or no residues; to expand garden pesticides segment; address Canada’s bans on cosmetic pesticides

Tightening chemical regulations and special governmental biopesticide initiatives
- e.g., Europe’s Sustainable Use Directive, Canada bans, etc.; programs to accelerate biologicals in EU, Brazil, India, others

Biopesticides are one of the fastest growing input segments
- e.g., 10-16% CAGR
Samples from around the world from areas of high biodiversity are collected and cultured.

Microbes are grown in liquid commercial-like media. Water extracts of fermentation broths are prepared for bioassays.

Biological testing against weeds, insects, plant pathogens, nematodes, algae, and for growth promotion are performed. Microbe/genetic ID.

Identify pesticidal compounds; eliminate harmful strains. Develop analytical assays for mfg QC.
Unique Ability to Discover and Exploit Novel Natural Product Chemistry

DISCOVERY
New bacterial species of *Burkholderia*: *Burkholderia rinojensis* sp.

**Herbicidal/Algicidal**
- **Templazole A**

**Herbicidal**
- **Templazole B**

**Herbicidal/Insecticidal**
- **Templamide A**

**Herbicidal/Algicidal/Insecticidal**
- **Templamide B**
Getting to market ...

Goal –
• Cost-effective
• Value-added
• Consistent efficacy
• Easy to use

How -
• Optimize processes
• Scale up—pilot & manufacturing
• Field trials
• Registration package
• Develop user-friendly formulations & packaging
  – Wettable powder, granule, liquid suspension, etc.
Strong Patent Protection of Biologicals

- **Microorganism**
  - Novel strains and species
  - Pesticidal cDNA products
  - Specific uses for pest management

- **Natural Product Chemistry**
  - Individual compounds produced by the microorganism and their use for pest management
  - Novel mixtures of compounds
  - Fermented and synthetic versions

- **Mixtures**
  - With other biological and chemical pesticides

- **Formulations**
  - Granules, liquids, powders, etc. of the microorganisms and its compounds

- **Herbicide Discovery**
  - Enzyme assay for discovery of new herbicides from microorganisms
## Our Pipeline – Multiple Products in Parallel

<table>
<thead>
<tr>
<th>Discovery</th>
<th>Pre-Development</th>
<th>Development</th>
<th>Regulatory</th>
<th>1st Launch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REGALIA</strong></td>
<td>fungicide / plant health</td>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GRANDEVO</strong></td>
<td>Insecticide/miticide</td>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ZEQUANOX</strong></td>
<td>aquatic molluscide for invasive mussels</td>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Opportune™</strong></td>
<td>herbicide</td>
<td>Targeted launch Dec 2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Venerate™</strong></td>
<td>insecticide</td>
<td>Pending EPA approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Haven™</strong></td>
<td>anti-transpirant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 506/110/303™</strong></td>
<td>plant yield enhancer/drought tolerance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 011</strong></td>
<td>herbicide</td>
<td>Pending EPA approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 302</strong></td>
<td>nematicide</td>
<td>Pending EPA approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 010</strong></td>
<td>herbicide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 110</strong></td>
<td>fungicide and plant health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 601</strong></td>
<td>biofumigant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 303</strong></td>
<td>nematicide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MBI 701</strong></td>
<td>algaecide</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Does not require EPA registration when used as a plant enhancer.*
Developing a Successful Biopesticide is Challenging

Challenging Environment for Potential New Entrants

- Technical and market competencies are difficult and expensive to replicate
- Range of necessary scientific & management skills are poorly understood and in short supply
- Each microbe/plant extract is different with unique challenges so developing an entire pipeline is difficult
- Universities do not train for formulation chemistry and the combination of skills needed for the development & commercialization of biopesticides
- Field application experience is integral; limited number of field specialists have properly evaluated biological products
Ag Sales, Marketing & Distribution Strategy

North America

Marrone Bio Innovations

Distributor/Retailer

Grower

International

Marrone Bio Innovations

Branded Manufacturer

Distributor/Retailer

Grower

Distributor/Retailer

Grower

Grower
Growth Through Multiple Pathways

- Launch of New Products
- New Market Segments
- Additional Geographies
- Additional Crops
- New Customers
- Pocket Share

- 4 Specialty Crops
- Ornamentals
- 18 Specialty Crops
- Ornamentals
- Turf
- In-Pipe Water Treatments
- 22 Specialty Crops
- Ornamentals
- Turf
- Row Crops
- In-Pipe Water Treatments
- 30+ Specialty Crops
- Ornamentals
- Turf
- Row Crops
- Home & Garden
- In-Pipe Water Treatments
- Open Water Treatments

2009
2012
2013
2014 & beyond
Marrone Michigan Manufacturing (M$^3$)

- Total $33 million investment projected
- $15.5 million through July 2014
- Construction for fermentation and plant-extract based products
- Fully operational first quarter
Biologicals as Seed Treatments

- **Documented synergy with many conventional chemistries.** Most new biopesticidal seed treatments are deployed in “stacked” sets of active ingredients for improved pest management.
- **Multiple modes of action** for pest resistance management.
- **Economically valuable** to the farmer.
- **Can be used alone or in combination** with additional chemistries in priming, pelleting and film coating processes.
- **Improve** seedling emergence, stand establishment, vigor and pest control.
- The earliest successful biopesticidal seed treatment is still on the market: *Bacillus subtilis (Bt)* (Gustafson) and remains one of the most widely used biopesticide seed treatments.
Kodiak® HB is a dry biological seed treatment.

Contains *B. subtilis* (6 X 10⁹ viable spores per gm) for suppressing soilborne fungal diseases caused by *Fusarium, Rhizoctonia, Alternaria* and *Aspergillus* in cotton, peanuts, corn and ornamentals.
**Robust Rhizobial Inoculant**
- Minimum guaranteed count of 10 billion \(1.0 \times 10^{10}\) colony forming units (CFUs) of *rhizobia* per ml.
- Highly effective and infective multi-strain *Bradyrhizobium japonicum* produced fresh for each growing season for maximum freshness and performance.

**Patented Rhizobia Growth Enhancer**
- After planting, patented biological performance enhancer works with *Rhizobia* to stimulate root nodulation.

**Powerful INTEGRAL Biofungicide**
- Extends suppression of yield-robbing *Rhizoctonia* and *Fusarium* fungal diseases.
- Complements other systemic fungicides to help promote better root structure and vigor.
- More vigorous roots mean improved nutrient uptake for added yield potential.
Poncho/VOTiVO employs a dual conventional - biological modes of action with a unique bacteria strain that lives and grows with young roots, creating a living barrier that prevents important nematode species from reaching the roots.

Poncho/VOTiVO also provides control of many critical early season insect pests.

ACTIVE INGREDIENTS:
Clothianidin .................................................. 40.3%
Bacillus firmusI-1582 ................................. 8.1%
OTHERINGREDIENTS: ............................. 51.6%

KEEP OUT OF REACH OF CHILDREN

CAUTION
Contains 4 .17 pounds clothianidin per U .S . gallon Contains 0 .84 pounds Bacillus firmus per U .S . gallon
(contains a minimum of 2 X109 cfu/ml)

EPA Reg. No. 264-1109
Highlights

• Combines a nematicide with the insecticide and three fungicides of CruiserMaxx® Beans with Vibrance®
• Offers season-long activity against Soy Cyst Nematode as well as a broad range of early-season insects and diseases
• Complements SCN-resistant varieties and crop rotation and helps manage resistance by adding another mode of action
• Optimizes root health to deliver better emergence, stand, stress tolerance and overall performance
• Provides more robust and vigorous plants via the Cruiser® Vigor Effect
• Shows a consistent yield increase across multi-year field trials and improved return on investment potential for soybean growers

*Pasteuria nishizawai*
MBI: Delivering The Next Generation of Biological Seed Treatments

**REGALIA®**
Biofungicide that works as well as or better than chemicals; Enhances chemicals to increase yields in row crops

**GRANDEVO**
Broad spectrum microbial insecticide with novel chemistry and novel mode of action

**ZEQUANOX®**
Industry’s only biological solution for invasive mussels; highly effective and selective

**VENERATE®**
New species of insecticidal bacteria with novel compounds as potent as the best chemicals

**Suite of novel microorganisms that enhance plant growth (MBI-506, -110, -303, -401)**

**Two new nematicidal bacteria that produce new classes of chemistry (MBI-302, -303)**

**New systemic herbicides with novel chemistries (MBI-005, MBI-010)**
Soybean Cyst Nematode Control
(Heterodera glycines)
Nematode Count
Auburn University, 2013

MBI products all reduced nematode populations.
Soybean Seed Treatments – Yield

Soybean Cyst Nematode
(*Heterodera glycines*) Yield (gm/plot)
Auburn University, 2013

MBI products all increased yield over untreated and most treatments increased yields more than the commercial standard.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield (gm/plot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBI-302</td>
<td>110</td>
</tr>
<tr>
<td>MBI-203</td>
<td>100</td>
</tr>
<tr>
<td>MBI-203 Infurrow</td>
<td>130</td>
</tr>
<tr>
<td>MBI-206</td>
<td>100</td>
</tr>
<tr>
<td>MBI-206</td>
<td>110</td>
</tr>
<tr>
<td>Competitive Nematicide</td>
<td>90</td>
</tr>
<tr>
<td>Untreated Control</td>
<td>50</td>
</tr>
</tbody>
</table>

Yield evaluated on Oct 8.

Treatments applied on Jun 3.
IPO Timeline

May 2012
Filed confidentially under the JOBS Act

June 2013
Re-filed confidentially with Q1 2013 financials

July 2, 2013
Filed publically

July 18 – 21
Practice, practice, practice! Practice and present before Jefferies and Piper’s sales teams


Sept - Nov
Re-filed to get through SEC process

June 10 – 13
“Test the Waters” mini roadshow NY and Boston

July 22, 2013
NYC – Launch roadshow with live videotaping for retailroadshow.com

Aug 2, 2013
IPO First Trade!
- 75 Investor one-on-ones
- 2 group lunches
- 10 days
- 11 cities!!
Matching Entrepreneurs and Investors

Innovators’ Circle
Patient Capital for a Sustainable Future

sarta AgStart

nutrition capital network

Ag Innovation Showcase
Larta Institute

sarta CleanStart Showcase
Spotlighting Sacramento Clean Tech Business™

GROW California
“Connecting Business With Opportunity”

ASTIA

Springboard Enterprises

SACRAMENTO ANGELS
The GPS for Start Ups™

Slow Money
UC Davis is the Regional Gem for Ag, Engineering & Life Science Technology & Entrepreneurship
Sacramento Region can be the Silicon Valley of Ag Tech

Technology Spin outs and Licensing

Source of Employees

Potential AgTech Valley

Research Collaborations

New Company Creation

UC Davis College of Agricultural and Environmental Sciences
Ag Technologies to Create an Economic Growth Engine in the new Sac Region Ag Tech Valley

- Seed-related
- Food processing
- Nutraceuticals
- Robotics
- Software and big data
- Precision farming
- Irrigation technologies
- Biopesticides and related
- Farmer to consumer matching
Feeding 9 Billion

Our World Today

Our World with Biologicals
QUESTIONS?

Pam Marrone, Founder/CEO
pmarrone@marronebio.com
1-530-750-2800 (office)
www.marronebioinnovations.com