



*Bion's third-generation technology platform was designed to mitigate the environmental impacts of large-scale livestock production, while recovering high-value coproducts and renewable energy. Bion's technology, coupled with evolving policy changes that are now supported by national livestock interests, USDA, and US EPA, provide a unique and transformative opportunity at the intersection of the \$200B animal-protein industry and the \$100B clean water space. Bion has been developing advanced livestock waste treatment systems since 1989.*

# Forward Looking Statements/Risk Factors

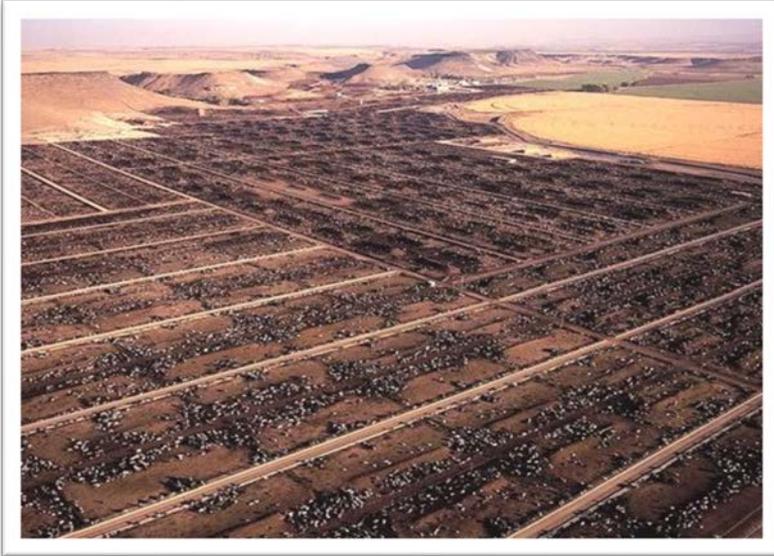
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*This presentation contains, in addition to historical information, **forward-looking statements** regarding Bion Environmental Technologies, Inc. (the "Company"), which represent the Company's expectations or beliefs including, but not limited to, statements concerning the Company's operations, performance, financial condition, business strategies, and other information and that involve substantial risks and uncertainties. The Company's actual results of operations, most of which are beyond the Company's control, could differ materially. For this purpose, any statements or revenue projections contained in this presentation that are not statements of historical fact may be deemed to be forward-looking statements.*

***Risk Factors** that could cause or contribute to such difference include, but are not limited to, limited operating history; uncertain nature of environmental regulation and operations; uncertain pace and form of development of nutrient (N&P) reduction market; risks of development of first of their kind Integrated Projects; need for substantial additional financing; competition; dependence on management; and other factors. Additional information regarding the Company's 3G technology platform should be reviewed in the Company Overview, available upon request and at [www.biontech.com](http://www.biontech.com). Investors are urged to also consider closely the disclosures and risk factors in the Company's current Form 10-K, filed with the Securities and Exchange Commission, available at [www.sec.gov](http://www.sec.gov).*

# U.S. Livestock Industry



U.S. Livestock Industry:  
\$200B annual revenues  
80% on large-scale farms

# The Problem...

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2.2 billion poultry  
90 million beef cattle  
60 million swine  
9 million dairy cows

In the United States only

1.37 BILLION tons of animal waste  
(130X human waste)  
Spread on the ground...

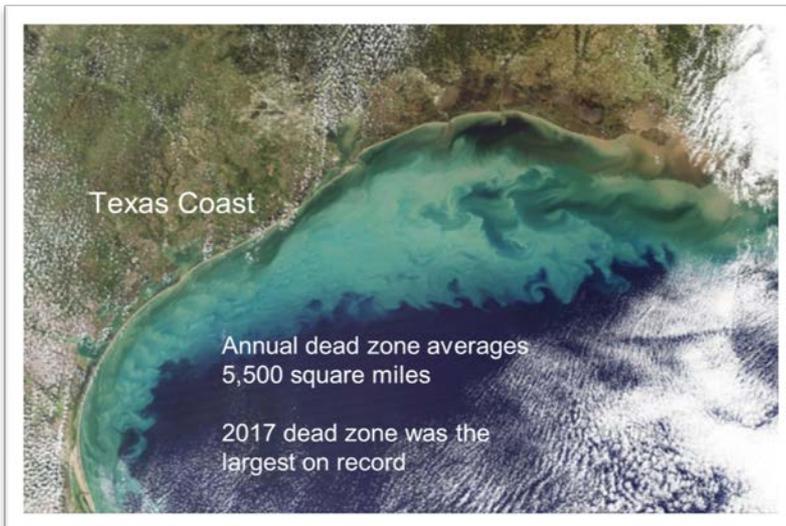


# Environmental Impacts

Half of U.S. crops are fertilized with raw manure

Environmental/public health impacts:

- > Algae blooms/dead zones
- > **Contaminated groundwater**
- > Greenhouse gas emissions
- > PM2.5 (particulate air pollution)
- > Odors
- > Pathogens-foodborne illnesses
- > Antibiotic resistance



U.S. livestock industry's environmental impacts:

# Unsustainable

# Livestock Industry Challenges

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## > Environmental impacts

- *Absent voluntary solution, regulation is inevitable.*
- The cost to remediate the environmental impacts – now ‘socialized’ offsite and downstream – is *economically unsustainable* in this low margin industry.

## > Consumer trust

- The consumer is questioning the industry’s products: “Is it Safe? Is it Sustainable?”
- Regulators, advocacy groups, and activist investors asking same questions.
- Concerns not limited to U.S. market: UN FAO, UNESCO, FAIRR

## > Pricing power

- Production is a low-margin commodity business.
- ‘Organic’ has demonstrated consumers are willing to pay a premium for products that address their safety concerns.
- Other than poultry, there are few animal-protein products with a healthy food message. Now sustainability is a large and growing concern.

How to address concerns for environmental sustainability and food safety, while remaining competitive in domestic and world export markets?

- > Implement solutions to mitigate environmental impacts (ammonia is key); *while*
- > *Generating the additional revenues needed to offset implementation costs (or risk losing export market).*
- > Communicate meaningful and verified environmental sustainability to the consumer.

Bion's integrated 3G technology platform and policy envelope were designed to address these needs.

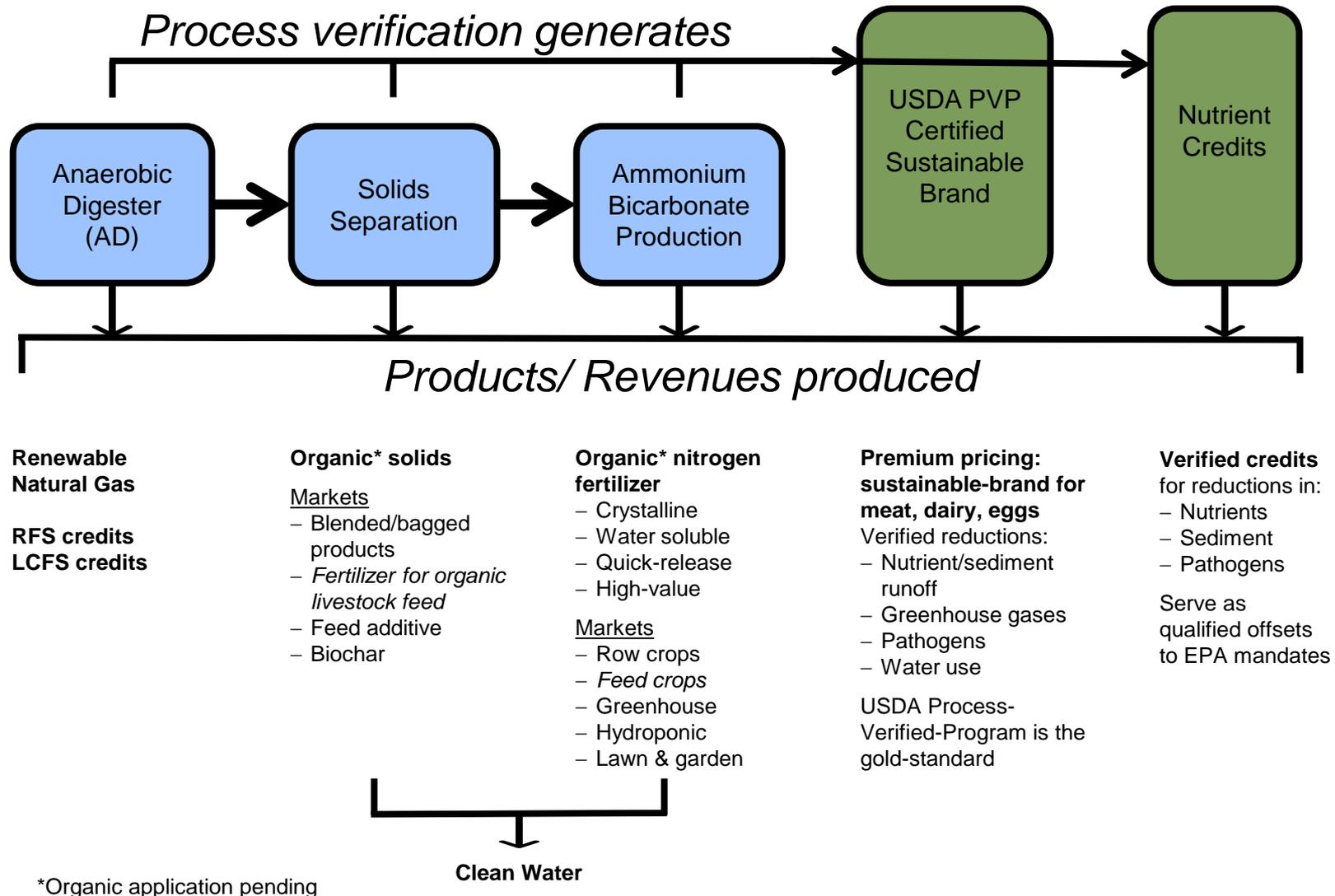
# Bion: An Integrated Solution

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Bion's 3G technology platform provides dramatic and verifiable reductions in environmental impacts to air and water, while capturing energy and nutrients from the waste stream that are upcycled into value-added organic co-products.

- > Recurring revenues: pipeline-quality **renewable natural gas and credits**; high-value **organic (application pending) products for fertilizer and feed markets**.
- > The same recovery processes and data also enable organic co-product certification and a **USDA-certified sustainable brand** for the protein products.
- > *Bion's policy envelope* will establish a fourth recurring revenue stream by creating a market for **nutrient 'credits'** that will satisfy EPA requirements.
  - Bion's capture of nutrients is measured and 3<sup>rd</sup> party-verified to satisfy EPA requirements for sale as a credit/offset to state and federal mandates.
  - Legislation in PA creates a procurement program – open to the private sector – for EPA-mandated nutrient reductions to the Chesapeake Bay.
  - Program allows Bion and others with low-cost reductions to compete in a multi-billion dollar space traditionally controlled by government and NGOs.
  - SB 799 will reduce taxpayer cost over 90%; supported by both state and national livestock industry groups; recently passed PA Senate 47-2; now in House.
  - *Model for national policy; USDA and USEPA both support market-driven strategies.*
  - *US EPA specifically supports credit trading as long as it's verified.*

# Bion's Treatment Platform



\*Organic application pending

# Opportunity - Beef

Beef Feedlot Conversion Analysis			
	Feedlot	Bion	Bion/DG
Cattle Ops	\$273.0M	\$290.4M	\$290.4M
Branding	0	15.0M	15.0M
Co-products	0	23.1M	30.5M
RE/Credits	0	11.8M	12.0M
Nutrient Credits	0	10.7M	15.1M
Total revenue	\$273.0M	\$351.0M	\$363.0M
OpEx	268.0M	283.0M	283.0M
EBITDA	\$5.0M	\$68.0M	\$80.0M
CAPEX for conversion		\$135.0M	\$150.0M
Debt service (75% debt @ 6% bldg-7% equip)		9.5M	10.5M
Net	\$5.0M	\$58.5M	\$69.5M

*Illustration of a traditional cattle feedlot compared to a Bion-served facility and a Bion-served facility, feeding 25% distillers grains, both with access to a credit market and a natgas pipeline. It is NOT a model of an anticipated project. See forward-looking statements.*

- > Capacity for 9M egg-layers in four locations
  - Agreement in place
  - 1,600-head dairy at one shared location
- > 450 tons per day (tpd) of waste input
  - 565K gallons per day (gpd)
  - 29,462 lbs per day of nitrogen
  - 7,128 lbs per day of phosphorus
- > Two processing locations
  - Regional tolling expansion potential
  - Staged development

# Kreider Model

Kreider Farms Project Model		
5% brand prem	Branding	\$10.0M
\$4/lb N	Co-products	33.4M
\$3 gas/\$1.85 D3 RIN	RE/Credits	10.2M
\$8/N credit	Nutrient Credits	16.5M
9M layers	Total revenue	\$70.1M
1,600 dairy cows	OpEx	NDA-only
	EBITDA	NDA-only
CAPEX for conversion	\$70.0M	
Debt service (75% debt @ 6% bldg-7% equip)		\$4.9M
Net (less taxes, dep)		NDA-only

*Kreider Farms, Manheim, PA, revenue/income analysis at full build-out. Anticipated results may differ materially from actual results. See forward-looking statements.*

# Ammonium Bicarbonate

Organic Comparables	\$ per lb N
Quick Release	
Grower's Secret	\$38-\$48
Envirokure <u>Liquid</u>	\$6-\$14
Slow Release	
Alfalfa Meal	\$15.15
Peanut Meal	\$6.15
Blood Meal	\$9.85

## Bion Ammonium Bicarbonate

- 14% ammonia N
- Pure
- Crystalline
- Water soluble
- Quick release

Projected wholesale pricing:  
\$4 to \$8 per pound

[Global] Organic Fertilizers Market valued at USD 5.87 Billion in 2016. Projected to grow at a CAGR of 12.08% from 2017, to reach 11.6 Billion USD by 2022.

Markets and Markets July 17, 2017 /PRNewswire/

- > Certified by USDA PVP (Process-Verified-Program)
  - Nutrient reductions
  - Carbon footprint
  - Pathogen kill
  - Water reuse
  - USDA conditional approval pending resubmission and final inspections
- > Compatible with blockchain digital registry
- > Anticipate minimum 5% wholesale pricing premium



# Status Pennsylvania Legislation

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- > Competitive Procurement for verified nutrient reductions
- > Senate passed 47-2, January 31, 2018
- > Left in House Environmental Resources and Energy Committee
  - Informational hearing conducted in August. No opposition presented. *Ches Bay Commission publicly endorsed competitive procurement.*
  - 102 co-sponsors (203 House members)
- > Administration has indicated that the bill, with a funding source independent of existing funding, will be acceptable
- > Anticipate adoption in first half of 2019

# Signals From the Feds

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- > US EPA [Letter of Expectation](#) to PA on Chesapeake Bay Strategy (Apr 2017)  
*US EPA encourages PA to use “Public, Private Partnerships (P3) ... to support affordable, performance-based, watershed-driven planning, delivery, and operation and maintenance (O&M) through the use of competitive markets and private sector capacity.”*
- > [Joint US EPA – USDA announcement](#) on nutrient control strategies (Dec 2018)  
*“The EPA and the USDA are committed to working with states, tribes and stakeholders to identify watersheds and basins where market-based approaches can supplement traditional regulatory programs to promote meaningful reductions in excess nutrients and improved water quality.”*
- > [Bipartisan legislation secures federal funding to combat algae blooms](#) (Jan 2019)  
*The new law reauthorizes the Harmful Algal Bloom and Hypoxia Research and Control Amendments Act of 2013. In it, the federal government is now authorized to make funding available for harmful algae blooms deemed “of national significance.”*
- > [2018 Farm Bill](#)  
*Projects that use innovative approaches to leveraging the Federal investment in conservation with private financial mechanisms...the provision of performance-based payments...support for an environmental markets...*



## **EPA Announces New Water Quality Trading Policy Memorandum**

*EPA efforts seek to modernize the agency's water quality trading policies to leverage emerging technologies and facilitate broader adoption of market-based programs*

02/06/2019 [News Releases](#)

### **Purposes of this Memorandum**

- To reiterate the EPA's strong support for water quality trading and other market-based programs to maximize pollutant reduction efforts and improve water quality.
- To accelerate the adoption of market-based programs that will incentivize implementation of technologies and land use practices that reduce nonpoint pollution in our Nation's waters.
- To provide additional guidance to states, tribes, and stakeholders regarding the use of market-based programs to reduce water pollution at lower overall cost.
- To promote increased investment in conservation actions.

- > Bion's technology platform is designed for use on the largest livestock production facilities.
  - NOT a small farm solution, except through regional processing
  - Retrofit existing facilities
  - Develop state-of-the-art facilities in new strategic locations
- > Bion's business model can be implemented as:
  - Provide turnkey utility services under a long term contract
  - JV with the producer/ processor
    - Bion's PA-based Kreider Farms project is structured using this approach
  - Acquire or partner with livestock producer and share equity in integrated entity, including production

# Best Use: Integration

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- > Acquire or partner with livestock producer and share equity in integrated entity, including production
- > Bion-Producer integration generates new recurring revenues, substantially improves and reduces risks of production
- > Existing operations can be converted from low-value and -margin commodity production, with minimal enterprise value, into a supplier of high-value branded food products that command consumer loyalty and premium pricing
  - Increased pricing power, revenues and margins
  - Transactional opportunity
  - Step-up in valuation several times invested capital
- > New state-of-the-art operations in strategic locations will maximize resource, operational and logistical efficiencies to produce the most sustainable meat, egg and dairy products achievable

# Milestones Anticipated

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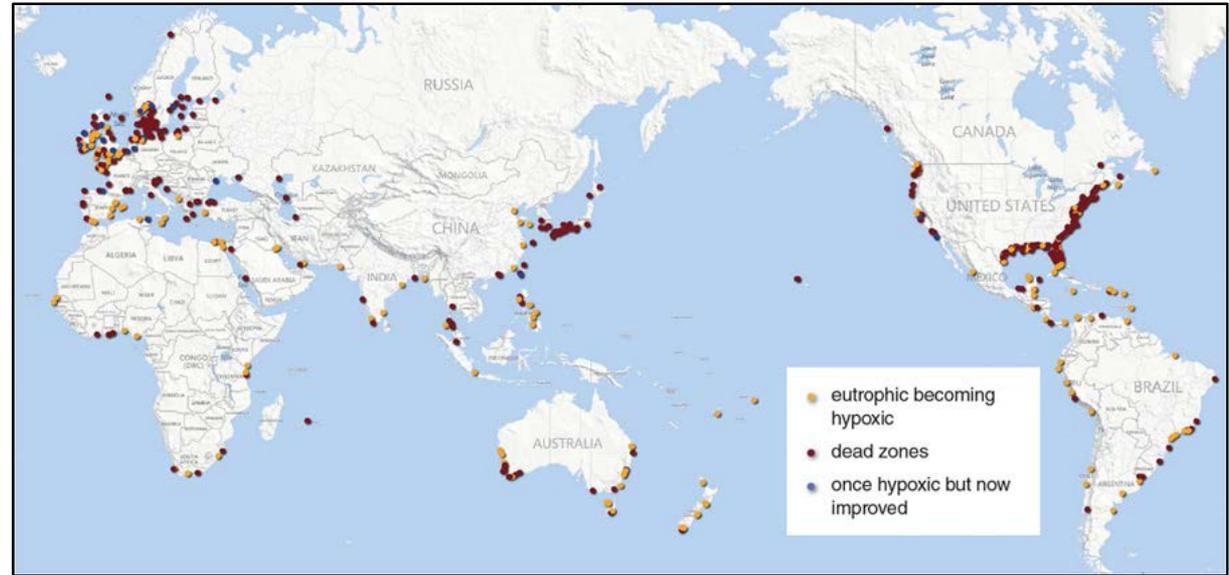
- > First 3G patent issued in October 2018; we expect additional patents to be filed.
- > Initial application for organic certification of co-products Q1 2019
- > Policy
  - Expect PA legislation in 2019 session. Approved by Senate in 47-2 vote in January 2018; now in House. Successful adoption will result in large scale competitively-bid market for nutrient credits. Supported by national and state livestock interests, legislative leadership, and other key stakeholders.
  - Federal cost share program for competitive procurement
- > Conclusion of current technology simulations in Q1 2019
- > Construction of initial project to produce ammonium bicarbonate in quantity in first half of 2019
- > Construction of first phase of Kreider Farms project in second half of 2019

# It's a Global Problem and Opportunity

## Dead Zones Worldwide

1950: 50

2015: 500+



## U.S. Livestock

2.20 billion poultry

90 million beef cattle

60 million swine

9 million dairy cows

## Global Livestock

19.60 billion poultry

1.10 billion beef cattle

980 million swine

264 million dairy cows