



THIS MATERIAL INCLUDES FORWARD-LOOKING STATEMENTS BASED ON MANAGEMENT’S CURRENT REASONABLE BUSINESS EXPECTATIONS. IN THIS DOCUMENT, THE WORDS ‘BELIEVE(S)’, ‘CAN’, ‘WILL’, ‘AIMS’, AND SIMILAR EXPRESSIONS IDENTIFY CERTAIN FORWARD-LOOKING STATEMENTS. THESE STATEMENTS ARE MADE IN RELIANCE ON THE PRIVATE SECURITIES LITIGATION REFORM ACT, SECTION 27A OF THE SECURITIES ACT OF 1933, AS AMENDED. THERE ARE NUMEROUS RISKS AND UNCERTAINTIES THAT COULD RESULT IN ACTUAL RESULTS DIFFERING MATERIALLY FROM EXPECTED OUTCOMES. ALL DOCUMENTS ON THIS WEBSITE SPEAK AS OF THEIR DATE AND THE COMPANY UNDERTAKES NO OBLIGATION TO PUBLICLY UPDATE OR REVISE ANY FORWARD-LOOKING STATEMENTS THEY MAY CONTAIN.

Bion’s Beef Opportunity

In 1935 (75 years ago) inflation-adjusted terms, beef is 63% more expensive today, while pork and chicken, primarily raised in indoor factory farms with highly integrated supply chains, are 12% and 62% cheaper, respectively. At \$70 billion/year (retail value), the beef industry has been a target of consumer groups whose concerns include air and water pollution, food safety, and the treatment of animals and workers. Furthermore, the beef industry has also been an economic target for a number of plant-based beef alternative products that have gained market traction with, for example, fast food chains.

The US beef industry is at the doorstep of a transformative opportunity to address the growing demand for a sustainable product offering. Bion believes this can be done without disrupting the large, existing commodity beef market, both domestic and export, while simultaneously addressing its decades old challenge of managing the environmental impact of its livestock operations. “Sustainability” goes well beyond “organic”, a concept that only addresses product inputs. Sustainability is a more important and relevant concept for the beef industry because it also captures outputs, specifically, the environmental impact of livestock operations. To the industry’s detriment, the cost of comprehensive waste treatment technology and the infrastructure to support such adoption is simply beyond the reach of most operators. Until now, the cost of technology such as anaerobic digestion has been far greater than any offsetting tax incentives and revenue streams such as the sale of renewable natural gas.

So how can the industry evolve to meet the demand for sustainability, both in its product offerings and its livestock operations?

Figure 1. The Beef Industry Conundrum – How to Get from “A” to “B”?





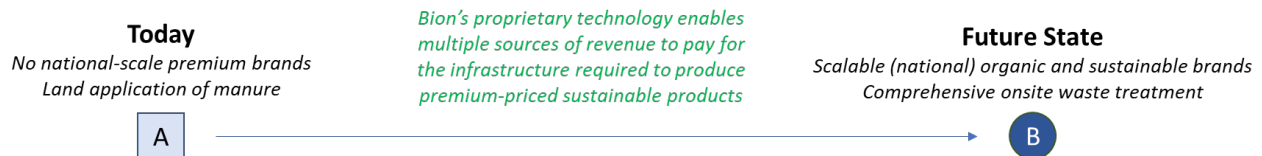
Bion has developed and tested its patented technology and proprietary technology platform, which will enable generation of significantly greater revenue associated with comprehensive onsite waste management than has been previously possible. Bion’s business model aims to help operators manage costs over the entire supply chain, from insemination to final processing and crop production, while capturing multiple revenue streams that are both presently available, as well as evolving. The “Future State” represented in [Figure 1](#) will be financed by selling environmental credits related to carbon and water, selling high-value organic fertilizer and monetizing the value of premium food product branding.

Specifically, Bion’s technology converts animal manure to high-value organic fertilizer products onsite, including ammonia nitrogen (ammonium bicarbonate crystals) that can be used to grow organic corn (animal feed) at large scale, while significantly increasing crop yield per acre. The scale at which ammonium bicarbonate is manufactured from the livestock waste stream is sufficient to support a new organic segment of corn-fed beef and, eventually, pork and bison products. The combination of “organic” and onsite manure management reinforces the opportunity for environmentally sustainable branding with premium revenues and margins.

In today’s environment, Bion’s projected revenues from existing revenue sources can amortize the cost of technology adoption and related infrastructure in under five years. This amortization period can be cut in half as evolving revenues, including environmental credit markets, fully mature.

Beyond ammonium bicarbonate, Bion’s platform produces renewable natural gas and the associated D3 RINS (and/or Low Carbon Fuel Standard credits in California), organic dry solids (soil supplement) and, eventually, verified nutrient credits. In Pennsylvania, where Bion has been leading an industry consortium to pass legislation, municipalities will be able to purchase verified nutrient reductions, such as those generated by the Bion platform, in lieu of more expensive traditional options for meeting their Chesapeake Bay nutrient mandates under the Clean Water Act.

Figure 2. Bion’s Technology Enables the Revenue to Fund the Transition



Bion’s intellectual property, consisting of both patents and trade secrets, takes advantage of the arbitrage opportunity between the finite supply of organic fertilizer/feed and the essentially limitless supply of livestock waste at CAFOs. This symbiotic relationship is mutually reinforcing – increasing consumer demand for organic meat generates more organic corn demand which increases the demand for organic fertilizer to support that demand.



The industry now has the means to open and expand a new niche of premium-priced meat products by “harvesting” its waste. As a capstone benefit, Bion’s onsite treatment can transform a CAFO from a “brownfield” non-point source permitted facility to a point source permitted facility. This will allow the operation to be valued by the market as any other industrial operation, based on a multiple of earnings, not the liquidation value of the plant, equipment and animal inventory, as these facilities are valued today.

By expanding into premium branded products and realizing more effective supply chain integration, industry valuations will be further propelled by higher gross margins, reduced unit costs and reduced environmental impact. The end result is extraordinary wealth creation.

The Financial Impact

The financial impact of Bion’s technology platform includes premium pricing for two specific 15,000 head feedlot scenarios:

- “Environmentally Sustainable” branding where the livestock is confined and fed a diet of conventional grains and distillers’ grains.
- “Environmentally Sustainable” branding for organic feeder cattle where the livestock are confined for up to 120 days and fed a ration of organic grains.

In both scenarios, the cattle will be housed in a covered barn feedlot with daily/continuous manure collection feeding Bion’s onsite waste treatment platform resulting in the cattle being marketed with a USDA Processed Verified Program (PVP) certification as Environmentally Sustainable.

For the sake of simplicity from a financial modeling standpoint, a single purpose vehicle (SPV) is assumed to be established to finance and own the cattle and the Bion technology platform, including the barns at the feeding operation. All incremental revenues and expenses are assumed to flow to the SPV so that the economics of the SPV can be isolated from that of the host feeding operation. In these scenarios, it is assumed that the feedlot operator is paid as a third party service provider on a fixed per head basis.

The capital requirements for the Bion technology platform are the same in both scenarios and is estimated at \$31 million. Cattle acquisition costs are assumed to be \$17.1 million and \$21.4 million in the non-organic and organic scenarios, respectively. In each case, revenue would be generated from the sale of organic ammonium bicarbonate fertilizer and carbon credits under California’s Low Carbon Fuel Standard (LCFS). The assumed price of the ammonium bicarbonate is less than any existing liquid or solid readily available organic nitrogen fertilizer product on the market. The value of LCFS credits is current market value using a low end carbon intensity score (CI).

A branding premium will be available as a result of Bion’s sustainability branding and we have assumed, as described above, that 100% of this premium flows to the SPV. We have estimated this premium at 10% of the carcass value. We have chosen a conservative figure to account for the fact that there is presently no national scale sustainable branding in the livestock industry.



The organic scenario takes credit for the increased revenue for having animals that have been fed a strictly organic diet and we have again assumed 100% of this premium flows to the SPV. We have estimated this premium at 50% for purposes of the proforma. As a point of reference, we note that grass fed organic beef commands a 50% premium over conventional grain-fed beef.

No credit is taken in either scenario for the sale of nutrient credits, a market which is still evolving, or for the sale of residual processed manure solids containing irons, minerals, nutrients and salts because this market value of this material can vary widely by region.

In both scenarios, we assume the CAPEX is financed 70% with 10-year term debt at 5% p.a. For purposes of the IRR calculations, capital is assumed to be invested one year in advance of operations.

Utilizing the above assumptions, we estimate the leveraged IRR for a single 15,000 head module to be 54% and 96% for the conventional and organic scenarios, respectively, assuming no escalation of any unit prices associated with revenue or expense. Capital is fully returned within two years in the conventional scenario and in a little over one year in the organic scenario.

A further analysis was prepared to examine the financial performance of staging 15,000 head modules, both conventional and organic, over time as follows:

Year	1	2	3	4	5	6	7	8	9	10
Conventional (Operating 15K head modules)	1	2	4	5	6	6	6	6	6	6
Organic (Operating 15K head modules)	0	0	1	3	4	4	4	4	4	4

In this scenario, a total of \$150 million of equity invested over 5 years (starting in Year 0) would generate an aggregate leveraged IRR of 65%¹ over an 11-year timeframe (Years 0 – 10).

Another way to understand the value of Bion’s technology platform is to look at an enterprise valuation calculated at 15X times EBITDA. Using the above assumptions for module staging, Bion’s valuation would exceed \$2 billion by Year 5 when it would have a total of 10 operational modules.

"People have pushed past the earth's natural limits. Healthy societies, resilient economies and thriving businesses rely on nature. Our vision at Walmart is to help transform food and product supply chains to be regenerative, working in harmony with nature - to protect, restore and sustainably use our natural resources."

— Kathleen McLaughlin, EVP and Chief Sustainability Officer for Walmart Inc. and President of the Walmart Foundation

¹ This IRR figure is handicapped by the fact that the IRR for modules operationalized later, e.g., years 4 and 5, do not contribute as much to IRR as the earlier modules where the equity investment has relatively less economic weight relative to its module’s pre-tax cash flow.



Financial Analysis		All figures in '000s													
Single 15,000 head module	Conventional	Organic	Financing Assumptions												
	Bion CAPEX	\$ 31,000	\$ 31,000	Leverage	70%										
Cattle Acquisition	\$ 17,400	\$ 21,400	Maturity	10 years											
Total CAPEX	\$ 48,400	\$ 52,400	Interest Rate	5% p.a.											
Equity Component	\$ 14,520	\$ 15,720													
Revenue	\$ 76,500	\$ 105,700													
EBITDA	\$ 12,300	\$ 19,800													
Annual Debt Service	\$ (4,312)	\$ (4,669)													
Pre-Tax Cash Flow	\$ 7,988	\$ 15,131													
Single Module Leveraged IRR	54%	96%													
Year	0	1	2	3	4	5	6	7	8	9	10				
COMBINED SCENARIO															
Conventional (Operating 15K head modules)		1	2	4	5	6	6	6	6	6	6				
Organic (Operating 15K head modules)		0	0	1	3	4	4	4	4	4	4				
Enterprise Level Valuation															
EBITDA		\$ 12,300	\$ 24,600	\$ 69,000	\$ 120,900	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000			
Bion Enterprise Value (EBITDA Multiple)	15.0	\$ 184,500	\$ 369,000	\$ 1,035,000	\$ 1,813,500	\$ 2,295,000	\$ 2,295,000	\$ 2,295,000	\$ 2,295,000	\$ 2,295,000	\$ 2,295,000	\$ 2,295,000			
Project Level Valuation															
Annual CAPEX	\$ 48,400	\$ 48,400	\$ 149,200	\$ 153,200	\$ 100,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Annual Equity Requirement	\$ 14,520	\$ 14,520	\$ 44,760	\$ 45,960	\$ 30,240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Revenue		\$ 76,500	\$ 153,000	\$ 411,700	\$ 699,600	\$ 881,800	\$ 881,800	\$ 881,800	\$ 881,800	\$ 881,800	\$ 881,800	\$ 881,800			
EBITDA		\$ 12,300	\$ 24,600	\$ 69,000	\$ 120,900	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000	\$ 153,000			
Total Debt Service		\$ (4,312)	\$ (8,624)	\$ (21,917)	\$ (35,567)	\$ (44,548)	\$ (44,548)	\$ (44,548)	\$ (44,548)	\$ (44,548)	\$ (44,548)	\$ (44,548)			
Pre-Tax Cash Flow		\$ 7,988	\$ 15,976	\$ 47,083	\$ 85,333	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452			
PTCF + Equity	\$ (14,520)	\$ (6,532)	\$ (28,784)	\$ 1,123	\$ 55,093	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452	\$ 108,452			
Leveraged IRR	65%														

This material includes forward-looking statements based on management's current reasonable business expectations. In this document, the words 'believe(s)', 'can', 'will', 'aims', and similar expressions identify certain forward-looking statements. These statements are made in reliance on the Private Securities Litigation Reform Act, Section 27A of the Securities act of 1933, as amended. There are numerous risks and uncertainties that could result in actual results differing materially from expected outcomes. All documents on this website speak as of their date and the Company undertakes no obligation to publicly update or revise any forward-looking statements they may contain.