



**“Together we can end plastic pollution.”**

**-Cole Gibbs, Founder**

**The global bioplastics market size was valued at \$5.8 billion in 2020, and is projected to reach \$16.8 billion by 2030, growing at a CAGR of 11.5% from 2021 to 2030. \*1**

# THE PROBLEM: SINGLE USE PLASTIC WASTE

- Exposure to harmful chemicals during manufacturing, leaching in the stored food items while using plastic packages or chewing of plastic teethingers and toys by children are linked with severe adverse health outcomes such as cancers, birth defects, impaired immunity, endocrine disruption, developmental and reproductive effects etc.
- Every 60 seconds, over 700 tons of petroleum plastic is generated worldwide; 91% is never recycled.
- Petroleum plastic production is expected to double by 2050. While CO2 emissions from plastic production will triple during that same time.
- Worldwide restrictions on petroleum plastics will continue to increase prices.
- According to the local MRF's (Material Recovery Facility) there is no market in the state of Colorado for recycled #3 - #7 plastics. These plastics are either shipped overseas, incinerated, or sent to a landfill. This is the case for most states across the country.
- Microplastics are being found all over the natural environment (including the air we breathe, the food we eat and within breast milk), the value of truly sustainable Hemp BioPlastics cannot be overstated.

# THE SOLUTION: TRULY SUSTAINABLE, HEMP BIOPLASTICS

- Our bioplastic is made from 100% waste hemp biomass, produced in a Carbon Zero Facility. Proprietary technology designed for injection molding applications.
- Removes up to 5200 lbs of carbon per ton of product produced. No need to purchase carbon offset credits to meet sustainability goals. Saving Millions \$\$\$\$
- Biocompatible (describing the property of a material being compatible with living tissue. These materials do not produce a toxic or immunological response when exposed to the body or bodily fluids.) Biocompatible materials are central for use in medical implants and prosthetics to avoid rejection by the body tissue and to support harmonious biological functioning.
- Carbon Negative Hemp BioPlastic that is designed as a drop in replacement for toxic petroleum plastics. Home compostable, no commercial composting facility required.
- Every other hemp plastic company produces bio-composites (which often contain a significant amount of fossil fuel/petroleum plastic). Our material is the only truly sustainable Hemp BioPlastic and requires no copolymers/additives (even though it may be combined with these materials for even broader applications).
- Composting materials at their end of life creates a circular economy. The compost can be used to grow more plants, whose biomass can be used to create more products and the cycle continues.



# THE VERY USEFUL INDUSTRIAL HEMP

Hemp cultivation requires no chemicals, pesticides or herbicides.

with over **50,000** different uses...

## HEMP SEEDS

Harvest

## HEMP STALKS

HULLING      PRESSING / CRUSHING

Intermediate processing

DECORTICATING

|                    |                     |                            |                  |
|--------------------|---------------------|----------------------------|------------------|
| <b>HEMP MEAT</b>   | <b>HEMP SHELL</b>   | <b>HEMP OIL</b>            | <b>HEMP CAKE</b> |
| Food<br>           | Flour<br>           | Personal Care Products<br> | Food Beer<br>    |
| Dairy products<br> | Bakery Products<br> | Cooking Oil<br>            | Feed<br>         |
|                    | Fuel / Paint<br>    |                            |                  |

Further processing

### HEMP is a RESOURCE

**20** vs **4**  
years for trees to mature | months for hemp

Hemp can yield 3-8 dry tons of fiber per acre, **FOUR** times what an average forest can yield.



Paper, fertilizers, soil nutrients and animal bedding can be made from leftover waste when processing hemp.

This means all parts of the plant are being used, or put back into the earth.

|   |   |
|---|---|
| <b>HEMP FIBER</b>                             | <b>HEMP HURDS</b>   |
|   |   |
| Hacking<br><b>PRIMARY (Lime) Fiber</b>        | Hacking<br><b>SECONDARY</b>   |
| Fabric<br>Insulation<br>Carpeting<br>Paneling | Cordage<br>Pulp<br>Recycling<br>Additive  |
|   | Scutching<br><b>TOW</b>   |
|   | Cordage<br>Bagging<br>Fiber Board   |
|   | Scutching<br>Fiber board<br>Compost<br>Mortar<br>Paper filler<br>Absorbent bedding<br>Chemical feedstocks<br>- Plastics / Paint / Sealant |

Anything made out of cotton, timber or petroleum can be made out of hemp

Hemp fiber is the **strongest** natural fiber in the world

Hemp hurds can be cleanly **Converted** into **Gasoline!**

Through a Heat Process called **PYROLYSIS** Hemp Biomass can also make Ethanol, Methanol & Methane Gas

Hemp seeds contains nutritious, **Polyunsaturated Fatty Acids (PUFAs) 80%** the highest amount found within the plant kingdom. **Highly nutritious** of humans and animals.

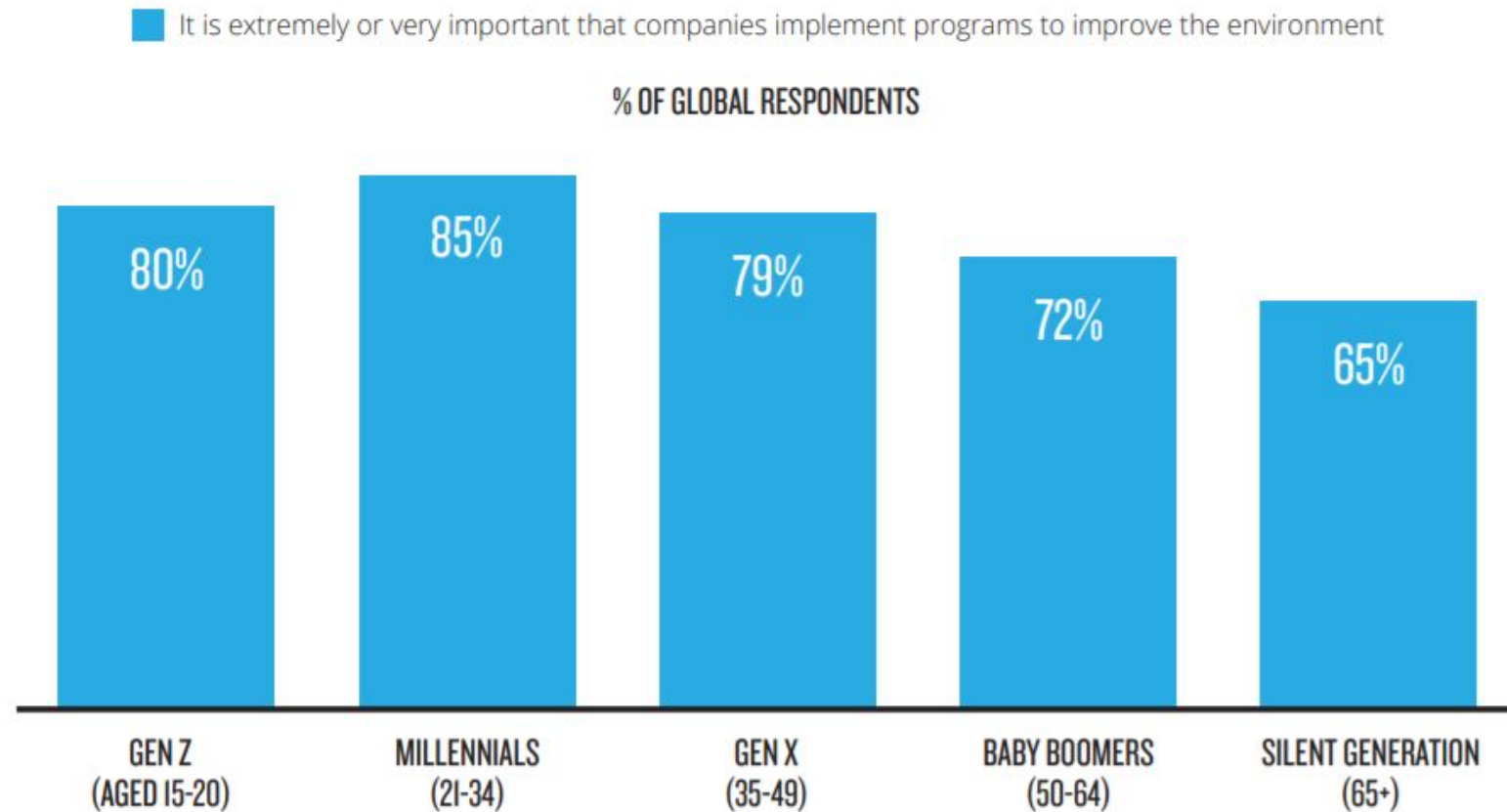
# ARE ALL BIOPLASTICS THE SAME?

- NO, just like petroleum there are several types and numerous variations.
- PLA (Polylactic acid)-- Most widely available bioplastic. Requires industrial composting. May not be accepted at your local composting facility. Due to the acidity of the material.
- Biocomposites-- Material composed of two or more distinct constituent materials, one being naturally derived. Most biocomposites are 70-80% petroleum plastic.
- PHA (Polyhydroxyalkanoates)-- Made from plant waste aka biomass and microorganisms. Biocompatible and home compostable. At Dama we will produce several variations of this polymer.
- PHB (Polyhydroxybutyrate)-- A variation of PHA.
- PBS (Polybutylene succinate)-- Plant based bioplastic that decomposes into water and carbon dioxide with the microorganism under the soil.

2019 Porsche 718 Cayman GT4. Body panels and rear wing made from hemp biocomposites.



In a recent report from Nielson.com they found. “In today’s business landscape, sustainable innovation is gaining a lot of importance. In a recent global online survey, a whopping 81% of global respondents feel strongly that companies should help improve the environment. This passion for corporate responsibility is shared across gender lines and generations. Millennials, Gen Z and Gen X are the most supportive, but their older counterparts aren’t far behind\*.”



\*Source: The Conference Board® Global Consumer Confidence Survey, conducted in collaboration with Nielsen Q2 2017

# MARKET / VALUE PROPOSITION

- In the new and ever growing landscape of sustainable bioplastics, the demand for US made sustainable materials is endless in measure. Currently there is not enough worldwide production to meet this demand.
- Plastic bans continue to sweep across the country and globe. There needs to be a alternative material to replace these plastics. New Zealand has banned single use plastics. Canada added petroleum plastics to their schedule 1 toxic substances list.
- Our new facility will fulfill this ever growing demand by providing truly sustainable hemp bioplastics that actually solve the plastic pollution problems and create a circular economy.
- The new SEC Climate and ESG Task Force proactively identifies ESG-related misconduct consistent with increased investor reliance on climate and ESG-related disclosure and investment.
- Making the switch to our Hemp Bioplastic will allow companies to reach their ESG quickly and effectively.
- NYU Stern Center for Sustainable Business reported Sustainability Marketed products was a \$113 Billion Industry in 2018. The Global Sustainable Packaging Industry was a \$237.74 Billion Industry in 2019, according to <https://www.mordorintelligence.com/>



# MARKET / VALUE PROPOSITION

- **PepsiCo announced new goals to cut virgin plastic per serving by 50% across its global food & beverage portfolio by 2030.**
- **P&G's goal Net Zero 2040 they plan to reduce virgin petroleum plastic in packaging by 50% by 2030.**
- **Unilever plastic targets by 2025: “Halve the amount of virgin plastic we use in our packaging and achieve an absolute reduction of more than 100,000 tonnes in plastic use. Ensure that 100% of our plastic packaging is designed to be fully reusable, recyclable or compostable.”**
- **Bayer- “We have set ourselves a Science Based Target to decarbonize and a net zero target including our supply chain for 2050. We are looking to achieve this with an absolute reduction of 42 percent in our emissions (scope 1 and 2) by 2030.”**
- **Johnson & Johnson - Investing \$800 million through 2030 to improve the health of people and the planet. The brands will use 100% recyclable, reusable or compostable plastic packaging and certified/post-consumer recycled paper- and pulp-based packaging by 2025.**

# BUSINESS MODEL

- Produce the world's first and only truly sustainable 100% Hemp BioPlastic. 1200 tons annually.
- Proprietary technology designed as a drop in replacement for injection molding applications.
- Scalable material processing that eliminates current hemp biomass processing bottlenecks.
- Current commitment of 15 million + units, including cutlery, bottles, packaging, and more.
- B2B wholesale distribution of home compostable bioplastics, fabrics, biochar and feedstock to farmers, retail establishments & large CPG companies at a competitive price.
- Material R&D for any custom application from car parts to kids toys.
- Fully circular economy supply chain for all materials inbound and outbound.
- Large network of farmers and customers across North America that complete the closed loop system.

# COMPETITION

- **Danimer Scientific (USA)- Nodax PHA, made from Canola Oil.**
  - **More expensive, not as sustainable as Hemp.**
- **FullCycle Bioplastics (USA)- Very small scale. No commercially available products or material.**
- **Kaneka Biopolymers (Japan & Texas)- Made from unknown plant source. Producing films for flexible packaging.**
- **RWDC Industries (Singapore)- Solon PHA for injection moulding applications.**
- **Tianan Biopolymer (China)- Enmat PHB.**
- **The Hemp Plastic Co. (USA)- PLA plastic and petroleum based biocomposites. Not sustainable.**
- **The fossil fuel industry.**

# Partners



Biomass pickup and transport.



Committed to regenerative agriculture and sustainable development.



Preferred composter.

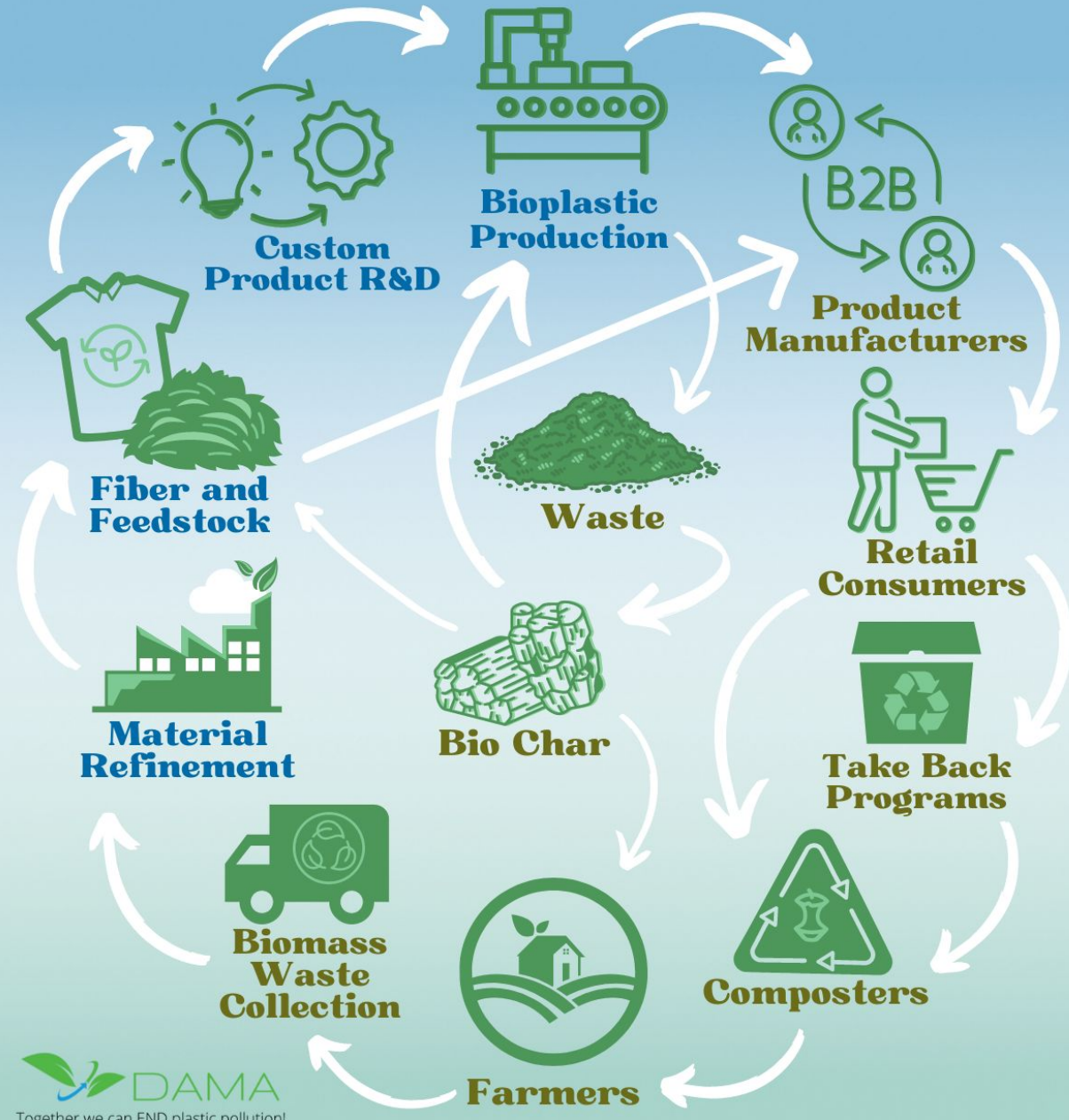
# ABOUT US

Dama is an award winning company started in 2018. Since then we have prevented over 5.2 million lbs of Co2 from being released and eliminated over 2 million lbs of toxic petroleum plastic from entering our environment.

- 1st Place Winner of the 2022 NoCo Investor Pitch Contest.
- 2022 M&A Today Global Awards - Best Wholesale Sustainable Cannabis Packaging Company - USA
- Winner of the 2021 Global Health & Pharma Award for Best Wholesale Sustainable Cannabis Packaging Company.
- 2021 BeyondPlastic.net Award nominee
- 1st Place Winner of the 2021 Emerge Investor Pitch Contest.
- Winner of the 2020 Love Your Planet Award, from Cannabis Doing Good Colorado
- Proud member of the Plastic Pollution Coalition
- Green America Certified Business
- Clean Green Certified Business
- Proud member of the Global Hemp Association
- Proud member of Good Business Colorado

At Dama, we care about the world we live in and strive to make the world a better place for us all. That's why we are on a mission to eliminate single-use plastic waste. Revolutionizing the plastic industry with the world's first and only truly sustainable hemp bioplastic solution.

## Dama BioPlastics Circular Economy



# THE TEAM



## Cole Gibbs Founder & CEO

Cole Gibbs, founder & CEO of Dama and an innovative entrepreneur, is pioneering the development of sustainable hemp plastic and compliant packaging solutions for a variety of industries. With only nine percent of all plastic recycled worldwide, and the plastic waste problem growing out of control in all industries, Cole established a practical and sustainable strategy for business and industry using the power of hemp and other green technologies. Cole's concern for the overwhelming amount of plastic waste clogging our seas and damaging soil is what challenged and motivated him to take action. As he looks to the future, Cole believes his years of research in the area of sustainable hemp plastic packaging, combined with hundreds of relationships in business and industry, will prevent thousands of tons of petroleum plastic from damaging our planet. Cole, an active outdoor enthusiast, attended Salt Lake Community College and Weber State University where he studied Automotive Technology with an emphasis on alternative fuels, including Compressed Natural Gas (CNG), Biodiesel, Hydrogen Fuel and Hemp Ethanol. He also worked as a high altitude prototype test driver for Jaguar/Land Rover.

- 2022 ColoradoBiz Magazine GenXYZ Top 50 Most Influential Young Professionals
- 1st Place Winner of the 2022 NoCo Investor Pitch Contest.
- 1st Place Winner of the 2021 Emerge Investor Pitch Contest.



## Daniel Falk COO

Daniel Falk is an entrepreneur in plant-based wellness and material applications, and an operations specialist in human services and regulatory compliance for residential therapeutic programs. He holds BA and MA degrees from NYU in Poli-Sci and Columbia University in Special Education and Behavioral Healthcare, and a BA in Jazz Piano/Music Theory & Composition. Since 2000, He has developed single and multi-family properties in NYC and upstate NY and has extensive land-use approval and development experience. Daniel was a longtime board member of the High Falls Center nonprofit, supporting disability funding and programmatic services, and for the NY State Camp Directors Assoc. He has served as an advisory board member for the NY State Medical Council of the NY State Health Department. He was a Mayoral Fellow in NYC Mayor Bloomberg's Office of Adult Education, where he designed a language tutoring system for the NY Public Library system, called Tutor Hub, which remains the primary learning resource for NYC immigrants. In 2019, Daniel founded Inclusive Hemp, a start-up to help disability service nonprofits gain wholesale access to the Hemp markets. Inclusive Hemp is a cohort of the Canopy Boulder cannabis investment company. An avid sports and outdoorsman Daniel enjoys sharing in the many wonderful activities in Boulder, CO with his wife and three children. He is an enthusiast for compassionate and joyful living who enjoys healthy engagement and debate, while encouraging positive change to create a world that nurtures and works for everyone.



## Adam Dietrich Director of Processing and Refinement

Adam Dietrich was born and raised in St. Louis, MO. As a graduate of The University of Kansas, Adam bleeds Jayhawk crimson and blue. Since he entered the industrial hemp industry in 2017, Adam has focused his efforts on the discovery/creation of efficient and cost effective ways to break down and refine cannabis stalks into value-added, climate-smart materials to replace non-renewables used globally. With access to these sustainable feedstocks + additional industrial waste byproducts, Adam has been able to create refractory grade/water resistant geo-cements containing zero portland cement with the end goal being to raise hemp building materials to higher application and value. As a member of DAMA's creation team, Adam has contributed to the development of a multi-stage biorefinery & formulation facility for the purpose of refining all-cannabis waste into feedstocks to be used for the development of bioplastic formulations. This strategy's goal is primarily surrounding the supplementation of nonrenewable petroleum plastic feedstocks but DAMA also sees its formulas as being of great value to advancements within nano-technology, renewable power storage, and aerospace innovation. Adam, along with the team at DAMA, understands the need for carbon conscious supply chains that are regional and closed loop. With the establishment of our first refinement & formulation lab, DAMA will be at the forefront of bio-plastic advancements and innovation within the 4th gen of the industrial revolution.

# THE TEAM



**Jon Guertin**  
Q.C. & R&D

Jon Guertin is an R&D Technologist with over 18 years of polymer application experience at 3M in Minnesota. Expertise in material characterization by FTIR spectroscopy, thermal analysis by TGA & DSC, microscopy, and rheological techniques. Product development and application experience with custom polymeric materials for automotive badging, pharmaceutical drug delivery, and video display film technologies. Leadership skills for manufacturing and laboratory personnel including safety, housekeeping, equipment maintenance, and calibration. Build-out of multiple laboratory suites including a dedicated dry analysis laboratory for analysis of active pharmaceutical ingredients and custom polymeric materials by highly sensitive analytical techniques. My primary focus will be to lead the quality effort and provide a consistently high-quality raw material that meets the processing specification of our clients. My mission is to identify modern instrumentation and equipment that will be incorporated in the manufacturing of the bioplastic material for specification testing of the finished product. My future responsibilities will include identifying new customer applications of our hemp-based resins and exploring the creation of new polymer types. I share the passion to provide alternative hemp-based materials for the consumer industry that are home/backyard compostable and biocompatible I also envision a future where consumer packaging materials are recycled along with food waste into a natural composting facility or backyard bin where it will be quickly returned to the earth. Development possibilities for hemp-based polymers are as wide as the applications of petroleum-based polymers and I have many ideas for other applications.



**Wayne Berg**  
Director of Business Development

Wayne Berg has been an entrepreneur since he mowed lawns for all of the neighbors at eight years old. Throughout the years he has owned and managed many businesses such as mortgage lending, design-build electrical, real estate investments, and presently, a digital media marketing and video production agency. As the Director of Business Development for DAMA, Wayne is in charge of implementing marketing strategies in order to maximize DAMA's business performance and drive growth. Responsibilities include organizing business events as well as interacting with potential clients and business partners.

# Summary

- Our Hemp BioPlastic is made 100% from waste hemp biomass.
- Produced in a Carbon Neutral Facility.
- Creates a truly circular economy.
- Proprietary technology designed as a drop in replacement for injection molding applications.
- The first facility will divert 300 tons of waste per month. 7,200,000 lbs per year.
- The first facility will remove over 6,200,000 lbs of carbon from our atmosphere each year.
- No need to purchase carbon offset credits to meet sustainability goals. Saving Millions \$\$\$\$
- Scalable by design, with 3-5 production facilities planned across the US.
- Our Hemp BioPlastic meets current demands for sustainable alternatives to toxic petroleum plastics.
- Biocompatible and home compostable.
- Grown and produced in the USA.
- Closed loop supply chain.
- Allows companies to easily meet their sustainability and plastic reduction goals with one product.



# References

- <https://www.alliedmarketresearch.com/bioplastics-market#:~:text=The%20global%20bioplastics%20market%20size,11.5%25%20from%202021%20to%202030>
- <http://iowahemp.org/2015/10/06/hemp-as-a-solution-to-soil-compaction-and-erosion/>
- <https://www.nielsen.com/wp-content/uploads/sites/3/2019/04/global-sustainability-report-oct-2015.pdf>
- <https://www.nielsen.com/wp-content/uploads/sites/3/2019/05/sustainable-innovation-report.pdf>
- <https://www.sec.gov/spotlight/enforcement-task-force-focused-climate-esg-issues>



DamaBioplastics.com