

### Business Plan

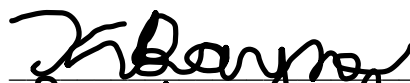
Business Name: M&T

Business Idea: M&T produces vertical farming trays to grow mushrooms. These grow trays allow farmers to create a custom climate to grow different species of mushrooms at an efficient rate. M&T is a business-to-business company that helps mushroom and vertical farmers maximize their mushroom production to capture more of their prospective markets. This product helps mushroom farmers grow mushrooms faster with less manual effort and allows vertical farmers to expand product offerings. This technology will allow farmers to supply mushrooms to their local communities, which will change the future of how mushrooms are produced and brought to the end consumer.

Team Members:

Email Address:

Keegan Bayne



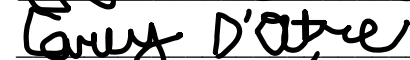
baynekt@dukes.jmu.edu

Leah Corbett



corbetlc@dukes.jmu.edu

Carey D'Atre



datrece@dukes.jmu.edu

Amelia Danehy



danehyar@dukes.jmu.edu

Reid O'Roke



orokerj@dukes.jmu.edu

Henry Somerville



somervht@dukes.jmu.edu

Ian Stasko



staskoim@dukes.jmu.edu

## Executive Summary

M&T  
 Frank Peterson  
 120 Erickson Ave, Essington, PA 19029  
**Phone:** 1-703-340-7180  
**E-mail:** information@mandt.com

**Management:**  
 Titles:  
 General Manager  
 Operations Manager  
 Accountant  
 Marketing Manager  
 Sales Associates (2)  
 Human Resources Specialist  
 Customer Service Associate  
 Engineer  
 Tech Specialists  
 Mycologist  
**Industry:** Vertical Farming  
 Technology

**Number of Employees:** 21

**Amount of Financing Sought:** The founders contributed \$1,050K and took out a loan for \$1,770K. Investors contributed \$1,180K, which is evenly distributed between convertible debt and common stock.

**Investment Sources:** Founders, Investors, and Bank

**Use of Funds:** M&T uses its funds to purchase raw materials, assets, and for pay roll expenses.

**Product/service selling price:**  
 \$12,000

**Business Description:** M&T is an LLC that provides vertical farming technology for growing mushrooms.

**Products/Services:** Our product is a tray with the ability to create a custom environment to grow various species of mushrooms. The trays can measure and control temperature, humidity, and PH levels which allows farmers to grow multiple species of mushrooms in one building. It costs \$2,000 to produce a tray and we sell them for \$12,000. We source raw materials from multiple suppliers.

**Competitive Advantage:** Our high-quality patented product combines multiple technologies to allow customers to create a custom climate to produce mushrooms more efficiently. We are the first company to create vertical farming technology for mushrooms with a more automated system, which allows us to capture the market and build brand loyalty.

**Markets:** Our two target markets are current mushroom farming companies and vertical farming companies in the US. We are trying to get current mushroom farmers to change their operations to a more efficient process and get vertical farmers to expand their operations to grow mushrooms as well as other produce.

**Distribution Channels:** Our product is assembled in our warehouse in Essington, PA. Customers can purchase our product at the warehouse or can communicate virtually with our staff. The product is then shipped to customers via FedEx with instructions on how to install the system in their companies.

**Competition:** Our biggest competition is companies that produce the current technology for growing mushrooms with growing bags from companies like Unicorn Bags.

**Financial Projections (Unaudited):**

	2023	2024	2025	2026	2027	
Revenue:	\$780	\$2,352	\$9,576	\$19,584	\$40,044	(dollars in thousands)
EBIT:	\$(2,088)	\$(941)	\$4,329	\$10,121	\$16,636	

**Elevator Pitch:**

Imagine being at the forefront of an industry, playing a role in a planetary revolution, and shaping the foundation of what future generations will consider normal. At M&T we are doing exactly that by contributing to the future of agriculture and bringing mushroom cultivation to vertical farming. M&T has developed a stackable mushroom grow tray to increase mushroom growing efficiency and yield. Our team will build an industry-leading mushroom company to bring mushroom cultivation into a new era.

**Product Description:**

Our product is a stackable grow tray that is one and a half feet deep by ten feet long and five feet wide. This allows mushroom farmers to grow a variety of mushroom species in one room by controlling the environment for each species within the grow tray itself. Trays include humidity, temperature, and PH sensors that work with built-in computers to monitor and regulate the growing environment in each tray. The current mushroom production process is energy-intensive, requires a lot of space, and results in lower-quality mushrooms (GroCycle, 2019). The trays can be stacked 20 units high and comes with an instruction manual and information on the best care for the trays for easy installation and use by customers.

**Competitive Advantage:**

Through its high-quality inputs and specialized staff, M&T offers a premium product for mushroom and vertical farmers in the U.S. We are the first company to introduce this technology to farmers giving us the first opportunity to capture the market.

**Value Proposition:**

Our product allows mushroom and vertical farmers to produce multiple species of mushrooms in the same space efficiently, which according to our interview with Ryan Fergeson, a former mushroom farmer, is important in mushroom production. Traditional growing techniques can produce \$6,286 of revenue in 50 square feet of grow space in one year (Data Axle). M&T's trays can produce up to \$259K of revenue in 50 square feet of grow

space in one year (Data Axle). In the United States, the average sales in the mushroom production industry are \$2.8 billion (Bizminer), and our product allows customers to capture more of this market.

**Business Strategy:**

Our business strategy is focused differentiation.

**Business Location:**

M&T is in the Essington neighborhood of Tinicum Township, Pennsylvania due to its proximity to the country's center of mushroom production and various options for shipping finished goods. Essington is 30 miles from Kennett Square ("120 Erickson Ave, Essington, PA 19029 to Kennett Square, PA 19348", n.d) in Chester County, Pennsylvania, which has the largest population of commercial mushroom farmers in the United States (Daily Local News, 2021). M&T is also 85 miles ("120 Erickson Ave, Essington, PA 19029 to 159 Liberty St., Metuchen, NJ 08840", n.d) from C&K, our supplier of the trays.

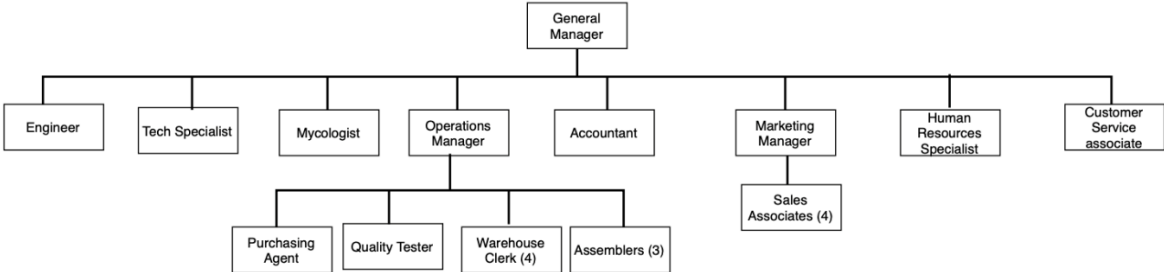
**Outsourcing:**

M&T outsources the production of all raw materials. Producing these raw materials in-house would require our company to hire more employees and develop specialized departments to produce these raw materials, which would be costly. This allows our company to focus on developing the technology for the product to satisfy the needs of mushroom farmers. In the future, we will have the resources to develop new sensors and inputs to meet the needs of customers. M&T outsources website design and maintenance which reduces the cost of hiring a website design specialist. Hiring a design specialist would cost around \$71K annually (U.S. Bureau of Labor Statistics, 2021) compared to outsourcing, which costs our company \$10K for the initial building of the website (Connective Web Design).

**Financial Performance:** In the first two years of operation, M&T operates at a loss, but becomes profitable in year three while being able to invest excess funds in short-term investments and further research and development.

Exhibit 1: Organization Chart

**M&T Employee Chart for Year Two**



- M&T outsources website design and maintenance.
- In year four, an additional four assemblers are hired.
- In year five, an additional assembler and warehouse clerk are hired.

Exhibit 2: Employee Pay and Benefits

### Employee Pay and Benefits Tables

Team Name: M&T		Section		2 Team		4		Date (10/10/2022)								
Compensation					Mandatory Payroll Deductions				Benefits							
Position (Salary/Wage W) (Full-time Assumed, Part-time - PT %)	Salary or Wage for position)	Bonus or Commission	# for position	Projected End of Year 2 Salary or Wage including bonus/comm. Each	Projected End of Year 2 Salary or Wage including bonus/comm. all positions	FICA	FUTA*	SUTA	WC	Mandatory Deductions Total	Benefits - Health Cost	Benefits - Retirement Cost	Benefits - Any other Benefit Cost	Benefits - Total	Total Cost per Employee	Total Cost for All Employees
General Manager	150000	45000	1	195000	195000	14918	42	370	1950	17280	16000	15600	4000	35,600	247,880	247,880
Engineer	100000	15000	1	115000	115000	8798	42	370	1150	10360	16000	9200	4000	29,200	154,560	154,560
Assemblers	43000	6450	4	49450	197800	3783	42	370	495	18758	16000	3956	4000	95,824	78,095	312,382
Tech Specialist	85000	12750	1	97750	97750	7478	42	370	978	8867	16000	7820	4000	27,820	134,437	134,437
Mycologist	85000	12750	1	97750	97750	7478	42	370	978	8867	16000	7820	4000	27,820	134,437	134,437
Purching Agent	71000	10650	1	81650	81650	6246	42	370	817	7475	16000	6532	4000	26,532	115,657	115,657
Warehouse Staff	56000	8400	2	64400	128800	4927	42	740	644	12705	16000	5152	4000	50,304	95,905	191,809
Accountant	80000	12000	1	92000	92000	7038	42	370	920	8370	16000	7360	4000	27,360	127,730	127,730
Marketing manager	85000	12750	1	97750	97750	7478	42	370	978	8867	16000	7820	4000	27,820	134,437	134,437
Sales Associates	50000	30,000	4	80000	320000	6120	42	370	800	29328	16000	6400	4000	105,600	113,732	454,928
Human Resource Specialist	70000	10500	1	80500	80500	6158	42	370	805	7375	16000	6440	4000	26,440	114,315	114,315
Operations Manager	115000	23000	1	138000	138000	10557	42	370	1380	12349	16000	11040	4000	31,040	181,389	181,389
Quality Tester	43000	6450	1	49450	49450	3783	42	370	495	4689	16000	3956	4000	23,956	78,095	78,095
Customer Service Associate	40000	6000	2	46000	92000	3519	42	370	460	8782	16000	3680	4000	47,360	74,071	148,142
<b>Totals</b>			<b>22</b>		<b>1,783,450</b>	<b>98,280</b>	<b>588</b>	<b>5,550</b>	<b>12,847</b>	<b>164,072</b>	<b>224,000</b>	<b>102,776</b>	<b>56,000</b>	<b>582,676</b>	<b>1,784,741</b>	<b>2,530,198</b>

Standard Time-off Benefits: \*Bonuses: General Manager: 30% , Operations Manager: 20% all other employees= 15%. Commissions: All sales  
Holidays (list all): New Years Day, Independence Day, Labor Day, Columbus Day, Veterns Day, Thanksgiving Day, Christmas Eve, Christmas Day

### Benefits and Costs

M&T offers a four-month paid maternity and paternity leave. Employees will receive an extra \$1K for vacation and \$50 per month for gym membership. Snacks will be available for employees during shifts, which will cost around \$25 per employee per week. Childcare assistance of \$1400 a year will be offered for employees with children. Employees receive fifteen vacation days and three sick days per year. After five years at the company, an additional two weeks paid vacation is offered to all employees.

Key Service or Product manufacturing positions	Knowledge, Skills, and/or Abilities Needed	How are you going to secure these KSAs and verify employee qualifications?
Assemblers	<ul style="list-style-type: none"> <li>• Highschool degree</li> <li>• Ability to lift 50lbs</li> <li>• Hand eye coordination</li> <li>• Follow technical instructions</li> <li>• Organizational skills</li> </ul>	<ul style="list-style-type: none"> <li>• Background check</li> <li>• Education verification</li> </ul>

### Motivating Employees

- Financial stability
- Paid vacation
- Family-oriented
- Employee rewards (Bonuses)
- Honest and supportive work environment
- 401K

Exhibit 3: Marketing Segmentation

**Segmentation of Mushroom Farming Businesses and Vertical Farming Businesses**

<p style="text-align: center;"><b>Demographic</b></p> <ul style="list-style-type: none"> <li>• Net Income for Small Businesses: \$300K to \$1,000K</li> <li>• Net Income for Medium Businesses: \$1M to \$10M</li> <li>• Net Income for Large Businesses: Greater than \$10M</li> </ul>	<p style="text-align: center;"><b>Psychographic</b></p> <ul style="list-style-type: none"> <li>• Community Oriented</li> <li>• Sustainable</li> <li>• Organic</li> </ul>
<p style="text-align: center;"><b>Geographic</b></p> <ul style="list-style-type: none"> <li>• United States</li> <li>• Primarily on the West Coast and East Coast</li> <li>• Kennett Square, PA produces 60% of domestic mushroom production</li> </ul>	<p style="text-align: center;"><b>Behavioristic</b></p> <ul style="list-style-type: none"> <li>• Producing the Maximum Amount of Mushrooms</li> <li>• Maximize Profit</li> <li>• Minimize Waste</li> <li>• Hesitant to Change</li> </ul>

- Demographic: The majority of the mushroom production market falls within the small to medium size business range (BizMiner). The majority of the vertical farming market falls between the medium to large business range (IBISWorld).
- Psychographic: Mushroom and vertical farmers have a lot of respect for hard work and community. We interviewed Professor Wayne Teel, who expressed that both types of farmers have a deep focus on being organic and sustainable. Many mushroom farming businesses have producing organic products in their mission statements. The grow trays we have created will allow them to continue their mission while improving the efficiency of mushroom growing techniques.
- Geographic: Our business is targeting the United States, primarily focusing along the East Coast and West Coast because most vertical farms and mushroom farms are located there. According to IBISWorld, some of the largest producers are in Pennsylvania (6.4% of establishments), New York (5.5%), Ohio (4.0%) California (3.8%), and Washington (3.4%) which make up a large portion of the industry's revenue.
- Behavioristic: The behavior of mushroom and vertical farmers reflects the fact that they are business owners who want to be successful through good business practices. Our trays help them create a profit while being sustainable and efficient. Mushroom farmers may be hesitant to change the way they produce mushrooms because this technology presents uncertainty in their businesses (Association of Equipment Manufacturers, 2020).

Exhibit 4: Market Quantification

**Totals for Markets Combined**

<b>Year</b>	<b>Total Projected Units Sold</b>	<b>Total Projected Revenue</b>
<b>2023</b>	65	\$780K
<b>2024</b>	196	\$2,352K
<b>2025</b>	798	\$9,576K
<b>2026</b>	1632	\$19,584K
<b>2027</b>	3337	\$40,044K

**Mushroom Market Forecast**

<b>Year</b>	<b>Total Market Potential</b>	<b>Market Growth Projection</b>	<b>New Percent of Market Captured</b>	<b>Average Units Purchased per Business</b>	<b>Projected Units Sold (Unrounded)</b>	<b>Projected Units Sold</b>	<b>Unit Price</b>	<b>Projected Revenue</b>
<b>2023</b>	213		0.50%	5	5.33	6	\$12K	\$72K
<b>2024</b>	234	9.7%	1.50%	5	17.52	18	\$12K	\$216K
<b>2025</b>	256	9.7%	3.00%	10	76.90	77	\$12K	\$924K
<b>2026</b>	281	9.7%	6.00%	10	168.71	169	\$12K	\$2,028K
<b>2027</b>	308	9.7%	12.00%	10	370.16	371	\$12K	\$4,452K

**Vertical Farm Forecast**

<b>Year</b>	<b>Total Market Potential</b>	<b>Market Growth Projection</b>	<b>New Percent of Market Captured</b>	<b>Average Units Purchased per Business</b>	<b>Projected Units Sold (Unrounded)</b>	<b>Projected Units Sold</b>	<b>Unit Price</b>	<b>Projected Revenue</b>
<b>2023</b>	2360		0.50%	5	59.00	59	\$12K	\$708K
<b>2024</b>	2369	0.37%	1.50%	5	177.65	178	\$12K	\$2,136K
<b>2025</b>	2403	1.45%	3.00%	10	720.92	721	\$12K	\$8,652K
<b>2026</b>	2437	1.43%	6.00%	10	1462.47	1463	\$12K	\$17,556K
<b>2027</b>	2472	1.40%	12.00%	10	2965.88	2966	\$12K	\$35,592K

- Market growth projection for the mushroom farming market is based on sales growth statistics from a Grand View Research study which projects a compound annual growth rate of 9.7%. Firm entry into the market should increase at a similar rate as the industry becomes more profitable.
- Market growth projection for the vertical farming market is based on IBISWorld projections for firm entry into the hydroponics crop industry.
- Our projected units sold for each year was determined by multiplying Total Market Potential by New Percent of Market Captured and Average Units Purchased per Business.
  - The new percentage of the market we will be capturing each year is based on data on business sizes from IBISWorld and BizMiner. It was also based on data about how accepting the farming industry is of new technologies from the Association of Equipment Manufacturers.
  - The average units purchased per business is also based on these three sources. Since vertical farmers would have to expand operations and mushroom farmers would have to adopt new technology, the average units purchased is lower in the first two years.
- Projected revenue is then calculated by taking Projected Units Sold times Unit Price.



Exhibit 5: Positioning/Competitive Analysis

**SWOT Analysis**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Proprietary patented product</li> <li>• Forefront of an industry</li> <li>• Growing Industry because of climate change</li> </ul>
<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Developing a costly new technology</li> <li>• Possible transportation problems in Pennsylvania and the United States</li> <li>• Entering a new market</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Climate change is leading to increased emphasis on indoor agriculture</li> <li>• Increased immigration is leading to the adoption of new foods that include mushrooms</li> <li>• National shift towards healthier lifestyle and food</li> </ul>
<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Early stages of an industry with competitors entering</li> <li>• A new mushroom cultivation technique will make our product obsolete</li> </ul>

**Positioning**

In our industry, we are positioning ourselves to be able to grow mushrooms efficiently and in high quantities. Currently, vertical farming technology allows for produce such as tomatoes and lettuce to be grown efficiently but is unable to produce mushrooms. While mushroom farmers focus on producing mushrooms, it requires large amounts of effort and space. Our growth trays can solve both industries' problems.

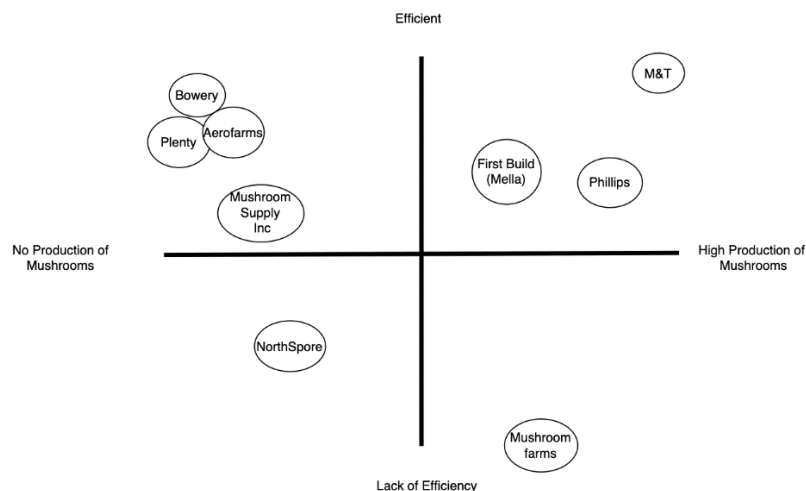


Exhibit 6: Marketing Mix

### Marketing Mix

<p style="text-align: center;"><b><u>Product</u></b></p> <ul style="list-style-type: none"><li>• High-Quality Materials and Parts</li><li>• Durable and Reliable</li><li>• Increases Mushroom Growing Capacity</li><li>• Increases Growing Efficiency</li></ul>	<p style="text-align: center;"><b><u>Price</u></b></p> <ul style="list-style-type: none"><li>• Psychological and Professional Pricing</li><li>• \$12,000 per a unit</li></ul>
<p style="text-align: center;"><b><u>Place</u></b></p> <ul style="list-style-type: none"><li>• Virtually</li><li>• In Person at 120 Erickson Ave. Essington, Pennsylvania</li></ul>	<p style="text-align: center;"><b><u>Promotion</u></b></p> <ul style="list-style-type: none"><li>• Online Advertising</li><li>• Mushroom Conventions</li><li>• Product Sampling</li></ul>

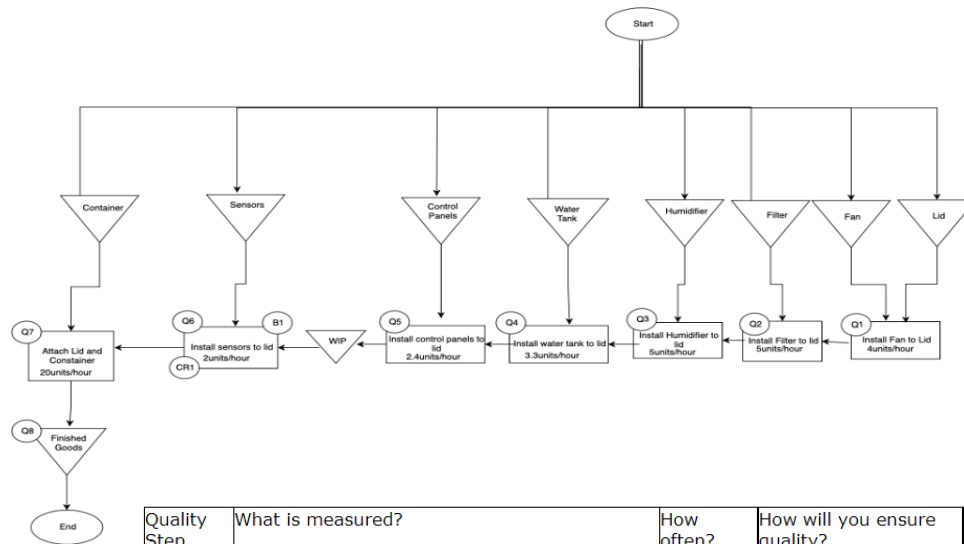
**Product:** Our product is a stackable grow tray that is one and a half feet deep by ten feet long and five feet wide with a matching lid that incorporates automated air circulation, pH, temperature, and humidity controls. Users can adjust the tray’s environment specific to the species of mushrooms. It will allow farmers to grow multiple mushroom species without having to dedicate individual rooms to each variety. Mushroom farms will be able to expand their operations vertically without having to increase their footprint by stacking multiple trays on a metal racking system.

**Price:** Our objective for pricing is to cover production costs and the cost of research and development for new advancements. Our price of \$12K supports our psychological and professional pricing strategies intended to convey the high quality and high performance seen in professional products. If farmers were to grow Oyster mushrooms, they would be able to make their money back in roughly four grow cycles, based on the species' average yield and average price per pound in today’s market (Shields).

**Place:** Our trays will be available by calling the sales associates. The sales team will be tasked with educating prospective customers about the benefits of the trays while attending mushroom conventions and meeting with mushroom farmers at their growing facilities. Customers will also be able to come to our production facilities in Essington, Pennsylvania to view our assembly process, look at our product, and talk with representatives.

**Promotion:** The sale of our grow trays is going to rely on our teams’ ability to get into contact with mushroom and vertical farmers and present the trays to them. Our sales team will attend mushroom conventions across the country such as the “Sixth Radical Mycology Convergence” in Oregon and the “Annual Mushroom Festival” in Kennett Square, Pennsylvania. For these conventions, we will have a booth display with brochures to handout. They will set up appointments with large businesses at their facilities to demonstrate, share, and sell our product. We are going to supply ten completed trays as free samples to specific mushroom companies, which will help get our product into the industry and promote word of mouth advertising. We will have advertisements on mushroom websites, forums, and social media platforms to generate online traffic to our website.

**Exhibit 7: Flow Chart, Critical Resource, and Facility Description**  
**M&T Production Flow Chart**



Quality Step	What is measured?	How often?	How will you ensure quality?
Q1	Fan checked for visible damage and operation.	Every unit	Visual inspection and plugged in.
Q2	Filters checked for damage.	Every unit	Visual inspection
Q3	Humidifiers checked for visible defects and electrical operation.	Every unit	Visual inspection and plugged in.
Q4	Water tanks checked for visible defects.	Every unit	Visual inspection
Q5	Control panels are checked for visible defects and electrical operation.	Every unit	Visual inspection and plugged in.
Q6	The sensors will be visually inspected.	Every unit	Visual inspection.
Q7	Lid and tub inspected.	Every unit	Visual inspection.
Q8	The software be installed on the system and the final product will enter a burn in period where everything in its entirety will undergo a quality check.	Every unit	Plugged in, all functions tested, along with a visual inspection over each component.

Critical Resource	Brief Description	Unit Cost (in appropriate unit)	How many?
CR1	If the sensors don't work, there is no way to tell if the environment within the container will be able to maintain mushroom growth and the overall operation of the unit will be compromised.	374/unit	4/unit

**Facility description:**

Our main facility is 13,000 square feet comprising of 8 offices. Each department head will have their own office. There will be an additional office for the sales associates to work in. The personal offices will be a minimum of 300 square feet, the General Managers office will be 600 square feet, and the sales office will be 1,200 square feet. Our conference and relaxation room will be 1,200 square feet. Our research and development room will be 1,500 square feet and will be shared by our mycologist, technology specialist, and engineer. Our assembly, warehouse, and quality test rooms will be 3,000 square feet.

Exhibit 8: Quality

**Quality Assurance**

<b>Indicate the Dimensions of Quality on which you will focus.</b>	<b>Why is this dimension important, given your industry &amp; target market?</b>	<b>Identify the Quality Step(s) on the Process Flowchart / Service Blueprint to which this corresponds.</b>
Serviceability	To build brand loyalty, our company needs to work with its customers on improving the quality. The trays need to perform as advertised and our company needs to provide high-level customer service.	N/A
Reliability	We are charging a premium price for our product with the expectation that it will operate and be reliable for the final user. This means minimal malfunctions in the mechanical and software aspects of the trays, after going through an extensive burn-in period.	Q8
Durability	The trays are expected to last at least five years in use. The trays need to be able to withstand being moved by heavy equipment and cleaned regularly.	Q7
Performance	We are trying to get mushroom and vertical farmers to switch from traditional mushroom farming techniques to our system, which means our system needs to perform well as advertised.	Q1-Q8

**Use the space below to describe any additional Proactive Quality Assurance Plans that are not connected to a specific activity on your Process Flowchart / Service Blueprint.**

Our company will work closely with our suppliers by engaging them in our design process for future products and research and development stages. By building a partner-based relationship with C&K Plastics, we will be able to ensure the quality of our trays remains high, while continuously researching new methods and materials to make our product better. Our employees will also go through a 3-hour training program that educates everyone within the company on problems they should be aware of and how the product works. The only machine that will need regular maintenance is our forklift, which we will do in house following the manuals guidelines.

**Describe any reactive quality assurance plans. Include a recovery plan should a customer receive poor quality goods and/or services.**

We will have a full two-year warranty on all our trays. M&T has two customer service representatives who will provide on-site repairs or replacements if parts malfunction. Customers will need an M&T representative to solve the problem.

**If you will utilize a quality/process improvement methodology, indicate which:**

- NA  TQM  Six Sigma  ISO  Benchmarking  
 Other (specify what):

**Provide a specific explanation of how your chosen quality methodology relates to your business and how it will be applied:**

Our business structure focuses on acting as a cohesive unit with the common goal of building a successful and industry-leading company. Total quality management should be second nature for our employees and be a naturally accepted way of maintaining the quality of all our products. Assembly associates and warehouse clerks will constantly be looking for defects or problems with different components, while each specialist will also monitor for problems and look for ways it can be improved. We also chose suppliers that value high-quality products and will continue to work with suppliers to improve quality.

Exhibit 9: Inventory

**RAW MATERIAL INVENTORY & SUPPLIER SELECTION**

Item(s)	Supplier Name & Location (City, State, Country)	Reason for selecting this supplier	Supplier lead time (in days)	Frequency of replenishment (in days) for Year 1	System of Management	Mode(s) of Transportation
Tray and Lid	C&K Plastics INC. Located in Metuchen, NJ, USA	This supplier is reliable in the industry and can make a high-quality custom tray and lid that we need as the base for our product.	45 days	183	Fixed Quantity System	<input checked="" type="checkbox"/> Highway <input type="checkbox"/> Rail <input type="checkbox"/> Waterway <input type="checkbox"/> Air
Circulation Fans, Humidifier Pad, Water Tank, Mounting Hardware, Air Filters	W.W. Grainger INC. Located in Harrisburg, Pennsylvania, USA	We chose this supplier due to the variety of differentiated products they offer that are designed to be used in other business operations.	35 days	183	Fixed Quantity System	<input checked="" type="checkbox"/> Highway <input type="checkbox"/> Rail <input type="checkbox"/> Waterway <input type="checkbox"/> Air
Computer Hardware	Winsystems, INC. Located in Grand Prairie, Texas, USA	This supplier has ISO 9001 quality certification and is RoHS compliant which supports our strategy of providing a high-quality product.	30	183	Fixed Quantity System	<input checked="" type="checkbox"/> Highway <input type="checkbox"/> Rail <input type="checkbox"/> Waterway <input type="checkbox"/> Air
Humidity and Temperature Sensors and Wireless Sensor Adapter	Monnit Corp. Located in South Salt Lake, Utah, USA	This supplier's product can be left in the trays and report the information on a computer wirelessly, which supports our strategy of creating a more efficient and automated process for producing mushrooms.	25	183	Fixed Quantity System	<input checked="" type="checkbox"/> Highway <input type="checkbox"/> Rail <input type="checkbox"/> Waterway <input type="checkbox"/> Air
pH Sensor	Southern Labware Located in Cumming, Georgia, USA	This supplier's sensors have a long life and can be left in the trays for long periods. This supplier builds high-quality components which will help our product be successful.	5	90	Fixed Quantity System	<input checked="" type="checkbox"/> Highway <input type="checkbox"/> Rail <input type="checkbox"/> Waterway <input type="checkbox"/> Air

**FINISHED GOODS INVENTORY**

	Finished goods produced (per hour)	Frequency of shipping finished goods	Average level of Finished goods inventory on site	Amount of safety stock on site
At the end of Year 1	0.044	Every 7 days	0.26 units/day	20units
At the end of Year 2	0.133	Every 7 days	0.80 units/day	80units
At the end of Year 3	0.541	Every 7 days	3.25 units/day	160units
At the end of Year 4	1.11	Every 7 days	6.66 units/day	334units
At the end of Year 5	2.27	Every 7 days	13.62 units/day	400units

<b>What is the lifespan of your finished goods inventory?</b>	The lifespan of the product is five years.
<b>How will you manage perishability of Finished Goods Inventory?</b>	Customers will purchase new trays every five years and we will ensure that inventory on site updated.

**DISTRIBUTION**

Name of transportation provider/carrier	Reason(s) for selecting this provider/carrier	Frequency of Pick Up / Drop off
FedEx	We chose this provider because they ship to all states in the U.S. They have several stores and centers near our company building to help reduce the lead time of our product getting to customers and increase efficiency. FedEx is able to ship products using pallets which is needed for the size of our product.	7 days

Exhibit 10: Capacity

**Operation Capacity**

	Demand (per hour)	Capacity (per hour)	Utilization (%)	Hours of Operation	Bottleneck name and description	How will you manage /adjust the bottleneck to ensure you can appropriately serve or supply your customers?
At the end of Year 1	0.044/hour	1.56	2.82%	1,440 hours/year	Sensor installation	No reason to adjust the bottleneck because capacity is greater than demand.
At the end of Year 2	0.133/hour	1.56	8.55%	1,440 hours/year	Sensor Installation	No reason to adjust the bottleneck because capacity is greater than demand.
At the end of Year 3	0.543/hour	1.56	34.799%	1,440 hours/year	Sensor Installation	No reason to adjust the bottleneck because capacity is greater than demand.
At the end of Year 4	1.11/hour	2	55.48%	1,440 hours/year	Sensor Installation	Hire an additional Assembler to install sensors
At the end of Year 5	2.27/hour	2.4	94.56%	1,440 hours/year	Control Panel Installation	No reason to adjust the bottleneck because capacity is greater than demand.

Note: In years one through three, we only have three employees working which reduces capacity.

Hours of operation/month	Demand/month	Demand/hour	Capacity/month	Capacity/hour	Utilization
4 weeks x 5 days x 6 hours 120hours/month	0.044units/hour x 6hours x 5days x 4weeks =5.28units/month	0.044units/hour	1.56units x 6hours x 5days x 4 weeks =187units/month	1.56 units/hour	2.82%

<p><b>Additional resources (beyond your bottleneck) must be allocated appropriately to support operations. Identify which resources have a significant impact on capacity at start up and describe why these are appropriate amounts of resources at start up.</b></p>
<p>Trays and lids have a significant impact on capacity because the trays are the base of the product.</p>
<p><b>Describe adjustments you will make as resource requirements vary with time. Be specific regarding which key resources (beyond your bottleneck) will be adjusted, when and how. If you will make multiple adjustments, explain each.</b></p>
<p>Our company will keep a large inventory of all the raw materials on hand beginning year three.</p>

**How will you manage seasonality?** *If your organization does not have seasonal demand, please check this box:*  NA

Exhibit 11: Income Statement

**M&T Income Statement**

	Date Ending 2023	Date Ending 2024	Date Ending 2025	Date Ending 2026	Date Ending 2027
<b>Sales Revenue</b>	<b>\$780,000</b>	<b>\$2,352,000</b>	<b>\$9,576,000</b>	<b>\$19,584,000</b>	<b>\$40,044,000</b>
COGS	130,000	423,360	1,723,680	3,525,120	7,207,920
Gross Profit	<b>\$650,000</b>	<b>\$1,928,640</b>	<b>\$7,852,320</b>	<b>\$16,058,880</b>	<b>\$32,836,080</b>
<b>Operating Expenses</b>					
Salaries and Wages	1,530,374	1,663,450	1,796,526	1,956,744	2,079,702
Payroll Tax Expenses	164,072	164,072	164,072	181,601	195,483
Employee Benefits and Retirement	582,676	582,676	582,676	657,744	708,452
Advertising and Promotion Expense	50,000	150,000	600,000	1,200,000	2,400,000
Research and Development Expense	5,000	10,000	50,000	1,500,000	10,000,000
Commissions Expense	110,000	120,000	130,000	160,000	180,000
General Insurance Expense	1,600	1,600	1,600	1,600	1,600
Travel, Meals, and Entertainment	60,000	60,000	80,000	150,000	500,000
Website Expense	10,350	5,000	5,000	5,000	5,000
Patent Expense	15,000				
Tooling Expense	65,000				
Licenses	5,500				
Office Expense	48,000	48,000	48,000	60,000	65,000
Depreciation Expense	30,513	30,513	30,513	30,513	30,513
Utilities	29,500	29,500	29,500	29,500	29,500
Warehouse Maintenance	30,000	5,000	5,000	5,000	5,000
<b>Total Operating Expenses</b>	<b>\$2,737,585</b>	<b>\$2,869,811</b>	<b>\$3,522,887</b>	<b>\$5,937,702</b>	<b>\$16,200,250</b>
<b>Earnings Before Interest and Taxes</b>	<b>\$(2,087,585)</b>	<b>\$(941,171)</b>	<b>\$4,329,433</b>	<b>\$10,121,178</b>	<b>\$16,635,830</b>
Interest Expense	168,150	141,600	115,050	88,500	61,950
<b>Earnings Before Taxes</b>	<b>\$(2,255,735)</b>	<b>\$(1,082,771)</b>	<b>\$4,214,383</b>	<b>\$10,032,678</b>	<b>\$16,573,880</b>
Income Tax Expense			1,306,037	3,109,127	5,136,245
<b>Net Income (Loss)</b>	<b>\$(2,255,735)</b>	<b>\$(1,082,771)</b>	<b>\$2,908,346</b>	<b>\$6,923,551</b>	<b>\$11,437,635</b>

Exhibit 12: Balance Sheet

**M&T Balance Sheet**

	As of Inception Date	Date Ending 2023	Date Ending 2024	Date Ending 2025	Date Ending 2026	Date Ending 2027
<b>ASSETS</b>						
<b>Current Assets</b>						
Cash and Cash Equivalents	\$3,144,500	\$1,008,360	\$147,384	\$499,427	495,027	495,480
Accounts Receivable	-	10,660	33,892	136,431	290,022	594,832
Inventory	-	60,000	188,640	380,960	787,840	1,053,920
Short-Term Investments				1,334,000	7,289,192	18,031,760
<b>Total Current Assets</b>	<b>\$3,144,500</b>	<b>\$1,079,020</b>	<b>\$369,916</b>	<b>\$2,350,818</b>	<b>\$8,862,081</b>	<b>\$20,175,992</b>
<b>Fixed (Long-Term) Assets</b>						
Office Equipment	27,000	27,000	27,000	27,000	27,000	27,000
Machinery and Equipment	28,500	28,500	28,500	28,500	28,500	28,500
Buildings	800,000	800,000	800,000	800,000	800,000	800,000
<b>Total Gross Fixed Assets</b>	<b>\$855,500</b>	<b>\$855,500</b>	<b>\$855,500</b>	<b>\$855,500</b>	<b>\$855,500</b>	<b>\$855,500</b>
Less: Accumulated Depreciation	-	30,513	61,026	91,539	122,052	152,565
<b>Net Fixed Assets</b>	<b>\$855,500</b>	<b>\$824,987</b>	<b>\$794,474</b>	<b>\$763,961</b>	<b>\$733,448</b>	<b>\$702,935</b>
<b>Total Assets</b>	<b>\$4,000,000</b>	<b>\$1,904,007</b>	<b>\$1,164,390</b>	<b>\$3,114,779</b>	<b>\$9,595,529</b>	<b>\$20,878,927</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>						
<b>EQUITY</b>						
<b>Liabilities</b>						
<b>Current Liabilities</b>						
Accounts Payable	-	72,160	760,827	151,426	40,332	22,932
Accrued Salaries and Wages	-	58,861	66,243	71,645	78,015	82,989
Accrued Payroll Taxes and Benefits	-	28,721	29,826	29,868	33,431	36,053
Current Maturity of LT Debt	-	354,000	354,000	354,000	354,000	354,000
<b>Total Current Liabilities</b>	<b>\$-</b>	<b>\$513,742</b>	<b>\$1,210,896</b>	<b>\$606,939</b>	<b>\$505,778</b>	<b>\$495,974</b>
<b>Long-Term Liabilities</b>						
LT Debt Less Current Maturities	\$1,770,000	\$1,416,000	\$1,062,000	\$708,000	\$354,000	\$-
Convertible Debt	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000
<b>Total Long Term Liabilities</b>	<b>\$2,360,000</b>	<b>\$2,006,000</b>	<b>\$1,652,000</b>	<b>\$1,298,000</b>	<b>\$944,000</b>	<b>\$590,000</b>
<b>Total Liabilities</b>	<b>\$2,360,000</b>	<b>\$2,519,742</b>	<b>\$2,862,896</b>	<b>\$1,904,939</b>	<b>\$1,449,778</b>	<b>\$1,085,974</b>
<b>STOCKHOLDER'S EQUITY</b>						
Investor's Equity	590,000	590,000	590,000	590,000	590,000	590,000
Founder's Equity	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000
Retained Earnings	\$-	(2,255,735)	(3,338,506)	(430,160)	6,505,751	18,152,953
<b>Total Stockholders' Equity</b>	<b>\$1,640,000</b>	<b>\$(615,735)</b>	<b>\$(1,698,506)</b>	<b>\$1,209,840</b>	<b>\$8,145,751</b>	<b>\$19,792,953</b>
<b>Total Liabilities and Stockholders' Equity</b>	<b>\$4,000,000</b>	<b>\$1,904,007</b>	<b>\$1,164,390</b>	<b>\$3,114,779</b>	<b>\$9,595,529</b>	<b>\$20,878,927</b>



Exhibit 13: Cash Flow

**M&T Cash Flows**

	As of Inception Date	Date Ending 2023	Date Ending 2024	Date Ending 2025	Date Ending 2026	Date Ending 2027
<b>Cash Flows From (For) Operations</b>						
Net Income	\$-	\$(2,255,735)	\$(1,082,771)	\$2,908,346	\$6,923,551	\$11,437,635
Depreciation	-	30,513	30,513	30,513	30,513	30,513
Changes in Current Assets						
Increase in Accounts Receivable	-	10,660	23,232	102,539	153,591	304,810
Increase in Inventories	-	60,000	128,640	192,320	406,880	266,080
Changes in Current Liabilities						
Increase in Accounts Payable	-	72,160	688,667	(609,401)	(111,094)	(17,400)
Increase in Accrued Salaries and Wages	-	58,861	7,382	5,402	6,370	4,974
Increase in Accrued Payroll Taxes and Benefits	-	28,721	1,105	42	3,563	2,622
<b>Net Cash Flow From (For) Operating</b>	<b>\$-</b>	<b>\$(2,136,140)</b>	<b>\$(506,976)</b>	<b>\$2,034,599</b>	<b>\$6,292,432</b>	<b>\$10,887,454</b>
<b>Cash Flow (For) From Investing Activities</b>						
Fixed Asset Purchases	\$(855,500)	\$-	\$-	\$-	\$-	\$-
<b>Net Cash Flow (For) From Investing</b>	<b>\$(855,500)</b>	<b>\$-</b>	<b>\$-</b>	<b>\$-</b>	<b>\$-</b>	<b>\$-</b>
<b>Cash Flow From (For) Financing Activities</b>						
Long Term Debt Borrowings	\$2,360,000					
Long Term Debt Payments		(354,000)	(354,000)	(354,000)	354,000	(2,950,000)
<b>Net Cash Flows From (For) Financing</b>						
	<b>\$2,360,000</b>	<b>\$(354,000)</b>	<b>\$(354,000)</b>	<b>\$(354,000)</b>	<b>\$354,000</b>	<b>\$(2,950,000)</b>
<b>Net Change in Cash</b>						
	<b>\$1,504,500</b>	<b>\$(2,490,140)</b>	<b>\$(860,976)</b>	<b>\$1,680,599</b>	<b>\$6,646,432</b>	<b>\$7,937,454</b>
<b>Beginning Cash Balance</b>						
	0	\$1,504,500	\$(985,640)	\$(1,846,616)	(\$166,017)	\$6,480,415
<b>Net Change in Cash</b>						
	<b>\$1,504,500</b>	<b>\$(2,490,140)</b>	<b>\$(860,976)</b>	<b>\$1,680,599</b>	<b>\$6,646,432</b>	<b>\$7,937,454</b>
<b>Ending Cash Balance</b>						
	<b>\$1,504,500</b>	<b>\$(985,640)</b>	<b>\$(1,846,616)</b>	<b>(\$166,017)</b>	<b>\$6,480,415</b>	<b>\$14,417,868</b>

## Exhibit 14: Financial Statement Notes

### **Financial Statement Notes**

#### **Note 1: Accounting Methods**

M&T uses MACRS lives for depreciating our assets. The warehouse is a Nonresidential Real Property and is depreciated at a flat rate for thirty-nine years. The forklift falls under the category of Other Equipment Used for Transportation, depreciated at a flat rate for five years. Company computers are also depreciated at a flat rate for five years under the category of Computer and Peripheral Equipment. Office Furniture falls under the Office Furniture and Fixtures category, depreciated at a flat rate for seven years.

#### **Note 2: Assumptions**

These Assumptions are used in the formulation of the pro forma financial statements:

- Industry average ratios were calculated by averaging the ratios for mushroom production and vertical farming industries.
- Employee benefits are assumed to be 27% of annual salaries and wages.
- All of accounts receivable is collected.
- 83.4% of accounts receivable is collected in the current year and the remaining 16.4% is collected in the following year based on the assumption that sales are constant in each month.
- 83.4% of accounts payable is paid in the current year and the remaining 16.4% is paid in the following year based on the assumption that expense are constant in each month in years one, three, four, and five. In year two, M&T pays 17% of accounts payable due to expenses increasing and sales being low. M&T can pay off this short-term debt within the next year and is capable of handling this debt.
- M&T is taking a conservative approach to inflation and assuming that inflation will remain high over the next five years. Based on data from Statista over the past few years, we assume inflation is 8% which affects our salary and wages expense and cost of goods sold. M&T has decided not to increase the price of the product because M&T is able to surpass the break-even point in year three and makes a significant profit in years three, four, and five.
- Employees are paid every two weeks. We assume that each year, one payroll cycle will remain in accrued salaries until it is paid in the next year
- The additional ten trays M&T has set aside for customers to try has been accounted for in our inventory expense in year 1.
- In year 4, M&T pays dividends of \$41K at a par value of \$1, which is 2.5% of stockholders' equity.
- In year 5, M&T pays dividends of \$82K at a par value of \$1, which is 5% of stockholders' equity.
- In year 3, we start investing excess cash into Treasury Bills that have an interest rate of 4%, which is based off the average daily Treasury Bill Rates from the U.S. Department of the Treasury. We chose Treasury Bills as our short-term investment because it is a risk-free investment that allows us to earn additional cash through earning interest.
- For the business valuation, we averaged the price to sales ratio of AppHarvest, Hydrofarm Holdings, and Urban-Gro which are publicly traded vertical farming companies to get the price to sales multiplier of 5.92 which was then multiplied by year five sales revenue.

#### **Note 3: Investment Capital**

M&T funded the start-up with a \$1,770,000 SBA bank loan at 7.5% interest for five years from United Bank of Philadelphia. Along with the bank loan, M&T used \$1,118,000 from investors split 50-50 between equity and convertible bonds. The convertible bonds have 6% interest for five years at which time the Noteholder may either receive a payout of his or her principal amount plus interest or receive equity at a conversion discount of 22%. Finally, the founders of M&T contributed \$1,050,000 of their cash reserves.

#### **Note 4: Capital Investment**

M&T started with an initial capital investment of \$858,500. \$800,000 of that is for the warehouse that serves as the base of operations for the company. \$30,000 of that total is spent to get the warehouse into working order for company use. Finally, \$28,500 went toward the purchase of a forklift for use during operations. Additionally, each year after that M&T will spend \$5,000 on warehouse maintenance for Fiscal years 2024, 2025, 2026, and 2027.

#### **Note 5: Risk**

A potential risk that could affect M&T is supply chain interruptions as we outsource all our raw materials. If our suppliers were unable to provide materials, we would suffer from interruptions on the assembly line. Product liability issues such as design flaws or issues with the assembly line manufacturing process could also lead to financial risk due to the possibility of product recalls.

## Exhibit 15: Financial Statement Ratios

### M&T Financial Ratios

	Date Ending 2023	Date Ending 2024	Date Ending 2025	Date Ending 2026	Date Ending 2027	Industry Average Ratios
<b>Liquidity Ratios</b>						
Current Ratio	2.1	0.3	3.9	17.5	40.7	1.81
Quick Ratio	2.0	0.1	3.2	16.0	38.6	1.165
Operating Cycle	173.4	167.9	374.7	87.0	58.8	118.375
<b>Leverage Ratios</b>						
Debt/Equity	-4.09	-1.69	1.57	0.18	0.05	1.655
Times Interest Earned	-12.42	-6.65	37.63	114.36	268.54	5.955
<b>Asset Management Ratios</b>						
Inventory Turnover	2.2	2.2	4.5	4.5	6.8	49.76
Receivables Turnover	73.2	69.4	70.2	67.5	67.3	26.315
Fixed Asset Turnover	0.9	3.0	12.5	26.7	57.0	2.985
<b>Profitability Ratios</b>						
Gross Profit Margin	83.33	82.00	82.00	82.00	82.00	40.235
Operating Profit Margin	-267.64	-40.02	45.21	51.68	41.54	6.942
Return on Assets	-118.47	-92.99	93.37	72.15	54.78	12.9
<b>DuPont Analysis</b>						
Net Profit Margin	-289.20	-46.04	30.37	35.35	28.56	9.1
Total Asset Turnover	0.41	2.02	3.07	2.04	1.92	0.96
Equity Multiplier	-3.09	-0.69	2.57	1.18	1.05	2.685
Return on Equity	366.35	63.75	240.39	85.00	57.79	27.995
<b>Business Valuation</b>						
	<b>2027</b>					
Multiple	5.92					
Projected Revenue	\$40,044,000					
Business Valuation	<b>\$237,060,480</b>					

## Exhibit 16: Financial Statement Analysis

### **Ratio Analysis**

**Liquidity:** Our current and quick ratios are above our industry averages for four of the five years. Year 2 being the only exception. This is because we consistently find ourselves with excess cash on hand. We believe this to be positive as it allows us to put excess resources into new investment opportunities and research and development. Our operating cycle is above the industry average for the first three years but drops below the average for years four and five. This makes sense due to the number of units we are making and selling in the first three years. Those small production numbers would cause the DIO and DSO to be inflated, while in later years, production picking up helps secure those smaller numbers.

**Financial Leverage:** Our debt to equity ratio begins in the negative due to our losses in years one and two. When we reach profitability in year three when the ratio jumps up to just below the industry average. In years four and five our ratio is equity heavy compared to the industry because we have been paying off our principal debt amount. The times interest earned ratio increase all five years ending high above the industry average. We believe this to be good because it allows us to have confidence that we can pay back our debts at any time.

**Asset management:** Our inventory turnover ratio is low compared to industry for all five years. This is due to our low sales volume and our smaller market. Moving forward as we hope sales grow, we expect to see this number rise. Our receivables turnover stays consistently higher than the average all five years. We collect on what we are owed in a short amount of time, allowing for such a high number. The fixed asset turnover ratio grows over the five years to be much higher than the industry average, showing that with each year we grow in our ability to use these assets efficiently.

**Profitability:** The company's profitability margin, operating profit margin, and return on assets are all well over the industry average by year five. This is because of our pricing strategy. Our price is so high compared to our COGS, because the companies who use these trays can make their money back in approximately six months.

**Dupont Analysis:** Net profit margin is higher than the industry average for the same reason our profitability ratios are high. Total asset turnover is higher than the average for four of the five years indicating that we are managing our assets effectively. Equity multiplier is lower than the industry average for all five years because we rely heavily on equity in these years. In the future, adding more debt should increase the efficacy of our equity. Our return on equity is higher than the industry average which leads us to believe that we are using our equity efficiently.

**Valuation Method:** We used the price to sales method of valuation. By researching other firms in our industry, we came up with a multiplier of 5.92 and a valuation in year five of \$237,060,480.

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### Meet the Team - Section 2, Team 4

	<p>My name is Keegan Bayne and I am from Fredericksburg, Virginia. I am a junior studying Accounting. I am involved with the Catholic Campus Ministry at James Madison University. In my free time I like to go fishing and cook food for my friends.</p>
	<p>My name is Leah Corbett and I am a Marketing major from Ramsey, New Jersey. I am a Junior here and I am an active member of the sorority Sigma Sigma Sigma where I hold a leadership position. I also am a member of the Professional Sales club. I enjoy spending time with both family and friends when I am outside of the classroom.</p>
	<p>My name is Carey D'Atre. I am from Charlottesville, Virginia. I am a junior majoring in Computer Information Systems. I am involved in AIS and WIT at JMU. In my free time, I enjoy spending time with friends and family outside.</p>
	<p>My name is Amelia Danehy, and I am from Saco, Maine. I am a double major in management and dance. I am a member of Beta Gamma Sigma and the National Society of Leadership and Success. I am also a mentor in the Mentor Collective program at the College of Visual and Performing Arts. I enjoy spending time with my friends and family.</p>
	<p>My name is Reid O'Roke. I'm from Winchester, Virginia. I am a junior double majoring in Finance and Economics. In my free time, I enjoy working out and keeping up with both JMU and professional sports teams.</p>
	<p>My name is Henry Somerville and I'm a Marketing major from Alexandria, Virginia. Currently, I am involved in leadership positions across the fraternity Pi Kappa Alpha. In my free time, I enjoy working out, watching sports, and hanging out with family and friends.</p>
	<p>My name is Ian Stasko, I am a management major from Charlottesville Virginia. I have managed an oyster farm for two years, acquired my New Jersey Real Estate License, and worked as a professional arborist, steel and metal fabricator, and snow maker at Massanutten. I have lots of different hobbies ranging from hydroponics to woodworking.</p>