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APPHARVEST

EQUITY REPORT

MARCH 1ST, 2021

APPHARVEST INC.

BY THE NUMBERS

TICKER: APPH
PRICE: $30.45

AppHarvest (APPH) is an applied technology company building some of the world's largest indoor farms. The company combines conventional agricultural techniques with cutting-edge technology and is addressing key issues including improving access for all to nutritious food, farming more sustainably, and building a home-grown food supply.

The company's 60-acre Morehead, KY facility is among the largest indoor farms in the U.S designed to sustainably grow affordable, nutritious, chemical pesticide-free non-GMO fruits and vegetables at scale using 90 percent less water than traditional open-field agriculture and 100 percent recycled rainwater.

N/A	+104%	$3.1B
DIVIDEND YIELD	YTD RETURN	MARKET CAP

APPH

SHARE PRICE PERFORMANCE

MTD (-15%)

YTD (+104%)

ANALYSIS

AppHarvest (APPH) is one of many special purpose acquisition companies, SPACs, that have hit the market this year but is one of few, if any, that is tackling the future of agriculture.

The agriculture technology company is currently focusing on building an indoor farm in Appalachia. The company combines agricultural techniques with cutting-edge technology to provide homegrown nutritious food and farming.

The company operates a 60-acre controlled environment, agriculture facility in Morehead, Kentucky, which grows beefsteak tomatoes and tomatoes on the vine. It also operates a 60-acre indoor farm, outside Richmond, Kentucky, where it cultivates fresh fruits and veggies. The company's technological systems monitor the pollination across all 68 bays and 684 rows of plants.

AppHarvest is only the fourth U.S. public Certified B corporation. A B corporation is a company that has:

1. Achieved a high standard of social and environmental performance as measured by the B Impact Assessment
2. Verified their scores through transparency requirements
3. Made a legal commitment to consider all stakeholders, not just shareholders.

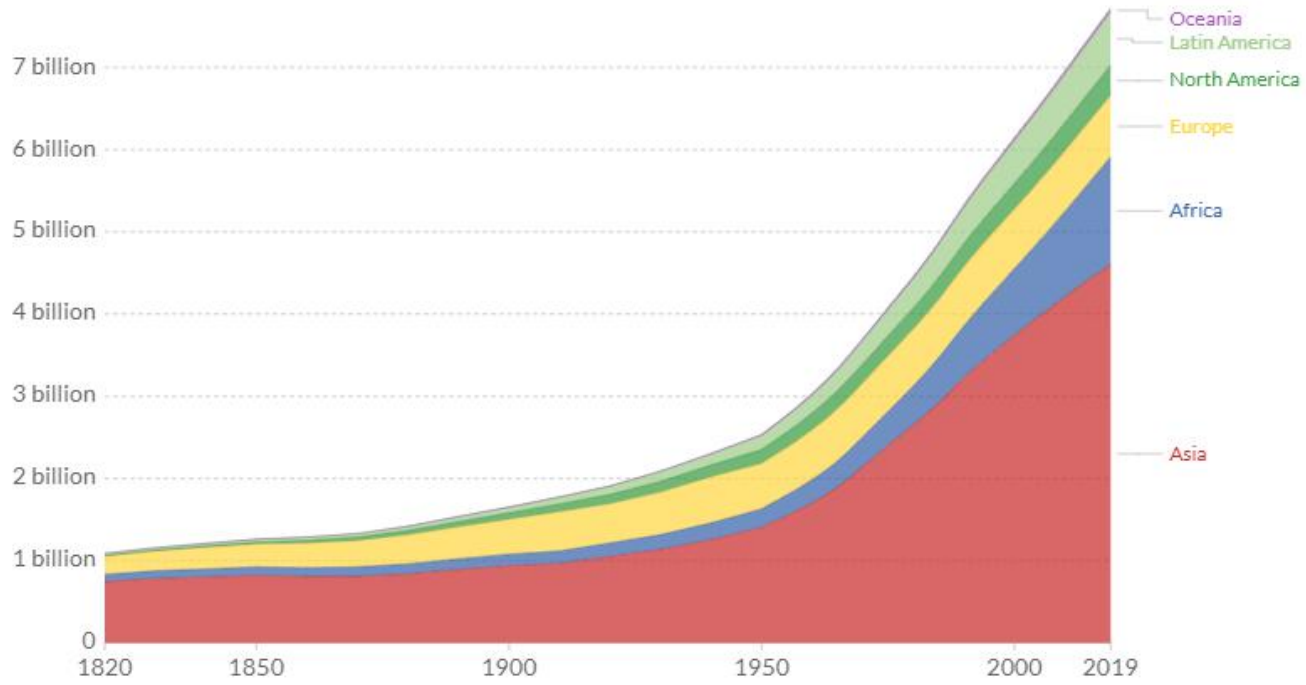
APPH is the epitome of ESG (Environmental, Social, and Governance) investing.

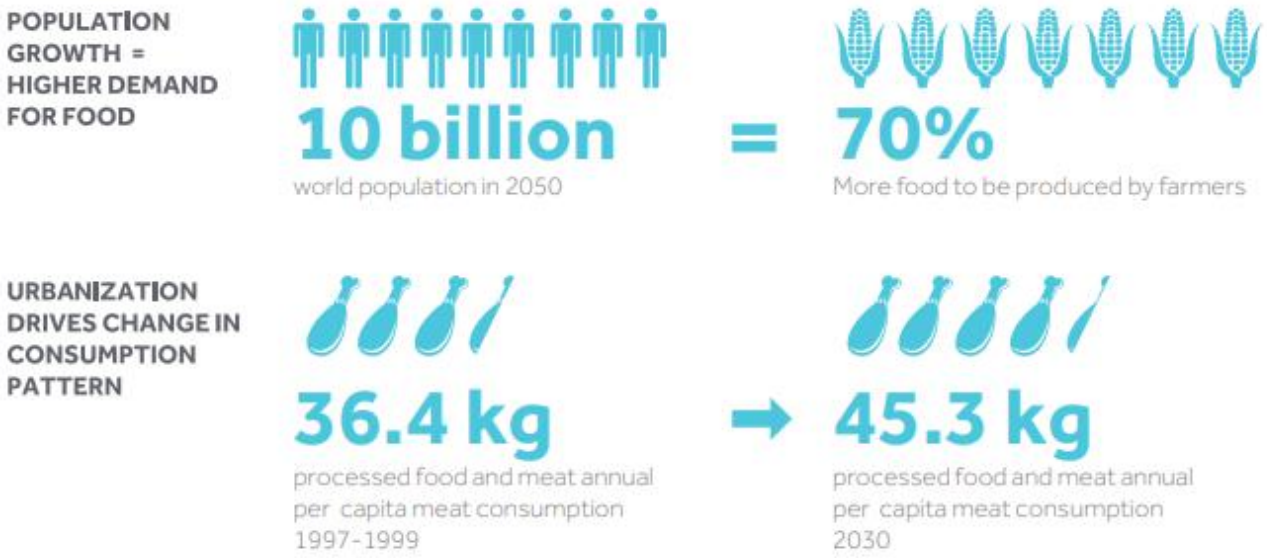
While APPH did not record any revenues in 2020, the company made their first delivery of tomatoes to Walmart, Kroger, and Publix on January 19th, 2021 and plans on having 12 facilities open by 2025. The goal here is to make Kentucky the Netherlands of North America. The Netherlands (at 16,000 square miles) is the second largest agricultural exporter in the world, using greenhouse technology to feed two-thirds of all of Europe which is 3.9 million square miles. In other words, 0.6% land area of Europe helps feed 2/3rds of the entire continent. In comparison, the state of Kentucky at 40,000 square miles makes up 1.0% of the US' 3.8 million square miles - proving that the state itself has the potential to serve the entire country.

Why is this being discussed and why is there a need for a breakthrough in sustainable farming? Many reasons.

1. **Population Growth Is Becoming Increasingly Difficult To Serve**

The world's population is expected to increase by 2 billion people in the next 30 years, from 7.7 billion currently to 9.7 billion in 2050 and potentially hit 11 billion around 2100.





2. **International Dependence and Logistics Creates Multiple Issues**

As of 2018, 69% of fresh vine crops in the U.S. were imported, mostly from Mexico. These crops are pesticide-laden and grown using labor practices not up to U.S. standards. Moreover, they sit at the border for days and are driven 2,000+ miles to their destination, using tons of diesel fuel resulting in less fresh produce & increased waste due to expiration.

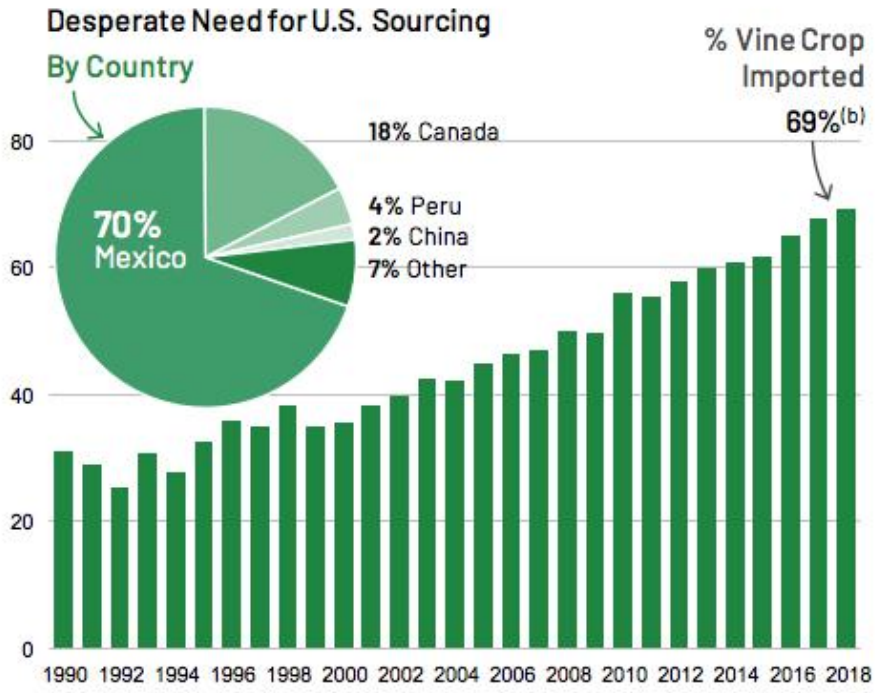


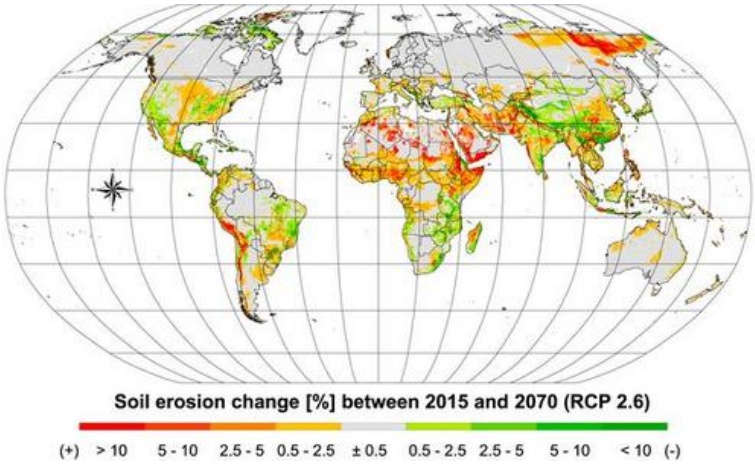
Figure 1. U.S. Fruit and Vegetable Trade (Excluding Nuts), 1990-2015

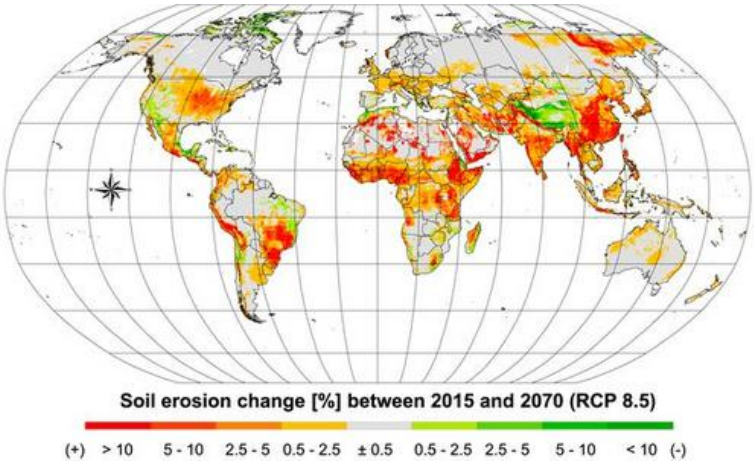
Table 2. Country Suppliers of U.S. Fruit and Vegetable Imports

Country	2005 ($ millions)	2015 ($ millions)	2005 Share	2015 Share
Mexico	4,324	10,413	33%	44%
Canada	1,857	2,919	14%	12%
Chile	1,184	1,950	9%	8%
EU-28	1,108	1630	9%	7%
China	723	1,404	6%	6%
Peru	272	1,114	2%	5%
Costa Rica	634	737	5%	3%
Guatemala	445	467	3%	2%
Thailand	276	406	2%	2%
Brazil	262	366	2%	2%
Argentina	251	301	2%	1%
Turkey	100	228	1%	1%
Philippines	188	214	1%	1%
Ecuador	357	189	3%	1%
All Other:	975	1,1759	8%	5%
Total	**12,956**	**23,514**	**100%**	**100%**

3. **Soil Erosion Creates Need For Alternative Ways of Farming**

Our agricultural system has left our soils degraded. Since the foundation to all life on land begins with soil, this is a major concern for all of humanity. Soil erosion from farmlands threatens the productivity of agricultural fields and causes a number of problems elsewhere in the environment. An average of 10 times as much soil erodes from American agricultural fields as is replaced by natural soil formation processes. Across the world we have estimations that over 600 million hectares of agricultural land have been degraded by human practices. Alarmingly, it takes up to 300 years for one inch of agricultural topsoil to form; therefore, lost soil is essentially irreplaceable. Erosion has profound effects on productivity because it removes the surface soils. Surface soils contain most of the organic matter, plant nutrients, and fine soil particles, which help to retain water and nutrients in the root zone where they are available to plants.





Above are images of projection of soil erosion from 2015 to 2070 predicted through the GloSEM under different sets of trajectories for greenhouse gas emissions. The first is at RCP 2.6, which is considered a "very stringent" pathway. According to the IPCC, RCP 2.6 requires that carbon dioxide emissions start declining by 2020 and go to zero by 2100. Under RCP 8.5, emissions continue to rise throughout the 21st century. RCP8.5 is generally taken as the basis for worst-case climate change scenarios based on overestimation of projected coal outputs. The RCP8.5 scenario has thus become relatively unlikely, with one report calling it "increasingly implausible with each passing year."

4. **General Food Waste Requires Greater Shelf Life & More Precise Harvesting**

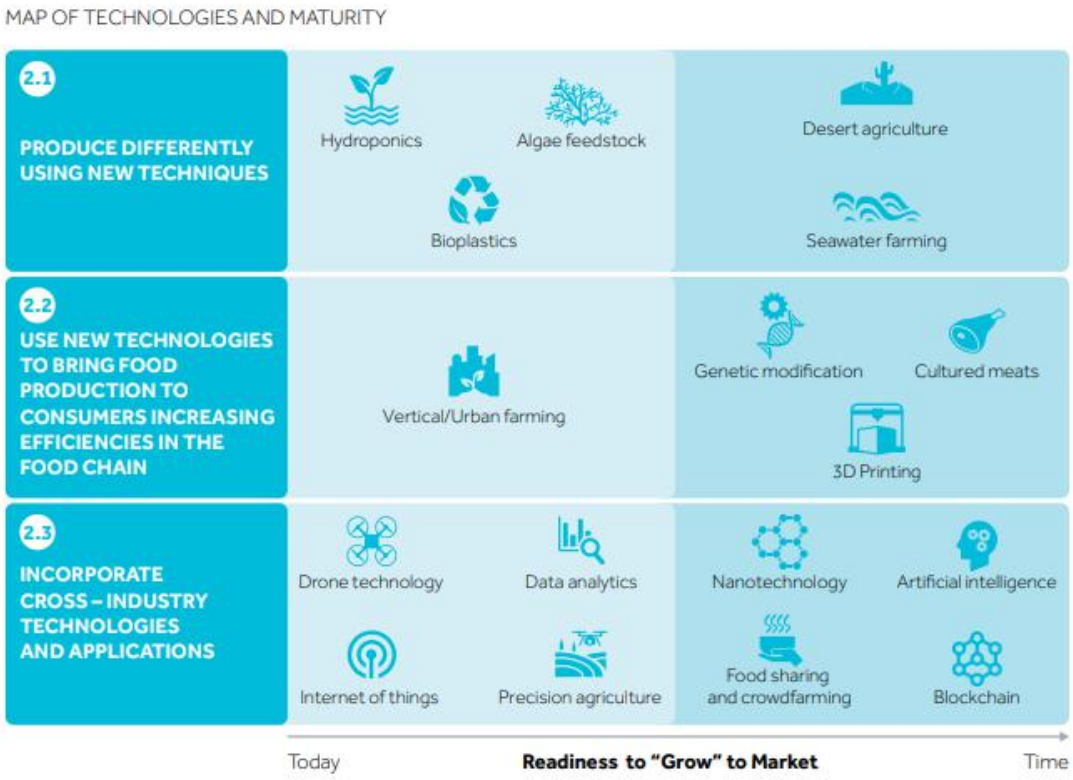
The United States is hands down the global leader in food waste, with Americans discarding nearly 40 million tons of food every year. That's 80 billion pounds of food and equates to more than $161 billion, approximately 219 pounds of waste per person and 30-40% of the US food supply.

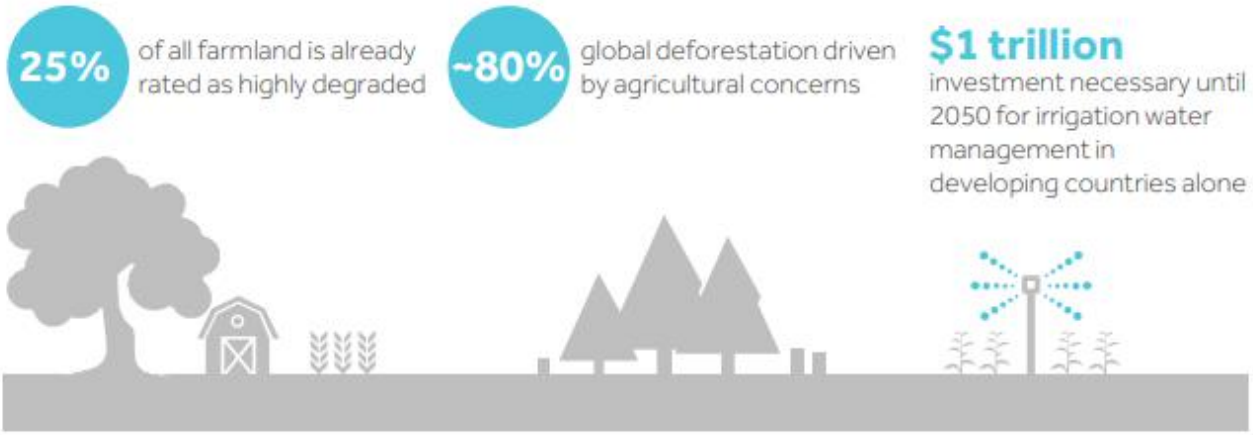
Most of this food is sent to landfills and sadly food is the single largest component taking up space inside US landfills. In fact, it makes up 22% of municipal solid waste.

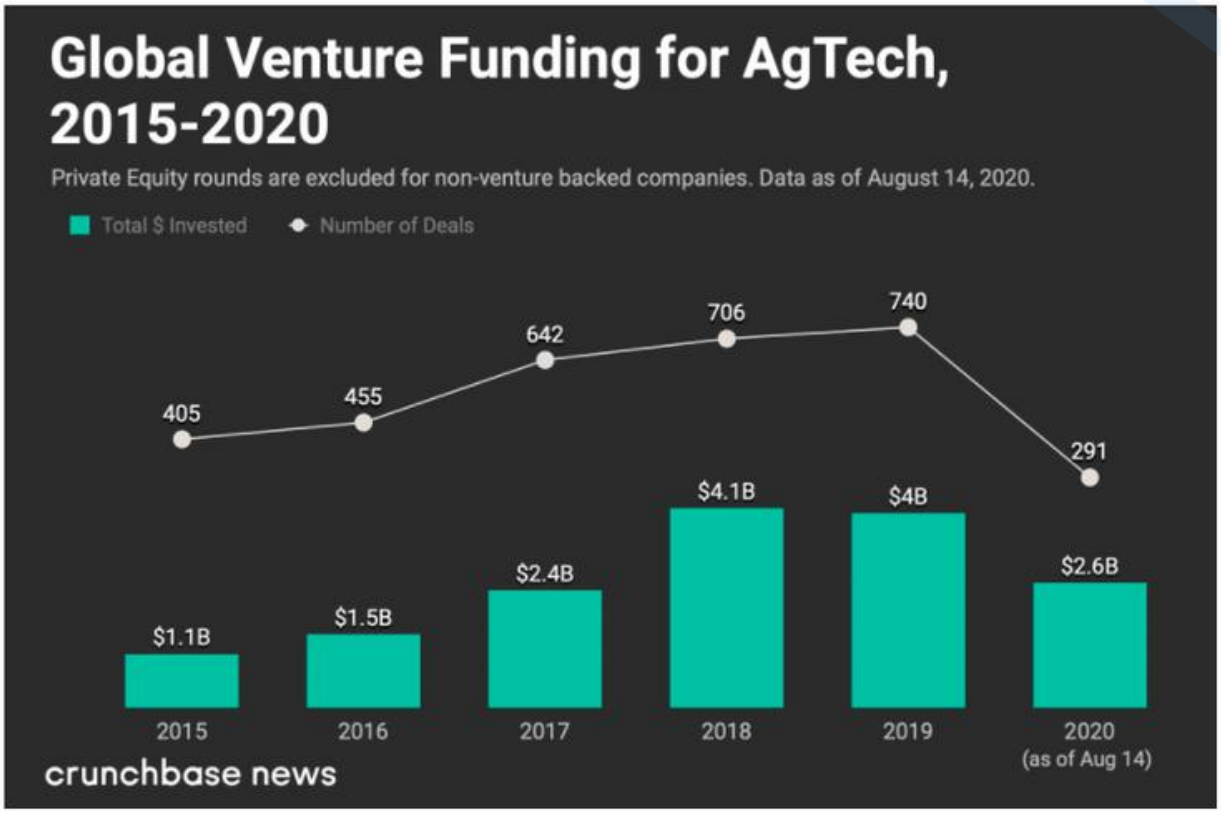
This is yet another issue the world must solve in the coming years and beyond.

Food spoilage, whether real or perceived, is one of the biggest reasons people throw out food. More than 80% of Americans discard perfectly good, consumable food simply because they misunderstand expiration labels. Labels like "sell by", "use by", "expires on", "best before" or "best by" are confusing to people — and in an effort to not risk the potential of a foodborne illness, they'll just toss it in the garbage. Companies like AppHarvest can extend the shelf life of many of these foods by getting the product into the hands of the consumer in a much shorter time frame.

The list goes on and on, but AppHarvest and other companies are leading the way in solving these major issues and the industry is gaining some serious attention and investment.







Top VC Firms by AgTech Portfolio Count, 2010-2020

Data as of August 14, 2020.

Investment Firm	AgTech Portfolio Count	Founded	Country
SVG Ventures	40	2010	United States
Innova Memphis	17	2007	United States
Omnivore	16	2010	India
500 Startups	15	2010	United States
Monsanto Growth Ventures	14	2012	United States
SP Ventures	14	2007	Brazil
Middleland Capital	13	2011	United States
S2G Ventures	13	2014	United States
Syngenta Ventures	13	2000	Switzerland
Artesian VC	11	2004	Australia

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How does AppHarvest specifically target these issues?

- 90% less water used + recycled
- Year-round farming
- No pesticides
- 30x more yield

90% Less

We use only recycled rainwater and distribute it more efficiently, reducing water usage by 90%.

Year-Round

Farming indoors means year-round yield and a climate-resilient food supply.

No Chemical Pesticides

We harness nature, not chemicals, creating an ecosystem where insects (like bees) keep our plants healthy.

30x More

Each of our 60 acres of indoor farming yields 30x more food than traditional farming.

APPH also achieves these results by using a hybrid lighting system that substantially increases how many tomatoes they can grow and doubles as a heat source during cooler months. They combine three invaluable sources of light — sunlight, efficient LEDs, and high-pressure sodium growing lights.

At night or when the sun is obscured, they supplement with top-of-the-line LEDs, which are 40% more efficient than typical lighting. Each LED utilizes a passive cooling system, producing far less radiant heat and allowing crop care specialists greater control of the indoor climate. The LEDs also better distribute their light due to optimized wide-beam optics. Designed for growth, the LED system uses mixtures of blue and red light, which are essential to photosynthesis with red light inspiring flowering and blue stimulating growth. Their growing team develops lighting recipes to boost harvests.

Everything comes down to a science. AppHarvest also uses 300 strategically placed sensors to ensure each tomato plant receives the ideal amount of nutrients and water. With continuous access through mobile devices, the system assists growers as they evaluate each plant's microclimate and validate the precise levels of light, water and carbon dioxide needed for maximum yields. For example, the natural gas that heats the facilities produces carbon dioxide, which they then capture to use as essentially a nutrient for their plants as photosynthesis is governed by factors including water and carbon dioxide. By using the excess carbon dioxide, they help their fruit grow between 20% and 25% larger in both size and weight.

With more than 75% of the world's fresh water already devoted to agriculture, we'll need two planet Earths unless farming changes. AppHarvest's facilities use 100% recycled rainwater and eliminate harmful agricultural runoff.

AppHarvest takes it a step further by using hundreds of sensors and cameras to record and analyze high-quality, granular images of each plant, identifying any pests before they become a problem.

They also use 500 beehives, each holding up to 125 bees and their queen, to pollinate more than 700,000 tomato plants.

At capacity, AppHarvest can ship up to 49,500 pounds of tomatoes every hour. They don't just farm green. They also implement green technology by using autonomously operated carts that pull up to 8,000 pounds of fruits and vegetables continuously on programmatic routes.

APPH also purchased two additional properties in October 2020, and plans to build a 60 acre facility in Richmond, Kentucky, and a 15 acre facility in Berea, Kentucky. Beyond that, they plan to continue developing and opening additional facilities throughout Central Appalachia, reaching 525 acres of production facilities by the end of 2025.

Methodology	Reliability of Supply	Production Yield	Environmental Control	Land Use	Water Use	Chemicals Use	Labor	Food Safety
High-Tech Greenhouse	95%	~30x	●	●	●	●	●	●
Low-Tech Greenhouse	70%	5-8x	◑	◑	◑	◑	◑	◑
Open-Field Growing	50%	1x	○	○	○	○	○	○

● Highest Grade ◑ Mid Grade ○ Lowest Grade

Before moving to to the financials, there is one risk with AppHarvest that could be devastating.

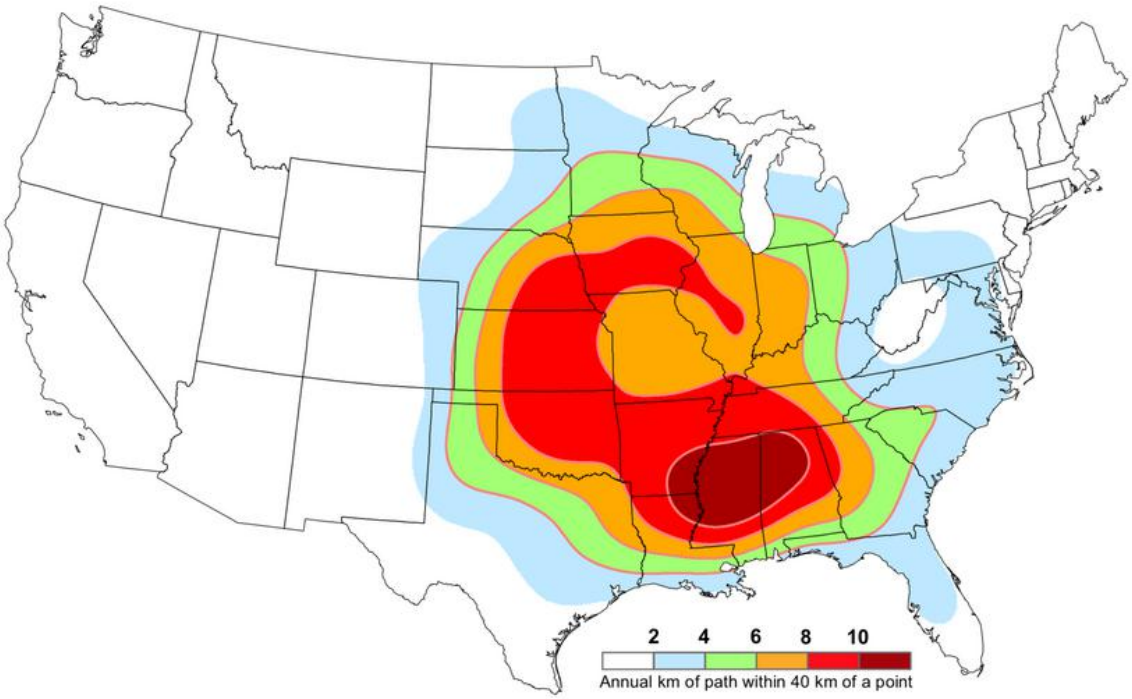
All of their planned build outs are to be in Kentucky with a greater focus in the Appalachian region.

While tornadoes are less common at higher altitudes, they are still in a risk as Kentucky falls within "Tornado Alley" and witnesses on average 21 tornadoes a year.

More of a risk to the mountainous region are mudslides and debris flow from heavy precipitation.

The risk we are bringing to light here is that similar to a landlord who owns a lot real estate in one area, there is risk to their facilities being grouped near each other that are susceptible to a massive storm or natural disaster that could wipe out their production and facilities.

Tornado Alley



CUBE'S TOP PROS

REVENUE GROWTH SET TO EXPLODE

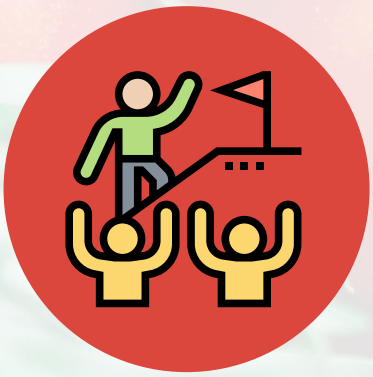
UNTAPPED MARKET SOLVING DIRE ISSUES

ESG FUNDS WILL ACCUMULATE

CUBE'S TOP CONS

LOWER MARGIN BUSINESS

CONCENTRATION OF LOCATIONS IN KENTUCKY



COMPETITION HEATING UP

FINANCIAL STATEMENTS

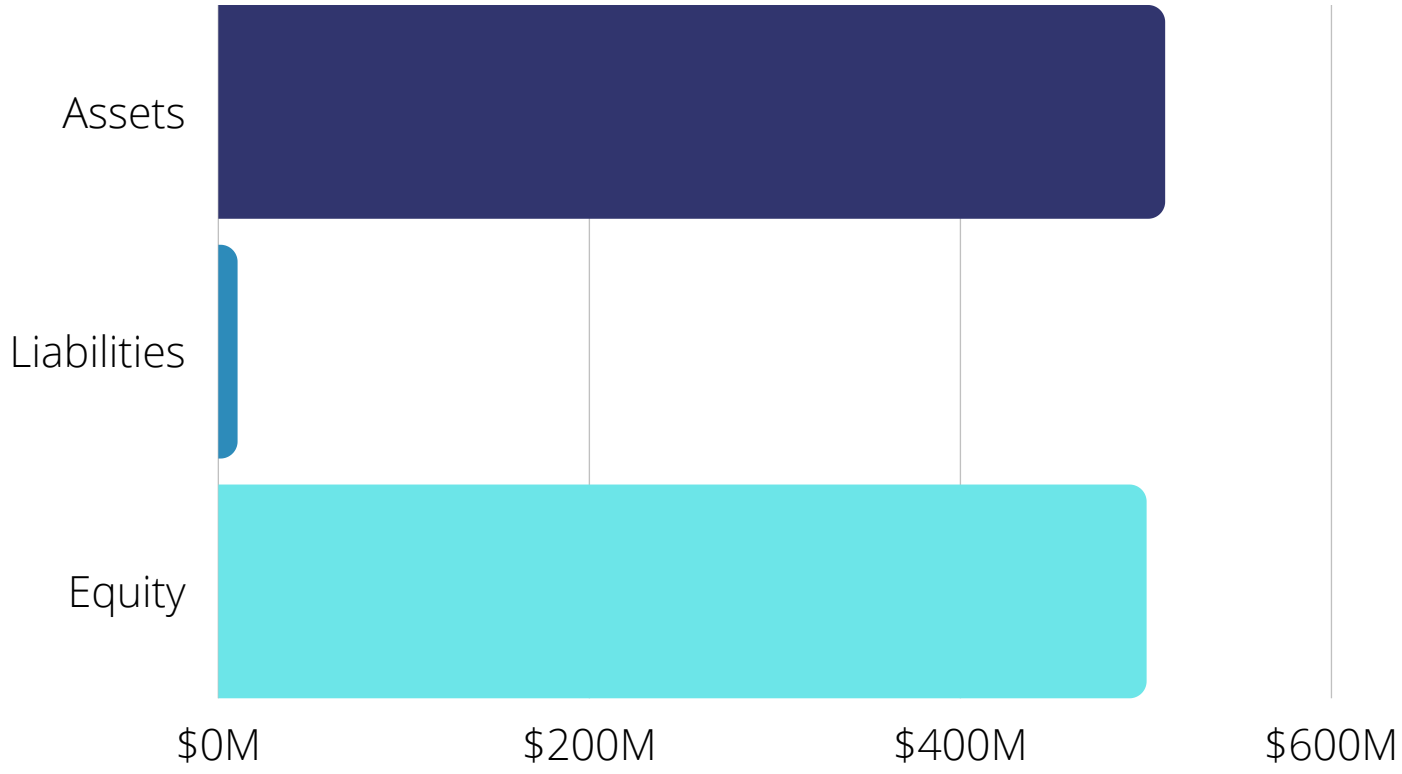
BALANCE SHEET

	Novus (Historical)	Legacy AppHarvest (Historical)	Pro Forma Adjustments	Note	Pro Forma
Current Assets					
Cash and cash equivalents	$ 519,800	$ 53,591,389	100,038,271	(a)	$489,003,949
			375,000,000	(b)	
			(39,830,411)	(c)	
			(315,100)	(i)	
Inventory	—	276,957	—		276,957
Advances on equipment	—	14,901	—		14,901
Prepaid expenses and other current assets	115,902	318,182	—		434,084
Total current assets	635,702	54,201,429	434,892,760		489,729,891
Operating lease right of use assets, net	—	471,323	—		471,323
Property and equipment, net	—	14,868,968	—		14,868,968
Intangible assets, net	—	—	—		—
Lease deposits with a related party	—	4,000,000	—		4,000,000
Other assets	—	42,565	—		42,565
Marketable securities held in trust account	100,038,271	—	(100,038,271)	(a)	—
	100,038,271	19,382,856	(100,038,271)		19,382,856
Total assets	**100,673,973**	**73,584,285**	**334,854,489**		**509,112,747**
Current Liabilities					
Accounts payable	—	1,513,774	—		1,513,774
Accrued expenses	60,687	1,380,405	(613,027)	(c)	814,914
			789,041	(d)	
			(802,192)	(e)	
Current portion of lease liability	—	75,789	—		75,789
Deferred development fee income from a related party	—	1,476	—		1,476
Current portion of long-term debt, net	—	32,000,000	(30,000,000)	(e)	2,000,000
Other current liabilities	—	80,992	—		80,992
Total current liabilities	60,687	35,052,436	(30,626,178)		4,486,945
Lease liability, net of current portion	—	399,390	—		399,390
Financing obligation with a related party	—	4,096,754	—		4,096,754
Deferred tax liability	198	—	—		198
Total non-current liabilities	198	4,496,144	—		4,496,342
Total liabilities	60,885	39,548,580	(30,626,178)		8,983,287
Redeemable convertible preferred stock:					
Series A	—	5,203,342	(5,203,342)	(f)	—
Series A-1	—	992,285	(992,285)	(f)	—
Series B	—	10,942,411	(10,942,411)	(f)	—
Series C	—	28,069,492	(28,069,492)	(f)	—
Total redeemable convertible preferred stock	—	45,207,530	(45,207,530)		—
Common stock subject to possible redemption	95,613,084	—	(95,613,084)	(g)	—
Common stock	309	975	3,750	(b)	9,892
			324	(e)	
			3,581	(f)	
			956	(g)	
			(3)	(i)	
Additional paid-in capital	5,204,896	637,353	374,996,250	(b)	525,595,735
			(26,340,411)	(c)	
			30,801,868	(e)	
			45,203,949	(f)	
			95,612,128	(g)	
			(205,201)	(h)	
			(315,097)	(i)	
Accumulated deficit	(205,201)	(11,810,153)	(12,876,973)	(c)	(25,476,167)
			(789,041)	(d)	
			205,201	(h)	
Total stockholders' equity	5,000,004	(11,171,825)	506,301,281		500,129,460
Total liabilities, preferred stock and stockholders' equity	**$100,673,973**	**$ 73,584,285**	**$ 334,854,489**		**$509,112,747**

After merging with Novus, AppHarvest now has nearly $500M in cash to build out their business and grow their operations. With total liabilities at less than $10M, shareholder equity sits at a neat $500M.

Bankruptcy, any increase in interest rates, short-term liquidity, etc is a complete non issue for APPH. The business is extremely well funded.

As we'll see in their cash flow statement, AppHarvest's cash on hand should be more than enough to last them through the next several years even as they build out additional plants.

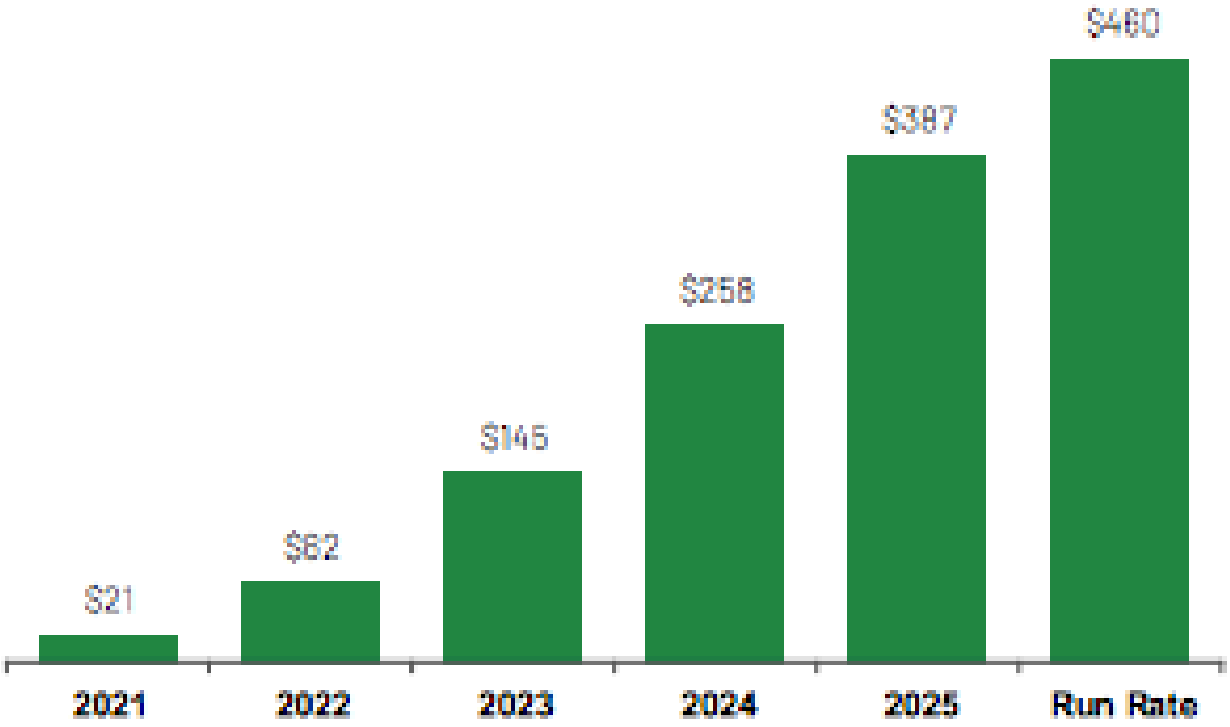


FINANCIAL STATEMENTS

INCOME STATEMENT

	2020	2019	$ Change	% Change
Total revenue	$ —	$ —	$ —	—
Operating expenses:				
Selling, general and administrative expenses	8,368,899	1,912,157	6,456,742	337.7%
Depreciation	66,023	11,421	54,602	478.1%
Total operating expenses	8,434,922	1,923,578	6,511,344	338.5%
Operating loss	(8,434,922)	(1,923,578)	(6,511,344)	338.5%
Development fee income from a related party	407,861	211,118	196,743	93.2%
Loss on SAFE note revaluation	—	(345,003)	345,003	-100.0%
Interest expense	(90,005)	(26,649)	(63,356)	237.7%
Other	(12,659)	(2,346)	(10,313)	439.6%
Loss before income taxes	(8,129,725)	(2,086,458)	(6,043,267)	289.6%
Income tax expense	—	—	—	—
Net loss	$(8,129,725)	$(2,086,458)	$(6,043,267)	289.6%

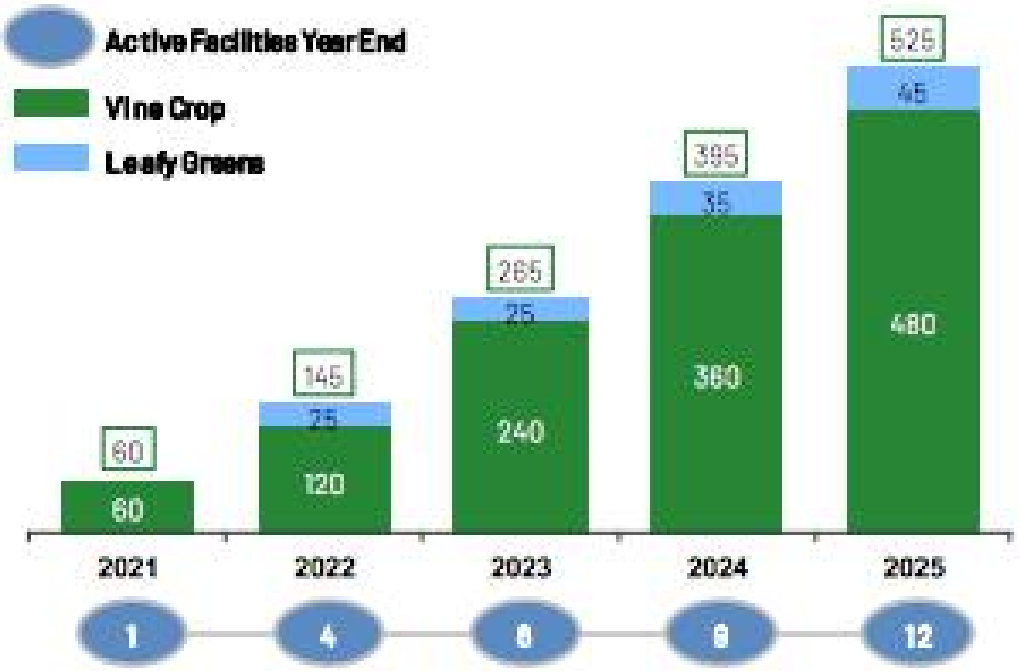
Projected Revenues



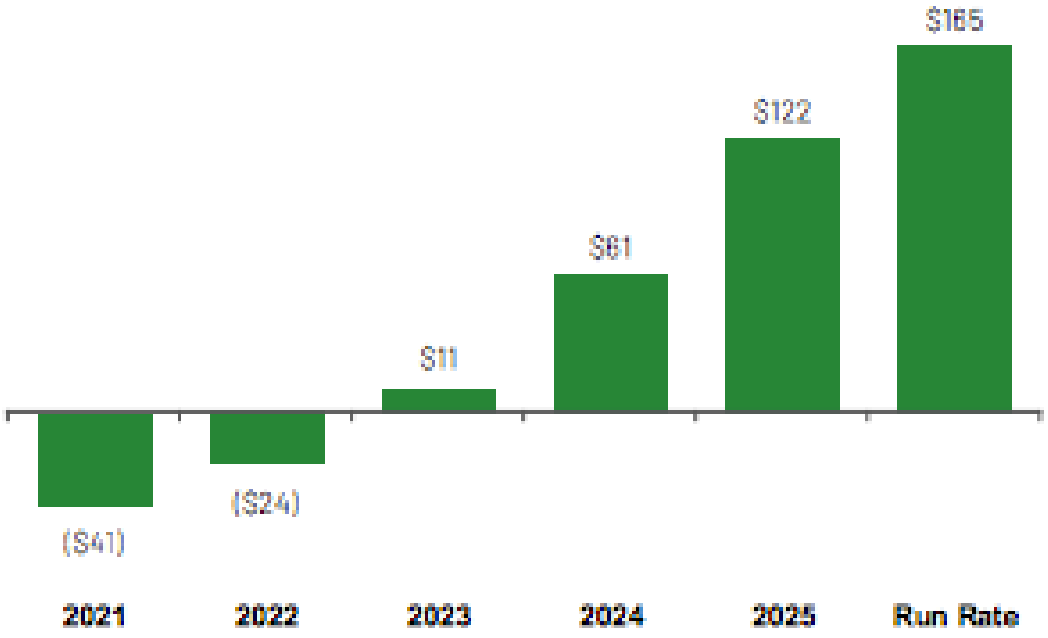
As already mentioned, APPH has not generated any revenues until their first delivery in January of this year. The company is now officially a revenue generating entity and believes their first true year in business will derive $21M in revenues from the one Morehead, KY location. They then believe revenues will grow to $62M on 4 locations spanning 145 acres. Eventually, the business is expected to drive in $387M in 2025 on 12 locations spanning 545 total acres.

APPH believes there is 17,000-20,000 acres of potential development which, if we keep their revenue/acre level at 2025 of $710,000 per acre, means a potential $12B-14B in potential annual revenue sometime in the next 10+ years.

Acreage



EBITDA



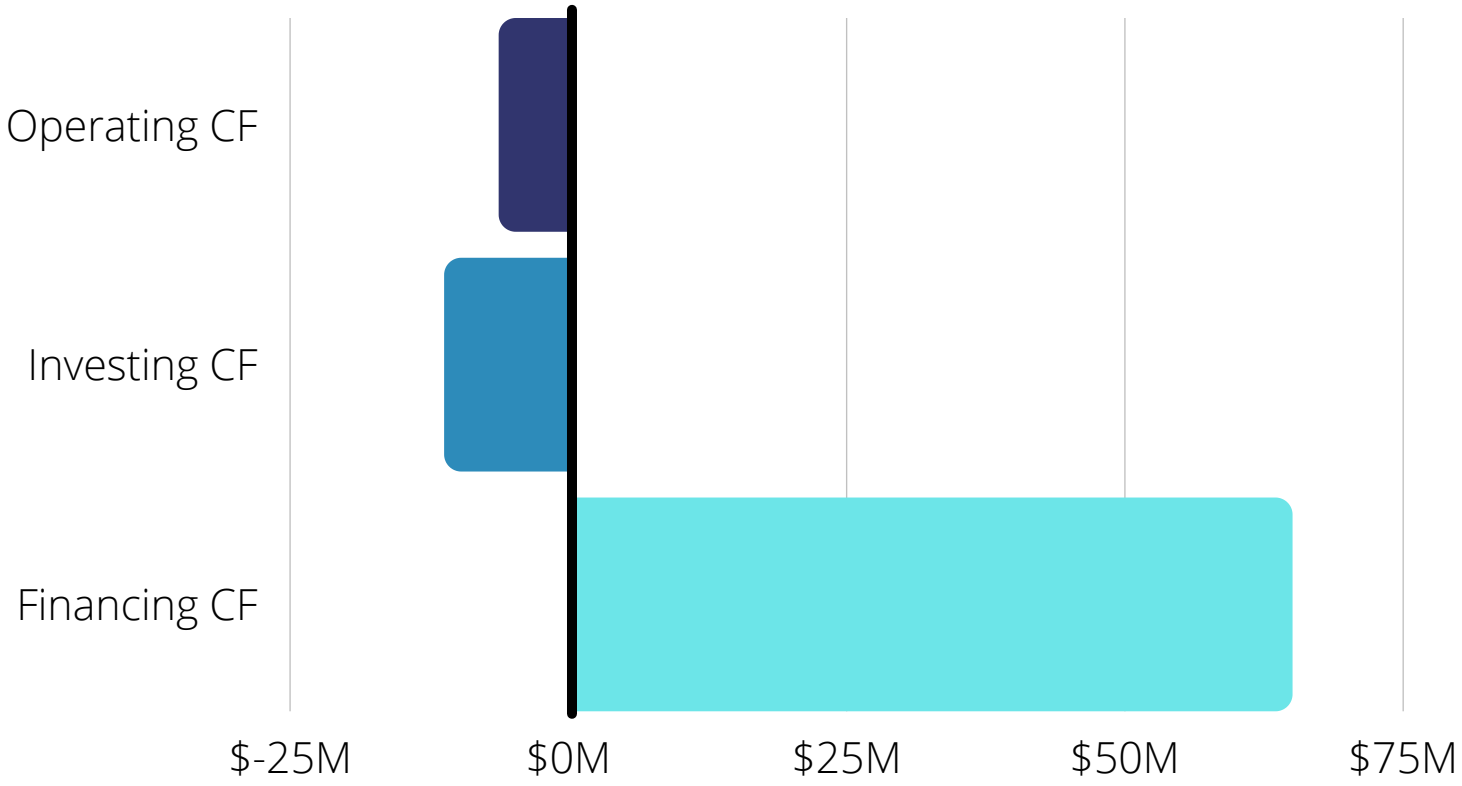
FINANCIAL STATEMENTS

CASH FLOW

	Nine months ended September 30,	
	2020	2019
Operating Activities		
Net loss	$ (8,129,725)	$(2,086,458)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	66,023	11,421
Stock-based compensation expense	108,429	118,197
Loss on SAFE Note revaluation	—	345,003
Rent payments (in excess of) less than rent expense, net	(195)	1,204
Interest accrual with a related party	49,614	22,127
Changes in operating assets and liabilities		
Inventory	(276,957)	—
Prepaid expenses and other current assets	(291,882)	(40,134)
Other assets	(2,231)	(2,481)
Accounts payable	1,346,818	278,729
Accrued expenses	1,281,556	20,272
Deferred income from a related party	(404,528)	541,831
Other current liabilities	(3,655)	—
Lease deposits with a related party	—	(4,000,000)
Net cash used in operating activities	(6,256,733)	(4,790,289)
Investing Activities		
Purchases of property and equipment	(11,149,270)	(3,619,600)
Advances on equipment	(14,901)	—
Net cash used in investing activities	(11,164,171)	(3,619,600)
Financing Activities		
Proceeds from loan agreements with related parties	32,000,000	—
Borrowings on land mortgage loan and related financing with a related party	—	3,774,627
Stock option exercise	31,625	—
Issuance of Series A Preferred Stock	—	4,009,992
Issuance of Series A-1 Preferred Stock	—	999,990
Issuance of Series B Preferred Stock	4,886,976	—
Issuance of Series C Preferred Stock	28,149,355	—
Preferred stock issuance costs	(86,933)	(64,353)
Net cash provided by financing activities	64,981,023	8,720,256
Change in cash and cash equivalents	$ 47,560,119	$ 310,367

Cash flow doesn't seem to be too big of an issue for APPH as the company burned around $17M in free cash 9 months through 2020.

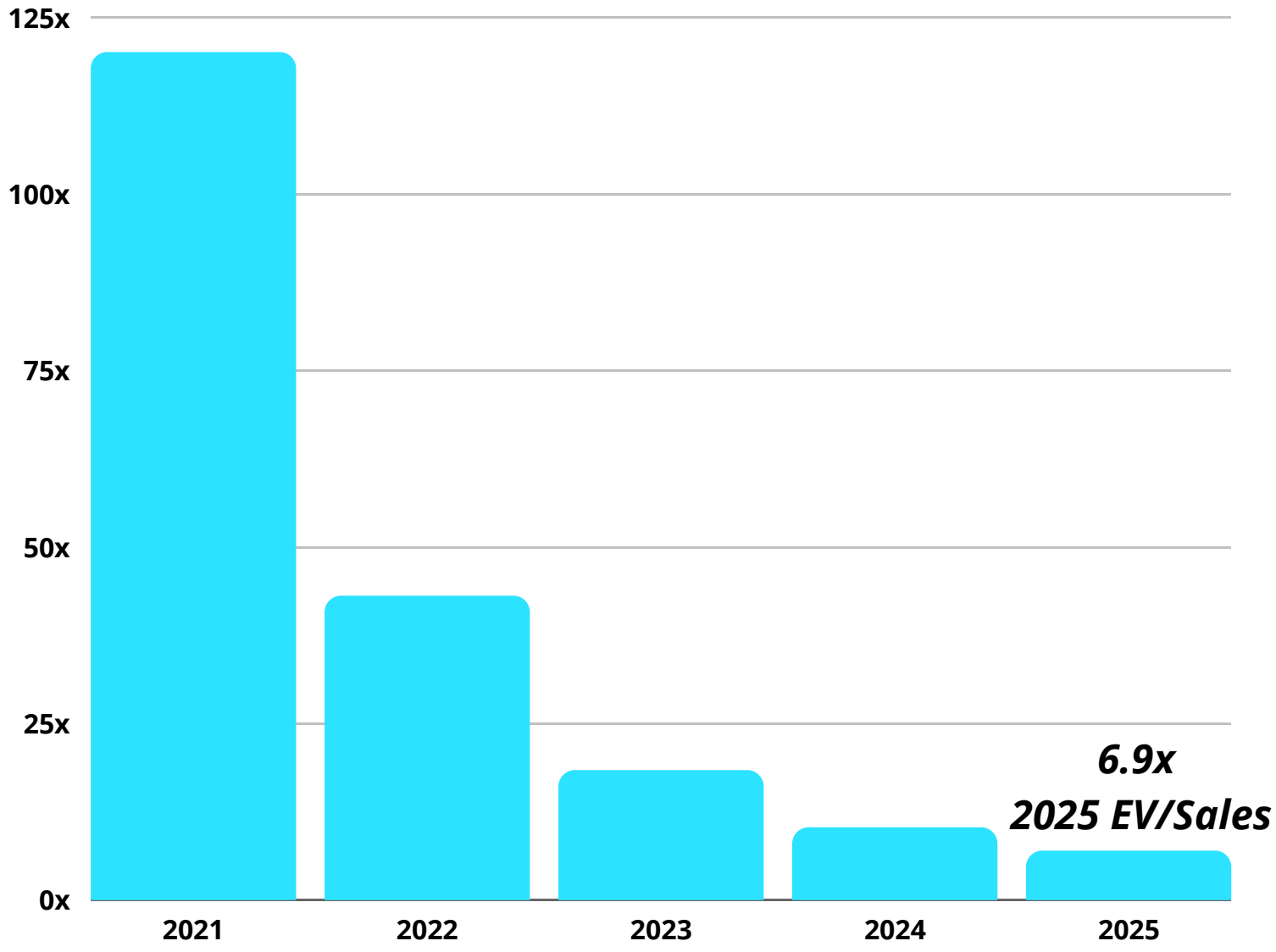
With nearly $500M in cash and revenues finally starting to come in, we believe this will be more than enough to purchase and build out 3 more factories over the next couple of years - especially given the company's expectations of EBITDA losses of $41M in 2021 and $24M in 2022.



Pre-SPAC numbers

APPH FUNDAMENTALS

Below is the enterprise value to sales ratio APPH trades at on a yearly basis. The company currently has 103.4M shares outstanding at a $30.45 price meaning the market cap is $3.15B. If we deduct cash of approx. $500M, the enterpise value stands at $2.65B.



APPH
DCF MODEL

Attached in the email, as well as in the Vault, you will see the discounted cash flow model. Here are the following variables used:

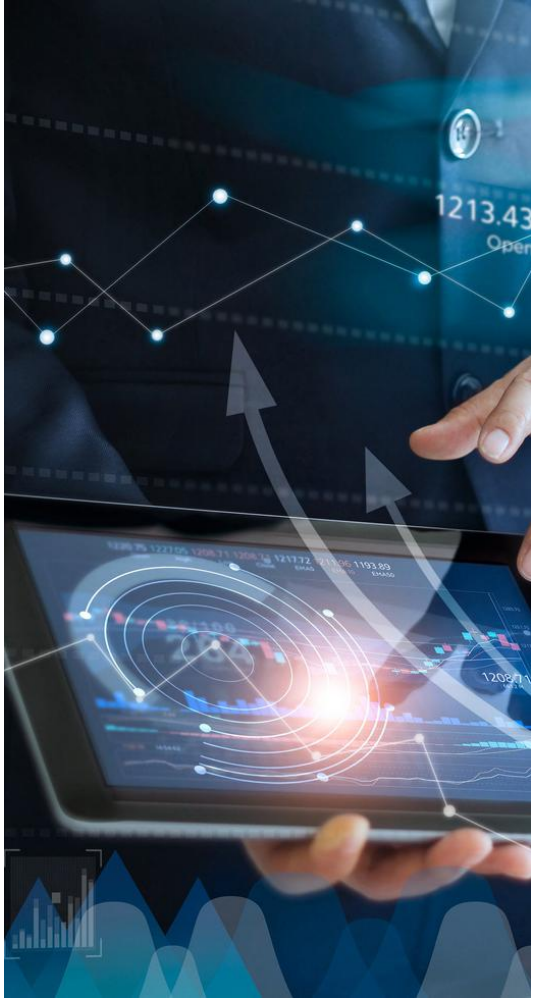
- Discount Rate: 7.12% +/- 0.50%
    - Beta: 0.90
    - 30 YR Treasury (Risk Free Rate): 2.10%
    - Market Risk Premium: 5.50%
- Perpetual Growth Rate: 5.0% +/- 0.25% (driven by global demand of next gen agritech, population growth, soil erosion, development of factories leading to over 1,000 acres of farmland by 2028 and potentially 10,000 acres in 2035+)
- Assuming revenue growth outpaces management's expectations
- Free Cash Flow:
    - FCF breakeven in 2024, 5% FCF margins in 2025, reaches 7.5% FCF margin by 2027 with max 10% FCF margins 2029+
- Shares Outstanding: 103M
- Current Price: $30.45

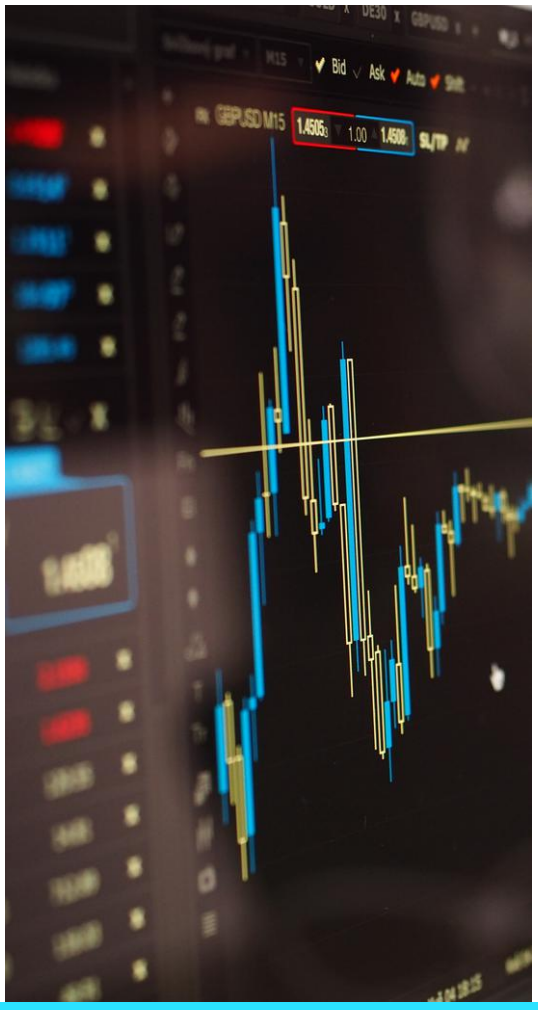
Model predicts:

- **Base case: $24.12 (-21%)**
- **Bull Case: $39.12 (+28%)**
- **Bear Case: $16.99 (-44%)**

APPH is once again a very difficult company to model out. A simple additional plant by 2025 can alter this model significantly as the company is finally beginning to generate revenue this year. The slightest change of a growth rate can alter the model massively. Shares are not cheap and rightfully so. The company has a world of runway and is playing into an industry that is desperately in need of innovation.

APPH
TECH ANALYSIS





TECH ANALYSIS SUMMARY

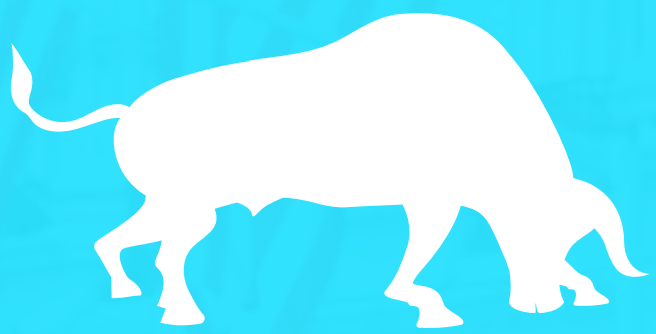
Looking at the charts, APPH is pointing to slightly more downside.

The stock was unable to maintain its 20 day moving average of $33.71 last week and was also unable to hold its R1 fibbonaci level of $31.08.

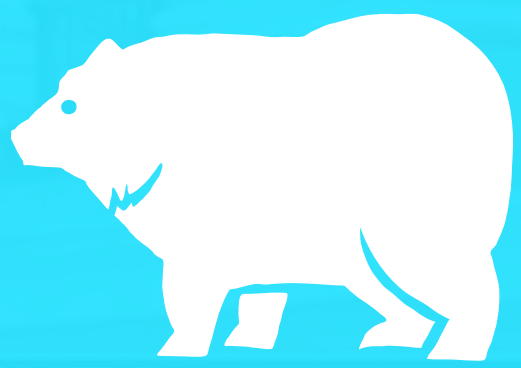
While not on this chart, the next major level of support is on the weekly fibbonaci level $28.84. We believe that zone will test and APPH will bounce.

In the event that $28.84 bounces, $31.08 will serve as a resistance level now. If $28.84 doesn't hold, shares will likely fall to the 50 day moving average of $25.30.

BULLISH OR BEARISH?



VS.



MORE BULLISH (POSITIVE)

MORE BEARISH (NEGATIVE)

cube

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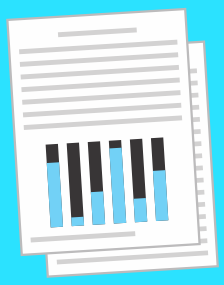

APPH CONCLUSION

Overall, CUBE is bullish on AppHarvest and if the stock were still in the low-to-mid $20s we would send the notch to the highest bull rank.

This is a true ESG play and is a company that is just beginning to scratch the surface with a system and technology that is revolutionizing the oldest of industries. The fact that APPH is saving 90% of water, recycling it, garnering 30x the yield with the same acreage, reusing the carbon dioxide to grow vegetables 20% larger, leveraging LED lights to increase production, monitoring nutrition levels, bee and pollen management, and ensuring pests don't disrupt the food while using autonomous vehicles to move product is beyond exciting.

While the stock has already tripled from its SPAC announcement, there is still a very good possibility CUBE establishes a position in the agritech company here in Q1 2021 as these are the exact types of growth stories we look to invest in and have had such success with over the years.

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