



**22nd Century Group, Inc.**

**Q1 VIRTUAL INVESTOR SUMMIT PRESENTATION**

**MARCH 24, 2021**



# CAUTIONARY NOTE ON FORWARD-LOOKING STATEMENTS

This presentation contains forward-looking statements concerning our business operations, and financial performance and conditions, as well as our plans, objectives, and expectations for our business operations and financial performance and conditions that are subject to risks and uncertainties. All statements other than those of historical fact are forward-looking statements.

These types of statements typically contain words such as “aim,” “anticipate,” “assume,” “believe,” “could,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “potential,” “positioned,” “predict,” “should,” “target,” “will,” “would” and other similar expressions that are predictions of or indicate future events and future trends. Forward-looking statements are based on current expectations, estimates, forecasts, and projections about our business, the industry in which we operate, and our management’s beliefs and assumptions.

These statements are not guarantees of future performance or development and involve known and unknown risks, uncertainties, and other factors that are in some cases beyond our control. All forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those estimated. The contents of this presentation should be considered in conjunction with the risk factors, warnings, and cautionary statements contained in the Company’s annual, quarterly, and other reports filed with the U.S. Securities and Exchange Commission. We undertake no obligation to publicly update or revise any forward-looking statement as a result of new information, future events, or otherwise, except as required by law.

# A DISRUPTIVE PLANT BIOTECHNOLOGY COMPANY FOCUSED ON HIGH-VALUE MARKETS

## Massive Market Opportunity

in tobacco, hemp/cannabis, and adjacent plant-based third franchise



01

**+\$1.3T market opportunity across three high-value plant-based industries<sup>1</sup>**

## Commercial Ready IP Platform

with cutting edge technology and deep R&D moat



02

**Owns or controls the rights to commercialize over 200 issued and pending patents**

## Licensing and Product Programs

prepared to bring commercial solutions to the market



03

**First and only combustible tobacco product anticipating FDA MRTP authorization**

## Financial Strength

and efficient operating structure



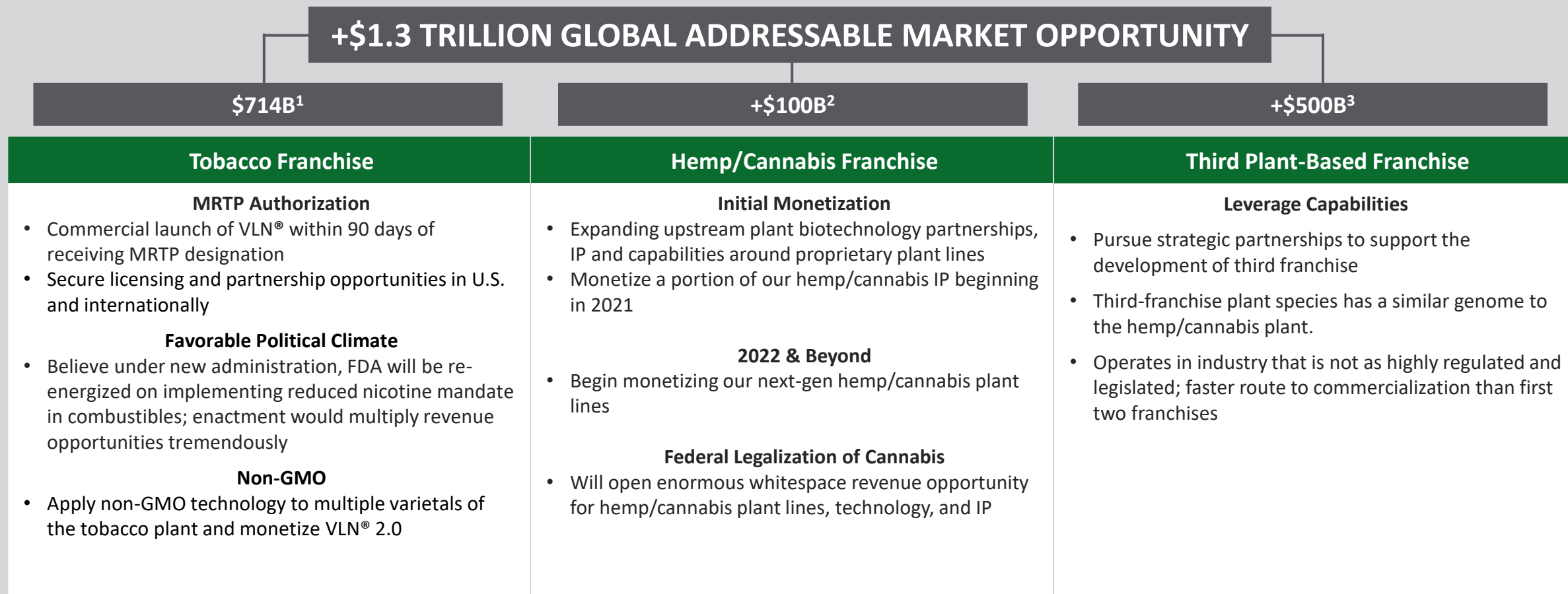
04

**Balance sheet strength to support current operations and strategy**

1. See slide 4 for more details on addressable market opportunity

# CONTINUOUS PIPELINE OF REVENUE OPPORTUNITY

Leverage core strength in plant science to create an extensive pipeline of high-value commercial opportunities



1. Foundation for a Smoke Free World; [https://www.smokefreeworld.org/wp-content/uploads/2019/08/FSFW\\_Global-Trends-in-Nicotine\\_6.22.2020.pdf](https://www.smokefreeworld.org/wp-content/uploads/2019/08/FSFW_Global-Trends-in-Nicotine_6.22.2020.pdf)

2. Prohibition Partners; "The Global Cannabis Report – November 2019"

3. Addressable market of third plant-based franchise is based on a global estimate in 2019.

# 2021 PRIORITIES & AREAS OF FOCUS

## Tobacco Franchise

- 01** | • **Secure MRTP Authorization** from FDA  
• Fully prepared for commercial launch of VLN® within 90 days post authorization  
• Execute on licensing and partnership initiatives
- 02** | • **Support, advance, and advocate for FDA to enact its proposed nicotine cap mandate** for all combustibles  
• Favorable political climate for public health initiatives

## Hemp/Cannabis & Third Plant-based Franchise

- 03** | • **Target upstream segment of cannabinoid value chain**  
• Commercially valuable plant lines and related IP with stabilized genetics to harness and optimize hemp/cannabis plant potential  
• Monetize a portion of our hemp/cannabis IP beginning in 2021 and continue to bring disruptive technology forward
- 04** | • **Initial development of a third, plant-based franchise** in process.  
• Pursue strategic partnerships to support development of this franchise

## Financial

- 05** | • Maintain **diligent financial execution, efficient operating structure, and balance sheet strength** to support growth initiatives

**Tobacco**

**Hemp/Cannabis**

**Financial**





# FEATURES AND BENEFITS OF VLN®

## What is VLN®?

- Proprietary, combustible cigarette made with tobacco that contains 95% less nicotine than conventional cigarette alternatives
- Familiar combustible product format that replicates the conventional cigarette experience including the sensory and experiential elements of taste, scent, smell, and “hand-to-mouth” behavior

## How VLN® Helps Adult Smokers

- VLN® contains 0.5 mg of nicotine per gram of tobacco. An amount cited by FDA, based on clinical studies, to be “minimally or non-addictive”.
- Lack of reward from nicotine creates a dissociation between the act of smoking and nicotine which helps adult smokers reduce the harm caused by smoking

## Science-Backed Research from Clinical Trials

- Since 2011, 22nd Century’s reduced nicotine content cigarettes has been used in more than 50 independent scientific clinical studies conducted by universities and institutions.
- Studies have been largely funded by U.S. government agencies and are estimated to have cost over \$100M

## Discernable Adult Smoker Benefits<sup>1,2</sup>

- ✓ Reduce nicotine exposure and dependence
- ✓ Smoke fewer cigarettes per day
- ✓ Experience reduced withdrawal symptoms
- ✓ Minimal or no compensatory smoking
- ✓ Increase number of smoke-free days
- ✓ Double quit attempts
- ✓ No increase in adverse effects in persons with mental health disorders

**22ND CENTURY SUPPLIES A UNIQUE 95% REDUCED NICOTINE COMBUSTIBLE CIGARETTE ALTERNATIVE THAT IS UNLIKE ANY TOBACCO PRODUCT AVAILABLE IN THE MARKET TODAY.**

1. Sources: Eric C. Donny, Ph.D., Rachel L. Denlinger, B.S., et al. “Randomized Trial of Reduced-Nicotine Standards for Cigarettes.” Oct. 2015.

2. Dorothy K. Hatsukami, PhD; Xianghua Luo, PhD, et al., “Effect of Immediate vs Gradual Reduction in Nicotine Content of Cigarettes on Biomarkers of Smoke Exposure.” Sept. 2018.

# VLN<sup>®</sup> HAS MASSIVE GLOBAL MARKET OPPORTUNITY



● Combustible Cigarettes ● Other<sup>2</sup>

**\$714B<sup>1</sup>**

cigarettes account for  
**90%** of the global  
tobacco market

**60%**

of adult smokers indicate  
likelihood to use VLN<sup>®3</sup>,  
based on our consumer  
perception studies.

## SMOKERS ARE ACTIVELY SEEKING ALTERNATIVES TO ADDICTIVE COMBUSTIBLE CIGARETTES.

**1B**

global adult smokers<sup>4</sup>

**34M**

U.S. adult smokers<sup>5</sup>

**2/3**

of adult smokers  
want to quit<sup>6</sup>

**<10%**

of adult smokers  
successfully quit in 2018<sup>6</sup>

1. Foundation for a Smoke Free World; [https://www.smokefreeeworld.org/wp-content/uploads/2019/08/FSFW\\_Global-Trends-in-Nicotine\\_6.22.2020.pdf](https://www.smokefreeeworld.org/wp-content/uploads/2019/08/FSFW_Global-Trends-in-Nicotine_6.22.2020.pdf)

2. Other tobacco includes cigars and cigarillos 4%, smoking tobacco 4%, vaping systems & heated tobacco products 3%, smokeless tobacco 2%, and NRT smoking cessation aids 0.3%

3. 22nd Century Group Perception Study (n=3,018)

4. World Health Organization; <https://www.who.int/news-room/fact-sheets/detail/tobacco>

5. Centers for Disease Control and Prevention; [https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/adult\\_data/cig\\_smoking/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm)

6. Centers for Disease Control and Prevention; [https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/cessation/smoking-cessation-fast-facts/index.html](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/smoking-cessation-fast-facts/index.html)



# VLN<sup>®</sup> IS IN FINAL STAGES OF REVIEW WITH THE FDA



Obtaining both PMTA & MRTP designation is critical to the success of VLN<sup>®</sup>.

## Premarket Tobacco Product Application (PMTA)

The FDA has **authorized** 22nd Century to sell its reduced nicotine content tobacco cigarettes in the U.S.

## Modified Risk Tobacco Product Application (MRTPA)

MRTP authorization would allow 22nd Century to carry headline claim of “95% less nicotine” on packaging and market the product under the brand name VLN<sup>®</sup>, **distinguishing the product** from conventional cigarettes

- Highly confident that FDA is in the final stages of the review process
- Continue working with legal advisers, regulatory consultants, and government affairs specialists to highlight the public health importance of MRTP application
- MRTP authorization and the launch of VLN<sup>®</sup> will serve as a vanguard for the FDA’s proposed reduced nicotine mandate.

# FULLY PREPARED FOR COMMERCIAL LAUNCH OF VLN®

- Company-owned manufacturing facility has ample capacity to manufacture approximately 1% of the U.S. tobacco market share; ability to triple manufacturing capacity with minimal investment
- Expect initial roll-out of VLN® in select markets within 90 days of receiving MRTP authorization from FDA; plan to position VLN® in the premium pricing segment of the cigarette market with corresponding margins
- VLN® continues to be received positively by the trade; advanced discussions with a number of independent, regional and national tobacco retailers
- Launch will be accompanied by a strong marketing campaign to generate brand and product awareness; deploying a thoughtful approach to maximize success in the marketplace
- Plan to build and scale VLN® brand and tobacco franchise through licensing opportunities and strategic partnerships



# M RTP DESIGNATION IS A CATALYST FOR U.S. AND GLOBAL LICENSING OPPORTUNITIES



- MR TP designation opens **multiple U.S. and international licensing and partnership opportunities** for reduced nicotine content tobacco technology and IP
- FDA authorization is considered the gold standard in public health by regulators around the world and helpful in navigating international regulatory pathways
- Advancing next-generation non-GMO plant research key to markets where non-GMO products are preferred, or GMO products are banned
- Successfully applied non-GMO technology to Bright and Burley varieties of tobacco and developed VLN<sup>®</sup> 2.0 cigarette prototype
- Introducing reduced nicotine traits into Oriental varieties of tobacco

**Tobacco**

**Hemp/Cannabis**

**Financial**





# OPTIMIZING HEMP/CANNABIS PLANTS

**Industry Problem:** Existing plant genetics result in low quality and unreliable yield for large-scale, commercial production of hemp/cannabis plants

## Market demand for hemp/cannabis

- Global legal cannabis market is projected to be worth +\$100B by 2024<sup>1</sup>
- North America held the largest legal, cannabis revenue share at 90% in 2019<sup>2</sup>
- Federal legalization will transform the U.S. cannabis market

**22nd Century Group Solution:** Optimize hemp/cannabis plant genetics and create disruptive, proprietary plant lines that are stable and deliver higher crop yield for commercial use

## The 22nd Century Advantage

- Decades-long experience and know-how in plant biotechnology and genetic engineering; demonstrated strong track record in developing disruptive, valuable plant lines
- Ability to increase value of hemp/cannabis crops by improving genetics to optimize desired traits; generate stable, higher yield plants lines, and de-risk planting

**22nd Century will enable large, commercial-scale growers to improve hemp/cannabis crop yield and improve stability, achieving artisanal quality hemp/cannabis plants in high-volume production.**



1. Prohibition Partners; "The Global Cannabis Report – November 2019"

2. Grandview Research; "Legal Marijuana Market Size Worth \$73.6 Billion by 2027 | CAGR 18.1%"

# OUR DIFFERENTIATED APPROACH TO HEMP/CANNABIS

We are selectively pursuing segments of the hemp/cannabis market that are currently underserved.

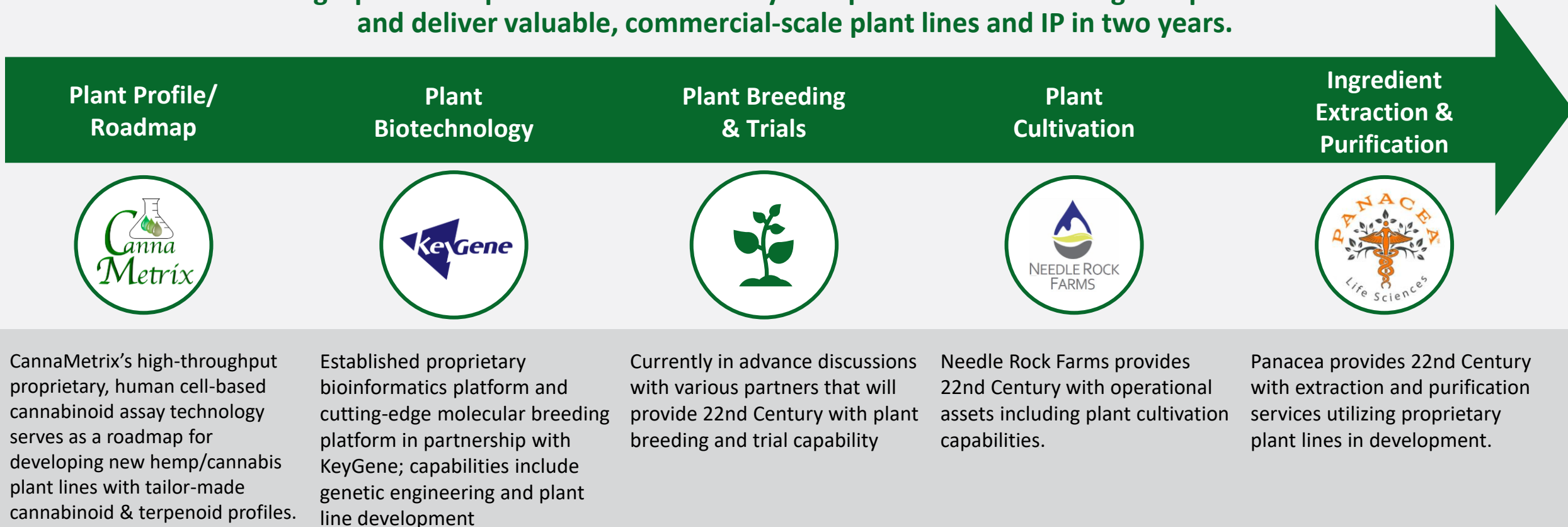
	Agronomic Characteristics	Cannabinoid Profile	End User Experience
Commoditized Industry Participants	<ul style="list-style-type: none"> <li>Total cannabinoid yield is typically under 20% in cannabis plants, not capturing the potentiality yield in the plant<sup>1</sup></li> <li>Inconsistent composition and stability of cannabinoids in plants</li> <li>Cannabis historically bred for drier, northern latitudes</li> </ul>	<ul style="list-style-type: none"> <li>THC and CBD plant lines typically yield under 10% cannabinoids, respectively</li> <li>Difficult to efficiently extract rare cannabinoids</li> <li>Little customization available</li> </ul>	<ul style="list-style-type: none"> <li>Distinct focus on THC and CBD</li> <li>Products are largely commoditized and undifferentiated in the market</li> <li>Off-taste and odor present difficulties in product formulation</li> </ul>
The 22nd Century Advantage	<ul style="list-style-type: none"> <li>✓ Increasing cannabinoid yields to 25-35%</li> <li>✓ Increasing cannabinoid production throughout plant (including leaves)</li> <li>✓ Achieving predictable levels of cannabinoids (stable genetics)</li> <li>✓ Introducing auto-flowering, disease resistance, and drought resistance to new lines</li> </ul>	<ul style="list-style-type: none"> <li>✓ Developing lines with significantly higher THC and CBD levels</li> <li>✓ Developing lines with minor and novel cannabinoid profiles</li> <li>✓ Customizing “entourage effect” through genetic mapping</li> </ul>	<ul style="list-style-type: none"> <li>✓ Increasing levels of THC, CBD and minor cannabinoids in the plant</li> <li>✓ Modulating terpene levels to improve sensory characteristics</li> </ul>

**22ND CENTURY’S SCIENTIFIC AND SOLUTIONS-ORIENTED APPROACH IS CREATING VALUABLE NEW PLANTS AND IP IN THE HEMP/CANNABIS SPACE.**



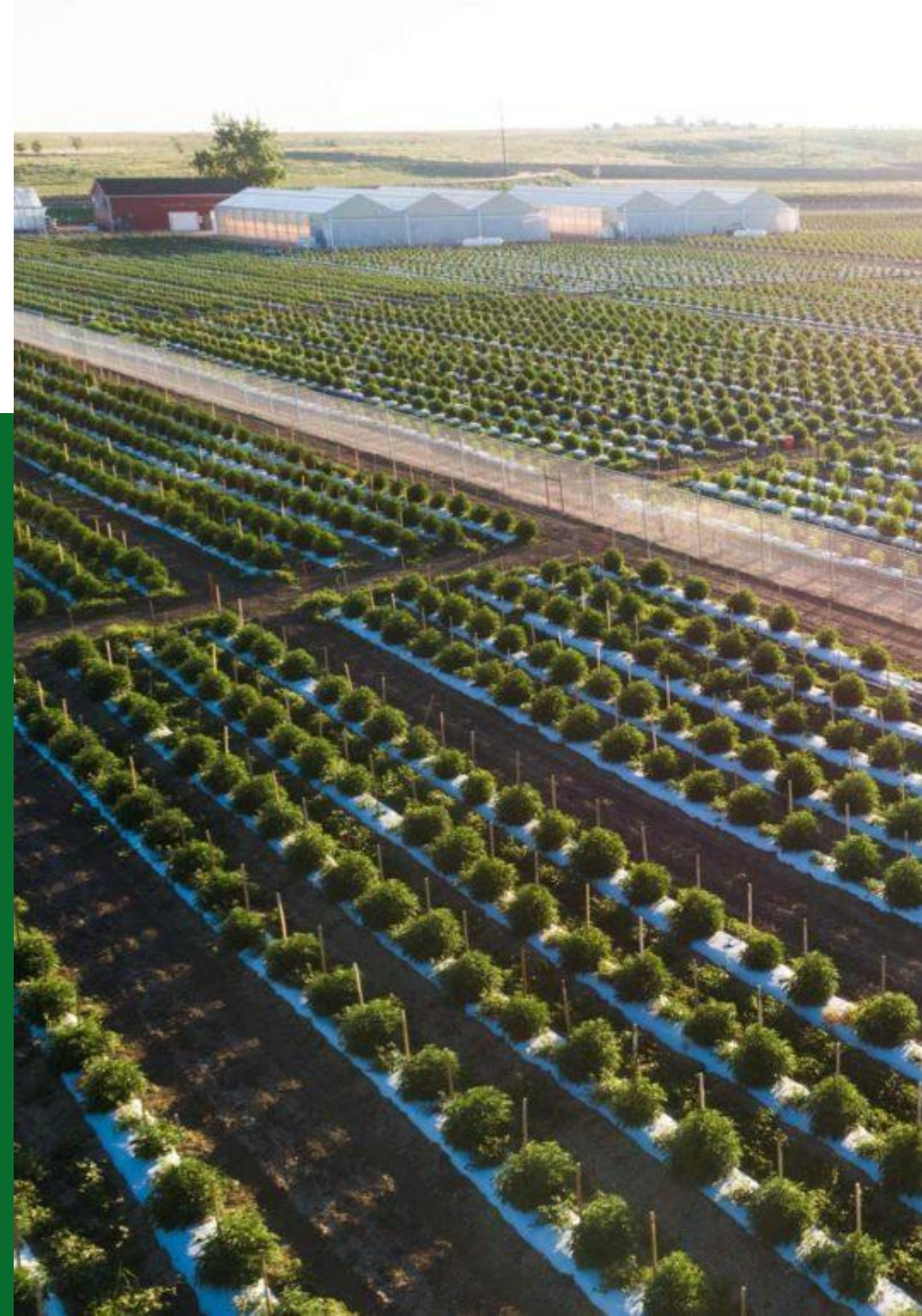
# BUILDING NETWORK OF KEY PARTNERSHIPS TO ACCELERATE COMMERCIALIZATION OF NEW, DISRUPTIVE HEMP/CANNABIS PLANTS

Strategic partnerships enable 22nd Century to capitalize on core strength in plant science and deliver valuable, commercial-scale plant lines and IP in two years.



**22ND CENTURY HAS SECURED FOUR OF THE FIVE KEY PARTNERSHIPS NEEDED TO MAXIMIZE AND SUPPORT EACH COMPONENT IN UPSTREAM SEGMENT OF THE CANNABINOID VALUE CHAIN.**

Tobacco  
Hemp/Cannabis  
Financial



# FOURTH QUARTER & FULL YEAR 2020 FINANCIAL HIGHLIGHTS

	Net sales	Operating loss YOY	Improvement in gross profit margin <sup>1</sup> YOY	Adjusted EBITDA <sup>2</sup> YOY
4Q 2020	<b>\$7.3M</b> Consistent YOY	<b>\$(696)K</b>	<b>+500BPS</b>	<b>\$(1.3)M</b>
FY 2020	<b>\$28.1M</b> +9% YOY	<b>+\$4.4M</b>	<b>+500BPS</b>	<b>+\$1.8M</b>

1. Gross profit margin is calculated by dividing net sales revenue by gross profit.

2. Adjusted EBITDA, which the Company defines as earnings before interest, taxes, depreciation and amortization, as adjusted by the Company for certain non-cash and non-operating expenses, as well as certain one-time expenses, is a financial measure not prepared in accordance with generally accepted accounting principles ("GAAP"). In order to calculate Adjusted EBITDA, the Company adjusts the net (loss) income for certain non-cash and non-operating income and expense items in order to measure the Company's operating performance. The Company believes that Adjusted EBITDA is an important measure that supplements discussions and analysis of its operations and enhances an understanding of its operating performance. While management considers Adjusted EBITDA to be important, it should be considered in addition to, but not as a substitute for or superior to, other measures of financial performance prepared in accordance with GAAP, such as operating loss, net (loss) income and cash flows from operations. Adjusted EBITDA is susceptible to varying calculations and the Company's measurement of Adjusted EBITDA may not be comparable to those of other companies.

# 22ND CENTURY INVESTMENT HIGHLIGHTS

## +\$1.3T global addressable market across tobacco<sup>1</sup>, hemp/cannabis<sup>2</sup>, & third plant-based franchise<sup>3</sup>

- VLN<sup>®</sup> is the first, and only reduced nicotine content cigarette anticipating FDA's Modified Risk Tobacco Product (MRTP)<sup>4</sup> designation
- Fully prepared to launch VLN<sup>®</sup> within 90 days of authorization; designation is a catalyst for VLN<sup>®</sup> brand and tobacco franchise opportunities
- Developing new disruptive, proprietary hemp/cannabis plant lines with stable, higher yields, and other commercially desirable traits through accelerated breeding processes
- Potential legislative tailwinds including enactment of reduced nicotine mandate and legalization of cannabis would open tremendous revenue opportunity

## Clear growth strategy with continuous, rich pipeline of revenue opportunities

- Exclusive, pure-play plant biotechnology core competencies
- Creating disruptive, proprietary commercial plant lines and new intellectual property in tobacco, hemp/cannabis, and other large adjacent market
- Over 200 issued and pending patents in plant-based biotechnology applications supports entry into adjacent high-value markets.
- 20+ years of expertise in developing new, disruptive technologies

## Financial strength

- Efficient operating model with multiple routes to market – commercialization, licensing, and partnership opportunities
- Clear path to profitability through existing platforms, cultivating large adjacent markets to leverage core technologies for additional growth
- Healthy balance sheet with more than \$22M in cash on 12/31/20; \$11.8M additional cash received from warrants exercised in Feb/March 2021<sup>5</sup>

1. Foundation for a Smoke Free World; [https://www.smokefreeworld.org/wp-content/uploads/2019/08/FSFW\\_Global-Trends-in-Nicotine\\_6.22.2020.pdf](https://www.smokefreeworld.org/wp-content/uploads/2019/08/FSFW_Global-Trends-in-Nicotine_6.22.2020.pdf)

2. Prohibition Partners; "The Global Cannabis Report – November 2019"

3. Addressable market of third plant-based franchise is based on a global estimate in 2019.

4. Modified Risk Tobacco Product; <https://www.fda.gov/tobacco-products/advertising-and-promotion/modified-risk-tobacco-products>

5. The Company has received total net proceeds of \$8.1 million and will receive an additional \$3.7 million from warrants exercised on 3/10/21.



Q&A

