

22nd Century Group Enters Global Specialty Hops Market

Geographic Expansion into Europe via the Netherlands

BUFFALO, N.Y., August 30, 2021 (GLOBE NEWSWIRE) – [22nd Century Group, Inc.](#) (Nasdaq: **XXII**), a leading plant biotechnology and intellectual property company focused on improving health and wellness through plant science, today announced entry into the global specialty hops market, its third and newest plant franchise. The Company released an update letter to shareholders from CEO James A. Mish describing its opportunities and plans in this market. The Company also posted an overview deck describing its entry into the hops market in the Investor Relations section of the corporate website at www.xxiicentury.com/investors.

Dear Fellow Shareholders,

Following the exciting progress in our tobacco and hemp/cannabis franchises detailed on our second quarter results conference call earlier this month, I am proud to announce our third plant-based franchise – the global specialty hops market. Like our existing franchises, the hop plant market is ripe for disruption and offers opportunities for 22nd Century to provide unique and significant competitive advantages to commercial partners. The addition of hops, a critical input for the \$500 billion global brewing industry as well as a growing source of medically-important molecules, expands our total addressable markets to an estimated \$1.3 trillion.

Specialty Hops Market

The key hops market participants are located in Europe and many of our commercial partnerships will be in that continent. To reinforce our presence there, we are establishing a **new subsidiary in the Netherlands**, 22nd Century Group Europe B.V., to open new revenue opportunities in hops, as well as serve our tobacco and hemp/cannabis plant franchises through an expanded global footprint. The proceeds of our recent common equity financing are being used to accelerate advancements in this new market and each of our plant franchises.

Ninety-five percent of global hop flowers are used in the brewery industry, with the remainder of the market being a small but rapidly growing segment for active ingredients used in the flavor and fragrance, dietary supplement, and pharmaceutical markets. The rising demand for microbrew and craft beers is driving a large segment of the specialty hops market where distinctive flavors, aromas and nutritional uses are particularly important in creating unique and differentiated products. Additional growth drivers in mainstream specialty hops include demand for yield optimization to reduce input costs for brewers, increase of active ingredients for dietary supplements/pharmaceutical companies, and the need for improvement in disease and pest resistance. Demand for organically grown hop plants is increasing, accelerated by new European regulations limiting the use of traditional pesticides and insecticides, which makes new disease and pest resistance traits, as well as other valuable agronomic traits, critically important to the future of the hop plant industry. Importantly, the global hop plant market is not as highly regulated as tobacco or hemp/cannabis, thereby providing a faster path to commercialization than those two plant franchises.

Hop and hemp/cannabis plants have many similarities. Both are part of the *Cannabaceae* family of alkaloid flowering plants. They share many similarities, including gene families, cultivation methods, dioecious traits that distinguish male and female plants, flowering organs that create similar alkaloids, and an emphasis on terpenes that produce distinctive tastes and flavors. In addition to their widely-known uses in consumer products, the active ingredients found in both plants offer potential health benefits for managing anxiety, inducing calm, addressing sleeping disorders and resolving stomach problems, among other wellness applications.

Our Value Proposition in Hops Market

Our value addresses both scientific methodology and speed to market. We will leverage our existing know-how with the tobacco and hemp/cannabis plants along with the proprietary tools and technologies possessed by our upstream partnerships with CannaMetrix and KeyGene to bring hop breeding into the 21st century. Our relationships with the world's leading alkaloid plant producer-breeders, including Extractas Bioscience, Sawatch

Agriculture, and Folium Botanical, will facilitate year-round growing capabilities at locations in both the southern and northern hemispheres.

Our R&D program objectives include creating new proprietary hop plants and valuable IP using our know-how and technologies, utilizing double haploids, gene-editing, molecular breeding, and other non-GMO technology. Non-GMO products are critical for success in international markets where such products are preferred or GMO products are banned.

We are well-positioned and advancing disruptive hop plant varieties and valuable IP in a fraction of the time it takes using traditional plant breeding methods still used by virtually all hop breeding companies today. This traditional process typically takes more than a decade to create a new hop plant variety, entailing high cost and risk due to this extended time and uncertain outcome – whereas our approach can reduce this development time to two years for the underlying plant technology and IP, similar to our hemp/cannabis program.

We are advancing commercial partnerships rather than competing with global hops producers, beer developers and marketers, flavor and fragrance suppliers, and nutritional/pharmaceutical companies in the hop plant space. The market participants are very well recognized brands, with Germany and the United States being the dominant global hops producers. The largest suppliers of hop plants include several large international growers in this market space that is uncrowded, namely Hopsteiner, Barth-Haas Group, Yakima Chief, Kalsec, and HVG. The largest manufacturers and marketers of beer are Anheuser-Busch InBev, Carlsberg, Molson Coors, and Tsingtao.

Progress To Date in Hops Market

We are approximately six months into our initial hops two-year development cycle and expect monetization of hop plant varieties and IP with upfront license fees beginning in 12 to 18 months.

We are advancing programs with established global hops producers, beer developers and marketers, flavor and fragrance suppliers, and nutritional/pharmaceutical companies in the hop plant space, and accelerating the development of disruptive hop plants and IP on applications delivered to consumers in traditional product formulations as well as in revolutionary new ingredients for functional foods and beverages such as “smart beer.”

In summary, we will not make your beer, we will make it better. The high interest among hops growers and their customers for new proprietary varieties with enhanced alkaloid profiles and specific agronomic traits, yield optimization, and disease/pest resistance is a perfect match to 22nd Century’s expertise in plant science and modern plant breeding, which will allow us to rapidly develop new, proprietary hop plants with distinctive flavors, aromas, and other valuable traits. We believe this significant expansion of our addressable market with the addition of hops as our third plant franchise is an exciting opportunity to leverage our capabilities and partnerships, accelerate the development of new revenue sources, and expand our global footprint.

Executing Across All Franchises

While we are extremely excited about our entry into the hops market, we also continue to advance our primary mission in our tobacco franchise and efforts in our hemp/cannabis franchise, which lie at the heart of our business. Earlier this month we announced that we are highly confident our MRTTP application has completed the FDA’s scientific review process and is now in the documentation process, the final stage before the FDA announces its decision.

The Company continues to refine and prepare its pilot launch plans for the U.S. and has initiated the launch process for VLN® in multiple international markets where adult smokers have a strong affinity for new, reduced risk tobacco products and where we believe regulations will allow us to bring VLN® to market with MRTTP-type claims with minimal or no interaction with regulators. We plan to launch VLN® outside the U.S. by the first quarter of next year.

We also expect to begin to monetize our hemp/cannabis plant lines and IP by the end of this year, including upfront license fees for parts of our IP as well as revenue from our current crops growing at our showcase farm in Colorado. Next generation, disruptive hemp/cannabis plant lines are being accelerated for our 2022 and 2023 revenue programs.

We were thrilled to uplist to the Nasdaq Capital Market and ring the closing bell on August 16. Nasdaq aligns 22nd Century with other innovative and growth-oriented global science and technology companies. It is truly an exciting time for our company and shareholders, and based on my conversations with many of you, I am grateful that you share in our enthusiasm for the important and valuable work underway.

Sincerely,
James A. Mish
Chief Executive Officer, 22nd Century Group

About 22nd Century Group, Inc.

22nd Century Group, Inc. (Nasdaq: [XXII](#)) is a leading plant biotechnology and intellectual property company focused on improving health and wellness through plant science. 22nd Century uses modern plant breeding technologies, gene-editing, and molecular breeding to deliver value to its customers in the life science and consumer products industries by creating new, proprietary tobacco, hemp/cannabis and hop plants with optimized alkaloid and flavonoid profiles as well as improved yields and valuable agronomic traits. 22nd Century was founded to build intellectual property related to nicotine biosynthesis in the tobacco plant and to commercialize its proprietary reduced nicotine content (RNC) tobacco plants, which have become the cornerstone of [FDA's comprehensive plan](#) to address the enormous amount of death and disease caused by addiction to smoking. The Company has also begun to leverage its plant science expertise and existing partnerships to create and commercialize new, proprietary hemp/cannabis and hop plants to optimize their genetics and create valuable new intellectual property.

Learn more at xxiicentury.com, on Twitter [@_xxiicentury](#), and on [LinkedIn](#).

Cautionary Note Regarding Forward-Looking Statements

Except for historical information, all of the statements, expectations, and assumptions contained in this press release are forward-looking statements. Forward-looking statements typically contain terms such as “anticipate,” “believe,” “consider,” “continue,” “could,” “estimate,” “expect,” “explore,” “foresee,” “goal,” “guidance,” “intend,” “likely,” “may,” “plan,” “potential,” “predict,” “preliminary,” “probable,” “project,” “promising,” “seek,” “should,” “will,” “would,” and similar expressions. Actual results might differ materially from those explicit or implicit in forward-looking statements. Important factors that could cause actual results to differ materially are set forth in “Risk Factors” in the Company’s Annual Report on Form 10-K filed on March 11, 2021. All information provided in this release is as of the date hereof, and the Company assumes no obligation to and does not intend to update these forward-looking statements, except as required by law.

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