

WEEKLY DIGEST

JUICING MICROGREENS: UNLOCK THE ULTIMATE NUTRIENT BOOST!



MICROGREENS MIGHT LIMIT WEIGHT GAIN.

CREATIVE RECIPES: Ricotta and Wild Garlic filled Tortellini with Microgreens

CULTIVATION TECHNIQUES: Basil Microherbs

INDUSTRY NEWS: Microgreens Market to Surpass \$2.2 Billion by 2028

“Delivered to Your Inbox Every Monday,” your summary digest of the latest microgreens, urban, vertical farming, and new trends and exciting startup stories from around the world.



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Juicing Microgreens: Unlock the Ultimate Nutrient Boost!

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Nutrition Science

Italian Researchers Develop Customized Microgreens to Address Specific Dietary Needs



Italian researchers at the National Research Council's Institute of Food Production Science and Bari's Aldo Moro University have developed a technique to cultivate microgreens with tailored nutritional profiles.

The study by D'Imperio et al. (2024) investigates soilless cultivation systems for producing microgreens tailored to specific nutritional needs, focusing on **iodine** (I) and **potassium** (K) levels.

Conducted in a commercial greenhouse, the research involved **radish**, **pea**, **rocket**, and **Swiss chard** microgreens.

Experiment 1 tested different concentrations of potassium iodate (KIO₃) to biofortify microgreens with iodine.

Experiment 2 examined the effects of varying potassium levels in the nutrient solution on yield and dry matter.

Results demonstrated the feasibility of producing iodine-biofortified microgreens without compromising agronomic performance.

However, reducing K levels influenced dry matter and mineral content, notably in Swiss chard, indicating challenges in maintaining nutritional quality.

This innovation aims to cater to the dietary needs of individuals with **thyroid** or **kidney** issues, offering a potential health benefit for these populations.

Massimiliano D'Imperio, Bonelli, L., Mininni, C., Renna, M., Francesco Fabiano Montesano, Parente, A., & Serio, F. (2023). Soilless cultivation systems to produce tailored microgreens for specific nutritional needs. *Journal of the Science of Food and Agriculture*. <https://doi.org/10.1002/jsfa.13222>

Community Spotlight

Discovering the Power of Microgreens: A Conversation with Oakley Byrne from Haute Grown

Julie was joined by Oakley Byrne, the owner of [Haute Grown](#) in Wabash Valley, Indiana, to talk about what sparked the idea and how the [ISBDC](#) helped bring it to life.

Microgreens are becoming more well-known, but many people are still not familiar with the benefits of microgreens or how to incorporate them into their daily meals.



Oakley is here to help with that. Watch the Good Day Live clip to learn more!

The segment features Oakley Bern from Haute Grown, explaining microgreens.

Microgreens are young plants grown for about ten days, packed with more nutrients than mature plants.

They enhance nutrition and flavor in meals. Oakley showcases pea shoots, radish, and their Haute Blend (broccoli, kale, cabbage).

Microgreens are versatile: pea shoots are great in salads and stir-fries, radish adds spice to tacos and sandwiches, and the Haute Blend complements pizzas.

Samples include sunflower shoots with a nutty flavor, which is ideal for appetizers.

Haute Grown products are available at local farmers'

markets and stores like Baszler's.

Former Fashion Designer Transforms Health with Microgreen Juices in Maine



Kate Hall, a former fashion designer, now owns [Graze](#), a cold-pressed juice company in Northport, Maine.

Hall started Graze after moving to Maine and adopting a plant-based diet to manage her autoimmune disease.

Using microgreens and other produce from her farm, Hall creates nutrient-dense juices, which are not pasteurized but treated with **FDA-approved UV technology**.

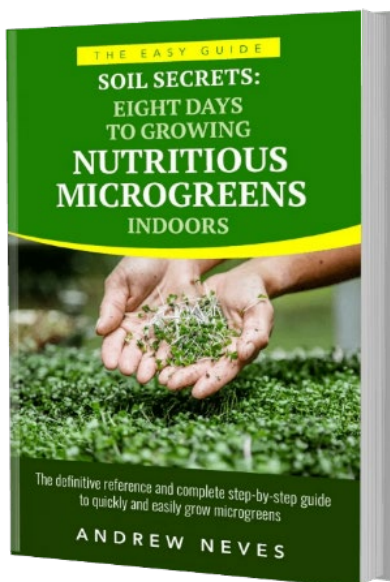
Graze offers 11 juice flavors, available in 60 retailers across the state.

Hall's business focuses on sustainability by repurposing unused juice ingredients for animal feed.

Her approach aligns with her team's values, promoting health and wellness through plant-based nutrition.

Hersey, J. (2024, June 10). Graze offers healthy juice alternatives to Mainers. Fox Bangor.

https://www.foxbangor.com/news/graze-offers-healthy-juice-alternative-to-mainers/article_b4bc8aea-274c-11ef-ac90-5bb65328a18a.html



Get The Book That Started the Revolution

Cultivation Techniques

Microherbs: Basil



Betty Cahill highlights the joys of growing basil in Colorado, emphasizing its popularity and culinary versatility.

There are scores of cultivated basil varieties available, including Thai basil, lime basil, lemon basil, sweet basil, Napolitano, Genovese, and dark opal basil.

She describes various basil leaf types and offers detailed advice on seeding, transplanting, and propagation through cuttings.

Essential tips include using sterile potting soil, spacing

plants appropriately, and ensuring sun and air circulation.

She also addresses pest control, specifically against Japanese beetles, by recommending lightweight mesh covers.

Cahill suggests storing basil in water for up to ten days and explores diverse culinary uses, from traditional pesto to basil butter and jelly.

The article concludes with methods for drying and storing basil leaves for long-term use.

*Cahill, B. (2024, June 11). Growing your own basil in Colorado. *The Denver Post*. Retrieved from <https://www.denverpost.com/2024/06/11/growing-basil-colorado-outdoors-tips-advice/>*

Creative Recipes

Tortellini Filled with Ricotta and Wild Garlic, Garnished with Microgreens

The YouTube video titled “Microgreens - Camper

13/06/2024,” presented by Rai, features Monica discussing the startup, characteristics, and recipes related to microgreens.

RAI – Radiotelevisione Italiana is the national public broadcasting company of Italy, owned by the Ministry of Economy and Finance.

Monica explains the advantages of microgreens, their nutritional benefits, and various ways to incorporate them into recipes.

The video is part of the RaiPlay program “Camper,” which explores different culinary and health-related topics.

Introduction to Growing Microgreens at Home:

The text begins with an enthusiastic introduction to growing microgreens at home. The narrator showcases different types of microgreens, such as peas, arugula, radish, and horseradish. The process of preparing and growing them at



home is briefly explained, highlighting the use of different substrates and planting techniques.

Interaction with a Michelin-Starred Chef:

The narrative then transitions to a meeting with Alessandro, a Michelin-starred chef, who demonstrates the versatility of

microgreens in culinary dishes. The text describes the use of microgreens in tortellini filled with ricotta and wild garlic pasta. The importance of microgreens as both a nutritional and aesthetic element in dishes is emphasized.



Ingredients:

For the Pasta Dough: - 2 cups all-purpose flour - 3 large eggs - 1 tablespoon extra virgin olive oil - A pinch of salt

For the Filling: - 1 cup ricotta cheese (drained) - 1/2 cup grated Parmigiano-Reggiano - 1/2 cup chopped wild garlic (or ramps) - Salt and freshly ground

black pepper to taste - A pinch of nutmeg

For the Sauce: - 1/4 cup unsalted butter - 1/2 cup chicken or vegetable broth - 1/4 cup heavy cream - 1/4 cup grated Parmigiano-Reggiano - Salt and freshly ground black pepper to taste

For Garnishing: - A generous handful of mixed microgreens (such as radish, pea shoots, and arugula) - Edible flowers (optional) - Extra virgin olive oil for drizzling - Finely grated lemon zest

Instructions:

I. Preparing the Pasta Dough: 1.1. On a clean surface, form the flour into a mound with a well in the center. 1.2. Crack the eggs into the well. Add the olive oil and salt. 1.3. Gradually mix the flour into the eggs with a fork until a dough forms. 1.4. Knead the dough for about 10 minutes until smooth and elastic. 1.5. Wrap the dough in plastic wrap and let it rest for at least 30 minutes.

2. Preparing the Filling: 2.1.

In a medium bowl, mix together the ricotta, Parmigiano-Reggiano, chopped wild garlic, salt, pepper, and nutmeg until well combined. 2.2. Cover and refrigerate until ready to use.

3. Assembling the Tortellini: 3.1.

Roll out the pasta dough on a lightly floured surface to a thin sheet (about 1/16 inch thick). 3.2. Cut the dough into 3-inch circles using a round cutter. 3.3. Place a small dollop of the ricotta filling in the center of each circle. 3.4. Fold the dough over the filling to form a half-moon shape, pressing the edges to seal. 3.5. Bring the two corners together and press to form a tortellini shape.

4. Cooking the Tortellini: 4.1.

Bring a large pot of salted water to a gentle boil. 4.2. Add the tortellini and cook for 3-4 minutes, or until they float to the surface and are tender.

5. Preparing the Sauce: 5.1.

In a large skillet, melt the butter

over medium heat. 5.2. Add the broth and bring to a simmer. 5.3. Stir in the heavy cream and Parmigiano-Reggiano, and cook until the sauce thickens slightly. 5.4. Season with salt and pepper to taste.

6. Plating the Dish: 6.1.

Carefully transfer the cooked tortellini to the skillet with the sauce, tossing gently to coat. 6.2. Arrange the tortellini on a serving plate. 6.3. Garnish with a generous handful of mixed microgreens and edible flowers. 6.4. Drizzle with extra virgin olive oil and sprinkle with finely grated lemon zest.

7. Presentation: 7.1.

Serve immediately, ensuring the tortellini are hot and the microgreens are fresh and crisp.

Enjoy your exquisite tortellini filled with ricotta and wild garlic, elevated by the fresh taste and vibrant look of microgreens, perfectly fit for a 5-star Michelin dining experience.

Culinary Use and Benefits of Microgreens:

The discussion continues with Alessandro showcasing the various ways microgreens can be incorporated into dishes. The text explores the use of microgreens as a nutrient-rich ingredient that adds flavor and visual appeal to culinary creations. The concept of reducing food waste by utilizing all parts of the microgreens is also touched upon.

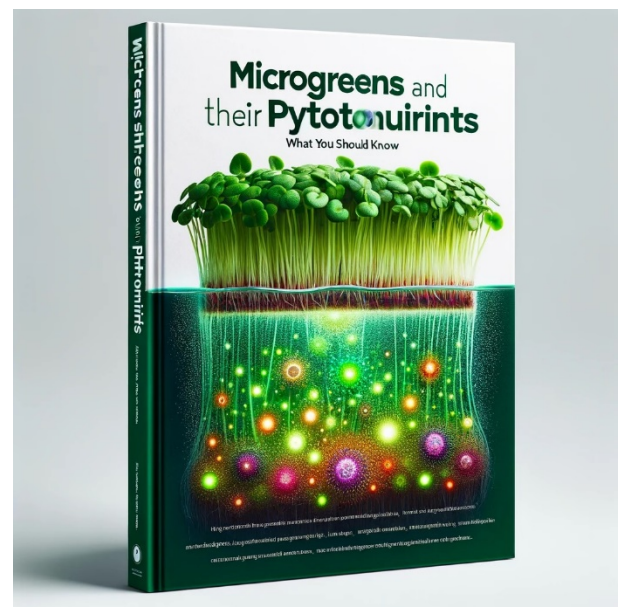
Culinary Techniques and Creativity with Microgreens:

The narrative delves into the culinary techniques involved in using microgreens, including making sauces and concentrates from different parts of the greens. The text highlights the simplicity of incorporating microgreens into various dishes and the creative potential they offer in enhancing flavors and presentation.

Conclusion and Final Thoughts:

The video concludes with a reflection on the versatility and value of microgreens in cooking. The importance of not wasting any part of the greens and utilizing them to their full potential is reiterated. The overall message emphasizes the beauty, fragrance, and nutritional benefits of microgreens in culinary applications.

Coming Soon!



Read the Article on Microgreens World [HERE](#)

The Featured Article

Juicing Microgreens: Unlock the Ultimate Nutrient Boost!

In this week's featured article, as the Summer Solstice approaches (June 20) and the Full Moon (June 21), we talk about infusing microgreens into your juicing for cleansing and rejuvenation.



We explore the concept and benefits of juicing microgreens. We trace the origin of juicing, compare the nutritional value of microgreens with mature plants, and provide practical tips and recipes for incorporating microgreens into juices.

Why I love Fruits and Juicing

Every summer, from the time I was a little boy until I became a teenager, I would embark on a magical journey to my Nanny Dunk's farm, nestled 100 km west of the bustling city. As soon as school let out in mid-June, I would pack my bags, excitement bubbling inside me,

knowing that I would spend the next two and a half months in the warm embrace of nature.

Upon arrival, Nanny would greet me with a smile and a somewhat daunting ritual - two teaspoons of thick, overpowering castor oil, followed by a glass of freshly squeezed orange juice to wash down the unpleasant taste. It was her way of cleansing my body of all the “bad food” I had consumed in the city, preparing me for a summer of wholesome living.



From that moment on, I would immerse myself in the daily life of a farmhand. The rooster’s crow would wake me at dawn, and I would rush to feed the clucking chickens, scattering grain and watching them peck at the ground. I’d carefully gather the warm, freshly laid eggs, marveling at their smooth, speckled shells.

The lush vegetable garden beckoned, and I would spend hours watering the plants, tenderly caring for each leaf and stem. In the barn,

I would sit beside the cows, the rhythmic sound of milk hitting the pail creating a soothing melody.

But it wasn't all work. The farm was a treasure trove of delights, with fruit trees laden with ripe, juicy gems. I would pluck sun-warmed **sweetsop**, its creamy flesh melting on my tongue. The guava trees provided an endless supply of sweet, tangy fruit. At the same time, the mangoes and **Otaheite apples** offered their own unique flavors.



I would eat to my heart's content, the sticky juice running down my chin, a testament to the pure joy of farm-fresh produce.

As the end of August approached, a bittersweet feeling would wash over me. I knew it was time to bid farewell to the farm and prepare for a new school year. Once again, Nanny would present me with castor oil and orange juice, a final cleanse before I returned to the city.

But this time, it felt more like a celebration of the wholesome summer I had experienced, my body nourished by the bounty of the land.

Looking back, those summers at Nanny Dunk's farm remain one of the top three times of my life. The memories of the warm sun on my back, the earthy scent of the soil, and the love and wisdom of my Nanny will forever be etched in my heart.

It was a time of pure innocence, hard work, and a deep connection to the earth, farming, and the simple joys of life, shaping me into the person I am today.

Benefits of Juicing Microgreens

When I first learned about microgreens almost 10 years ago, I fell in love with them, their crunchy taste and exquisite flavor, then growing them, and now their immense possibilities for the future of nutrition.

Microgreens are a superfood, offering concentrated levels of vitamins, minerals, and antioxidants. They can be juiced to create a highly nutritious drink, providing a flavorful addition to juice blends and allowing for rapid nutrient absorption.

Microgreens offer enhanced flavor profiles and can be combined with various fruits and vegetables to create diverse and healthful juice combinations.

Nutritional Superiority

All the research (2005-2024) emphasizes the superior nutritional value of microgreens compared to mature plants. Studies indicate that microgreens contain 5 to 40 times more vitamins and antioxidants than their mature counterparts.



For example, a mix of broccoli, kale, and cabbage microgreens provides significant amounts of sulforaphane, a compound beneficial for health.

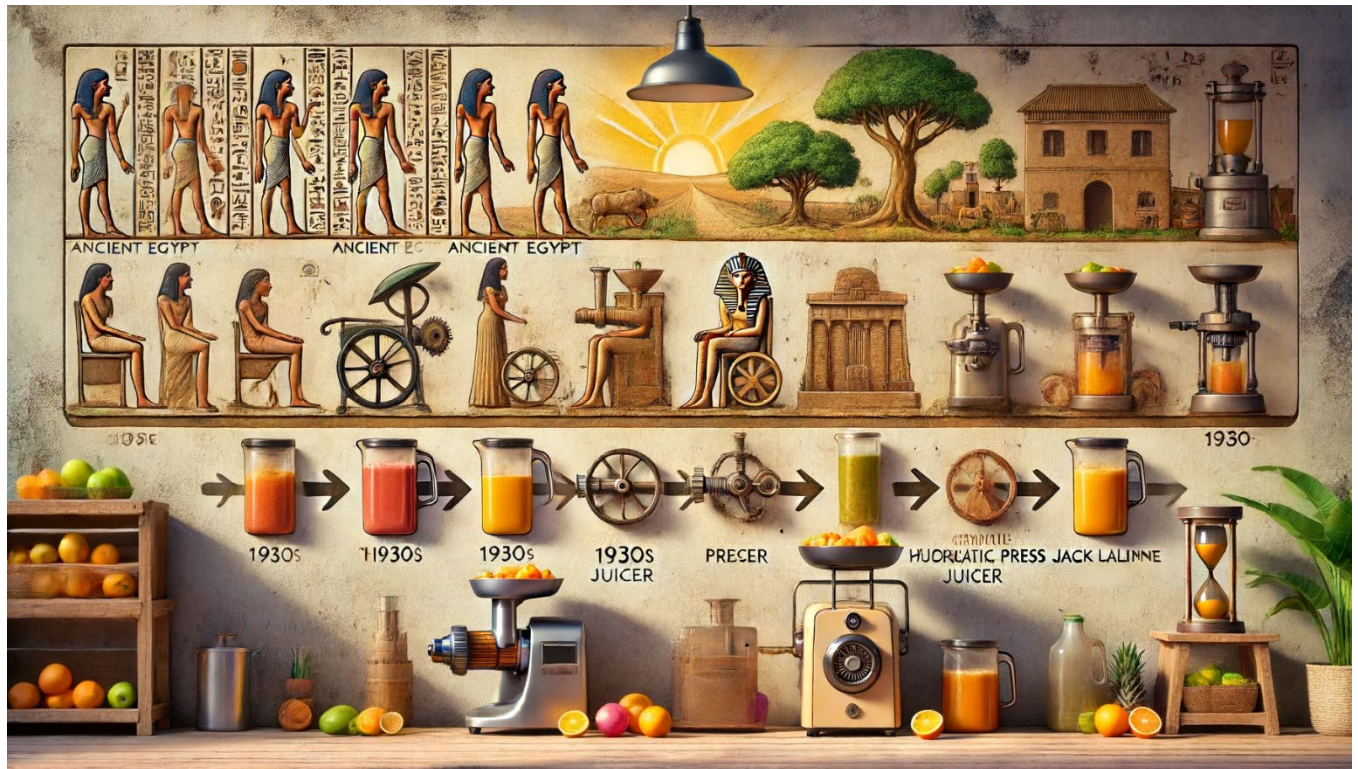
Similarly, sunflower and basil microgreens deliver substantial micronutrients in just a 100g serving.

Juicing Equipment

Choosing the right juicing equipment is crucial for maximizing yield and nutrient extraction.

There are several types of juicers, including masticating juicers, which preserve enzyme activity and are effective for juicing leafy greens like microgreens. I advise my clients against using centrifugal juicers, which expose the juice to heat and oxygen, potentially destroying essential enzymes.

Historical Context



I will briefly discuss the history of juicing is briefly discussed, noting that juicing has been practiced since ancient Egypt.

Modern juicing machines, such as the Norwalk Hydraulic Press Juicer, which was invented in the 1930s, and those popularized by health advocates like Jack Lalanne, have evolved to make juicing more efficient and beneficial.

Recipes

Two recipes that have remained a family summer tradition, with microgreens added for a nutritional boost:

Sweetsop Punch



Ingredients:

- 1 ripe sweetsop
- 4 oz basil microgreens
- 4 glasses of water
- Condensed milk to taste
- Vanilla

Instructions:

1. Peel and crush sweetsop, removing seeds.
2. Wash and add microgreens.
3. Blend for 1 minute.
4. Stir in water and strain.
5. Add milk and vanilla.
6. Blend for another minute.
7. Serve ice cold or over ice.

The basil microgreens have a fresh, aromatic flavor that pairs well with the vanilla in the recipe.

They can enhance the overall taste of the punch while providing additional health benefits through their high levels of antioxidants and essential oils.

Sunsplash



Ingredients:

- 3 ripe medium-sized mangoes
- 4 oz mint microgreens
- Juice of one lime
- 24 oz (50 ml) water
- Raw cane sugar to taste

Instructions:

1. Peel the mangoes
2. Slice the flesh from the seed.
3. Wash and add microgreens.
4. Liquidize in a blender.
5. Add the lime juice, sugar, and water.
6. Blend for another minute.
7. Serve ice cold or over ice.

Mint microgreens provide a refreshing and cooling flavor that pairs well with the sweetness of mango and the tartness of lime.

They can add a delightful twist to the Sunsplash, making it even more refreshing and invigorating. Add pineapple for a more exotic blend.

Storage and Safety Tips

When I juice, I make only as much as I can consume at once to avoid the growth of harmful bacteria, especially if I leave it out for more than 12 hours.

I also suggest storing microgreens and juices in the coldest part of the refrigerator and consuming the juice within 15-20 minutes for maximum benefits.

Adding a drop of lemon juice can help maintain the flavor.

Juicing Wrap-up



Juicing microgreens is presented as an efficient way to consume a high concentration of essential nutrients.

Microgreens World supports the idea that raw juice from microgreens delivers substantial health benefits, making it a valuable addition to a nutritious diet.

We encourage experimenting with different microgreens and fruits to discover enjoyable and healthful juice combinations.



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Evidence-based Expertise

Microgreens and mature veggies differ in nutrients, but both might limit weight gain.

Microgreens, young vegetables harvested just after sprouting,

differ significantly in nutrient composition from mature vegetables like kale and cabbage.

Research presented by Thomas T. Y. Wang at the American Chemical Society highlights that microgreens, such as **kale microgreens**, contain higher levels of beneficial compounds



like **glucosinolates** compared to their mature counterparts.

These compounds are associated with potential health benefits, including **cancer protection**.

Both microgreens and mature vegetables have been shown in animal studies to **limit weight gain**, mainly when included in diets high in fats.

Moreover, microgreens appear to have a **more pronounced effect on gut microbiota diversity**, which is linked to improved health outcomes.

For growers and health-conscious consumers, this research underscores the nutritional advantages of microgreens, suggesting they may offer a concentrated source of health-promoting compounds compared to mature vegetables. Further studies are needed to confirm these benefits in humans and to explore potential

applications in enhancing the palatability of these nutrient-dense foods.

American Chemical Society. (2023, August 15). Microgreens and mature veggies differ in nutrients, but both might limit weight gain. American Chemical Society.

<https://www.acs.org/pressroom/newsreleases/2023/august/microgreens-and-mature-veggies-differ-in-nutrients-but-both-might-limit-weight-gain.html>

Emerging Industry News

FDA Reorganization to Enhance Food Safety, Effective October 1



The FDA's proposed reorganization, set to be implemented by October 1, 2024, aims to create a unified Human Foods Program (HFP). This reorganization will consolidate functions from the Center for Food Safety and

Applied Nutrition (CFSAN), the Office of Food Policy and Response (OFPR), and parts of the Office of Regulatory Affairs (ORA). The new structure is expected to enhance the FDA's ability to realize the preventive goals of the Food Safety Modernization Act, strengthen partnerships, and better regulate innovative food products.

Potential Implications for Microgreens Growers and the Microgreens Industry:

Pros:

1. Enhanced Food Safety:

The consolidation into the HFP could lead to more rigorous and streamlined safety protocols, reducing the risk of contamination and foodborne illnesses thereby increasing consumer trust in microgreens.

2. Stronger Partnerships:

Improved collaboration with local, state, and international partners might provide growers

with more resources, support, and guidance on best practices.

3. Regulatory Clarity: Clear priorities and a unified approach may simplify compliance requirements, making it easier for microgreens growers to adhere to regulations.

Cons:

1. Increased Scrutiny: The enhanced focus on inspections and regulatory oversight could lead to more frequent and thorough inspections, which might be challenging for smaller growers with limited resources.

2. Adjustment Period:

Growers might face an initial period of adjustment to new regulations and compliance requirements, which could involve additional costs and effort.

Overall, the reorganization could foster a safer and more reliable food supply, benefiting both consumers and compliant

growers. However, it may also impose new challenges and responsibilities on the microgreens industry.

Food Safety Magazine Editorial Team. (2024, May 30). FDA reorganization is officially approved and will be implemented by October 1. Food Safety Magazine. <https://www.food-safety.com/articles/9504-fda-reorganization-officially-approved-will-be-implemented-by-october-1>

Microgreens Market to Surpass \$2.2 Billion by 2028



The microgreens market is projected to grow from \$1.3 billion in 2019 to **\$2.2 billion by 2028**, reflecting a **CAGR of 11.1%** from 2021 to 2028. This growth is driven by the increasing consumer demand for **nutrient-dense**, flavorful, and versatile foods.

Microgreens, a perennial crop, are high in vitamins, minerals,

and antioxidants, making them a popular choice among **health-conscious consumers** and chefs.

For **small microgreens farmers**, this market expansion presents an opportunity to capitalize on the growing demand, primarily through **greenhouse** and indoor **vertical farming**, which offer controlled environments conducive to optimal growth.

The market's growth is also supported by **government subsidies** and technical assistance for greenhouse farming.

Diversification into various types of microgreens and targeting **niche markets** can further enhance profitability for small farmers.

Allied Analytics LLP. (2024, June 14). Microgreens market to surpass \$2.2 billion by 2028. EIN Presswire. https://www.einnews.com/pr_news/719952686/microgreens-market-to-surpass-2-2-billion-by-2028

Commercial Best Practices

Microgreens and big dreams sprouting at Chico State



Oscar Cisneros-Magana, co-owner of Chico Sprouts, cuts a sample of wasabi sprouts at the University Farm in Chico, California, on May 31, 2024. (Molly Myers/Enterprise-Record)

[Chico Sprouts](#), a business venture started by Chico State students Oscar Cisneros-Magana and Aidan Bagwell, aims to provide nutrient-dense microgreens to health-conscious consumers.

The company was born out of a classroom project in the Practicum in Entrepreneurship and Small Business Management course, where students learn to transform business ideas into reality.

Despite initial challenges in educating customers about the benefits of microgreens, Chico Sprouts has successfully introduced its products to local markets and restaurants.

The company offers a variety of microgreens, including radish, cilantro, yellow peas, and broccoli, which are known for their high vitamin content, protein density, and easier digestibility compared to fully grown vegetables.

As the business expands, with Bagwell focusing on the Southern California market and Cisneros-Magana completing his degree, Chico Sprouts continues to promote the nutritional benefits and versatility of microgreens, offering recipes and serving suggestions to help customers incorporate these healthy greens into their daily meals.

Molly Myers. Microgreens and big dreams are sprouting at Chico State. (2024, June 10). Chico Enterprise-Record. <https://www.chicoer.com/2024/06/10/microgreens-and-big-dreams-sprouting-at-chico-state/>

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