



Spread Acquires JAS 0012 – World’s First Certification for Vertical Farms

Responding to the Global Demand for Food Safety

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Kyoto, Japan. --Spread Co., Ltd. (HQ: Kyoto, Japan; CEO: Shinji Inada, hereinafter “Spread”) has acquired “JAS 0012” certification, established by the Japanese Ministry of Agriculture, Forestry and Fisheries (hereinafter “MAFF”) for evaluating hygiene and cultivation management of a vertical farm, at its Kameoka Plant (Kameoka, Kyoto), a pioneer in reaching profitability at large-scale operation, and the next generation large-scale automated Techno Farm Keihanna (Kizugawa, Kyoto) which delivers a stable operating rate of 99%. JAS 0012 is the first certification in the world to be focused exclusively on vertical farms. Spread is able to contribute to global food safety and the delivery of health-associated SDGs by lowering food poisoning risk via its thorough hygiene and cultivation management practices. Domestically Spread is able to reassure customers of the quality and safety of vertically farmed produce and in doing so, establishes a high bar for food safety in the industry.

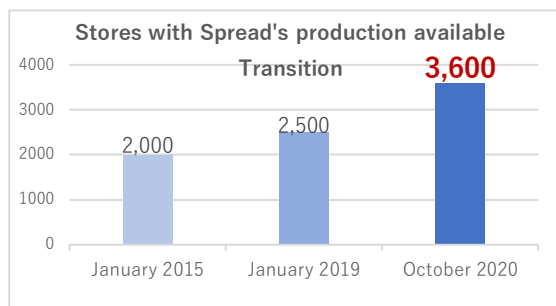
GLOBAL DEMAND FOR FOOD SAFETY

Fresh produce-related food poisoning is a common problem for food security. In particular, E. coli is often linked to leafy greens and outdoor-grown romaine lettuce, outbreaks have a relatively high rate of hospitalization, and are becoming more frequent. In the last decade there have been 40 leafy-greens related outbreaks in North America, resulting in 420 hospitalizations and 8 deaths ^{*1, *2, *3}. Many view vertical farming as a solution, but not all vertical farmers operate at the same hygienic level. Even Japan, considered a well-established market with more than 200 vertical farms in operation ^{*4}, had no unified standard for the industry, until MAFF established JAS 0012 to certify superior operators in 2019. Nikkei estimates that only 10-20% of Japanese vertical farmers are able to satisfy the standard ^{*5}.

SPREAD'S WAY

Spread has set its own hygiene management system since the Kameoka Plant went into operation in 2007. As first customers in Japan were reluctant to accept vertically farmed produce, Spread engaged into online and in store educational events and helped to create vertical farming market.

With its *Vegetus* brand, Spread has sold over 70 million packs up until now and is present at more than 3,600 stores all over the country. Spread's high level hygiene and cultivation management standards have been acknowledged by the recent successful acquisition of JAS 0012. Before that, Spread's



efforts towards securing its workers' safety, environmental sustainability, and traceability were granted "GLOBALG.A.P." certification. With these accomplishments, Spread is ready to respond to the growing demand for safe, high quality fresh produce.

WHAT CERTIFIES JAS 0012?

- High level safety management to satisfy MAFF's standards
- Ability to consistently grow and supply high-quality vegetables over a long term
- Flexibility needed to respond to diversified needs of the food service industry

SPREAD'S HYGIENE MANAGEMENT



Air-floating bacteria monitoring
Spread inspects and regulates not only the number of bacteria in nutrient solution, but also in the air to prevent contamination risk



Anti-contamination measures
Employees are required to wear sanitary clothing and all products are inspected multiple times before shipping

WHAT'S JAS/JAS 0012?

JAS (Japanese Agricultural Standards) are the Japanese national standards in the field of agricultural, forestry, fisheries and food industry, established by the MAFF. In addition to General JAS and Organic JAS, there is also Specific JAS, applied to high value-added or distinctive products. JAS 0012 is classified as Specific JAS and was established in 2019 to evaluate the hygiene and cultivation management of leafy greens in a vertical farm with artificial lighting.



*1 Deane Falcone "E. Coli on the Rise: Lettuce Explain" Food Safety Tech, March 10, 2021

*2 "Estimates of Foodborne Illness in the United States" CDC

*3 Sara G. Miller "Leafy greens were linked to 40 E. coli outbreaks in a decade. Most involved romaine." NBC News, September 16, 2020

*4 Michael Dent "Vertical Farming: 2020-2030. Technologies, markets and forecasts in indoor vertical growing" IdTechEx

*5 "Nosuisho, shokubutsukojo ni kikakushinsetsu kouhinshitsu no saibai atooshi" [MAFF establishes new standard for vertical farm, backs high quality cultivation] Nikkei, August 4, 2020

ABOUT SPREAD

◆ **Kameoka Plant, the Profitability Pioneer of Vertical Farming**

Capacity : 21,000 heads/2.1t/day

Spread's Kameoka Plant cracked one of the toughest challenges in commercial vertical farming. Since starting operations in 2007, Spread has developed sophisticated environmental control technologies, and significantly improved the overall operational efficiency at the Kameoka Plant.

Together this has brought the operating rate to 97% and enabled Kameoka Plant become profitable for the first time in 2013.



◆ **Techno Farm Keihanna. Stable Production via Innovative Technologies**

Capacity : 30,000heads/3t/day

Started operations in 2018. The first vertical farm to utilize next generation food production system *Techno Farm™*. At the R&D facility attached to the farm, development of the new cultivation techniques, as well as IoT and AI systems is underway. As the mother plant of *Techno Farm™*,

Techno Farm Keihanna will serve as the foundation for the never-ending evolution of new technologies.

Innovative technologies, allowing for simultaneous increase in productivity and environmental sustainability:

- Automated cultivation
- Saving over 16,000 liters of water per day via water recycling
- Advanced environmental control
- Energy saving due to LED lighting, tailored for vertical farming usage
- Upgrade in operational efficiency due to IoT-based management system



◆ **Next Generation Food Production System *Techno Farm™***

Developed by Spread with the help of partner companies, *Techno Farm™* builds on the know-how developed at the Kameoka Plant in more than 10 years of its operation.

Automated cultivation, water recycling and environmental control technologies, specialized LED lighting as well as IoT and AI make for simultaneous increase in productivity and environmental sustainability.

Spread will continue to promote this technology as an essential part of sustainable agriculture.

URL : www.technofarm.com/en



◆ **Over 70 Million Packs Sold in Total** *1.

Vertically Farmed Vegetables Brand *Vegetus*

Under the concept of “Sustainable Vegetable”, *Vegetus* strives to be healthy for both Earth and people. Spread’s current lineup includes 3 unique varieties: crunchy Frilly Lettuce, smooth and sweet Pleated Lettuce, soft yet crispy Fringe Lettuce. Each of these delivers a clean and fresh taste and is rich in beta-carotene. *2 *Vegetus* is a favorite of children, easy to prepare and fits into any meal, not only salads or sandwiches.

URL : www.vege-tus.com (Japanese only)



◆ **Contribution to the United Nations’ Sustainable Development Goals**



Examples of Spread’s contribution

- Goal 2: Promotion of sustainable food production
- Goal 3: Preventing food poisoning risk via hygiene and cultivation management practices
- Goal 8: Labor saving through automation and digital transformation
- Goal 9: IoT-based management system for efficient cultivation
- Goal 12: Helping to reduce food loss due to most part of lettuce being edible
- Goal 13: Promoting resilient agriculture
- Goal 15: Efficient usage of land resources and pesticide-free cultivation
- Goal 17: *Techno Farm*TM partnership business

*1 Actual numbers of lettuce, produced and sold by Spread

*2 *Vegetus* clears Japanese Ministry of Health, Labor and Welfare standards for the “beta-carotene rich” vegetables (equal or more than 600µg/100g)

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