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Japan: A Different Kind of "Green" Revolution

Japan is a medium sized eastern Asian country located east of China and just south of the Korean Peninsula. Japan is home to 122.6 million people, with an area of 378,000 square kilometers, (MOFA, 2026) with a majority of that area being Japan's main island, Honshu. Japan has become increasingly urbanized over the years, with 92% of their population living in large cities such as Tokyo or Yokohama. 8% of the population lives in rural areas. Japan is one of the lowest countries in terms of food security issues. Only 3.4% of the population suffer from food insecurity. (*WorldBank*, 2023) This means that 3.4% of people in Japan don't have a reliable source of wholesome, safe, and nutritious food. Japan does not suffer from a lack of food but rather they lack nutritious food. Japan is a constitutional monarchy. Their emperor, Naruhito, holds a ceremonial position, and not political power. Their parliament values a division in power with the Prime Minister being the head of state. Currently, Ishiba Shigeru has been serving as their Prime Minister since 2024. Japan's parliament is bicameral, so it is split into 2 different houses, the Lower House, and the House of Councillors. (*Enrico*, 2025)

Japan imports most of their agricultural products. However, in 2022, their government has made jumps to boost nutritional education and how to eat according to the seasons so that they may have more self-sufficiency and less reliance on China and the US for their food products. Despite these initiatives, Japan's percentage of arable land has dropped to 11.1% in 2023 from 12.3% in 2000. (*Agroberichten Buitenland*, 2023) Currently, young people in Japan are urbanizing and depopulating rural areas where Japanese farms were built.

Japan is an exporting powerhouse. Automotive and mechanical parts fly out of Japan like how a hose shoots out water. In 2024, Japan exported 142.7 **billion** USD in cars and car parts/accessories. They also exported a total of 273 billion USD in machine goods. Just these 2 areas of exports account for over half of Japan's 739 billion USD total exports. *(OEC*, 2024) Japan is only 38% calorically self-sufficient. This statistic means that Japan only produces 38% of the daily caloric intake of their citizens domestically. Japan is quite mountainous with their main island, Honshu, having the Japanese Alps directly in the middle. Their neighbor, China, has a near 80% calorie self-sufficiency (*Quabali*, 2024). China has much more land available for agricultural needs, as well as more of a drive to work for agricultural reasons.

Japan has a large variety of climate conditions despite how small they are. On the northern side of Japan towards Hokkaido, the climate is subarctic. In the south, their climate is described as subtropical. In Tokyo, the average temperatures range from 10°C-20°C in the spring, above 30°C in the summer, and a chilly winter from 5°C-12°C. The average rainfall has been climbing over the years with 1791mm of rain in 2024, which is up 9.2% from 2023. (*Statbase*, 2025) Because of this varying climate, Japan has diverse farm sizes. In Hokkaido, large farms are more prevalent with an average size of 26 ha, while on other islands, it's closer to 1.8 ha. Most farms in Japan are commercial farms, or farms that are made for a profit, or as a business. Family-owned local farms are less prevalent in Japan compared to the US. These farms can grow crops ranging from onions and cabbage to region specific crops such as tea.

Imagine if you were a Japanese citizen. Living in the big city surrounded by flashing lights and large advertisements on the sides of buildings. You notice the top-notch public transportation, as you ride the monorail to work. Since you're a little bit early, like the good employee you are, you decide to stop by the café just below your office. There's brewed coffee, espresso drinks, and plenty of tea options, ranging from taro milk bubble tea to green matcha. You decide not to be adventurous today, so you grab your normal matcha order of a large, with coconut milk, and a couple of pumps of vanilla. When the barista rings you up, you notice that the price has risen since the last time you ordered it not too long ago. You ask the barista about why it went up and they say, "Well, there's not enough matcha to go around. Around Japan, around Asia, and around the world. Japan is the biggest producer of high-quality matcha after all." You thank the barista and reluctantly fork over more money than you would wish to pay. Afterwards you go to work, finish your day, and you feel your years of office work start in your back, but at least you get to rest at home. The pay is okay, but at least you aren't worked to death. You get paid 5.37 million yen per year, which equates to 36k-37k USD. (*Nippon*, 2023) After you left your family to begin your adult life, you've lived alone ever since. You occasionally visit home back in the countryside to see your grandparents, as they are getting up there in their old age. Your grandma is over 80 and your grandpa is just under 90. It helps your parents when you're around to take care of them, so you try your best to be there as much as you can. This circumstance isn't uncommon as the average life expectancy in Japan is 85.17 years. (*Macrotrends*, 2025) With their old bones they can hardly work anymore despite having all the intricacies and knowledge of their farm. That knowledge is no good without the body to act on it. All their grandchildren moved to the big city and didn't have an interest in learning about the ways of the family farm. Your grandparents used to farm the tea leaves used for matcha, but due to old age they can't work in the fields anymore. Their high-quality tea used to be the family pride, but now there's so many office and manufacturing jobs that traditional agriculture has fallen to the wayside.

Matcha, as an industry, is promising. Gen Z trends and consumption patterns provide an opportunity for Japan to get out of the ergonomically challenging office positions and into a healthier lifestyle. Matcha has become not only a social media sensation, being tacked onto trends such as the "performative male" but has also been thrust into the spotlight due to many other factors such as its health benefits and globalization. Matcha is raging in antioxidants and is a healthier caffeine alternative to popular energy drinks. As more research is done on both matcha and energy drinks, more positive health benefits come out of matcha, and health detriments come out of energy drinks. Gen Z's promotion of healthy living has deterred many of them from consuming energy drinks containing chemicals such as taurine that do not

have good effects on your body. Matcha also contains more nutrients than regular green teas. Matcha leaves are harvested on the basis of greener and more chlorophyll-filled leaves. These characteristics increase the bioavailability of the nutrients in the tea leaves. (*Matcha Outlet*, 2022) All of these factors have contributed to why Japanese matcha has increased its sales by 16.1% from 2023-2024, and also, by 250% since 2014. (*Chikuma*, 2024) This demand is causing a domestic shortage in Japan due to other countries buying it up before it hits local markets.

Matcha is a difficult crop to grow, especially high-quality matcha. The raw ingredient for matcha is called Tencha. (*Tea Energy*, 2024) Tencha is a young, chlorophyll-rich, and amino acid rich tea leaf that has not been refined into matcha powder. To produce tencha, tea fields need precise climate conditions and a practice called “shade farming.” Unlike most crops, tencha leaves are shaded for up to a month before they are harvested. This chemically alters the leaves to produce more chlorophyll and L-Theanine, a vital amino acid. A company called Tea Energy is hoping to relieve at least a small piece of the difficulty of shade farming. When shade farming is mishandled, it can end up worsening the quality of matcha leaves. Not only are traditional methods of shade farming expensive, but they’re also labor intensive. Bamboo mats or new shade fabrics are expensive and take a while to put up. Tea Energy currently is pushing to use solar panels as shade for these tea leaves in their most vital trek to your matcha powder. They are using this additional energy production to supplement farmers, making farming a more economically viable option. This extra income can entice interested farmers into committing to farming.

Japan has an aging population. Most people aren’t having kids, so there’s much less of a younger generation to be able to work in rural areas. The average family size in Japan is 2.23 people. Most people live alone or with a spouse and do not have children. Families usually care for their own elderly, instead of the US culture of putting them in an assisted living or nursing home. This aging population is creating a huge issue of having a high number of people to care for, and not having enough people able to work, to take care of those who can’t work. Because of this disparity, Japan is not very self-sufficient and imports a majority of its food from nearby nations such as China. It has also decreased Japan’s food stuff exports for things such as matcha tea leaves. Japan has a reputation for quality, and cheap imitations of their products don’t cut it in international markets. Vietnam and South Korea have been starting to grow matcha to fill in the matcha void that a declining agricultural field in Japan has now made apparent. However, their matcha is not as high quality as Japan, so it does not sell as well. They lack the knowledge and processing to make high grade matcha compared to Japan.

Currently Japan is undergoing self-sufficiency initiatives, in both energy and agriculture. Japan has started to implement solar farms within matcha tea fields, covering areas of the field with solar panels. This practice is called agrivoltaics This not only can increase the quality of matcha leaves but also increase Japan’s energy self-sufficiency. A Japanese company, Ito En is advocating for using this matcha demand to revitalize old Japanese farmland and bring an agricultural focused culture. Using the knowledge of Ito En, they want to increase jobs in local communities for tea farms. This initiative can bring new blood to a declining industry. (*World Economic Forum*, 2025)

As we can see, due to Japan's aging population, and a lack of new blood, Japanese farming has declined in favor of machine manufacturing. This is starting a trend of more food insecurity, and less self-sufficiency. I believe a global Gen Z trend is the key to turn this trend around by increasing awareness and utilizing Gen Z as they enter the workforce. By collaborating with Ito En and Tea Energy and their ideas, it will provide an alternative job route to urban Gen Z'ers, will bring in a new generation of farmers. This new generation of farmers will be using old farming techniques combined with new agrivoltaics. This new generation will be able to largely help with the rising global demand for matcha. I would like to call this revitalization a different kind of green revolution. A matcha revolution.

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