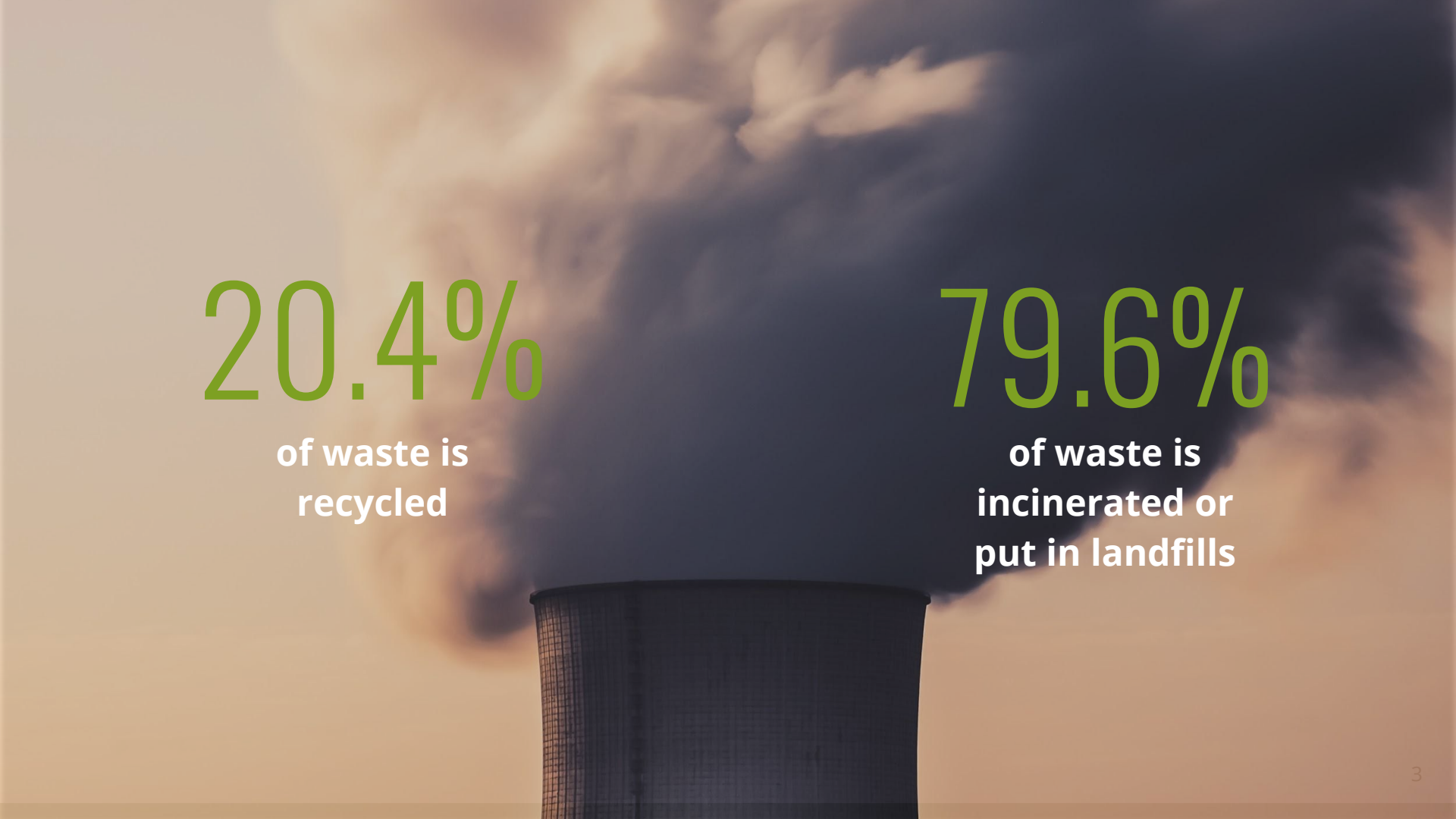
The Kyoto Composting Project

堆肥化活動しましょう

Shruti Bhatia, Mariana Pachon,

Floris van Rossum & Carmine Stabile


14%
of waste in Kyoto is food waste
33%
of food produced in Japan is wasted
62%
of discarded food in Japan is within its expiry date


20.4%
of waste is recycled
79.6%
of waste is incinerated or put in landfills

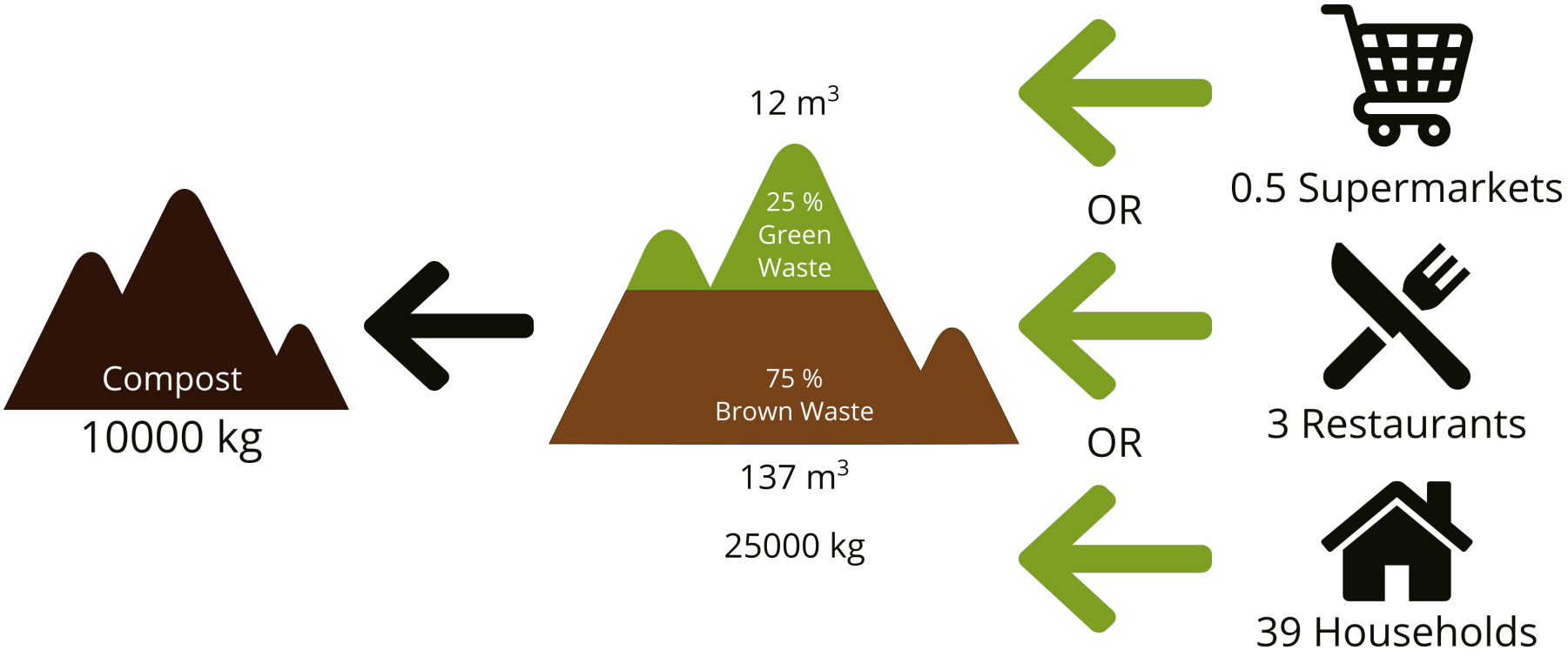
“To bring back the traditional food system to restore the health and environment of Japan.”

- Midori Farm

Identify methods to create a natural, sustainable, and accessible composting system for organic farms

1. Build
2. Collaborate
3. Consume
4. Advocate

Number Analysis



Composting at Midori Farm

Origin of waste

Transportation

Waste storage

Build

Composting technique

Logistics

Processing

Build

Composting at Midori Farm

Collect waste from green waste contributors

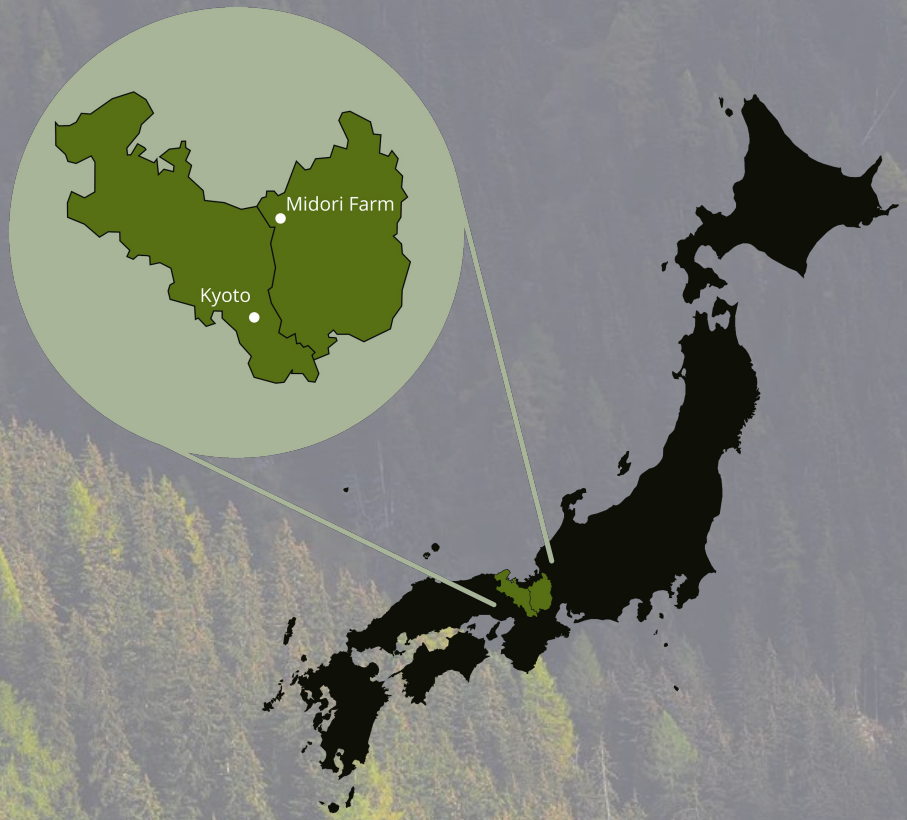
Transport waste to Midori Farm

Empty greens container on the pile

Stir browns and greens

Build

Evaluation - Location



Evaluation - Compost Processing

Composting technique	Windrow composting
Storage of leaves	Pile
Origin of greens	Teikei customers
Origin of browns	Takashima City leaf program

Evaluation - System Logistics

Waste containers	1.3 gallon buckets
Transport	Sponsor’s car
Labor	Midori Farm volunteers

Actionable Steps

Contact green waste contributors → Contact brown waste contributors → Purchase waste containers → Educate volunteers

Build

Composting in Kyoto

Origin of waste

Transportation

Finished compost

Location

Labor

Size

Composting technique

laborate

Logistics

Processing

Collaborate

Existing Organizations

京都大学大学院 地球環境学堂・地球環境学舎・三才学林
Kyoto University Graduate School of Global Environmental Studies

Collaborate

Actionable Steps

Collaborate

Processing

Determine organization

Logistics

Determine cost

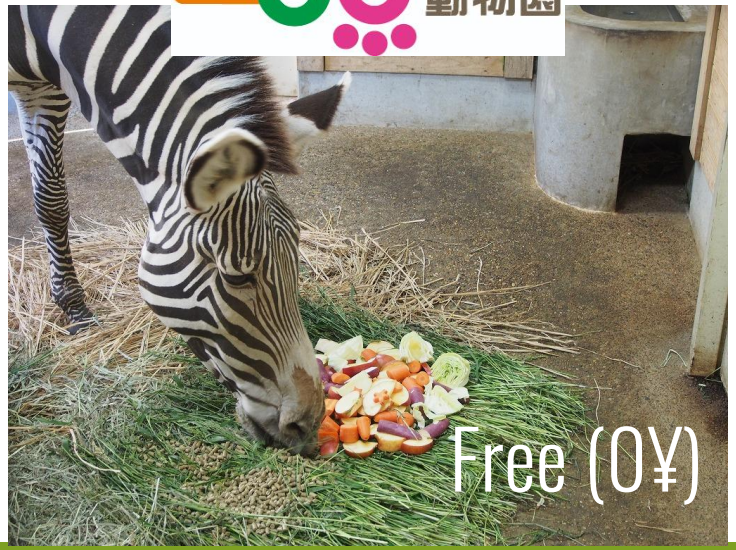
Logistics

Transportation of compost

Consume

Existing Programs

kyoto city zoo 京都市動物園



Free (0¥)

FOOD HUB& LABO

4000¥ / m^3

Consume

Actionable Steps

Contact organizations → Determine Transportation → Determine Cost

Consume

Composting in Kyoto

1.5 million

Population of Kyoto City

Advocate

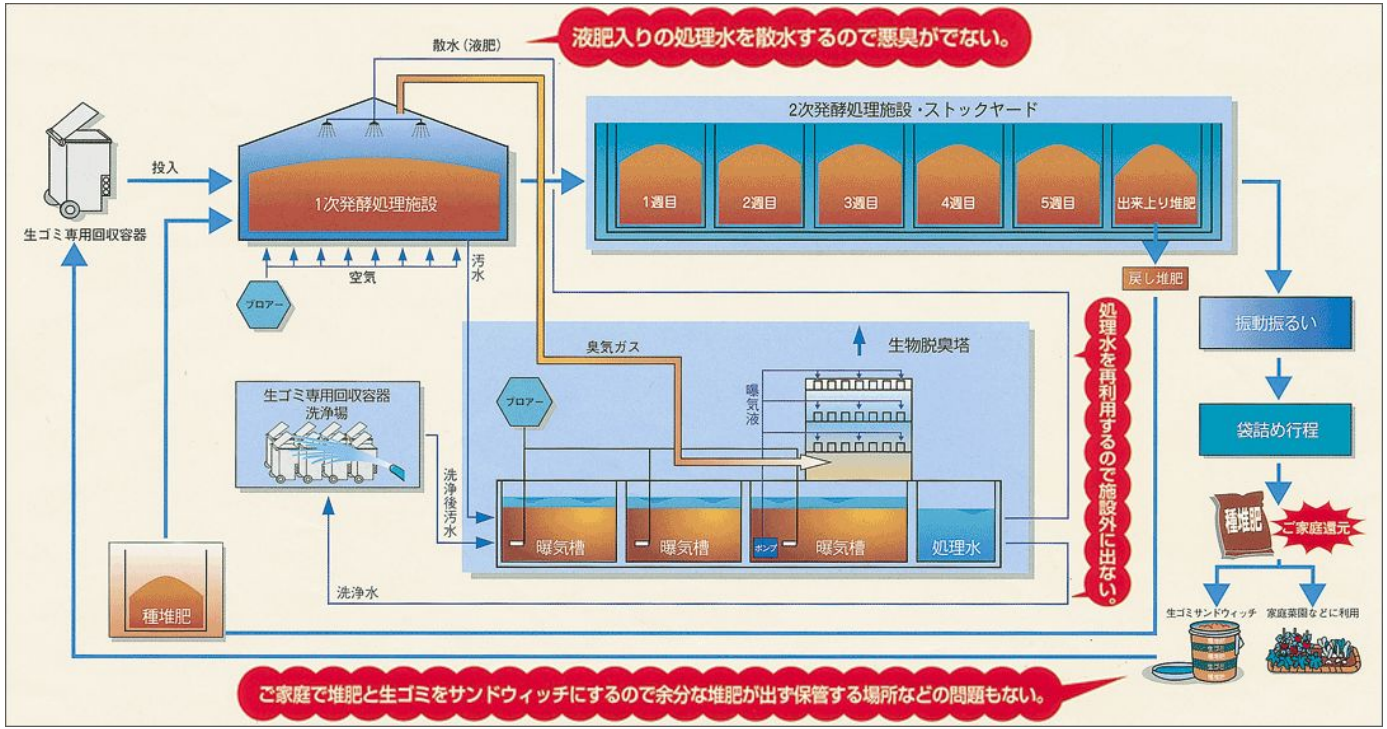
53.6 million

Tourists to Kyoto per year

Advocate

Composting in Kyoto

Composting in Other Areas - Shiga Prefecture



Composting in Other Countries

Contacting Organizations

京都市情報館
Kyoto City

KYOTO UNIVERSITY
KYOTO JAPAN
FOUNDED 1897

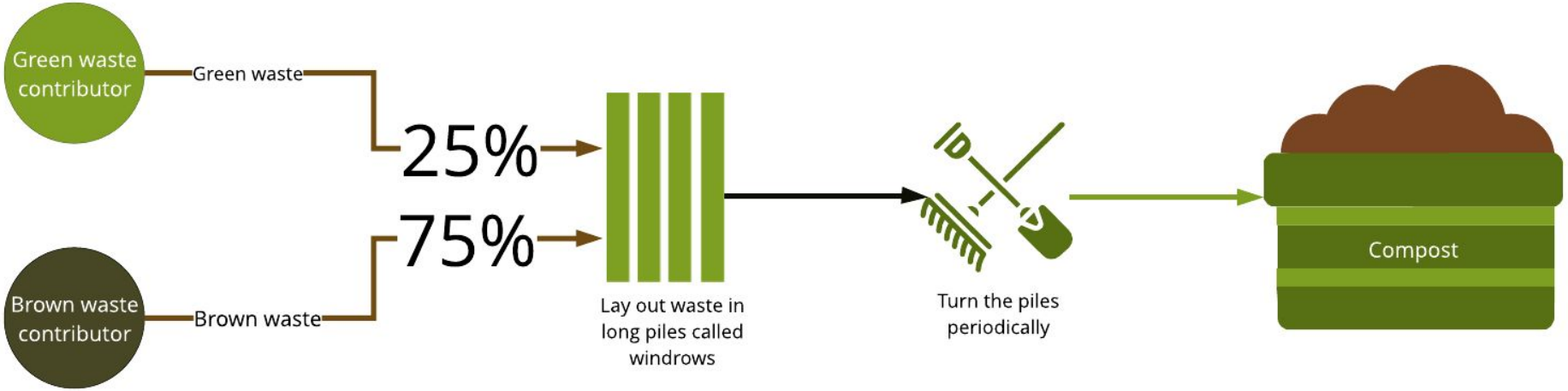
FOOD
HUB&
LABO

Spreading the Word

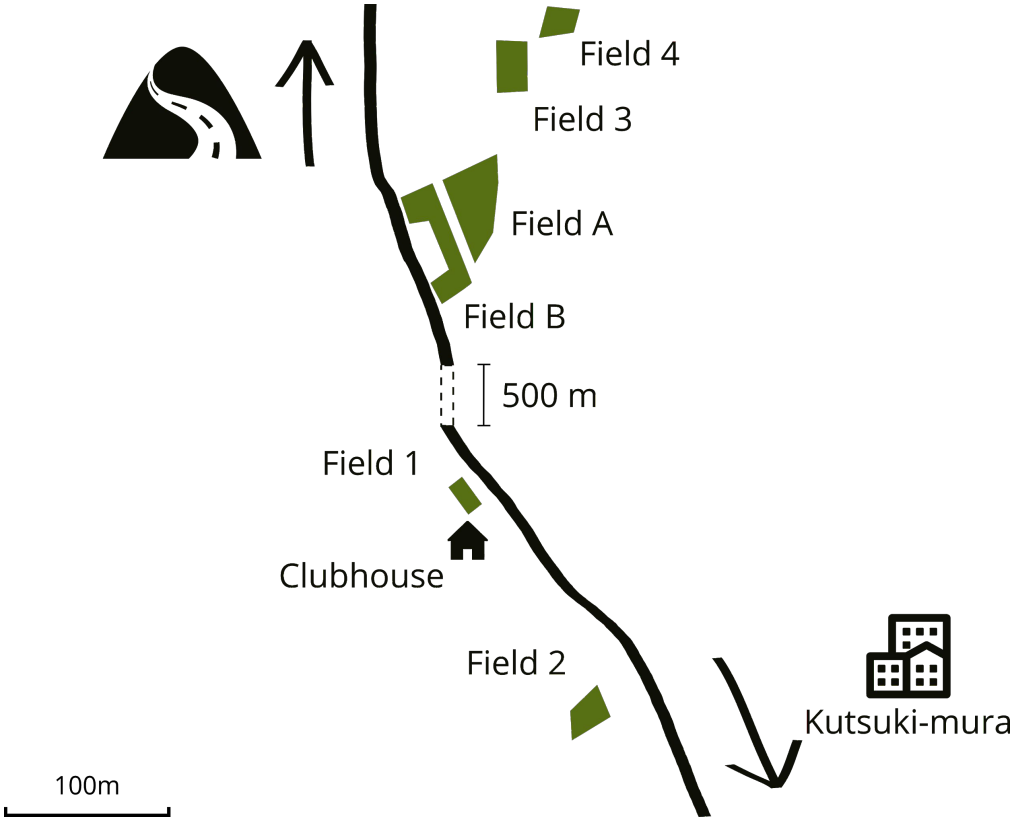
PechaKuchaNight™
20×20
IMAGES SECONDS

gr-midorifarms18@wpi.edu

Windrow Composting Process



Midori Farm Map



Works Cited

Bograd, N., Caronneau, B., Krasa, A., Preston, B. (2017, May 01). Northborough Composting: A Peri-Urban Land Conflict. Retrieved August 31, 2018, from https://cpb-us-w2.wpmucdn.com/wp.wpi.edu/dist/e/97/files/2017/04/Chandler-Final-IQP-Report-FINAL.pdf

Breitenbeck, G. A., & Schellinger, D. (2004). Calculating the Reduction in Material Mass And Volume during Composting. Compost Science & Utilization, 12(4), 365-371. doi:10.1080/1065657x.2004.10702206

Faculty/Graduate School of Agriculture, Kyoto University. (n.d.). Retrieved from http://www.kais.kyoto-u.ac.jp/english/

Khater, E. S. (2015). Some Physical and Chemical Properties of Compost. International Journal of Waste Resources, 05(01), 5. doi:10.4172/2252-5211.1000172

McSweeney, J., & Vermont Agency of Natural Resources. (2015). Turned Windrow Composting: Sizing Your Composting Pad. Retrieved November 27, 2018, from https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/ANR Sizing Your Composting Pad.pdf

Meihang. (2016, November 10). It's Thyme to Talk About Food. Retrieved October 3, 2018, from http://blog.nus.edu.sg/itsthymetotalkaboutfood/2016/11/10/food-waste-management-in-south-korea/

Midori Farm. (n.d.). Retrieved from https://www.midorifarm.net/

Ministry of the Environment, Government of Japan. (n.d.). Retrieved from https://www.env.go.jp/en/

Milton Keynes Waste Recovery Park. (n.d.). Retrieved October 3, 2018, from https://www.ferrovial.com/en/projects/milton-keynes-waste-recovery-park/

Richard, T. L., & Skelton, K. (1990). Yard Waste Composting. Ithaca, NY: Cornell Waste Management Institute. Retrieved November 27, 2018, from http://compost.css.cornell.edu/yardwastecomposting2.pdf

Sakai, S. (2018, October 30). *Food loss, its related environmental impacts and reduction measures*. Lecture presented at Kyoto University International Symposium on "Food & Sustainability" in Kyoto University.

Standard land prices across Japan increase for first time since 1991. (2018, September 19). Retrieved November 28, 2018, from http://japanpropertycentral.com/2018/09/standard-land-prices-across-japan-increase-for-first-time-since-1991/

The story behind the protest in China against planned incineration plants. (2013, October 07). Retrieved from https://innovbusenergyenviro.wordpress.com/2013/10/07/the-story-behind-the-protest-in-china-against-planned-incineration-plants/

Yamada, T., Misuzu, A., Miura, T., Niijima, T., Yano, J., & Sakai, S. (2017). Municipal solid waste composition and food loss reduction in Kyoto City. Journal of Material Cycles and Waste Management, 19(4), 1351-1360. doi:https://doi.org/10.1007/s10163-017-0643-z