

Special Section:
Fostering Socially and Ecologically Resilient Food and Farm Systems
Through Research Networks

Successes and challenges of a university-based agroecological community garden and educational program in Japan

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Abstract

The growing problems associated with industrial agriculture have led to a greater recognition of the significance of alternative agriculture beyond Anglophone and European countries. This article explores Utsunomiya University's Eco-programs, which combine a pesticide-free and synthetic fertilizer-free community garden with an educational lecture and activity series. It draws on ethno-

graphic data from interviews and participant observation, as well as document and archival analysis. Based on our findings, we argue that tensions emerge between the initial agroecological goals with which the Eco-programs were established and other institutional goals pursued at the university. Despite these tensions, the Eco-programs create an important space for participants to encounter and explore agroecological gardening. They also provide an informative example of a transdisciplinary alternative agricultural initiative in Japan. We stress the importance of recognizing the contexts in which alternative agricultural initiatives emerge,

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and the reality that conflicts often arise because alternative agricultural goals differ from the goals of the markets, states, and bureaucracies in which they operate.

Keywords

Community Garden, Alternative Agriculture, Agroecology, University Farm, Japan

Introduction

In contrast to the dominant model of capitalist agriculture that relies on synthetic fertilizers and pesticides, scholars have drawn attention to the importance of cultivating alternative models, known by a variety of names, including agroecological agriculture, diverse agriculture, and regenerative agriculture (Anderson et al., 2021; Kremen et al., 2012; Rhodes, 2017; Sarmiento, 2017). Much of this alternative food scholarship focuses on Anglophone or European countries. Just as major differences emerged between alternative food in the U.S. and Europe (Holloway et al., 2007), so too does alternative agriculture vary based on the context in which it emerges (Schrager, 2018; Sonnino & Milbourne, 2022). Scholars have analyzed multiple aspects of alternative agriculture in Japan, including the teikei community supported agriculture (CSA) movement (Kondo, 2021; Kondoh, 2015), organic agriculture (McGreevy, 2012; Moen, 1997; Rosenberger, 2017), the mobilization of citizen scientists to monitor food safety in the aftermath of the Fukushima disasters in 2011 (Kimura, 2016; Sternsdorff-Cisterna, 2018), and the hybrid zones between peasant and corporate agriculture (Hisano et al., 2018). Though similar issues emerge across these initiatives, the larger alternative food movement in Japan is better thought of as multiple overlapping movements that respond to the negative consequences of the expanding industrialization and centralization of food systems in Japan and around the world.

This article examines Utsunomiya University's Eco-farm and Eco-college programs as one such example of an alternative agricultural initiative in Japan. The Eco-farm is a pesticide-free and synthetic fertilizer-free community garden established

by Professor Emeritus Maeda Tadanobu.¹ It opened to the public in 2006. After Maeda retired in 2008, the university combined the Eco-farm program with a newly established educational lecture and activity series called the "Eco-college" program. We use "Eco-programs" to refer to both the Eco-farm and the Eco-college programs.

We argue that tensions exist between the objectives of the Eco-farm and Eco-college programs. While the Eco-farm was initially established by Maeda in response to his concerns over the excessive use of agrochemicals in Japanese agriculture, the decision to introduce the Eco-college program and combine it with the Eco-farm program reflected the university's institutional goal of engaging in community outreach. During the COVID-19 pandemic, the Eco-programs were suspended for two years. We believe the decision to suspend the programs might have been avoided if the Eco-farm's contribution to the resiliency of local food systems and communities had been formally recognized. Such divergences between the goals of institutions and the goals of alternative agricultural initiatives are far from unusual. They emerge frequently, due to the pressure initiatives face from the markets, states, and bureaucracies in which they operate.

The Eco-programs foster opportunities for participants to encounter agroecological farming. Given the prevalence of agrochemicals and synthetic fertilizers in Japanese agriculture, the Eco-programs offer a unique space for participants to avoid these industrial practices. University farm faculty and staff manage the agronomic and bureaucratic administration of the program. Every March, farm staff use tractors to spread composted cow manure and mix it into the soil, providing participants with access to high-quality soil in which they can grow agrochemical-free and synthetic fertilizer-free crops. While community gardens are common throughout Japan, they seldom prohibit the use of agrochemicals and synthetic fertilizers. To the best of our knowledge, the Eco-program is the only community garden in Japan that combines the characteristics of being administered by a university, prohibiting the use of agrochemicals and

¹ Japanese names are written using the Japanese order so that the family name precedes the given name.

synthetic fertilizers, and enlisting participants in an educational and activity series. The Eco-programs are transdisciplinary because they provide an agroecological community garden to nearby residents that, along with the lecture series, fosters a unique learning and research environment for participants.

This article is authored by three faculty in Utsunomiya University's Agricultural Department. Two of the authors are faculty at the university farm, one of whom currently directs the Eco-programs. These authors provided information on the history and operation of the Eco-programs. From November 2022 to January 2023, the first author interviewed six Eco-program participants, one Eco-college lecturer, and the now emeritus faculty who created the Eco-farm. These interviews explore the Eco-programs' connection with the themes of this special issue's focus on transdisciplinary research networks and regenerative food systems. In April and May 2023, the first author conducted participant observation by joining the Eco-programs, attending Eco-college events, and tending a plot with graduate students. As DeLind (2011) shows, interviews and participant observation are suitable methods for linking specific case studies with broader developments in alternative agriculture networks.

The article is structured as follows. First, we provide background on the Japanese context and how it intersects with the themes of the special issue. Next, we introduce Utsunomiya University and the background of the Eco-programs. Then, we describe the Eco-farm and Eco-college programs. Last, we draw some conclusions. We expect that the Eco-programs differ significantly from other collaborative research networks in this special issue. We hope that these differences can broaden what practitioners can learn from the wide range of projects operating in different contexts, creating new opportunities for future exchange, and strengthening the resiliency of these networks.

The Context for Alternative Agriculture in Japan

In this section we briefly examine the context of alternative food systems in Japan. We begin by noting that, while the context of alternative agriculture in Japan emerged in a unique context that dif-

fers from that in Western countries, major differences also persist within and between Western countries. Holloway et al. (2007), for example, contrast ideas of alternative agriculture that emerged in the U.S. with those that emerged in Europe. They argue that, in the U.S., alternative agriculture emerged through oppositional politics and commitment to social justice, but that alternative agriculture in Europe tends to be less oppositional and encompasses a diverse range of motivations. Alternative agriculture is better understood as an idea that emerges through situated geographies rather than as a universal idea that operates in space (Schrager, 2018). Initiatives like the Eco-programs may differ significantly from English-language ideas of alternative agriculture, and so such programs should be considered in the broader context from which they emerge.

In an analysis of natural farming and organic agriculture in Japan, Miyake and Kohsaka's (2020) periodization distinguishes between the natural farming (*shizen nōho*) methods that took hold in the 1930s, the organic farming and teikei systems that emerged in the 1970s, and the institutionalization of organic certification through government-implemented standards in the 1990s. They argue that the earlier natural farming of the 1930s and organic agriculture of the 1970s maintained a strong connection to nature (*shizen*) and philosophies rooted in environmentalism. In so doing, these earlier initiatives promoted agroecological approaches to farming. In contrast, the government's formalized approach to organic agriculture in the 1990s emphasized market-based goals.

Community gardens were one facet of Japan's alternative agriculture movement. They are called *shimin nōen* in Japanese, which translates as "citizen gardens," indicating a direct link between community gardens and the ideals of citizenship. In an analysis of the historical development of Japan's community gardens, Kudo (2009) identifies three different periods. During the first period, from the 1920s to the 1950s, shared green spaces for gardening drew on Western park designs that were repurposed to provide spaces to grow food amid wartime deprivation. During the second period, from the 1960s to the 1980s, demand for community gardens increased as Japan experienced rapid

Table 1. Key Developments for Alternative Food, Community Gardens, and Organic Certification in Japan

Period	Administration	Orientation	Description
1920s	Local government	Community garden	Public parks and green spaces inspired by Western park design ideas.
1930s	Decentralized	Alternative agriculture	Natural farming promoted by charismatic leaders and serving as an alternative to industrial methods.
1940s	Local government	Community garden	Parks adjust to provide spaces for food production in response to wartime and post-war deprivations.
1960s	Local government	Community garden	Urban demand for community gardens increases as rural to urban migration expands alongside Japan's rapid economic growth.
1970s	National organization	Alternative agriculture	The Japan Organic Agriculture Association (JOAA) is founded in 1971 with a commitment to environmental activism.
1990s	Government ministry	State policy	The Ministry of Agriculture, Forestry and Fisheries (MAFF) introduces a national standard for organic certification.
1990s	National government	Community garden	Changes to regulations facilitate the establishment of community gardens.
2010s	Decentralized	Alternative agriculture	Distrust of government and corporate control deepens in response to the 2011 Fukushima disasters.
2020s	Government ministry	State policy	MAFF introduces the green food system strategy with the goal of increasing organic farmland to 25% by 2050.

urbanization, economic growth, and trade liberalization. During the third period, from the 1990s to the present, new regulations have facilitated the establishment of community gardens, responding to citizens' growing desire to reconnect with agricultural production. Table 1 identifies the administrative scale and organization of these developments for alternative agriculture and community gardens in Japan.

In addition to these key developments, we identify several defining characteristics of the historical development of alternative agriculture in Japan. First, charismatic leaders have been influential in the establishment of alternative initiatives, leading to a diverse array of alternative initiatives across which coordination is limited. Second, due to several highly publicized, violent incidents associated with leftist activism in the late 1960s and early 1970s (Steinhoff, 2013), alternative agricultural movements often distanced themselves from overt political activism. Third, the interjection of the government into alternative agriculture, such as through the introduction of a national organic standard, increased suspicion within the alternative movement of the centralization of government and

corporate control. As a result, alternative agriculture in Japan is decentralized, with an emphasis on adherence to self-identified values and practices. This decreases coordination within the movement and legibility for outside observers.

In the English-language literature, Fukuoka Masanobu (1913-2008) is one of the most widely recognized alternative agricultural leaders from Japan. Fukuoka worked as a crop scientist before committing himself full-time to managing his own farm in Kochi Prefecture and teaching others his evocatively named "do-nothing" way of farming. Fukuoka (1975/1978) writes, "To plant, I simply broadcast rye and barley seed on separate fields in the fall, while the rice is still standing. A few weeks later I harvest the rice and spread the rice straw back over the fields" (p. 3). Admirers from around the world studied at Fukuoka's farm and translated some of his writings into other languages, forming the community described in Korn's introduction to Fukuoka's (1975/1978) *The One-Straw Revolution*. This book would go on to elevate international awareness of Fukuoka's methods. Fukuoka is a prominent example of the key role that leadership plays in establishing alternative agricultural

initiatives in Japan.

In the late 1960s, *teikei* emerged as an influential system for promoting alternative agriculture (Kondoh, 2015). *Teikei* often organized around regular deliveries of produce from environmentally inclined producers to like-minded consumers, a precursor to today's CSAs. As opposed to orthodox CSA, *teikei* encompassed a diverse range of producer and consumer collectives. The Japan Organic Agriculture Association (JOAA), founded in 1971, became strongly associated with *teikei* leadership and activities (Kondo, 2021). The founders of JOAA maintained a commitment to political activism, with many of its early leaders actively challenging the logic of capitalist agriculture (Moen, 1997). For example, JOAA members put forward "The Ten Principles of *Teikei*" in 1978, including precepts that encouraged "participatory, democratic involvement by all members" and "attaining a balance with nature and a relationship of human equality that is based on organic agriculture and the organic link between farmers and consumers" (Moen, 1997, pp. 18–19).

While organic agricultural activism surged in the 1970s, Japanese society began souring to leftist activism. A key event in the shift away from confrontational protest occurred in February 1972, when leaders of the United Red Army, a militant leftist group, took hostages at the Asama Sansō mountain lodge in Karuizawa while fleeing from the state. Police demolished the building with a wrecking ball and the hostages eventually emerged unharmed in a confrontation that was watched "by over 90% of the television viewing audience" and cast a pall over overt political activism in Japan (Steinhoff, 2013, p. 153). Japan's environmental activism similarly underwent a shift away from confrontational protests and toward more localized mobilization, which the government sought to resolve by creating new bureaucracies that treated protesters' claims as a set of technical disputes (Avenell, 2012). Along with changing attitudes toward political activism, alternative agricultural organizations shifted their stance on political protest as they sought to create a welcoming atmosphere for potential members.

The JOAA encouraged the government to introduce a Japanese Agricultural Standards (JAS)

for organic agriculture, and one was eventually adopted in 2001. After the government introduced the national organic standard, however, few JOAA farmers opted to certify their farms. Rosenberger (2017) explains that JOAA farmers "refused to sit on a government committee with large organic producers whose organic principles were more lenient than theirs" (p. 17). Even though many alternative farmers avoided centralized certification schemes, their avoidance did not indicate a commitment to political activism. Rosenberger (2017) finds that young JOAA farmers in their 30s and 40s are less inclined to emphasize organic agriculture as a social movement and more inclined to emphasize practical goals, such as having a high quality of life and cultivating connections with the rural communities where they reside.

The triple disaster at the Fukushima nuclear plant on March 11, 2011, caused irradiated food to enter the Japanese food system, creating a mobilization of citizen scientists who wanted to ensure that food was safe to eat (Kimura, 2016; Sternsdorff-Cisterna, 2018). For example, Kimura (2016) reveals how mothers framed their concerns as a maternal commitment to protecting the health of their children. The surge in food safety concerns among the Japanese public contributed to burgeoning interest in alternative food networks (Hisano, 2015; Rosenberger, 2016). Today, new pathways are emerging for young farmers in Japan, but Japanese agriculture faces daunting structural issues of graying farmer demographics and growing swaths of abandoned farmland (Hisano et al., 2018; McGreevy et al., 2019), as well as a looming transition among its leadership to younger generations. Kondo (2021) illustrates these challenges, as some *teikei* have transitioned to paying wages to workers instead of relying on volunteers, but these workers tend to express a lower commitment to movement ideals.

Despite Japan's low level of organic certified agricultural land, the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF) announced an ambitious green food-system strategy in 2021 that aimed to increase the share of organic farmland from 0.5% in 2018 to 25% in 2050 (MAFF, 2021). The national government's promotion of organic agriculture reflects a growing conviction among policymakers in the benefits of certifying the

Figure 1. Arial View of Utsunomiya University's Farm

adoption of more rigorous production standards.

Apart from a few national organizations such as JOAA, most of the alternative agricultural initiatives in Japan are decentralized, without a reliance on national organizations or certification. For example, the Asian Rural Institute is an educational Christian nonprofit that operates in Tochigi Prefecture, about 31 miles (50 km) away from the Eco-farm, and teaches sustainable agriculture and community leadership to about 25 international students annually. Founded by the charismatic leader Takami Toshihiro, this school also faces tensions between its differing goals (Senda-Cook, 2021). Dispersed throughout Japan are a wide range of initiatives that contribute to the resiliency of alternative food networks, but their decentralized nature complicates efforts to recognize and evaluate the impacts of their activities. Major hurdles remain to building a more resilient food system that fosters the successful implementation of organic agricultural practices. Programs like Utsunomiya University's Eco-programs can help to reduce these hurdles by providing a unique space for participants to experience and experiment with agroecological farming.

Utsunomiya University and the Origins of the Eco-programs

Utsunomiya is the prefectural capital of Tochigi Prefecture and its most populous city, with 520,000 residents. Despite being a major regional hub, Utsunomiya is overshadowed by the metropolis of Tokyo that looms 63 mi. (100 km) to the south. Utsunomiya University is a national university (*kokuritsu-daigaku hojin*), and the agricultural department is one of its oldest departments, founded in 1923. In 1983, Utsunomiya University established a university farm about 9.3 mi. (15 km) away from its original campus to more rural environs in Moka City. Utsunomiya University's farm is about 250 acres (101 hectares), making it one of the largest university farms in Japan. The farm has dairy cows, wagyu cows, rice paddies, fruit trees, and vegetables (see Figure 1).

In the 1980s and 1990s, Japanese universities moved to emphasize more than just education and research to include their institutions' contributions to society (*shakai koken*) (Zhang, 2018). Utsunomiya University established the Center for Regional Collaborative Education and Research (*Chiiki renkei kyōiku kenkyū sentā*) in 1991. During this period, the

university emphasized giving back to the communities in which it operated. The research farm was established with social contributions as a priority; therefore, the farm is oriented to conduct outreach to students, farmer communities, and neighboring residents. The crops and livestock raised on the farm serve as a model, both for teaching the public about agriculture and for demonstrating best practices. The faculty have also introduced new commercial varieties. The most successful of these is a variety of rice called “Udai21”, introduced by Emeritus Professor Maeda Tadanobu in 1990. Udai is pronounced “you-dye”, which sounds similar to the Japanese nickname for Utsunomiya University (*Utsunomiya Daigaku* → **U-dai**). Udai21 has received the top award at numerous rice tasting competitions in recent years, increasing its exposure beyond Tochigi Prefecture.

In addition to Udai-21, Maeda also founded the Eco-farm. The university opened the Eco-farm to the public in 2006 as an offshoot of longstanding research by university faculty and researchers on agroecological farming. In an interview, Maeda recalls related activities prior to the establishment of the Eco-farm:

Rachel Carson’s *Silent Spring* was big news even in Japan. Of course, some students would want to experiment [with agrochemical-free farming]. This was before the University Farm was built. Back then, I was working in the Mine campus at what we called the “Central Farm” (*chūō nōjō*). I had a lot of freedom to pursue my interests. (Fieldnotes, January 2022)

Tracing the lineage of the Eco-farm back to Rachel Carson (1962), Maeda emphasizes that he and his students sought to avoid using agrochemicals. He started the Eco-farm in response to his long-term concern over the over-use of agrochemicals in Japanese agriculture and his interest in agroecological farming.

Maeda described another event that contributed to the establishment of the Eco-farm:

The nearby cattle operation had a lot of composted organic manure that they were stuck with. The deal they had in place to sell it fell

through. They contacted us and asked if we couldn’t work something out. For a big cattle operation like that with something like 100 head, they produce a lot of waste. I was like, “Okay, please bring the compost to the farm.” They piled it all up in a mountain that weighed like 100 metric tons. That was so much we couldn’t easily use it up. (Fieldnotes, January 2022)

Maeda went on to explain that they wanted to put the compost on the fields, but putting too much compost in the shallow upper layer of the soil would harm the crops. To figure out how to use this bounty of compost, they experimented. Instead of the usual 6 in. (15 cm), they tilled the fertilizer 12 in. (30 cm) deep into the soil. Using these deep-till methods, Maeda determined that they could boost yield by applying more than double the amount of compost without any adverse consequences.

Maeda’s charismatic leadership enabled him to establish new initiatives like the Eco-farm. In 2006, Maeda oversaw the opening of the Eco-farm to the public in a program called the “Open Eco-farm” that operated as an agrochemical-free and synthetic fertilizer-free community garden. Under Maeda, participants were not charged a fee. There were no mandatory lectures or activities for participants, but on two Saturdays per month, Maeda visited the Eco-farm to give advice and discuss the challenges of the program and alternative agricultural practices with participants. While Maeda’s leadership and commitment to alternative agricultural practices proved crucial to the establishment of the Eco-farm, he retired two years later. After Maeda retired, the goals of the Eco-farm shifted to fulfill the university’s institutional goal of community engagement, a shift discussed in the Eco-college section.

Eco-programs

In the ensuing sections we describe and analyze the Eco-programs.

The Eco-farm Community Garden

The Eco-farm community garden is tucked in a corner of Utsunomiya University’s farm. Each

year, participants apply for the program and, if accepted, pay 5,000 yen (~US\$40) to join and gain 10 months of access to a garden plot. After Maeda retired, the program directors decided to charge a fee for participants to receive a garden plot, and this fee was reportedly calculated based on the value of surrounding farmland. Compared to other community gardens in Tochigi Prefecture, the fee for the garden plot is low. Agrochemical-free and synthetic fertilizer-free community gardens are rare, and so some participants drive from as far as an hour away to access this community garden. In 2022, the Eco-farm had 32 plots managed by 58 participants. Individual plots are 18 ft (5.6 m) by 34 ft (10.5 m) or 633 ft² (58.8 m²). Since actively tending this size garden without agrochemicals can be physically demanding, some participants split their plot with family or friends. The plots can also produce a lot of food; gardeners describe their plots as producing more than they can eat and their enjoyment of sharing what they cannot eat with others. The garden also has a communal area for people who want additional space that is 265 ft (80.8 m) by 33 ft (10 m) or 8,700 ft² (808 m²). The total size of the Eco-farm

is roughly two acres (8,000 m²) (see Figure 2).

There is a transitory period from late February through March when the academic year ends and gardeners lose access to their plots. Participants must reapply to the Eco-programs each year, and each year they are assigned a random plot. The break in February and March enables the university to manage the Eco-farm's soil. Although gardeners accept these decisions as being beneficial overall, they noted some drawbacks. The break prevents them from growing perennial crops or some winter crops, such as onions. Also, while the random allotment of garden plots ensures that each participant has equal access to favorable plots, this randomness limits their knowledge of each plot. By the time they have figured out what grows best where, a new year is approaching, and with it, a new plot.

In 2022, farm staff conducted seven tasks over the break from late February to March (see Table 2). Staff tilled the soil multiple times. After applying 8,800 lbs. (4,000 kg) of cow compost, they tilled the soil to a depth of 8–10 in (20–25cm). The university has cattle, so the cow compost is sourced from within the university farm as part of

Figure 2. Aerial View of the Eco-farm Community Garden



Table 2. Maintenance of Eco-farm in 2022

Date	Machinery	Attachment	Notes
2/21	Ford 7840	Subsoiler	Depth 20-24 in (50-60cm)
3/9	Yanmar CT80	Rotary	Depth 8-10 in (20-25 cm)
3/12	Ford 7840	Manure spreader	8,800 lbs. (4000 kg) cow compost
3/12	Wheel Type Loader Mitsubishi WS210	Bucket	
3/14	Yanmar CT80	Rotary	Depth 8-10 in (20-25 cm)
3/23	Yanmar CT80	Rotary	Depth 8-10 in (20-25 cm)
3/23	Kubota KL53ZH	Ridger	
5/20	Kubota SL55	Disc harrow	Clearing weeds
9/28	Kubota KL505	Disc mower	Clearing weeds

an integrated crop and livestock system. As Table 2 indicates, the Eco-farm leverages the university's resources in the form of staff labor and machinery to provide participants with a solid foundation from which they can experiment with alternative gardening practices.

Eco-farm Gardeners

Utsunomiya University faculty conduct a survey of Eco-farm garden plot holders every year. In 2022, the Eco-programs survey had 26 respondents out of 32 plot-holders, for a response rate of 81%. The following crops were grown by at least 20% of respondents: daikon (65%), taro (65%), potatoes (65%), sweet potatoes (62%), peanuts (50%), edamame (46%), kabocha (Japanese pumpkin) (42%), komatsuna (27%), green onion (27%), hakusai (27%), ginger (27%), cabbage (23%), spinach (23%), and watermelon (23%). All of these popular crops can be bought in local supermarkets and farmers' stands. However, participants want to grow these crops on their own, and those who were interviewed were adamant that the food they grow tastes better and is sweeter.

Two first-year gardeners, Kaori² and Chieko, who share a plot, illustrate how the university provides a strong foundation for amateur gardeners to grow food. In an interview, they enthusiastically rattled off some of the crops they grow: azuki, edamame, arugula, komatsuna, watermelon, cucumber, eggplant, basil, kabocha, green pepper,

okra, gōyā (bitter melon), daikon, carrots, beets, sweet potatoes, potatoes, and taro. Kaori, a woman in her mid-60s, explained, "This is my first year, so I want to try growing lots of things." She also explained some of her background with farming and gardening:

My family are rice and onion farmers. They used to grow things like tomatoes and cucumbers. I've seen that and I know how to grow it. They plant it, it becomes like this [big gesture], but in my garden when I plant it, it becomes like this [small gesture followed by laughter]. Why is that? I thought at least it would get this big [medium gesture]. (Fieldnotes, Dec. 2022)

Although Kaori has a background in farming, she struggled to grow crops on her own. Later in the interview, Kaori elaborated on how the management of the land by university staff enabled her to successfully grow crops. She said, "Even without doing anything, there is good soil. If you plant seeds, you can do it. Just like that. For someone like me who doesn't know anything, it was really easy." This description of gardening as easy is best understood as easy in comparison to gardening without the support of the university's management of the soil. The easiness also indicates the enthusiasm she feels for, and pride she takes in, gardening at the Eco-farm.

Kaori shares her plot with Chieko, a woman in

² Kaori and Chieko are pseudonyms.

her late 50s. Like Kaori, Chieko turned to the Eco-farm after failing to grow food on her own. She said:

For two years, I tried growing vegetables in planters on my veranda. Of course, I wanted to get agrochemical-free vegetables. It didn't go well at all because of the bugs. After the bugs got into it, I did research and tried different things, but of course it didn't turn out well. At that time, I learned about [the Eco-farm]. Rather than growing by myself, growing with other people is a much better way to learn. (Fieldnotes, December 2022)

Later in the interview, she elaborated on the benefit of being a part of an active community of agroecological gardeners:

When I did it by myself in the planter, the only way I could get information was by searching the Internet. I try doing it the way they say, but it didn't turn out well. From that view, becoming a member here I'm able to get realistic advice from veteran (*senpai*) gardeners who know a lot. "It's actually like this." This type of advice is hard to find. (Fieldnotes, December 2022)

Kaori did not have the knowledge and support to grow agrochemical-free food on her own, but after joining the Eco-farm she gained not only the institutional support of good soil, but has also become part of a community of gardeners who share knowledge, tools, and seeds with each other.

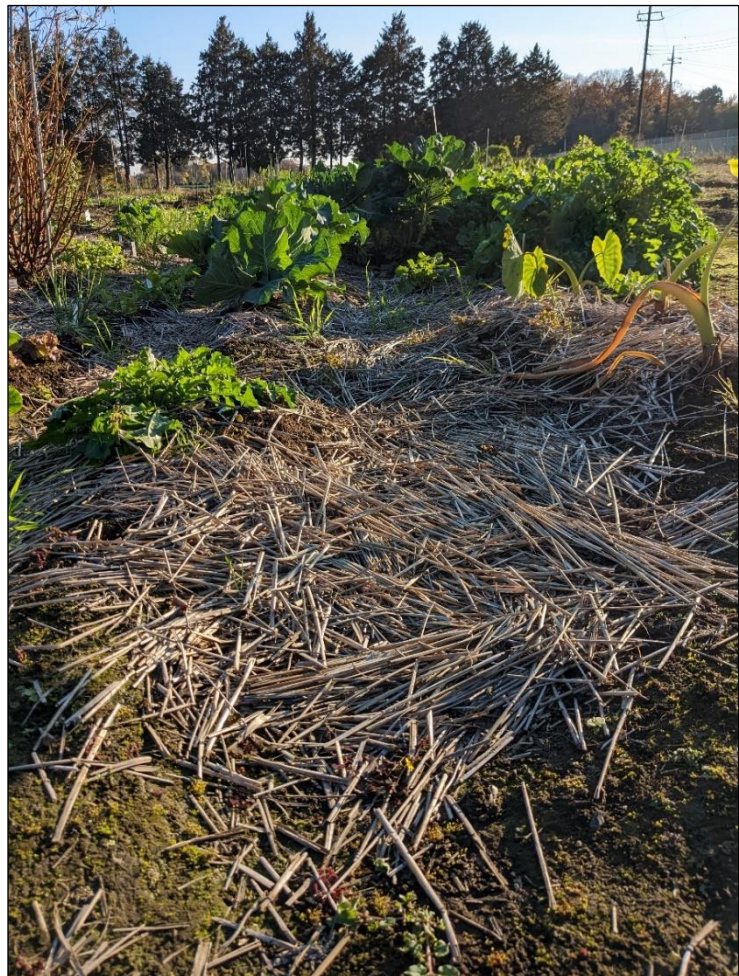
The biggest challenges that gardeners reported were from weeds, insects, birds, and disease. The gardeners frequently mentioned how much time they spend pulling weeds. Since there are restrictions on using plastic, they use organic material such as rice chaff to hinder weed growth (see Figure 3). The gardeners acknowledged the unpredictability of

growing crops at the Eco-farm. A longtime participant in her late-70s explained:

Even in the same plot, I put taro here it grows and here it doesn't grow at all. It's mysterious. I use the same seeds. ... And this year our hakusai was decimated. Previously, we were able to grow it well. But it's not the same field. The cabbage nearby is turning out wonderfully. We have things that melt. This year it's hakusai, but four or five years ago our carrots melted. That's definitely because the previous gardener grew something like the same thing in that spot. (Fieldnotes, December 2022)

As the participant points out, her knowledge is limited, because plots are randomly assigned every

Figure 3. Rice Chaff Used on a Garden Plot to Reduce Weeds



year. If she could keep the same plot, then she could experiment with strategically rotating crops. But as was previously noted, randomly assigning plots is one of the Eco-farm rules that is intended to ensure that all participants are treated equally.

Through participant observation, we observed that the Eco-farm garden helps to create unique exchanges and experiences, as well as fosters generosity among participants. Some participants bring their children along with them to the community garden for joint activities such as rice planting. Their children then play in the mud and soil. Given the restrictions on agrochemicals, the Eco-programs provide parents with additional confidence to permit their children to get dirty and experience gardening. We also benefited from the generosity of more experienced members, who helped us establish our own plot. As first-time participants, we were appreciative when a veteran member showed us how to use various tools in the shared Eco-farm shed. When we expressed interest in farming sweet potatoes, they gifted us sweet potato and taro and showed us how to plant them in our plot. Following an interview with a participant in November 2022, she insisted on gifting us a large daikon and hakusai from her plot. We saw seedlings given away for free in the toolshed, and learned from a participant how disposable chopsticks are a useful tool for transplanting seedlings into our garden bed. The Eco-farm provides a space for program participants to experiment and to foster a community around agroecological gardening.

Eco-college

Utsunomiya University's website describes the Eco-programs on a webpage dedicated to the local contribution (*chiiki koken*) of the university farm as follows:

Citizens with an interest in organic agriculture, food safety, and local consumption of local products voluntarily manage the Eco-farm with advice from faculty on how to grow agricultural produce. Once a month, there is a lecture and joint activity for the participants that creates an opportunity for exchange. (Utsunomiya University, 2023, para. 2)

After Maeda retired in 2008, the faculty in charge of the Eco-farm combined it with a new lecture and activity series called the Eco-college. The precise justification for combining the Eco-farm with the Eco-college program is unclear, but university administrators appear to have sought to link the agroecological community garden with regular events that explicitly connect with the university's goals of education and community outreach. The Eco-programs pressure participants to attend Eco-college events by taking attendance and situating future enrollment in the program as contingent on attendance.

When Maeda established the Eco-college, he invited participants to join in activities such as rice planting, but participation was voluntary. His bimonthly visits to the farm created opportunities for applied conversations focused on the challenges of alternative gardening practices. In contrast, the Eco-college operates as a lecture series that occasionally organizes joint activities such as rice planting. Although participants are present in the same room during lecture, there are few opportunities for them to interact with each other. For participants, the gap between the Eco-farm and Eco-college programs can be jarring. For instance, after attending the Eco-farm orientation on April 8, 2023, a participant shared their confusion as we walked over to survey our plots. They had been hoping that they would learn what they should do with their plot and still felt at a loss. Perhaps they had been expecting that the orientation would be more of an interactive forum for sharing information on alternative gardening techniques suitable to the Eco-farm. Instead, the first half of the two-hour event focused on welcoming participants and explaining logistical changes from the previous year. The second half was a special guest lecture on spring crops. Most of the Eco-college lectures are given by university farm faculty, and the content of these lectures resembles their outreach and educational presentations.

One gardener in his early 70s, who has been participating in the program for the last 15 years, brought to the interview a huge binder with all the lecture slides that the lecturers distribute. Told that we would like to have a chance to study these documents in more detail, he responded, "Every year,

we get similar documents.” He then added, “There are parts that change a little bit.” The educational benefits that participants receive from attending the Eco-college appear to decline over time. During the question-and-answer time at the tail end of a two-hour lecture on April 29, 2023, one elderly male participant stood up and shouted, “Let’s go home!” The current structure of the program requires Eco-farm participants to attend variations on the same agriculture-themed lecture and activity series every year, in order to access an affordable agrochemical-free and synthetic fertilizer-free community garden.

The current iteration of the Eco-college diverges from Maeda’s initial pedagogical approach of active learning with an emphasis on agroecological goals. If the goal of the Eco-college is not agroecology, but rather community outreach, the program could be made open to the public and not limited to Eco-farm members. Institutionally, this might well prove difficult, as outreach would be required to ensure an adequate number of attendees at each lecture or activity. Interviews with program participants and participant observation indicate that the Eco-programs would benefit if the goals of the Eco-farm and Eco-college programs are clarified to determine the extent to which the goals of these programs are complementary. If the goal of the Eco-farm is to foster a community space for exploring and refining agroecological gardening, then group activities should be designed to work toward that goal. Gatherings of Eco-farm participants that might further this goal include small group discussions of agronomic challenges, creating a handbook for new members, and demonstrating how to use the different tools in the community shed.

Eco-farm Rules

The word organic (*yūki*) is frequently used in connection with the Eco-farm. This usage of organic does not indicate organic certification, but rather a commitment to alternative and natural farming. The Eco-farm has stricter rules than organic certification in some respects, but is more lenient in others. Because the Eco-farm uses cow manure from cows that are not certified organic and eat feed that is not certified organic, the Eco-farm would not

qualify for organic certification. However, in other ways, the Eco-farm is stricter than organic certification, because the use of all agrochemicals, including so-called organic agrochemicals, is prohibited. A senior member of the group in his early 80s described how he helped establish a detailed set of rules that could be enforced:

Before we made stuff, there were lots of people who didn’t follow the rules. I saw that the rules weren’t being followed and wrote up detailed rules and gave it to the office. The next year when there was the opening of the farm, they distributed the rules. In particular, people would bring children to play, but it was very dangerous. People would use string to keep the birds out of their plots, but they were using fishing string that is thin and can’t be seen. That was dangerous for children. We banned that. We make sure to put that in the rules. We tell people, “That was in the rules, wasn’t it?” And so we can strongly protect the rules. (Fieldnotes, January 2022)

Aside from the rules against using synthetic fertilizer and pesticides, many of the rules prohibit the use of plastic coverings and stands so that this plastic does not get left behind in the soil. Additionally, in interviews, participants described a debate over the best way to handle seedlings. Garden stores often sell seedlings that are easier to grow than seeds, but are treated by the stores with pesticides. To avoid bringing pesticides into the Eco-farm, participants should either grow all of their plants from seed or buy seedlings that are specifically labeled as pesticide-free. Although this discussion emerged in interviews with experienced Eco-program participants, it was not addressed during the orientation session, so some participants might be unaware of this issue. Eco-farm rules provide an important basis for the alternative practices that participants explore in their gardens, but the nuances of these rules, and establishing a space to discuss them, prove challenging.

Closure during COVID-19

During the COVID-19 pandemic, the Eco-farm ceased operations for the 2020 and 2021 academic

years. In retrospect, many feel that the Eco-farm program would have been a perfect activity to keep running during the pandemic. The gardens are outdoors and socially distanced. Gardening would have provided participants with an opportunity to get exercise and boost their mental health. The food provided would have contributed to the resilience of food systems at a time when they were strained by the pandemic. Rather than think of the Eco-garden and Eco-college as separable programs, though, they were considered as joint Eco-programs, and since the Eco-college requires large in-person gatherings for lectures and joint activities, both were cancelled.


This decision made during the pandemic sheds light on some of the strengths and challenges of having a university-supported community garden. The university has resources that enable it to manage the soil and provide a solid structure for participants. Unlike an organization dedicated to agroecological goals, however, the university administers many programs like the Eco-programs under the rubric of societal contribution and community outreach. As a result, the Eco-programs were not deemed essential during the pandemic.

Discussion: Fostering Alternative Agricultural Initiatives across Different Contexts

The Eco-programs are a unique initiative operated by a university that provides a space for participants to encounter and experiment with alternative agricultural practices through an agrochemical-free and synthetic fertilizer-free community garden. In this article, we argue that tensions persist between the agroecological goals associated with the Eco-farm dimension and the institutional goals of community outreach associated with the Eco-college dimension of the initiative.

This research provided us with the opportunity to recognize these tensions and discuss potential ways of resolving them. Maeda established the Eco-farm based on his commitment to agroecological goals, but after he retired, the program shifted to fulfill institutional goals of community outreach by creating the Eco-college lecture and activity series, which Eco-farm participants are requested to attend. Since the goals of the Eco-farm were

never framed explicitly in terms of agroecological outcomes, university administrators blended the goal of an agroecological community garden with other institutional goals. The university's goal of societal contribution measures community outreach as a key indicator, and this indicator emphasizes the number of community members who attend university events. The Eco-programs would likely benefit from clarifying the goals of these two programs in order to evaluate the extent to which they are complementary. The closing of the Eco-farm during the pandemic indicates that the agroecological and food system contributions of the Eco-farm should receive greater recognition going forward. If leadership determines that the goals of the Eco-college and Eco-farm are incompatible, the Eco-college could be split off from the Eco-farm as a lecture and activity series open to the public. Another option would be to reimagine the Eco-college with an emphasis on active learning and exchange focused on furthering agroecological gardening for participants.

Although these tensions between the goals of alternative agriculture and societal contribution are particular to the Eco-programs, many alternative agricultural initiatives face the challenge of fulfilling multiple goals that, at times, are in conflict. Since transdisciplinary initiatives do not fit the typical mold of a familiar discipline or objective, they face an even greater risk of having alternative agricultural goals infringed upon or superseded. Instead of the familiar educational setting of teaching students in a classroom, the Eco-farm created a space at the university for community residents to directly participate in agroecological farming. Absent the vision of the founder and without a clear mission outlining its goals, administrators sought to make the Eco-farm more familiar by combining it with the Eco-college lecture series. Since Maeda retired, numerous faculty and administrators have maintained the program's operation, a testament to how strongly it resonates with program participants and the university's capacity to successfully execute such a program. We hope that the Eco-programs' successes and challenges resonate with other practitioners and create new opportunities for collaboration and reflection that help to build toward resilient food systems. 

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