

Seed Saving: Revival of traditional practices and community-led projects across the United Kingdom

Alex Coulter Miller

George Alexander Foundation Fellowship, 2024

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01

Acknowledgements

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The Fellow sincerely thanks The George Alexander Foundation for providing funding support for the ISS Institute and for this Fellowship.

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George Alexander believed in the notion of 'planting seeds and hoping they grow into pretty big trees'. The programs supported by the Foundation endeavour to support this ideal and as GAF Fellowship recipients go on to contribute to the community, George's legacy and spirit lives on through their achievements.

Fellow's Acknowledgements

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Employer Support:

The Diggers Club at Heronswood, Victoria and Adelaide, South Australia provided the Fellow with the necessary support to carry out the research project, as well as the opportunity to disseminate the Fellow's learnings with their colleagues and club members. The Fellow is also employed at the South Australian Botanic Gardens and Herbarium as a casual employee at the Adelaide Botanic Garden and the educational garden, which aims to share education on the importance of gardening to

young children and adult professional development. Particular thanks go to the education team for their support and encouragement to return to host further workshops based on the Fellow's findings. The Fellow is also a core-member of the South Australian Urban Food Network and part of the advisory and events team. The Network is an integral part of forming connections within the local food scene of South Australia. Particular thanks go to the committee for their help in disseminating the Fellow's findings.

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- Jill Woodlands, Manager, The Diggers Club Adelaide
- Tim Sanson, Former CEO, The Diggers Club
- Lachlan McKenzie, Co-Director, Permatil Global
- Mak Djukic, Education Coordinator, Botanic Gardens and State Herbarium

Fellowship Contributors:

The Fellow was fortunate to receive support and visit a number of organisations and sites within Australia and throughout the UK.

- The Diggers Club, Australia
- SA Urban Food Network, Australia
- Reel Seeds, Wales
- Real Farming Trust, England
- Vital Seeds, England
- Trill Farm Garden, England
- Seed Sovereignty Coordinators, UK

Acknowledgement of Indigenous Peoples and the Peasant Seed Movement

The Fellow also wishes to acknowledge that the seed sovereignty and seed freedom movement has been created and championed by Indigenous Peoples and Peasant farmers across the globe. Most notably, La Vía Campesina (LVC), the largest peasant movement in the world, represents over 200 million people in the fight for food sovereignty.

They are largely responsible for popularising the term “seed sovereignty” in the late 2000s. LVC works at the international level to embed collective seed rights into governance mechanisms such as the UN. In 2018, after years of advocacy, the UN Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP) was passed, marking a huge milestone in the recognition of farmers’ and peasants’ right to seed.

For many Indigenous and First Nations groups, seed holds such a deep connection to lore, heritage and culture. An erosion of seed diversity is in many ways an erasure of culture. For many people and places, the industrialised food industry is rooted in colonialism and still to this day inflicts trauma, displacement from ancestral lands and social injustices. The global seed sovereignty movement is a powerful tool for change.

Abbreviations / Acronyms / Definitions

Food citizenship: The active engagement of individuals and communities in shaping food systems towards equity, sustainability, and social justice.

ORFC: Oxford Real Farming Conference

Resilience: Ability to withstand and recover from shocks and stresses, ensuring continued access to nutritious and affordable food for all.

SAUFN: South Australian Urban Food Network

Seed saving: The practice of collecting, storing, and replanting seeds from crops to preserve genetic diversity, promote sustainability, and maintain traditional agricultural knowledge.

Seed diversity: The wide range of genetic variations within plant species, crucial for ensuring resilience, adaptability, and sustainability in agriculture, as well as for safeguarding against potential threats such as pests, diseases, and climate change.

Seed sovereignty: In its most basic form, is the “right of a farmer to save, use, exchange and sell their own seeds” (First Nations Development Institute, 2015).

Open pollinated seeds: Seeds produced from plants that are pollinated naturally by wind, insects, or other natural means, allowing for the preservation of genetic diversity and the ability to save seeds for future generations.

Hybrid (F1) seeds: These are seeds that are created by crossbreeding two different varieties or species of plants, resulting in offspring with specific desirable traits; however, they do not reliably produce offspring with the same traits, limiting their use for seed saving and promoting dependence on seed companies for continued cultivation.

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Executive Summary

Background

“Seed is the source of life and the first link in the food chain. Control over seed means control over our lives, our food and our freedom,” Vandana Shiva.

Only a few decades ago, seed was seen as a sacred and precious resource, and many gardeners and growers would have had the knowledge of how to save viable seeds. The significance of seeds in sustaining our food systems is vital, yet the practice of seed saving is dwindling in Australia, contributing to a fragile food system largely reliant on imported seeds from large retailers. Historically, seed saving was intrinsic to agricultural practices, fostering genetic diversity and resilience in crops. However, the transition from viewing seeds as resources to commodities has led to the dominance of proprietary hybrid varieties owned by seed/chemical companies, exacerbating the loss of seed biodiversity. This loss is alarming, with estimations suggesting that a substantial portion of crop biodiversity has vanished over the past century, posing significant risks to global food security, especially in the face of climate change-induced uncertainties (Allen et al. 2014).

To counteract these challenges, a global movement of community seed projects has emerged, spurred by seed savers globally, who have collectively preserved thousands of open-pollinated varieties that can be used, shared and saved for generations to come. In the United Kingdom (UK), initiatives are reshaping discourse around and interest in food,

emphasising citizen engagement over consumerism and paving the way for more resilient and equitable food systems. As local seed activism grows, so does a call to return to more traditional forms of growing and seed saving that fosters a relationship with the land. While the UK exhibits strong participatory involvement in local food movements, such models have yet to be fully realised in Australia, highlighting the need for greater support and understanding to build robust local seed networks and food systems.

Fellowship learnings

The Fellow was able to identify four key themes to address the research topic:

THEME 01: Rationale for seed saving and sharing across the UK

THEME 02: Seed saving customs and techniques

THEME 03: Care, kinship and seed stories

THEME 04: Models of community seed saving

Personal, professional and sectoral impact

The Fellow gained interdisciplinary growth and knowledge through building confidence and skills in building networks and fostering social enterprise. Delving into the realm of seed saving, they honed knowledge and expertise, adept in its exchange and dissemination. Interacting with like-minded

professionals across the UK, they expanded networks, broadening horizons and growing connections with farmers, seed growers, community leaders, retailers and gardeners. This immersive experience not only enhanced their capacity to craft educational resources but also deepened their understanding of local food systems, seed exchange dynamics, and community activism for sustainable food practices. Emerging as a more confident and skilled leader in the industry, the Fellow has sustained partnerships with overseas counterparts, and since initiated in the publishing of long-form articles with Australia-wide readerships. The Fellow is encouraged to advise and become more engaged with national leaders and local government fuelled initiatives aimed at enhancing community food programs and educational platforms. Moreover, their efforts have extended to fostering youth involvement in food systems education and community endeavours.

Considerations / recommendations

These findings aim to bring a new layer of understanding of how community seed projects can be created and supported in Australia. Through the identification of the themes and strategies intrinsic to successful and long-running community seed projects, practical recommendations are suggested for improving the effectiveness of projects and networks in South Australia and to inform and support community seed saving models throughout the country.

Fellow biography

Alex Miller is a community gardener and artist, based on Kurna Land in Adelaide, South Australia. An International Development graduate, with a focus on food systems, geography and natural resource management, the Fellow works to facilitate grassroots initiatives that are community-led and enhance community connection with food and nature.

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Fellowship Background

Fellowship Context

Our lives are dependent on seeds, the starting point for almost all our food. However, few Australian farmers or gardeners grow, save and share their own seeds. Seed saving has been a tradition carried out by people for thousands of years. Growers have saved seeds of the healthiest and most successful plants, creating an enormous living seed bank that preserves genetic diversity. Throughout history, people and food were connected locally and autonomously by a craft and skill, which was essential for survival. Seed saving is an often-forgotten aspect of the food system, and many home gardeners and food growers are no longer aware of the origin of their seeds. Over time, the decline in seed-saving skills and reliance on imported seeds has contributed to a fragile food system.

‘Seed knowledge is eroding even faster than seed biodiversity,’ Matthew Dillon, Organic Seed Alliance.

A workshop session at the Oxford Real Farming 2024 conference in the United Kingdom (UK) attended by the Fellow, focussed on seed sovereignty and their impacts on food security. The transition from regarding seeds as valuable resources to treating them as commodities has led to the widespread adoption of proprietary F1 hybrid varieties, predominantly owned by seed/chemical corporations. Many of these hybrid varieties are being patented to restrict their use in subsequent seed saving and plant breeding projects. Consequently, individuals, especially Indigenous and peasant farmer communities,

have been disenfranchised, fostering a perception that seeds should be purchased from commercial outlets rather than cultivated in personal gardens or independent, small-scale farms (Munro 2021).

The UN Food and Agriculture Organisation (FAO) estimates that 75% of the world’s crop biodiversity has been lost over the past century (FAO, 2010). This diminishing global seed diversity results in a reduced variety of available seeds to sustain us, and therefore creates a greater risk to the world’s food crops from threats such as pests and extreme weather events, even more so in the face of a rapidly changing climate. Destabilising growing conditions globally and threatening food chains, increased climate uncertainty and weather pattern fluctuation means that we do not know exactly which food crops will survive or thrive presently and into the future, threatening food chains.

“Saving climate-adapted seeds is the fastest and most reliable way to ensure our food systems adapt quickly to our changing environment. Seed saving is horizontal, democratic and easily accessible — the more people saving climate adapted seed, the faster a network of accessible, ethical and affordable food can develop,” Dr Emily May Armstrong, UK-based plant biologist and science communicator.

Traditionally, farmers used to preserve seeds from their most successful crops, selecting plants based on performance, flavour, or resistance to pests and disease. Varieties were continually maintained and improved each year. Across generations, farmers

would cultivate different strains of crops, contributing to a vast diversity. Each farmer's seeds became slightly different, adapted to specific environments or resistant to particular pests. The emergent diversity in farmers' seed collections formed a foundational element of resilience in the food system. For instance, if one farmer's crop failed, the crop could be compensated with another farmer's seeds that were similar but genetically diverse enough to survive.

From a community of farmers, growers and small seed companies only thirty decades ago, now just four companies own 50% of the global seed market (ETC Group, 2022). Seeds have become one of the most highly regulated resources with issues of ownership including intellectual property rights, monopoly for investment, censorship of traditional knowledge, prohibition of First Nation access to plants and seeds, and contention over gene editing and food safety (Shiva, 2010). Community food systems and seed management practices are increasingly threatened by industrially produced food, restrictive seed laws, intellectual property claims and gene modification. The expansion of industrial agriculture has come with a dramatic decrease of agricultural biodiversity (ETC Group, 2008).

"As life grows more uncertain, as the tides of time are shifting beneath us, as the news day after day destabilizes us, we look to the seeds we work with to ground us, literally. Seed and people have coevolved for thousands of years, hundreds of generations and it has never been clearer how much we need seeds now," Sinéad Fortune, Seed Sovereignty UK & Ireland Programme Manager at The Gaia Foundation.

It is increasingly apparent that seeds are becoming a platform for community resistance and activism. As Dow (2022) suggests, the act of seed-saving reinforces seeds as a community resource and responsibility, rather than privately owned property and a global movement of community seed projects has emerged and is spreading worldwide. Local people and communities, rather than formal organisations or institutions, have recognised the risks posed to their food supply and are uniting to

enhance their seed resources. While the inception of community seed sharing and seed banks has historically been a key part of peasant agrarian systems, formalised seed projects globally date back to around the late 1970s, initially supported by national and international non-governmental organisations (Andersen et al. 2017). Since 2012, there has been a significant surge in interest, partly attributed to the impactful efforts of environmental activist and writer, Dr. Vandana Shiva. Her talks and writings have inspired the establishment of numerous community seed projects. Dr. Shiva founded the Navdanya project, which established over 100 seed banks across India and trained half a million farmers. The network has preserved over 3,000 open-pollinated varieties of rice and many more of wheat, barley, pulses, and vegetables. In 2012, Navdanya collaborated with farming organisations worldwide to create a Global Movement for Seed Freedom that called on people globally to join their movement by signing a Declaration of Seed Freedom, committing to safeguarding 'the biodiversity of the planet by defending the freedom of the seed to evolve in integrity, self-organisation, and diversity' (Shiva, 2016).

In the United Kingdom, organisations such as the Food Ethics Council are leading the way with research that shows simply shifting language and how addressing people as 'citizens', rather than 'consumers', makes them more likely to care about one another, act collectively, or actively participate in society (New Citizen Project, 2015). Currently, the 'consumer' language is deeply embedded in society, but change is in the air. Increasingly, new models of engaging citizens are emerging across the UK food and farming sector. It's believed that this is a major opportunity for communities to help create a fair and resilient food system. Participatory involvement is a large facet of the UK's local food system movement, with strong land workers' alliances and training programs that have yet to be truly replicated in Australia. In South Australia, there are small networks, with sporadic activity mostly caused by a lack of funding for project officers despite community support. Understanding the drivers of success for these UK based networks and

community-led groups will be an important step for building more resilient local seed networks and food systems in Adelaide.

The Australian context: Seed saving in Australia

In Australia, the practice of seed saving is supported by two main networks of dedicated groups and individuals, yet there remains significant potential for expansion. Despite the strong foundation laid by these networks, many regions and communities could benefit from greater engagement and resources in seed saving initiatives. This growth is crucial, as it enhances biodiversity, supports food security, and preserves the agricultural heritage unique to various Australian locales. Notably, both networks are eastern-states centric, with not much collective activity in South Australia as yet.

Seed Savers Connect serves as a hub offering knowledge, resources, and connections for individuals and groups engaged in growing and preserving seeds across Australia. Operated by dedicated volunteers, they aim to foster a community of seed savers by sharing experiences, wisdom, and expertise, ultimately enhancing food security across communities. Their mission centres on promoting seed saving as a means to safeguard our collective heritage and cultivate a sustainable future. Guided by their passion for seed cultivation and preservation, they aim to expand upon the legacy of Australian seed savers, encouraging the formation and success of local seed saving groups inspired by the ethos of the Seed Savers Network.

The Seed Savers Network is arguably Australia's most famous and far reaching seed network. Founded in 1986 as a registered charity in Australia, the network as of 2019 has sold 39,000 copies of "The Seed Savers' Handbook" in Australia and had it translated into French, Japanese, Spanish, Italian, Basque and Macedonian. While an amazing resource, as still widely used by community garden groups and home gardeners, there is no longer an associated network for seed saving groups.

Methodology

During 2023, the Fellow commenced supplementary research for this Fellowship, conducting local travel excursions and participating in online seminars to prepare for the overseas portion of the Fellowship in December 2023 - April 2024. The Fellows' awareness of the decline of seed saving skills and general disconnect from food arose from their work across multiple levels of the South Australian local food system.

They engaged in applied research through a variety of methods including:

- Visitation and tours of farms, community gardens and home gardens for techniques and storytelling of seed saving skills and traditions.
- Two day international conference.
- Intensive online and in-person workshops with growers and seed savers.
- Informal visitor observations at farms and gardens.
- Informal interviews with experts and growers.

Fellowship Period

The key learning opportunities in Australia included a visit to The Diggers Club in Heronswood, Mornington Peninsula to better understand the company and Foundation's commitment to saving rare and heirloom seed varieties "for future generations." As a state representative for Community Gardens Australia, the Fellow was able to access several community gardens in Adelaide to hold informal conversations with gardeners around existing conceptions on urban growing, biodiversity and seed saving. The Fellow's international portion of travel to the United Kingdom occurred between December 2023 and April 2024. This included the following sites:

- Oxford Real Farming Conference, England
- The Apricot Centre, England
- Vital Seeds, England
- Real Seeds, Wales
- Seeds of Scotland, Scotland

- Glasgow Seed Library, Scotland
- Exeter Seed Swap, England
- Bristol Seed Swap, England

Aims

The Fellow had personal and professional aims detailed below that came to inform the four key themes explored in the overall Fellowship learnings:

- To examine different models of community seed projects (urban and rural) and evaluate their success in enhancing ecological and social resilience
- To understand common themes and strategies intrinsic to success and long-running projects
- Learn the skills needed to save and share seeds that are able to become locally adapted
- Experience and visit other methods of seed distribution and exchange, including farms, retailers, community gardens, to consider their implementation in Adelaide
- Understand the drivers and social benefits for individuals and communities to become Food Citizens

Fellow Biography

Alex Miller is a community gardener and artist, based on Kaurna Land in Adelaide, South Australia. An International Development graduate, with a particular interest in food systems, geography and natural resource management, the Fellow works to facilitate grassroots initiatives that are community-led and enhance community connection with food and nature. The Fellow currently holds part-time employment with The Diggers Club, Australia's largest gardening club. Diggers promote seed saving for future generations and provide over 80,000 members with access to more than 500 heirloom seed varieties, which play an integral role in ensuring biodiversity and resilience in not just home gardens but beyond. Alex also works for the South Australian Botanic Gardens and State Herbarium at the Adelaide Botanic Garden as an Education Officer, working with children to help

foster their understanding of growing food and why it is important.

When the Fellow is not working in the garden, they work as a freelance marketing and communications advisor for not-for-profit organisations that align with their personal values and interests. Alex is currently the Marketing Manager for the SA Urban Food Network and Permatil Global, and also connects regularly with various individuals, groups and businesses to write case studies that promote and celebrate local food systems and related initiatives.



Figure 1. Seedlings inside a geo-dome, Wales

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Fellowship Learnings

The Fellow's learnings largely serve to answer the research rationale of community seed saving projects as a mechanism for ecological and social resilience through the examination of successful models of community seed projects, such as community seed banks, and other initiatives for education, sharing and exchange.

Preserving seed diversity in Australia faces a significant challenge due to a lack of awareness and seed-saving skills among both vegetable farmers and backyard gardeners. In the past, every gardener would have been a seed saver, but today, reliance on purchased seeds has led to a steep erosion of traditional knowledge. Community seed projects address this knowledge gap by educating people on the importance of seeds and re-skilling gardeners and small-scale farmers in seed-saving practices. Most visited projects prioritise education, offering a diverse range of educational tools, resources, and events. Some projects focus on teaching seed-saving skills, while others emphasise raising general awareness of seed issues before delving into training.

THEME 01 / Rationale for seed keeping and sharing across the UK

Seed savers save food crop seeds for many interrelated reasons. Some of these reasons range from saving money and sharing seed with others, to variety conservation, prevention of biodiversity loss, and to ensure food quality and security (Dow, 2022).

Seed savers that the Fellow met during their research often expressed that motivations come from and are perpetuated by a sense of intergenerational kinship with, and through, seeds. In this sense, "...seed saving stands for the transmission of knowledge, connections with home, upbringing and tradition, a means of cultivating relationships with friends, kin, and neighbours, and of caring for plants and place" (Dow, 2022). For residents in large cities, where living conditions are especially expensive and possibly isolated, cultivating such relationships through care may be particularly important. Seed saving also reflects, and could be considered a response to, the increased and widespread concerns of the effects of climate change and biodiversity loss seen in the past century and its impacts on future generations.

Seed saving for future resiliency

A recurring theme throughout the Fellow's research was interviewee's concerns for future seed diversity, and the need for actively breeding new seed varieties, contributing to greater food security. While interviewing and meeting with participants of community-led seed projects, many people advocated for a transition away from current trends, largely contributed to via social media, that focus on heirloom varieties as the pinnacle of seed saving. The Fellow met with Kate from Real Seeds, one of the UK's largest open-pollinated seed retailers in Pembrokeshire, Wales who reiterated the necessity of ongoing in-situ seed breeding in order to create localised varieties.



Seed sovereignty and community stewardship

Over the past decade, there has been a global rise in ethical food initiatives and local food networks, driven by concerns regarding social justice, environmental degradation, and animal welfare within 'conventional' industrial food production and distribution models. Many advocates of sustainable food systems across the UK aim to localise food production, foster consumer-producer connections, and ultimately shift control away from corporations towards local communities (Holloway, 2008 and Goodman, 2010).

Seed sovereignty has been a large part of these environmental concerns and power dynamics. The Fellow found during their research that among many community-led seed initiatives, there is a significant emphasis on seed sovereignty as a means of “re-commoning” of seeds – in other words, a return to collective ownership over seeds back to communities. For UK based projects, re-commoning looks like advocating for the re-localisation of seed systems and building capacity of community members to set up seed hubs, education opportunities and other networks where the public and growers can freely access seeds. Examples of these types of initiatives are the Wales Seed Hub and Seed Sovereignty training programmes offered by the Gaia Foundation.

Particularly in cities, cultural representation in these seed sovereignty projects is a vital opportunity to not only include, but have minority-led projects that reflect diversity in communities. Projects such as the London Seed Freedom Bank often discuss how they can improve representation of the city's ethnic diversity in their constitution while avoiding tokenism. A key component of the group's structural framework holds room for many different levels of engagement, ensuring that the broader network is diverse, not only in terms of ethnicity, but also class, gender, and sexual identity and disability or health status.

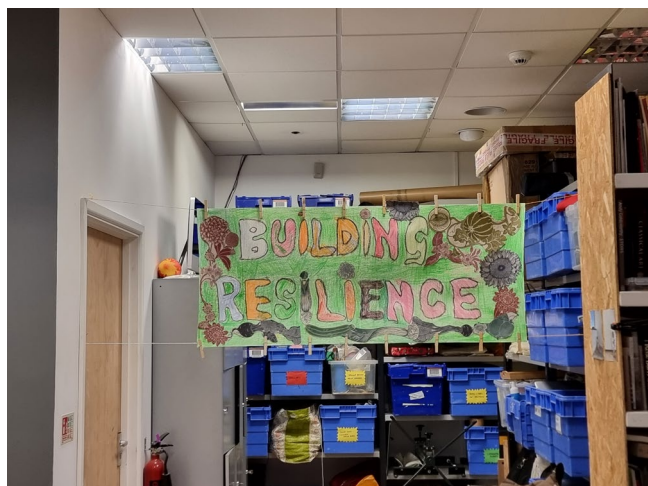


Figure 2. Seed wall at Real Seeds, Wales



Figure 3. Seeds at a London Freedom Seed Bank seed swap

Erosion of seed diversity

During the research, the Fellow found that for most participants of community-led seed projects the most pressing reason to save vegetable seeds is to keep them alive and in use. Seed banks and collections maintained by plant breeders serve to safeguard biodiversity, yet access to these resources remains restricted to the public interested in cultivating such varieties. As explained by Kate from Real Seeds, Wales, although seed catalogues introduce novel and enhanced strains annually, the available selection diminishes over time, constricting the genetic reservoir for breeding. At the Oxford Real Farming Conference, a session outlined the additional, legal and commercial constraints, which predominantly contribute to a decline in diversity and sovereignty over local seeds. Consequently, genetic erosion leads to limited options for growers and a surge in genetic homogeneity across agricultural landscapes.

Revival of seed saving skills and knowledge

While the Fellow was learning and practising seed processing techniques throughout the UK, it became clear that these customs including threshing, screening, and winnowing, have deep roots in traditional agricultural practices, connecting growers to a legacy of seed savers who have passed down these methods through generations. Despite advancements in technology, the essence of these techniques remains largely unchanged as most of the techniques are required to be done slowly, across seasons and by hand. A loss of these knowledge systems drives a disconnect between people and the food they eat.

Increased knowledge of these skills in the community would benefit the continuation of seed saving at a community level to promote biodiversity by preserving local seed varieties adapted to specific environmental conditions, and fostering a sense of stewardship, pride and cultural identity, as communities take pride in preserving their agricultural heritage and passing it on to future generations.

Creating locally adapted varieties

One issue within the UK seed industry lies in the geographical disconnection between where seed crops are initially cultivated and where they are eventually grown. A main motivation for the growers at Trill Farm is to grow hyper local varieties. Plants evolve and acclimate to their surroundings across generations, so transporting seeds over extensive distances results in their lack of natural resilience to the specific conditions they will encounter. Environments vary significantly in factors such as soil composition, precipitation levels, daylight duration, and microbial diversity, all of which profoundly influence crop performance and yield. This underscores the importance of locally saved seeds, as they foster the development of varieties adapted to the particular environmental nuances of their cultivation regions. Given the vast array of bio-regions within Australia, each characterised by distinct growing conditions, the necessity for locally adapted seeds is evident.



Figure 4. A view from above Trill Farm, supplied by Trill Farm



Figure 5. Seed starting in the polytunnel at Trill Farm

THEME 02 / Seed saving customs and techniques

The Fellow participated in seed saving practices across seasons, geography and social networks within private gardens, semi-private allotments, market gardens, community gardens and seed swap events. The Fellow learnt a variety of techniques and skills relating to seed saving. The Fellow identified four key processes across different sites, projects and gardens that were the foundational skills for seed saving. These techniques are not necessarily the exclusively correct way to process seeds but are practised by most growers and seed savers that the Fellow met during their research. These techniques are rooted in heritage agrarian practices, mostly unchanged over the years and offer a unique opportunity to practise traditional customs in a contemporary way. These four techniques are briefly documented below.

Threshing

Seed threshing is a crucial technique in seed saving that involves separating the seeds from the chaff or husk (exterior casing). This process is particularly effective for crops with large seeds and easily removable husks, such as grains. Additionally, leguminous crops like peas and beans are well-suited for seed threshing due to their relatively large seeds and pods, as are most 'dry seed' crops including kale and radish. Efficient seed threshing ensures the

preservation of viable seeds for future planting while removing unwanted debris, contributing to longevity for storage and sharing.

Screening

After seed threshing, the next step in seed saving is screening. Screening involves further cleaning and sorting of the seeds to remove any remaining debris, smaller particles, or imperfect seeds. This process typically employs screens with different mesh sizes, allowing seeds to pass through while retaining larger debris. Screening ensures the collection of high-quality seeds by separating out any impurities that could affect seed viability or storage longevity. It is an essential step in seed saving to maintain the integrity and purity of the seed stock for future planting seasons.



Figure 6. Screens and sieves at Real Seeds, Wales

Winnowing

Winnowing involves the separation of seeds from lighter chaff or debris by subjecting them to air currents, usually by pouring them from one container to another in a controlled manner. As the seeds fall, the lighter materials are blown away by the wind or a fan, leaving behind the cleaned seeds. Winnowing is often performed manually, emphasising a deeper connection to the practice of seed saving and enhancing the understanding of the seeds' characteristics and needs. This hands-on approach fosters a greater appreciation for the seeds and the traditional methods used in their preservation.

Storage

Depending on whether the seeds are 'wet' (enclosed in a fruit or pod) or 'dry' (separated from the plant), additional steps such as fermentation or drying may be required to prepare them for storage and planting. It is incredibly important to properly dry and store seeds so as to ensure the longevity and germination success of the seed.



Figure 7. Seed cleaner from the Seed Sovereignty program, UK

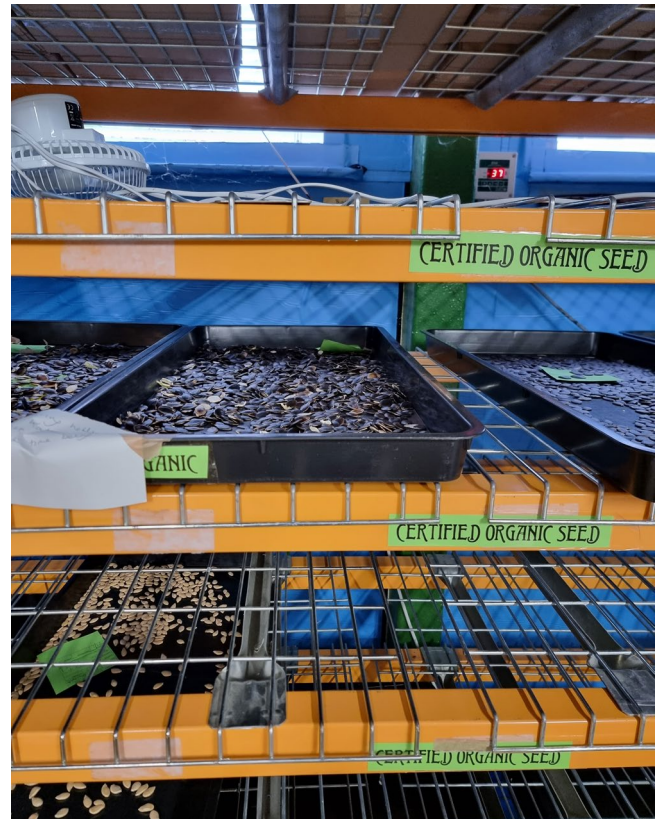


Figure 8. Drying seeds at Real Seeds, Wales

THEME 03 / Care, kinship and seed stories

Throughout the Fellow's research it became most evident that the exchange of seeds was in many ways a form of storytelling. Storytelling is an integral part of everyday life and communication, which enables people to *"make sense of their experiences, claim identities, interact with each other, and participate in cultural conversation"* (Langellier and Peterson 2011, p.1). Many seed savers, growers, farmers and academics agree that seeds encapsulate more than just genetic material. UK based academic, Laura Pottinger agrees that seeds embody the essence of human history and culture, containing within them accumulated stories, traditions, wisdom and aspirations spanning generations. They represent concepts of locality, inheritance, past experiences, and future possibilities. Despite their small size, seeds hold profound significance, transcending physical boundaries to facilitate human connection and exchange. They are tangible manifestations

of human creativity and innovation, encapsulating the collective knowledge and adaptive strategies developed over millennia to thrive in various environments. Moreover, the ability to easily share seeds among community members, given the portability and accessibility of seeds, enable the spread of agricultural diversity and resilience. As mobile entities, seeds can travel great distances, facilitating the exchange of biodiversity and promoting the cross-pollination of ideas and practices.

However, as London-based researcher, Katharine Dow argues, these connections and relationships of care are at risk considering the rise of seeds that are commercially bred. *“...It is not only their relationships with people and place that are obscured (or, rather replaced with a different kind of relationship), but an aspect of what seed savers understand to be their nature — their inherent malleability, which comes through their capacity to embody their environments”* (Dow, 2022).

“A seed contains inside its coat the history of practices such as collecting, breeding, marketing, taxonomizing, patenting, biochemically analyzing, advertising, eating, cultivating, harvesting, celebrating, and starving. A seed produced in the biotechnological institutions now spread around the world contains the specifications for labour systems, planting calendars, pest-control procedures, marketing, land holding, and beliefs about hunger and well-being.” [1997: 129] (Haraway, 1997).

Shetland Cabbage, Scotland

The Shetland Cabbage (also known as Shetland Kale) stands as the oldest recorded Scottish local vegetable variety, cultivated in the Shetland Islands since at least the 17th Century, although its specific origins remain unknown. Historically, the outer or discarded leaves served as winter fodder for livestock, reflecting the pragmatic use of resources in the face of the islands' harsh climate. Traditional cultivation methods involved planting cabbage seeds in circular stone-walled enclosures known as 'plantie crubs', with subsequent transplanting into larger yards also bordered by stone walls—a practice still evident across the islands today, despite many structures being abandoned. Over the past three decades,

there has been a significant decline in the cultivation of Shetland Cabbage, exacerbated by competition from more widely available commercial varieties found in supermarkets. Notably, Shetland Cabbage seeds are not commercially available, highlighting the critical reliance on growers' saved seeds for the preservation of this and other locally adapted seed varieties (also known as landrace varieties). Independent growers and seed enthusiasts, including Seeds of Scotland are working to bring this heirloom variety back into more home gardens across the UK.



Figure 9. Historical depiction of a 'plantie crub,' via Seven Trees blog (2009). Shetland Kale (above) even has a dedicated Facebook Group.

Thrupp parsnip, England

At The Stroud Community Seed Bank in Gloucestershire, the cultivation of landrace varieties like the Thrupp parsnip reflects a commitment to preserving local agricultural heritage. Thrupp, a

village nearby Stroud, serves as the namesake for this particular variety, and its seeds have been carefully saved by a dedicated community member for many years. The Thrupp parsnip thrives in the region's unique environmental conditions, suggesting an adaptation that sets it apart from parsnip varieties found elsewhere. Through the ongoing practice of seed saving, the community is actively involved in the evolution and development of these seeds, ensuring their continued resilience and suitability for local cultivation.



Figure 10. Thrupp parsnip, as pictured in the Stroud Community Seed Bank 2023 Seed Catalogue

Ceirch Du (Black Oats), Wales

Wales faces a significant challenge regarding food sovereignty, as despite its rich history of food production, a considerable amount of its food is now imported, leading to a notably limited range of domestically produced food items.

“Crops, specifically oats, used to form an important part of the Welsh diet. The growing of Welsh heritage grains such as black oats presents an opportunity to both turn the clock back – and future proof ourselves, as their genetic diversity makes them highly resilient in the face of an ever changing climate,” Owen Shiers, a musician and Welsh heritage enthusiast.

Welsh Farmer Gerald Miles believed that the Black Oats, which his father had farmed and was commonly grown across the country, had disappeared. Gerald searched for these oats for over 20 years, and even put a notice in a Welsh farming paper with no response. Since the 1960's, the Black Oats had been overlooked for more homogeneous varieties that were compatible with modern processing machines. By chance, local musician Owen Shiers, who was

undertaking a project to revive lost folk songs, found the oats growing in a farmer's field near Machynlleth. It's thought that these were the very last plantings of the oats in Wales.

“These are exciting times for the revival of rare welsh grains and oats. There's renewed interest, rare varieties being refound and replanted, and a next generation determined to learn from elders and restore lost heritage to the landscape,” Katie Hastings, Seed Sovereignty Coordinator for Wales.



Figure 11. Black Oats growing at Dynyn, Machynlleth.

THEME 04: Models of community seed saving

The Fellow learnt about various models of community-led seed saving projects across the UK. At the core of most, if not all, projects was education around local food systems resilience and seed sovereignty.

Seed gatherings and seed swaps

- The Seed Sovereignty organisation, founded and supported by The Gaia Foundation, hosts annual Seed Sovereignty gatherings. These gatherings *“began as a response to concerns around dwindling seed diversity, success to locally grown open pollinated seed, and a waning in knowledge of community seed saving and plant breeding. Something that until just a couple of generations ago was an integral part of growing food and*

for many growers has become separated and commodified,” Katie Hastings, Seed Sovereignty Coordinator for Wales.

- Across the UK, there are hundreds of seed swaps supported by local charities, community groups and local businesses. Some of these seed swaps are over 20 years old, such as the Bristol Seed Swap and have the support of community volunteers who share a passion for seed saving. Packets of seed are donated by seed libraries or banks, seed retailers and brought along by gardeners. Many seed swap groups are now expanding their responsibilities and initiatives through additional educational opportunities like workshops, film screenings and digital resources.
- The Exeter Seed Bank programme events, such as seed swaps, that follow the seed calendar and use arts, craft and heritage to creatively engage people with the natural world and to encourage environmental stewardship.



Figure 12. Seed swap events as a source for community education

Seed libraries and seed banks

- Seed libraries are typically located in public libraries, community centres, or gardens. Users can borrow seeds at no cost and are usually encouraged to return them by the end of the season. The primary goal of seed libraries is to offer free access to high-quality, preferably locally grown seeds to the general public. They also raise awareness about seed-related issues, encouraging individuals to try growing from seed and engage in seed saving.
- One particularly successful and impactful project in Scotland is the Glasgow Seed Library. Currently cared for by the Centre for Contemporary Arts, the library has a steering group of individuals and community organisations from across the city and beyond. This group includes representatives from Glasgow Community Food Network, Woodlands Community Garden, Propagate, Glasgow Outdoor & Woodland Learning Group, North Glasgow Community Food Initiative, Milton Community Garden and Food Hub, Glasgow Allotments Forum and Gaia Foundation's Seed Sovereignty Programme.
- In contrast, a seed bank serves as a repository for various seed varieties, typically situated at a farm or garden. The seeds in the collection can be grown and replenished. The primary focus of seed banks is to maintain and enhance the varieties in their collection, along with raising awareness. They ensure the safekeeping and stewardship of seeds in a centralised storage facility. Typically, seed banks are established and operated by non-profit organisations.



Figure 13. Glasgow Seed Library

- London Seed Freedom Bank has partnered with a local education charity to create their mobile seed library. Built by artist-research duo Sara Heitlinger and Franc Purg, the seed library works in tandem with a greater project that aims to foster a connection with and replenishment of a rich natural heritage through offering gardening workshops. These workshops were designed to train, educate, and inspire children, young people, local residents, and teachers about the natural cycle of growing and seed saving. Additionally, the project involved finding stories from food growers and seed savers in London, to use in the mobile seed banks so that it is interactive and introduces heritage seeds and their growers' narratives to new audiences. The seeds were presented in beautiful small clay pots inspired by ancient amphora pots, along with a card game aimed at engaging people of all ages and levels of seed knowledge. This game involved matching plants and vegetables with the seeds that produce them, making the learning

process interactive and accessible. Notably, the mobile seed bank was deliberately designed to be interactive and tactile. Visitors were encouraged to handle the seeds, allowing for close inspection while listening to the stories of the individuals who saved them. This approach aimed to highlight the beauty of seeds, often concealed in dark envelopes, and enable participants to explore their unique characteristics and properties up close.



Figure 14. Image supplied by Global Generation.

Independent seed retailers and growers

There is a small network of growers across the UK that grow food crops purely for seed that is either sold by the farm or sent to a seed retailer such as Real Seeds or Vital Seeds. Most of the growers involved with seed growing also partake in education, holding workshops, online talks or online courses. For Trill Farm, along with producing vegetables, salad and herbs, a big part of what they do in their market garden is seed saving. They now save seed from

over 20 different varieties and grow commercially for the Real Seed Catalogue and Vital Seeds.

Seed networks

Local, regional, and national networks of seed growers and savers serve various purposes. Some, like the Seed Sovereignty programme, are intentionally established to foster collaboration, often with financial support from a larger organisation. Others, like the community of seed libraries across the UK, have evolved organically. These networks effectively connect individuals working with seeds, facilitating mutual learning and the exchange of expertise and resources. In particular, the formation of these networks additionally offers a platform for gardeners and farmers to exchange expertise and equipment, thereby enhancing the quality of seeds.

On a local level in the UK, community seed networks have proven successful in uniting like-minded individuals who share common interests and can collaborate on project development. Urban networks in parts of the UK have excelled in bringing together people from diverse cultural backgrounds for shared learning. During the Fellow's visits to local seed projects, it was evident that the strength of a project relates to the robustness of the involved network, with the most successful ones garnering support from a broad spectrum of individuals, including public authorities, funders, and various community groups.

05

Personal, professional, and sectoral Impact

Personal

The Fellow has broadened their expertise and advanced their work with the aim of making significant contributions to the wider industry. They draw inspiration from the international sites they've studied, interactions with professionals, and the synthesis of insights gained from the Fellowship. This opportunity has allowed them to venture beyond Australia's borders, confronting new perspectives on methodologies for building not only stronger, more participatory seed related projects, but a more sustainable food system. As a result of these explorations, they have experienced personal growth in the following aspects:

Networks, inspiration and more

- The Fellow has begun crafting their own seed saving education materials based on their international findings, with the intent to publish via a website / small pilot site.
- The Fellow has been encouraged by other industry professionals to consider offering workshops based on the practices learnt internationally.
- Enthusiasm and knowledge to create a community founded seed library in Adelaide that operates across a garden site, involving adult and young education and training.

- Confidence to build further networks in Adelaide.
- Through connecting with other young food systems and industry leaders, the Fellow is excited to engage with and foster youth involvement in food systems education and community endeavours.
- Through conversations, teaching and meetings with international farmers, growers and seed savers, the Fellow has found inspiration for exciting and meaningful ways that communities can be invited to participate in seed saving.

Industry Confidence

- Through undertaking this research, they have built personal and community confidence in how community-led seed projects can impact local food systems and perceptions around saving seed.
- The Fellow has acquired experience and knowledge throughout the Fellowship, enhancing their confidence in conducting independent research and engaging with an international audience, both within and beyond their professional sphere, to connect and exchange ideas with fellow professionals.

Professional Networking & Collaborations

- The Fellow made many personal and professional connections with growers, community leaders, emergent and multi-generational farmers, retailers and gardeners.
- The Fellow has gained both motivation and inspiration on returning to Adelaide to implement and apply these experiences and findings within their role at The Diggers Club and the local Adelaide food scene.

Knowledge & Skill Enhancement:

- Improved understanding of the identification, propagation and maintenance of growing food crops for seed.
- Increased knowledge in the necessary planning, design and processing of seed crops.
- Increased appreciation and understanding of the importance of storytelling and sharing of food stories and seeds as a tool for community engagement.
- Further insight into the social and environmental benefits of community-led seed projects.
- The translation of this knowledge to the Australian context and traditional knowledge of seed saving and sharing networks.

Sectoral / Industry Impact:

Within the Australian seed savers landscape, there is currently a lack of exchange in knowledge and ideas through a firsthand method, particularly between eastern states and South Australia. The Fellowship has provided the Fellow with the opportunity to learn hands-on techniques and methods for sharing and applying the knowledge.

This experience brings the following benefits and impacts:

Adelaide City Farm

- The Fellow has initiated plans to establish a City Farm in Adelaide that advocates for local, resilient food systems and encourages people to become an active part of the decision-making process that gets food from the source to our plates.
- The creation of the first City Farm in Adelaide will look to assist the industry (namely local and government and advocacy bodies) to support projects and policies going forward and advocate for ongoing support for food in the urban landscape.
- The Fellow's research has identified strengths and weaknesses of community-led seed saving initiatives and projects. This research will help inform plans and targets for the City Farm, so that the Farm contributes to the community successfully and in a meaningful way.
- Given that such a high percentage of all food is currently consumed in cities, and valuable croplands are often located in peri-urban environments, cities are critically important in sparking the shift towards a regenerative food system. Cities provide unique opportunities for new models of business, trade and livelihoods, from menu design using last minute surpluses, rooftop farms, composting networks and community supported agriculture.
- The City Farm could also hold a place for the creation and facilitation of the Adelaide Seed Savers Network, connecting people across the state to support the sharing of seeds, knowledge and traditions. This network is a pivotal step for the consolidation of Adelaide's local seed and food system resilience, offering a space for the cross pollination of ideas and germination of new and exciting projects held by the community, such as seed libraries, seed banks and seed gardens.

Advocacy

- Opportunity to promote the role of seed saving as a form of community activism, climate change action and community building and social resilience across community platforms (such as SAUFN, Permaculture SA) and local government.
- The Fellow will advocate for seed initiatives in Adelaide and more broadly across the state to create better links with interstate and international networks. The Fellow has begun to organise meetings with local food champions and changemakers such as the Adelaide City Mayor, local government representatives, chefs and farmers.

Knowledge Sharing

- The Fellow's findings and story of seed sovereignty projects in Wales is expected to be published in The Diggers Club magazine, with a readership of over 80,000. The article outlines the importance of seed saving networks and reflects on how and why Australia can continue to build networks and programs similar to the UK.
- The Fellow utilised social media as a successful means of raising awareness and communicated the Fellowship experience and related themes to the Fellow's network and following. Posts included how community-led seed swaps have assisted in engaging community members, how such projects could be adapted in Australia and stand out examples found across the UK. These platforms will continue to be used for further advocacy of recommendations and considerations for industry and community engagement. The Fellow would like to create an educational series of short form videos that outline the basic principles of seed saving, relating to the Mediterranean climate in Adelaide.

- The Fellow delivered a talk in March 2023 to SAUFN committee members offering considerations and recommendations for projects in Adelaide based on international findings. The SAUFN are involved in supporting and sharing local food stories throughout SA and encourage future collaborations that promote community-led seed saving and sharing projects. During discussions, it was outlined that this could look like a South Australian Seed Savers Network, helping to facilitate seed libraries and saving programs at community gardens and seed gardens.
- The Fellow has been encouraged by colleagues at the Adelaide Botanic Gardens to develop a workshop to share the Fellow's findings and a workshop for children. This workshop offers a unique opportunity to adapt the Fellow's research to language and themes, which will be understood by a wider age demographic. The creation of such a workshop could lend to further opportunities to work with local councils or state government to present at schools or community forums.

06

Recommendations and Considerations

There has been a noticeable surge in Australia's attention towards sustainable food systems and general uptake in seed saving as climate change adaptation, and a means for social and land justice reparations. However, it is evident that Australia can learn more from the emergence of community-led seed saving initiatives in the UK. The Fellow has witnessed projects such as the Seed Sovereignty program, and community seed hubs and libraries and how they play a pivotal role in bringing together gardeners, farmers, researchers, and food lovers to foster localised seed systems, which promote seed in community hands and the active breeding of seed varieties.

The objective of this Fellowship was to contribute to this positive transformation in Australia by examining successful practices implemented across the UK and leveraging the findings to enhance the local seed system in Adelaide. Through a comprehensive examination of various models of community seed projects, encompassing both urban and rural settings, the Fellow has gained valuable insights into the common themes and strategies underlying successful and enduring projects. With community education and participation at the core of many community-led seed projects, these are elements which the Fellow aims to emulate in models in Australia.

Furthermore, the skill enhancements essential for seed saving and sharing, with a focus on fostering local adaptation, highlights a significant milestone in the Fellow's journey. Their firsthand experiences learning about different methods of seed distribution and exchange, including at farms, retailers, and community gardens, have equipped them with a nuanced understanding of the implementation of strategies applicable to their context in Adelaide.

The Fellow firmly believes that the outcomes of this research will have a cascading effect on the ongoing seed sovereignty and South Australian local food movement. Seed saving programs across the UK have benefited participants in a variety of ways, many of which could be replicable in Australia, including: social inclusion, environmental resilience, strengthening of local food systems, and community education.

Considerations

Throughout the UK, community-led seed projects were often one part of a wider local food story. The Fellow believes that within Australia, seeds offer a catalyst for greater awareness and desire to participate within their local food system. The Fellow believes there are several considerations necessary to the implementation of seed programs within Australia. The Fellow has summarised attributes of successful programs in the UK, including considerations on their implementation in Australia.

The distribution of free local, rare or unusual varieties

A main focus of seed libraries, banks and retailers in the UK is to bring local, rare or unusual varieties back into the hands of home gardeners and small-scale market farmers. Currently, Australian seed retailers offer a fantastic selection of heirloom varieties but it would be interesting to see if this could expand to locally adapted varieties or even a breeding program. Financial barriers could also be a constraint for some people to access these types of more 'exclusive' seeds and therefore it would be paramount that seeds are offered to the community for free through some seed swapping or sharing schemes like seed swap events or seed libraries. Of course, Australia has distinct biosecurity laws that regulate the trade of seeds across areas and states, meaning this would need to be a consideration before the creation of country-wide activities.

Seed gardens and/or hubs for visitors and gardeners to meet

Having physical drop in points was a core component to the success of many community seed saving projects. One possibility in Adelaide, could be community gardens as a space to meet and exchange ideas. This could possibly lead to a collaboration with Community Gardens Australia. At the time of writing, the Fellow is not aware of any public spaces that grow seed for harvest and this could be a consideration in the future as an important tool for education.

Working and training volunteers

As explored throughout the Fellow's report, seed saving knowledge and skills has rapidly declined within Australia and are in need of revival for positive social and ecological outcomes. There are possibilities to collaborate with gardening groups across Adelaide to offer more work and training workshops but at the time, the Fellow believes that there is minimal capacity to build similar training programs as the Seed Sovereignty program in Adelaide. Potentially a small pilot program could be offered but community awareness and financial support must first be affirmed.

Working and training young people/ first generation farms and/or gardeners, First Nations and migrant communities.

Farming and community gardening is a significantly underrepresented sector across all of Australia, including Adelaide. Access to land, information and finances are increasingly challenging to young people and minority groups. The Fellow strongly believes that a key part of Adelaide's local food narrative is supporting a diversity of people to not only be involved but leading initiatives, too. In order to do this we need more accessible information, which might include hosting workshops in various locations throughout South Australia (not just central Adelaide), easy read information, accessible gardens (geographically and physically), and community or government supported financial opportunities.

Multiple sessions for deep listening and feedback with diverse community representatives

Similar to above, growing a just and local food system will require social diversity and inclusion that allows for a myriad of ideas and solutions. Offering platforms and opportunities for discussion spaces throughout this process is paramount to the movement's success.

Recommendations

The recommendations of this Fellowship are as follows:

Preservation of traditional practices, varieties and education

Throughout the UK, many seed savers and growers work tirelessly to preserve traditional practices and varieties of seed. Australia can adopt a similar approach by organising workshops and training programs led by experienced seed savers and growers. These initiatives can serve as a platform for knowledge exchange, where skilled individuals can impart their expertise to emergent, first generation or interested seed savers and growers. In particular, providing training for urban food growers, gardeners and schools about growing, saving and storing organic seed; creating a community of seed

savers, skilled in seed saving techniques will be most important. In conjunction to this, education and raising awareness of the skills and importance of seed saving and the related issues and actions threatening our seed heritage will be vital.

Support for community-led projects

Australia can implement policies that offer incentives, grants, and loans to support the establishment and growth of grassroots projects or small-scale seed growers. By nurturing such projects, Australia can encourage a diversity of hyper local seed varieties and related projects. An increase in seed knowledge and physical hubs, libraries and banks will allow for more open sharing and distribution of seeds for anyone looking to grow their own food. Similarly, the creation of a living seed bank (and seed hubs) could be especially important in Adelaide for the protection and storing of a local collection of seeds, including rare and unusual varieties, which are grown and saved in Adelaide.

Cultural education and inclusion

Food undoubtedly informs deep cultural connections and importance, and has an innate ability to heal and foster a willingness for cultural diversity and inclusion. Through the involvement of First Nations and immigrant communities in Australia, seed saving projects and education offers a unique opportunity to bring not only seed diversity to communities, but also social and cultural. Ensuring that the complexities of positionality, representation, diversity, and inclusion are considered when supporting and creating community-led projects will be imperative.

The establishment of an Adelaide Seed Savers Network

A seed savers network in Adelaide would create an entity that could facilitate the above considerations and recommendations. As a platform for awareness, skills enhancement and advocacy, the network could connect people across the state and support the sharing of seeds, knowledge and traditions. Through the establishment of a group, community capacity would naturally increase through the sharing of tasks and responsibilities. This network is a pivotal

step for the consolidation of Adelaide's local seed and food system resilience, offering a space for the cross pollination of ideas and germination of new and exciting projects held by the community, such as seed libraries, seed banks and seed gardens.

07

Conclusion

The George Alexander Fellowship has had an immeasurable impact on the Fellow, enabling them to explore international networks, connections and projects with the aim to enhance the Australian context, making a meaningful and positive influence on the Adelaide local food system. This fellowship report has delved into several significant themes surrounding seed keeping and sharing across the UK. Through exploration of the rationale behind seed preservation, diverse seed saving customs and techniques, and the profound community connections and narratives associated with seeds, the report has illuminated the multifaceted importance of this practice. Central to the findings and discussion were the various models of community seed projects, both urban and rural, which were evaluated for their effectiveness in bolstering ecological and social resilience. By understanding the common themes and strategies underpinning successful projects, valuable insights were gained into the intricate dynamics of seed saving initiatives. Moreover, the fellowship provided a platform for learning essential skills in seed saving and sharing, with an emphasis on fostering local adaptation. Visits to different methods of seed distribution and exchange, including farms, retailers, and community gardens, offered invaluable perspectives on implementation strategies applicable to Adelaide's local food system.

In closing, the fellow expresses profound gratitude for the opportunity to contribute to the enhancement of the local food system in Adelaide. This fellowship has not only enriched their understanding but has also provided inspiration and motivation to continue their efforts towards promoting sustainability and resilience within their community.

08

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