

National Hub for Ethnobotanical Research

**Sharing Seeds, Sharing Life:**

A participatory action research project on safeguarding  
local heirloom and landrace seeds

The President's Foundation for the Wellbeing of Society  
SAN ANTON PALACE  
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**This report was prepared by the National Hub for Ethnobotanical Research, as part of the President's Foundation for the Wellbeing of Society.**

Chairperson: **Mr. Mario Gerada**

Members: **Prof. Everaldo Attard**  
**Dr. Maria Pisani**  
**Ms. Rachel Radmilli**

Researcher: **Ms. Simone Cutajar**

Special Thanks: **Dr. Censu Caruana**  
**Mr. John Gauci**

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## Foreword from Her Excellency, the President of Malta



The President's Foundation for the Wellbeing of Society is motivated by a deep respect for the power of relationships in our lives. Through its work, the Foundation nurtures a sense of connection and trust, amongst the different groups and communities that make up society in the Maltese Islands. The Foundation promotes constructive dialogue and meaningful connections within our nation, throughout our region, and with other peoples across the world. The universal social and cultural relationships we share with our natural environment are a source of particular inspiration to the National Hub for Ethnobotanical Research, within the President's Foundation. The environment has motivated the Hub, and its team of experts, to learn how these relationships can be strengthened and nurtured. The 'Sharing Seeds, Sharing Life' project

takes this journey in the direction of cultivation and conservation, particularly of vegetable landrace and heirloom seeds.

Maltese traditions of cultivation and heirloom produce are examples of our national heritage, which are currently in decline. Threatened by a potential loss of genetic material and biodiversity from local seeds, this publication has been launched to promote awareness and to celebrate the diversity of life which exists in our islands. We must continue working together, as academics, practitioners, but also as involved citizens, to preserve our natural heritage from the risk of loss.

Through publications such as this, we are renewing our commitment to the value and appreciation of our islands. Indeed, our wellbeing is inextricably linked to the health of our environment. We must recognise that we share one collective mission to celebrate our environment, end poverty and inequality, and to address climate change by 2030. Each of these objectives is intrinsically linked to achieving the United Nations' Sustainable Development Goals.

We must work to protect our natural heritage, whilst embracing the inherent value of diversity in all its forms. Sustainable Development Goal 2 in particular strives to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture worldwide. In order to achieve this, we must first succeed in nurturing a deeper and more sustainable relationship with the land, by empowering strong and supportive communities who feel invested in the future of our planet.

We must embrace and encourage the production of diverse foods, partly by supporting the producers themselves and encouraging local produce, while also promoting education among different groups and generations within our society. Safeguarding our identity is, in its essence, about recognising and sharing the precious heritage of our nation. When we value our natural heritage, we are also contributing to the global diversity that makes our planet a vibrant place, which shall continue to be capable of sustaining the wellbeing of all.

**Her Excellency Marie-Louise Coleiro Preca  
President of Malta**

## A Message from the Director General



Food security, or the lack thereof, impacts greatly on our ability to guarantee equality and human rights for all. Indeed, it is a major focus of Sustainable Development Goal 2, which aims to achieve zero hunger worldwide by 2030. Food security is a complex issue which necessitates the involvement of various actors in order to be effectively addressed – from the producer to the consumer and various distribution channels in between, along with politicians, policy makers, scientists, farmers, co-operatives, advocacy groups, and others. The issue brings all of humanity together in a collective responsibility to guarantee access to healthy and diverse foods, in a way that is sustainable and equitable.

Previous discussions held by the President's Foundation for the Wellbeing of Society, and led by its National Hub for Ethnobotanical Research, have indicated that Malta is not food secure as a nation, producing just 20% of its food needs. The current scenario calls for participatory governance practices to be placed at the heart of our discussions on how food is grown and distributed, involving social actors at various stages in the process. This point emerged during the CHOGM People's Forum 2015, was subsequently noted within the Malta Declaration on Governance for Resilience, and has similarly been re-affirmed within public discussions held by our Foundation. Challenging market demands, and the commodification of seeds on a global scale, have resulted in local producers tailoring their farming practices in order to grow their produce competitively. This is resulting in the decline of landrace seeds which form part of Malta's natural heritage. Heirloom seeds have come to be stored away, threatened with loss and decline, until such a time that their inherent value and diversity may be met with renewed appreciation.

The National Hub for Ethnobotanical Research has attempted to work precisely towards this, by means of this action research highlighting key ideas emerging from discussions with farmers and other local stakeholders. In urging the re-cultivation and valorisation of heirloom and landrace seeds, the Hub promotes a more connected relationship with our natural environment, as a force for addressing the wider challenges deriving from human need, such as food security within a diverse ecological landscape. We must bring to light that which risks being forgotten, giving prominence to seeds as part of our local, cultural, and ecological heritage. In doing so, our wellbeing may be both individually and collectively nurtured.

**Dr Ruth Farrugia**  
**Director General**

**The President's Foundation for the Wellbeing of Society**

## An Introduction from the Chairperson



The right to food and the right to freely participate in the cultural life of the community are deeply interlinked, yet an intersection that is often neglected. Bring in gender, race, and sexual orientation to the mix and you have a very marginal field of study.

The National Hub for Ethnobotanical Research brought to the forefront these marginal voices. It is within this peripheral space that ethnobotany becomes a very useful tool. For this study, we utilized ethnobotany as a lens to enquire about landrace and heirloom seeds, their cultivation and desirability. While the seeds' genetic value is highly important and further conservation efforts urgently required, this study brings to light other dimensions, equally important. Sharing Seeds interrogates human

relationships and culture(s) that take place around the cultivation of these seeds, or their neglect. While their loss is a tragic genetic loss, it also implies the loss of Maltese and Gozitan folk and cultural heritage.

As we Maltese people struggle to find who we are as people somewhat stranded and living on these islands of ours, our disconnection from Maltese fertile soil emerges as a clear symptom of our alienation from who we are. Possibly, our colonial past impacted us in this way. A history that divided us, creating social and economic classes that are hard to dismantle and continue to perpetuate themselves and exert power, in the way we speak and relate to one another.

While an emerging movement of young and new farmers exists, farming in Malta remains at risk, not only because less people wish to cultivate Maltese soil as their main means of income, but also because the farmer, speaking in generic terms, is often perceived negatively, as this research shows.

Our disconnection from Maltese soil translates into an alienation from our rural communities, often looked down upon, and whose voice not considered as worth listening to. This research project listens to those voices, as they express concern about the loss of Maltese heritage in relation to the cultivation of landrace and heirloom seeds. These voices also narrate the difficulties farmers encounter in cultivating food for a small market like Malta, and the difficulties they face to make ends meet in such a highly competitive sector within the context of the free market.

Sharing Seeds project highlights the way market forces determine which food is produced and how these forces are not necessarily respectful of our health needs, of our identit(ies), or of our cultural heritage. While migration in Maltese public discourse is regularly discussed as a threat to our identity, the market is never interrogated in that same way. Sharing Seeds project identifies that the market is a major force in relation to which seeds are cultivated and which seeds are neglected. Those neglected are all local varieties. It is the market that threatens the loss of landrace and heirloom seeds and our forgetfulness of our heritage vegetables. Potentially, migrants, a few of them working in the agricultural sector, could possibly

be our allies and contribute towards the cultivation of our cultural vegetables and bring new knowledge for their use.

Maybe, the biggest threat to ourselves and our cultural food heritage, is ourselves. We, who are unable to valorise and love who we are, as we are, our soil, and the food our mother earth - Malta provided for us. Maybe, if we learn to embrace who we are, as we are located geographically, we might be able to live peacefully with that which we perceive as different from ourselves.

Ethnobotany celebrates exactly that: the life of people and their relationship to their plants, which includes those cultures that become the vehicle for those relationships, and the cultural exchange around knowledge on the use of plants for the wellbeing of people.

Identity implies self-knowledge, and we seem to be suffering from a collective memory loss in relation to what food can grow on these islands, within the limitations and possibilities of our land and climate. As we create the conditions to re-discover the joy of cultivating Maltese cultural vegetables and plants that fed our ancestors, we may be creating the conditions to rediscover ourselves anew. We may find out that it is better to construct identities on identifying creative solutions to today's difficulties rather than wasting our energy in persecuting others. In doing so we may find that the 'other' might contribute towards creating that creative space, for life on Earth and our islands to become possible, and pleasurable as well. Maybe it is there, that as a society we may find the seeds for our resilience and wellbeing.

**Mr Mario Gerada**  
**Chair**  
**National Hub for Ethnobotanical Research**

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## Glossary

### **Cloistered Spaces:**

A research study conducted by the National Hub for Ethnobotanical Research (President's Foundation for the Wellbeing of Society) to identify monastic/religious gardens which have an important architectural, cultural, historical and horticultural value, in Malta, Gozo and Comino.

### **Cultural relationships:**

The relationship rural communities have with landrace and/or heritage seeds (and vegetables produced), within those communities; observing the history, language, traditions and narratives around the use of these seeds and vegetables.

### **Landrace seeds:**

Wild and traditional, locally-adapted populations of cultivated plants that have historical origins, distinct identities and lack formal crop improvement. As well as often being genetically diverse, they are also adapted to local environmental factors such as climate and soil and are normally associated with traditional farming systems, which include farmers selecting and propagating varieties that have favourable traits, such as resistance to disease.

### **Heirloom seeds:**

A traditional crop variety that has historical origin of over 40 years. These crops are open pollinated (pollinated by insects, birds, wind, humans, or other natural mechanisms) and are of cultural/heritage value to their users. Generally, these seeds would have been developed, maintained and transferred through families and communities rather than by commercial seed trade.

### **Heteronormative:**

A world view that people fall into two distinct genders (man and woman) and that heterosexuality is the normal or preferred sexual orientation. Consequently, a heteronormative view is one that involves alignment of biological sex, sexuality, gender identity and gender roles.

### **Participatory action research:**

An approach to research in communities that emphasises participation of those people directly involved in a given situation, in this case, that of protecting and bringing back the use of heirloom and landrace seeds. The aim of the inquiry and the research questions is to generate a nuanced understanding of a given context and to bring about positive change in current conditions and practices.

## 1. Introduction and Context

*“Hardly anyone would have realised before war broke out that the golf course, polo grounds, racing track and cricket pitches of the Marsa Sports Grounds would soon be turned into arable land producing crops of vital necessity to the Island. But the miracle happened. With the exception of football grounds which were left for use of Service personnel, all worthwhile land was put under the plough. Large quantities of food for human consumption were grown on this land during the years 1941 to 1944 but with the easing of the food situation, a proportion of this land, as well as a certain acreage on the Government Farm were utilised in the experimental stages of setting up a Seed Industry in Malta.”*

Department of Agriculture Report, Malta, 1947: ix

Sharing Seeds, Sharing Life (SSSL) research study aimed to address concerns from participants, paving the way forward to tangible solutions from farmer and stakeholder roundtable discussions held in 2014 and 2015 by The National Hub for Ethnobotanical Research. The loss of the genetic material and biodiversity of our local seeds, including their cultural and traditional use, was a focal concern for young and new farmers during those meetings. The project aimed to offer a response through research, involving those same young and new farmers who expressed unease at the loss of genetic diversity and an overall decline in cultural and traditional uses of old seed varieties. The overarching aim of this project was to explore and renew the traditional and cultural relationships with vegetable landrace and heirlooms seeds in Malta, and facilitate a process whereby interest in these vegetables is increased to the point where they are taken up for cultivation again, thereby conserving both local genetic biodiversity and cultural heritage.

SSSL report aims to help both participants in this research study and Maltese society to appreciate the interconnectedness of our wellbeing with that of the environment, the food we eat, the soil in which it grows and the farmers who tend to the harvest. Wellbeing is relational; connectedness brings about a sense of meaning, purpose and community. The seeds bring us back to our interdependence and interconnectedness, and is used in this project to facilitate and enhance community relationships because wellbeing is never achieved alone, but is experienced through sharing of life. Therefore the seeds, with their own unique set of traits, remind us of our rooted connection and dependence on one another.

Through this report, the Hub hopes to encourage a culture that embraces rural communities and their invaluable contribution to society by putting food on our tables. Hence, the public image of the farmer was investigated throughout this research.

## **Overarching Aims**

- To explore and discuss possible approaches on how to renew the traditional and cultural relationships with vegetable landrace and heirloom seeds in Malta;
- To ensure the safeguarding of local genetic biodiversity and cultural heritage by finding ways whereby the Hub can facilitate increased interest in these seeds to encourage farmers to start cultivating them and buyers to start requesting and buying them;
- To encourage discussions about the intrinsic links between our wellbeing, the environment around us, the food we eat, the soil that produces it and the farmers who cultivate the seeds;
- To revisit the image of farmers and agricultural work in Malta by interrogating public perceptions of farmers.

## **The agricultural landscape**

The origins of agriculture in Malta are as old as people's presence on the archipelago. Even as far back as the Middle Ages, Malta was already famous for the cultivation and export of various products, including cotton and cumin.

Farming in Malta has evolved to several thriving and modern industries and activities that, in their own way, are essential to the building of our nation's identity. Moreover, farming and gardening in Malta are also deeply interconnected to Monastic traditions on our islands. Cloistered Spaces highlights a few of these traditions and practices such as the production of food, liquors and a number of other food products, traditions that risk being lost entirely (Cloistered Spaces, 2016).

### *Is this a vocation entirely lost?*

The latest Census of Agriculture indicated that in 2013, a total of 19,066 persons were actively engaged in agricultural activity, up by 2.8 percent when compared to the 2010 census (National Statistics Office, 2016). However, full-time farmers who spend the whole day tilling their fields are gradually becoming fewer in number, whilst part-time farmers who do not fully depend on farming as their main source of income have increased by 37 percent in the past decade. This has been attributed to decreased and insecure financial gains in comparison to more stable service industries such as tourism, which has become the main source of income for many part-time farmers.

For some farmers, it is no longer the economic rationale that keeps them going, but a deep bond with their vocation and heritage (personal communication). This has also been noticed with the emergence of younger farmers and part-time farmers who take up farming not because it is passed down to them by their forefathers but rather because they have an interest in growing and experimenting with growing food for themselves and their family.

## **The farmer**

For decades, farmers in Malta and across the European continent have been associated with older, white males with a low educational background. In fact, agriculture employment in Malta is dominated by males, with female full-time employment in agriculture representing only 9.3 percent of the sector (National Statistics Office, 2016). Even though women are known to have always contributed to farming alongside their husbands, often their contributions are overlooked. Similarly, most farmers are over 55 years of age, and it is a struggle to engage youth in the agriculture sector (The Malta Independent, 2015 a).

Locally, farmers are often portrayed as hard-headed and people who cannot be reasoned with, who are ingrained in their practices and not willing to adapt. On top of this, they are seen as contributors to the destruction of both our environment and health by using chemicals on their crops and mismanaging ground water sources, especially during long dry periods (Times of Malta, 2016 a, b; personal communication). Perhaps as a result of a disconnect that Maltese have developed with agriculture, few people appreciate the role that farmers play and how they will always remain a necessary part of our wellbeing and environment (The Malta Independent, 2015 b).

## **The seeds**

Seeds are not merely the 'offspring' of a given plant; they symbolise the potential for new beginnings. Each seed, despite its sometimes rather identical appearance to one another, carries a unique genetic code. Like humans and other animals, given the chance to grow and depending on the environmental conditions surrounding it, the seed will develop into its own, whether it be a curvy carrot or a sweeter-than-usual beetroot. Each individual seed, therefore, harnesses the potential to display characteristics that can vary in myriad of ways from the generic store-bought produce. By mixing seeds<sup>1</sup>, we open the door even further to a vast array of hybrids bringing with them new aromas, flavours, textures and colours.

Seed conservation and local ownership of seeds is crucial in modern society, which is facing the threat of corporate patents on biological information, that is, the rights to the seeds themselves. This is forcing small-scale farmers out of their traditional practice of selective breeding for desired characteristics and plant diversity. By losing the ability to mix and preserve seeds, farmers also lose control over what they produce.

Protecting landrace and heirloom seeds and their genetic biodiversity becomes even more urgent considering climate change and the possible food security issues we might face because of it. Since being specifically adapted to our local climate and environment gives these seeds a greater chance of surviving harsher conditions brought about by climate change. Moreover, seeds bring with them their own cultural narratives and histories. In many ways, heritage seeds are heritage memory as well.

<sup>1</sup> Seeds can be mixed to form a new, hybridised plant variety by cross-pollinating two or more varieties of plants. These are then simply regrown normally, until it stabilises in a new variety.

Due to difficulties in locating and cultivating, heirloom and landrace seeds are becoming rare in Malta. With a comparatively 'low' commercial value, farmers, gardeners and the public often neglect these heritage seeds in favour of other commercial varieties which are normally more readily available and are more 'attractive' on the market. Heirloom seeds are collected from plants that have been passed from one generation to another, carefully grown and saved by farmers or gardeners because they are considered valuable. Gradually, the line is refined; more and more of the seeds produce plants with the desired characteristics, until finally undesirable qualities are bred out of the strain. On the other hand, landrace seeds are wild and traditional varieties which have been locally-adapted through traditional farming systems and natural selection. Both heirlooms and landrace seeds are normally only found in very specific regions, thus they are very vulnerable to extinction.

Apart from habitat loss, climate change, changes in farming practices - possibly leading to the introduction of new pests and diseases - and loss of pollinators are other factors threatening these seeds. Safeguarding landrace and heirloom seeds also protects local folk traditions, such as recipes and tales rooted within specific cultural context, heritage that also risks becoming completely lost.

## **2. Literature Review**

A scientist carefully steps along the edge of a fallow field identifying plants that border the forest and treads on a seemingly unimportant weed, crushing it. After sowing, the farmer walks the same margin separating forest and farm looking for this weed; it is used as a herbal remedy for sore muscles. This is where the potential of ethnobotany lies: the unknowingly precious weed caught between two distinct natural systems and a diversity of knowledge waiting to be rediscovered, unearthed, explored.

### **A New Way of Interrogating Ethnobotany: Using Queer and Feminist lenses**

Plants are the most utilised component of nature, both by humans and animals alike. They are consumed mainly as food, yet they are used for many other purposes, including shelter and building materials, fuel, basketry, clothing, instruments and during religious ceremonies (Cunningham, 2001; Lippi, 2007). Ethnobotany investigates and explores these interactions between people and plants (Flaster, 1996). Hence, an ethnobotanical study incorporates both knowledge that is commonly held by all individuals who belong to a given cultural group, and plant knowledge that is only known by specialist individuals within that group (Soejarto et al. n.d.).

The National Hub for Ethnobotanical Research in Malta strives to use ethnobotanical knowledge as a guide and catalyst in fostering new relationships between people of different backgrounds. Doing so requires creating a dialogue around agriculture, food systems and lost traditional knowledge. By creating a space to facilitate dialogue and networking, farmers, researchers, chefs, food providers and gardeners have the chance to learn about different existing relationships and through the process of innovation, find new ways to incorporate ethnobotanical knowledge into modern day practices of food production. Addressing challenges and accomplishing the above goals opens several doors of exploration.

Who should be interviewed in attaining traditional and folk biological knowledge? How should questions be asked? And what ethical considerations need to be considered during the process? The attainment and preservation of ethnobotanical knowledge would benefit from the incorporation of a growing movement in urban gardening, along with practices informed by two emerging fields: queer and feminist ecologies.

### **Queer and feminist ecologies**

Queer and feminist ecologies challenge our current thinking which is usually centred around a dominant white heterosexual (heteronormative) ideology and offer unique interpretations of the relationship between plants, culture, desire and power. They hold the potential discovery of new relationships, thus opening avenues for fresh perspectives and interpretations of the world around us, helping us find new ways on how to preserve local traditional knowledge and the seeds (Sbicca, 2012).

Queer ecology is an exploration of the relationship between desire and nature on various scales from political to environmental and historical. It is a relatively new approach which offers critiques and perspectives about nature and people's relationship to nature. It encourages an investigative approach to alternative gender identities and their connections to nature and green spaces within, for example, urban areas. This could also be used to challenge philosophies, bringing forth new concepts that deviate from modern societal norms (Mortimer-Sandilands & Erickson, 2010). In this regard, we are left with questions such as – Why are landrace and heirloom seeds no longer desired? Who desired them in the past and who is desiring them today?

This study was inspired by young farmers' concern over the loss of local seed diversity in favour of commercial and genetically modified varieties. What draws farmers to these seeds? How can the association with monetary gain be rocked in favour of adopting local seed varieties? We must also ask ourselves whether the notion of conserving these seeds is simply a romantic notion to protect and celebrate what is local for the sake of it being Maltese. Is there a desire in the market for these seeds outside of that desire? And what desire can be strong enough to bring about the protection and cultivation of these seeds?

On the other hand, feminist ecology recognises the strong connection between nature and women while exploring and re-defining women as well as minorities' role in environmental interactions (Warren, 1987; Warren & Cheney, 1991; Rocheleau et al. 2013;). The narrative of agriculture in Europe has been historically dominated by white males, even though women make up 43 percent of the world's agricultural work force and are most often responsible for growing, harvesting and preparing food for their families.

Redefining gender and women's identity awakens a fresh perspective on environmental issues and encourages new solutions through the incorporation of women's experiences and knowledge. Breaking down the overly-simplistic, bilateral approach to defining gender and women's roles in nature is imperative in the quest to attain ethnobotanical knowledge in conjunction with spreading the urban gardening movement, which builds a new space for old traditions to re-emerge. Spaces where heirloom and landrace seeds can find refuge and be propagated.

Revisiting ethnobotany utilising these two lenses helps us ask further questions. Who owns and has control over seeds and who propagates them? Who decides which seeds are desirable and which are not, and on what grounds?

Women's relationship to the landscape tends to be based on nurture, caring and intent on the wellbeing of the land and people around them. This has had an overwhelming influence on the direction food production has taken as well as women's progression in agriculture (Shiva, 2009). Apart from this inherent difference in their relationship with the land, women, as well as minorities, are frequently denied access to resources and decision-making power, and their knowledge and ideas are not adequately incorporated. Although there are many cases in which women and minorities have been speaking out from the beginning, in a strongly patriarchal society their voices are often overshadowed (Reeves Sanday, 1981).

Do women significantly differ in their interests from men? How would the current agricultural landscape be if women played a bigger role in the last several decades? Who is making the choices of what to plant? Furthermore, is it possible that environmental awareness campaigns such as seed collection, saving, sowing and conservation campaigns be taken more seriously by the public if women and minorities were directly involved in communicating these issues from the start of their recognition? Is it impossible to imagine the direction of environmental movements over time had women and minority groups had been more involved over the last several hundred years?

However, as we move towards queering the relationship between people and nature and between culture and plants, is it wise to associate certain behaviours with either gender? Do women generally display a more 'motherly' quality and therefore target poverty to a greater degree than men? And to what extent does our current political climate in the Western world factor into this trend? Perhaps by being more open to queer behaviours, men too can have the capacity to develop a higher propensity for nurture towards others. Or perhaps many men already have this quality but are pressured by societal norms to repress it.

Only by establishing a strong link to the wellbeing of plants and people, seed conservation and traditional practices in concert with modern technology and women and minority's empowerment, can we successfully guide future plant conservation and sustainable agricultural efforts.

### **Bringing queer and feminism into the mix**

The practice of implementing queer and feminist ecological concepts is still in its infancy. Combining the two and identifying key parallels between oppression of women, queer, minorities, indigenous peoples while factoring in racism and classism, is only beginning to be discussed.

There are myriad ways to approach the connection between culture, history, language and plants. A plant must be understood not just by its biological and physical properties, but also by its uses for different cultural groups and intensity of use. The plant has its own story that calls for narration, from germination to harvest to market to consumption and all the roads in between. As previously stated, queering ethnobotany could lead to the discovery of knowledge that was previously ignored and never allowed to enter the scientific discussion. A queer approach unravels how certain species became popular, desirable or conversely, how their value was lost and amongst which social groups.

Ethnobotany should question the difference in plant use between men and women and the qualitative distinctions in knowledge between them. For instance, do men know more about distribution from harvest to market than women because historically men played dominant roles in farming? How does this discrepancy in level and type of knowledge impact family structure? In addition, we recommend the questioning of current market and food consumption trends. How, if at all, do gender roles and women's historic oppression impact ethnobotanical inquiry and what does ethnobotany say about changes in diet and people's engagement with environment and plant-based products sold in the free market? Feminist and queer perspectives also consider class and ask, who has access to which seeds and food?

Who has control or is trying to establish control on what used to be common goods and have now become privatised commodities?

### **Ethnobotanical research moving forward**

To gain a deeper understanding of ethnobotany, part of tracing the narrative of seeds also means understanding the learning process in different local groups and the variance between them. The story insists upon different perspectives. When looking at a plant species within one local group, what are we looking at exactly, whose practice are we looking at and who is being excluded? Does plant utilisation occur in different areas (in the context of nature spaces) and does it differ between men, and women, and the various gender and sexual orientation variations? This research wants to re-propose ethnobotany as an opportunity for marginalised and misrepresented minorities, indigenous peoples and women to redefine their place in the global environment by searching for answers to these kinds of questions.

Ethnobotany, queer and feminist theories and modern day agriculture are all intertwined and feed off each other in the form of expression, expansion and building a globally inclusive society. We must strive to reach the centre of inquiry in the ongoing attempt to reclaim, understand and utilise traditional ethnobotanical knowledge. For Malta, we can expand this movement through urban gardening to connect people from different cultural backgrounds, to confront prejudice and encourage dialogue. Maltese farmers can revisit their connection to their own land and each other, through support from the Hub by returning to local plant varieties, and play a leading role in shaping consumer demand for locally sourced produce from endemic species. With the Hub facilitating networking across all culture groups, farmers, minorities and fiscal stakeholders, people have the chance to learn not just about what they eat, but the process of how food reaches their plate and impacts their wellbeing. Making these connections requires a collaborative movement that is queer, feminist and green. Putting these efforts together will create a new environment where diversity in culture, food, plants and knowledge is at the core of an inclusive and non-violent society.

### 3. Methodology

Sharing seeds research project aims to present the perceptions and understandings of various stakeholders on landrace and heirloom seeds. It does not try to be a comprehensive or even a representative study of all of Malta. Hence why, rather than reducing data to numbers we favoured qualitative and community based methodological approaches which could lend us the necessary flexibility.

We approached this study by exploring with participants what the public's perception of the farmer is, to facilitate working relationships with farmers and other stakeholders including restaurant and coffee shop owners, activists, civil society organisations and academics to protect local seed varieties.

A Participatory Action Research approach was adopted to embrace a collaborative approach, guided by the participants and ongoing analysis throughout the research process.

#### Participatory Action Research

A strong participatory component allowed otherwise silent voices to be brought to the forefront as a means of invoking solutions. The process also provided opportunities for all the participating stakeholders to engage in dialogue and a mutual learning process, the aim of which was to share knowledge around the risk of losing Maltese heirloom and landrace seeds to facilitate communication and sharing knowledge between and present ideas to invoke human behavioural changes.

The research process included three distinct phases within the research process. The phases of the process can be summarised as follows:

#### PHASE 1: COLLECTING BACKGROUND DATA

- A literature review was carried out
- 11 semi structured interviews were carried out with academics studying food/agri-systems and agri-business, individuals active in school community gardens, growers, environmental and social NGO representatives
- Thematic coding of interviews
- Analysis meeting with Hub members to discuss findings and way forward

#### PHASE 2: FOCUS GROUPS AND ANALYSIS MEETING

- Two focus groups were carried out. Participants included Hub members, individuals from governmental institutions, academics, growers, healthy food restaurant manager, minority group representative
- Before every focus group: meeting with Hub team to discuss aims of the focus groups and decide on participants to invite

- Sending out consent forms to the participants
- Carry out focus group and thematic coding of the discussion
- After every focus group: analysis meeting with Hub members to discuss findings and way forward
- Before the second focus group was conducted, we carried out an analysis meeting with stakeholders to decide the direction of the second focus group. Participation was open to all the participants of the first focus group.

### PHASE 3: CONCLUDING SYMPOSIUM

- Presentation of research and report
- Discussion of findings

#### **Who was approached and accepted to participate in the research?**

- Two participants working at the Ministry for Sustainable Development, the Environment and Climate Change one who is a part-time farmer and a member/founder of a couple of local agriculture-based NGOs.
- One academic from the University of Malta, Institute of Earth Systems.
- Two academics from the University of Malta, Institute for Tourism, Travel and Culture and members of the Slow Food Movement, Malta.
- Two academics from MCAST, Centre for Agriculture, Aquatics & Animal Sciences (CAAAS), both of whom are active members in agricultural/environmental NGOs.
- One representative from the Filipino community.
- Five part-time growers and five full-time growers.
- Two coordinators of community garden projects.
- A manager of a restaurant selling healthy food.
- A manager of a local agricultural business which grows using alternative methods.
- One representative of a migrant led NGO.

#### **Analysis of data**

Thematic coding, based on analysing individual observations from the transcribed interviews and focus group discussions evolved throughout the research process through a collaborative effort by the researcher, persons of concern, relevant stakeholders and the Hub team. This emphasis on collaboration ensures that the perspectives, knowledge and experiences of all the people involved were heard and taken on board. It also allowed us to generate different inferences from the data. As a result of this process, data collected was organised under the main themes that emerged, as reflected in the structure of this report.

#### **Process**

Following the first focus-group, an analysis meeting with participants of the interviews and the focus group, was organised to analyse the information collected from the first focus group and to direct the process forward. Participants expressed a clear desire to use the launch of the SSSL report as an opportunity to organise an activity that is tangible and practical. Several people noted the importance of tasting foods to encourage them to start thinking about heirloom varieties. A suggestion that was taken on board was to incorporate a food tasting/cooking event for the launch of the research report.

The original aim of the second focus group was to organise a ‘networking’ session between farmers and key stakeholders from the arts and culture sectors to stimulate an interest in the cultural dimension of farming and which could help society to appreciate the value of the farmers’ work, including that of safeguarding and propagating plants which are of high genetic importance.

However, since a recurring topic was on how we can increase exposure of the produce itself as a way of safeguarding heirloom and landrace seeds, the second focus group was organised with the aim of deepening the discussion between the representatives from both the agricultural community and the food industry and to continue with the conversation that took place during the first workshop.

### **Ethical considerations**

The measures adopted with regards to conducting ethically sound research are documented throughout this report – some of the key guiding factors should be noted:

- An emphasis on reciprocity was maintained throughout the ongoing research process, providing the opportunity for all research participants to maintain contact with the lead researcher.
- When requested, the researcher acted on behalf of the participants to set up networks and facilitate exchange, following consent from all parties involved.

## 4. Presentation of Findings and Discussion

### 4.1 Re-visiting the image of the farmer

Having been given the spotlight, the traditional image of a farmer was found inadequate and misleading. The roots of this research emerged from a young farmer lamenting over farmers' misidentification with the rest of the Maltese population. The findings presented here address the young farmer's concern, but more than that, press upon the potential diversity lying dormant in soils beneath the overwhelming Mediterranean sun, and the myriad solutions to re-awaken desire to bring back the culture, traditions and foods that have been lost.

Contrary to common perception, farmer participants showed enthusiasm in seeking new initiatives and experimenting in both what is grown and how. Farmers participating in this study displayed openness to pursuing sustainable agriculture. The public image of the hard-headed farmer closed off to new ideas has been incongruent with the reality encountered through this research project. The image of the farmer is not as homogenous as is frequently depicted. However, it must be noted that the farmers who were successfully approached and participated in this study were already environmentally aware about the impact their practices have on their surroundings.

The potential to shape consumer demand and grow local seed varieties also extends to people who are not professional farmers, but instead practice subsistence farming and share or sell produce within their local community. This extends to people involved in community food gardening projects and first generation farmers, defined as those who do not have relatives who also farm. Thus, the use of either the term 'farmers', 'producers' or 'growers' will encompass this full spectrum and will be used interchangeably throughout the remainder of this report.

The growers who participated in this research understood the importance of developing communities that facilitate information sharing to raise awareness and start a dialogue with consumers, whether it is through actual groups or social media. According to one part-time farmer, instead of stopping at simply conveying a message of awareness, farmers can also become investigators on how to alter consumer demands when we talk about returning to heirloom and landrace varieties.

*'Let's see what the farmer wants to grow, let's see what the people want grown and then we share information.'*

This suggests that farmers could be involved in more than growing the food people eat, but should be more actively involved in research as the Hub attempted to achieve through this study. Farmers could participate in research and advocacy and help instigate changes in market-demands. On a smaller level, they can work closely as equal partners with researchers and activists to promote, raise awareness and educate the public on environmental causes such as conserving heirloom and landrace seeds.

## 4.2 Re-covering our memory of our seeds

The need to re-discover lost seed varieties is discussed as one of the goals in restoring Malta's agriculture in this research:

*'Farmers are businessmen which means they will grow what is profitable. The demand for modern hybrid varieties has led to an almost complete disappearance of heirloom and landrace seeds'.*

In our local markets, vegetables and fruit are normally very simply classified with no reference to different varieties. Much knowledge about the diversity of fruit and vegetables and how different varieties should be used depending on their flavour and texture is lost along the production line since the consumers are not given much choice when shopping and are led to believe that, for example, a potato is simply a potato (*Solanum tuberosum*) and indistinct to other varieties. The absence of knowledge transfer in labelling produce varieties results in a lost opportunity to educate the consumer about their food choices. Without this knowledge and awareness, the consumer is unable to appreciate food diversity. Opening the commercial market to landrace and heirloom seeds, which not only produce different varieties of commonly bought crops and fruit, but also sell at a higher/premium price, therefore, becomes increasingly difficult.

Locally, simple distinctions and varieties of some produce, like tomatoes (*Solanum lycopersicum*), are still relatively common knowledge and often used in everyday vocabulary, such as the elongated 'tadam ženguli' or the flat 'tadam čatt' which was traditionally used to make sun-dried tomatoes. These are two varieties of tomatoes which, although still sold on the local market, are much less commonly found and are nowadays mostly only grown by farmers for their own personal use (Plant Health Department, 2016) Other local produce which still has commonly distinguishable varieties include oranges (*Citrus reticulata*), for example the 'laring tad-demm' (blood orange) and 'lumi laring' (a sweet orange), a local variety of small round marrow (*Cucurbita spp.*) 'qarabagħli tond' exists, which has a similar, but milder taste to courgettes and the reddish, Maltese variety of onion (*Allium cepa*) 'basal aħmar'.

This misrepresentation, due to oversimplification of information being given to consumers, has been identified, by both local academics and a seller during the interviews and one of the focus groups, as one of the factors which lead to poor commodity choices. An example that was mentioned during one of the interviews was of local baking potatoes being sold on the market for frying purposes. Not being aware of this distinction, the consumer will not be happy with the fried potatoes and consequently label the local produce as 'bad' and 'not good enough'. Poor information, together with an absence of local quality parameters, other than simply grading the produce by how it looks, leads to confusion and mislabelling of foods as 'low quality'. Thus, the consequence is the de-valorisation of local produce. As an academic studying food production stated during this study:

*'... (we need to) raise awareness that there is diversity in crops – one potato might be good to fry, another might be good to bake. This is something that people were more aware of before. An alternative way to 'grade' products is to classify them by their uses rather than simply grading them by how they look'*

Concurrently, Maltese local produce sometimes gets a bad reputation because the high-quality produce is exported instead of being sold at the local market:

*'... potatoes grown locally are sent to Holland and those that are not in favourable condition are then sold in Malta. However, many Maltese reject these potatoes resulting in imports back from Holland.'*

### **4.3 Why is it important to save seeds?**

For researchers at the Hub, there is a deeper question at stake when it comes to seed conservation. Is saving seeds also an emotional, social and cultural endeavour? What other interests and values lie behind seed saving practices?

Unfortunately, many varieties, especially fruits like apples (*Malus domestica*), which at one point had thousands of different cultivars, and are now mostly restricted to the overabundant 'red delicious'; the other varieties are completely lost since their genetic makeup is irretrievable. As an academic studying the local agriculture who participated in this research simply put it:

*'Genetically we lost them [the seeds] so we cannot resort back to them [the genetics] to include in the present varieties. Diversity of genetic resources are important especially with the onset of more environmental pressures like climate change.'*

The United Nations Food and Agriculture Organisation (FAO) estimates that about three-quarters of the genetic diversity of agricultural crops has been lost over the last century. Biological diversity can be one of the keys to ending world hunger, however, globally there are only 12 crops which are commercially used to provide 75 percent of the world's food (FAO, 1999).

Climate change is affecting plant life worldwide, with potentially disastrous effects for both wild and agricultural species. Seed varieties which have high level of genetic diversity could be useful in the breeding of drought and disease resistant crops. This is like the traditional practice of seed mixing that farmers and gardeners used to, and in some cases, still, practise to improve crop and fruit production and which has produced thousands of varieties of different plant species. With every seed variety we lose, we also lose its genetic makeup, and thus we potentially lose favourable genetic characteristics, such as drought resistance. This would be essential if the Mediterranean climate becomes drier and if we want to stand a chance in producing crops resistant and more adaptable to draught. Thus, seed conservation is crucial for food security especially if we consider climate change. These neglected seeds may prove crucial for future generations and their food security.

As confirmed by local academics, genetics research, to understand the hidden languages in local seed varieties must continue. The potential pool of genetic resources that is being lost and the rate at which it is being lost remains unknown. The establishment of a seed bank is of vital importance to safeguard these genetic resources. Being involved in establishing a community seed bank to save the last heirloom and landrace seeds still existing on Malta is one of the Hub's goals and this study is a step forward moving in that direction. Doing so will inherently preserve traditional practices that many Maltese rural communities have abandoned due to lack of interest and consumer demand for commercial foods.

Fundamentally, increasing knowledge on what can be rediscovered and re-established in Malta's food system in conjunction with acknowledging what has been lost, local people may become aware of what could be available and what food products they could demand from local plant varieties. Ethnobotany could play a crucial role in impacting the economy and food trade to encourage people living on the Maltese islands to take advantage of diverse local produce. Moreover, beyond disrupting barriers between researchers and farmers, ethnobotany brings traditional knowledge to the table in several ways: encouraging the spread of urban gardening and sustainable living, decreasing dependency on imported produce and reawakening cultural values while re-visiting historical ties and relationships. It is also good to point out that when we speak about the cultivation of seeds and the culture of such agricultural heritage, we can also look at the wild. In other words, the local knowledge of identifying and using wild plants is an important part of local knowledge and cultural practices and integral to our understanding of our landscapes (Marovelli, 2016).

#### **4.4 Initiatives**

Several growers and communities are taking initiative by growing different varieties of vegetables and fruit not commonly found on the market without pesticides and making jams and other similar foods from their produce. They were consistently receptive to innovation and sustainable farming methods. The growers who participated in this study all expressed a keen interest in being involved in the process to alter and raise awareness about the importance of more sustainable farming practices, including growing heirloom and landrace vegetables. They also are willing to seek help and collaborate with different institutions, communities and local businesses in an effort to harness local, traditional practices before they are completely lost. Their target audience and aims however are not clear and it is thus still unknown how these goals are shaping the market.

Some initiatives which were mentioned during the research process include:

*'...propagating local orange trees by grafting old stocks without using pesticides...'*

*'...providing vegetable box schemes filled with seasonal, local and pesticide-free produce that we grow ourselves. We are also now giving tours of our food gardens to interested customers as well as operating a small catering company that makes goods using our own produce such as jams.'*

*'To reduce waste, we [a group of young growers] looked into the possibility of making preserves and jams from produce that cannot be sold at Pitkali [the local fresh-produce market] because they are a bit blemished or do not look so nice. We tested the concept and we received an abundance of positive feedback from people, however when we approached tas-'sanita' [the Health Regulation Department] they imposed so many restrictions and red-tape that it made it very confusing and virtually impossible for us to take this further.'*

*'We [the Filipino community] grow our own vegetables at home because we cannot find the vegetables we need to cook our food. We would like to work with people who have more land. ...we also need support and guidance on how to make this financially viable.'*

*'The Plant Health Department is working on a brochure to raise awareness about the landrace produce in Malta.'*

Both individuals and community representatives who participated in this research would appreciate guidance and technical support. For local enterprise to be successful, they require management of finances as well as a business plan, which in turn also means support is needed, such as how to set-up a start-up.

All participants expressed common characteristics, including being well-educated and mostly young. They have an alternative source of income apart from the produce that they grow and sometimes sell and they all displayed a strong awareness of agriculture impacts on the environment and markets. Together, these factors account for the risks in farming and gardening practices and make-up for the cost of resources essential to innovation and creativity.

#### **4.5 Urban and community gardening**

An ongoing theme mentioned throughout the study was urban gardening. Urban gardening is a relatively new movement bringing nature literally to the doorstep of city homes. Whereas in the past, small-scale farming for self-consumption was considered an activity strictly bound to the countryside and monastic spaces, people are now finding innovative ways to create a sense of community and connection with their environment in urban settings.

By exchanging knowledge and skills, urban gardening galvanises the green movement and resists neoliberalism. People involved no longer feel the need to simply consume, rather they grow an appreciation for the food, fostered by simple social interactions and connecting with nature. The direct connection with plants also pulls people in cities further away from the concept that anything can be attained at any time of the day. It allows them to understand seasonality in the sense that certain vegetables must be planted and harvested at specific times of the year.

Looking at urban gardening from a queer lens, the foods produced on an industrial scale are largely unhealthy and abuse nature. By eating these foods, we accept and

condone abusive practices which allows the continuation of oppression. Thus, urban gardening serves as a resistance to the oppressive system. For individual farmers and the movement itself, utilising nature in a positive way is a priority. Rather than posing as alternative, the goal to create food for the community without profit and bring the love of nature to an urban setting is one that aspires to become the norm. What makes this a queer engagement is perhaps the openness to share skills and knowledge with a diversity of people, pushing the boundaries of who constitutes a community.

Spreading this practice could perhaps encourage people, both locals and migrants alike, to explore the diverse set of fruits and vegetables that occurred on Maltese land historically, who brought them here and who cultivated them, and which are regrettably nearly lost in present day. It can also offer an opportunity for migrants to share their knowledge of gardening and introduce new plants and food options or new knowledge on how to use commonly shared vegetables, such as the Persian recipe for carrot jam.

Most people in the Western world are not able to describe where their food comes from or how it is grown. Being directly involved in the process of growing one's own food makes an intrinsic connection to nature that is beyond physical. It requires learning about how vegetables grow, how much water and sun is needed and in what kind of soil they need to be grown. In developing a more intimate relationship with food and gardening, people establish a bond with their own land and may also develop a deeper appreciation of diversity in all its forms.

#### **4.5.1 Dialogue**

Apart from their direct benefit on the environment, such as improving the air quality, urban gardens are also social places where people can learn to make healthy food choices and engage as a community. As mentioned previously, the need to establish communication platforms for growers to engage in two-sided discussions on topics such as heirlooms, landrace seeds and ethnobotany is an important step forward.

In addition, communities often develop and connect through shared activities. Community gardening offers more than fresh produce, they hold the promise of bonding amongst people from different cultural backgrounds, they provide a space for migrants and refugees to integrate into a new society. Recently, the concept of semi-urban gardening has been explored by the Hub in a publication, Cloistered Spaces, which explored Monastic gardens across the Maltese islands.

However, this integration can only be achieved if there is dialogue and communication established between all the participants involved, which requires proper coordination. As described by a participant who had taken part in a community allotment plot initiative pioneered by the Agricultural Department:

*'...there were disagreements with the people involved. In some cases, there was also stealing from allotments. The initiative did not fail because there was a lack of interest from people. It failed because there was no proper management.'*

Clearly, the process of starting a community food growing initiative will probably not succeed unless dialogue and a sense of community between the participants is nurtured and facilitated.

#### **4.5.2 Intercultural**

This study proposes that queering be explored in movement. Humans both shape the landscape and are shaped by it. Patterns of migration and settlement have, to a large degree, been shaped by geographical barriers, and the ways in which humans mould the environment is greatly attributed to cultural practices. One of the most significant ways humans have altered ecosystems is through the invention of agriculture.

Located at the centre of the Mediterranean, the Maltese islands can make claim to a rich and long history of migration. At the turn of the twenty-first century, and coinciding with accession to the EU, Malta witnessed a shift from a country of emigration, to a country of immigration. New migration patterns from within the EU and beyond has led to increased cultural diversity and significant social change. However, whilst largely welcomed as a sign and product of economic prosperity, the arrival of refugees and migrants, largely originating from sub-Saharan Africa, North Africa, and the Middle East, has coincided with an increase in racist discourse and xenophobia, that has also fed into often hard-line policies that have served to exclude this particular migrant population; physically, economically, socially, and culturally. The separation of locals from different migrant groups not only begets deep misunderstandings of each other's cultures in, sometimes invisibly, demarcated communities, but also hijacks rich possibilities and opportunities for sharing knowledge and practices. Different cultural groups bring with them a diversity of agricultural practices and knowledge of seed varieties. Nature and culture can come together in community gardens, facilitating spaces for intercultural exposure on neutral ground. The concept of urban gardening and ethnobotany, focusing on cultural exchanges on plant use in different countries, is being explored in Malta by various social NGOs, and cultural communities. People coming into Malta bring with them new ideas, knowledge and practices on the use of plants, food and seeds. Establishing urban gardens is fundamental to creating a space where people voluntarily communicate, share knowledge and practice and in doing so, may confront each other's ideas, religious and political beliefs, within a nurturing setting.

One local social NGO led by migrants living in Malta has even gone so far as establishing contacts with a local beekeeper to potentially set up a social enterprise which would see migrants, some of whom already had experience beekeeping back in their home-countries, to get beekeeping training and sell local honey. Honey was chosen since it is a staple ingredient in many diets, but also a quintessential Maltese product. As one of the coordinators of the project said:

*'The idea was that if we immerse ourselves in a trade which is very linked to the Maltese heritage, we will also be able to establish social ties with the Maltese community. They [Maltese community] will see that we are trying to integrate and accept their culture.'*

Although they did not establish a community garden, the idea is very much in line with the importance of providing a space where locals and migrants can come together to work on a common project. Similar to beekeeping, a keen interest and practical experience in farming and gardening by the migrant community representatives who were approached for this study was also observed.

Throughout the process of this research, different cultural groups in Malta have pointed out how difficult it is for them to come across fresh produce which they used to find in their home countries and are integral ingredients for their recipes. In some cases, ingredients were replaced with locally available ones. In other situations, the community representatives expressed a desire to be involved in community garden schemes to start sowing and growing fruit and vegetables from their home countries.

Looking at urban gardening from a feminist ecology lens, one of the major themes is to find overlapping projects and issues to implement solutions that both empower women and minorities and galvanise environmental awareness (Warren, 1987; Warren & Cheney, 1991; Mollett et al. 2013; Rocheleau et al. 2013). In a broader sense, people's relationship to nature is strongly impacted by their position in society in regards to various factors, including: gender, race, age, disability, sexual orientation, socioeconomic and legal status. All these factors affect how much control over and access to natural resources they have (Mollett & Faria, 2013). Interestingly, this was observed locally in migrant communities who express a will to have access to land to grow crops, yet find it difficult to get their hands on available space. The expression of interest and lack of space has been voiced by both locals as well as migrants.

On the other spectrum, unsightly abandoned fields left to gather rubbish are becoming increasingly common in the Maltese agricultural landscape. Moreover, farmers discuss how their children and their grandchildren are not willing to take up farming, which is coupled with encouragement to abandon the laborious livelihood. However, a growing number of people, some without farming backgrounds, are interested in subsistence farming; young people who have studied agriculture and farming in higher education and seek to put their knowledge into practice; people who are interested in alternative lifestyles and want to take control of their food choices; parents who see this as a way to lead a healthy, active outdoors life with their family; and migrants who would like the opportunity to grow ethnic crops which they cannot find locally. The question is how to link this available and neglected resource, to the people who are willing and capable of making good use of it.

### **4.5.3 Schools**

There are various initiatives in schools around the islands (public, private and church schools) that are mostly inspired by Eko-Skola, a school scheme encouraging students to engage with the environment around them. Different working methods have been observed in the various gardens. Some schools have linked up with local environmental NGOs to help them with both practical gardening support and fundraising. Other schools mostly rely on their staff, especially when they have expertise within the school which is readily available.

Children greatly benefit from this practice because it fosters a direct relationship with nature throughout childhood despite being mostly confined to an urban setting. Being raised on locally sourced foods and developing the skills associated with gardening from a young age encourage sustainable and healthy living habits into the future while providing a constant source of physical activity.

Speaking to a secondary school teacher who helps coordinate a community garden, he noticed a positive effect on kids with behavioural problems.

*'We get kids who normally are not interested in classes and who have behavioural issues who come to the garden during their break, out of their own free will and love it. They change completely. It's like they are different people altogether. They behave more maturely, are responsible and show enthusiasm. They find a purpose and it also helps them interact with other schoolchildren and teachers on more friendly terms. Now that we also brought animals, they are learning how to be responsible and show respect to all living beings. They know that if they do not remember to feed to animals, they will not survive.'*

In all cases, the people involved have mentioned how they are now being approached by other schools who are interested in setting up their own community food garden. The obstacles identified here are lack of resources (human, time and financial) and lack of expertise. As of yet there is no centralised platform across the islands where people involved or interested in setting up a garden could communicate and share good practices and case-studies. Hence, people interested find it difficult to begin unless they can establish personal contacts with either a local environmental NGO and/or individuals in the community.

As one participant involved in a private Maltese school urban garden reflected:

*'A lot of encouragement and goodwill poured through, however the project only succeeded because schools had support and would not have followed through on their own. Once the first garden was established, more schools communicated their wish to take on gardening.'*

In all cases, the people involved are aware about the benefits of growing local, if not heirloom and landrace, seeds. One of the main obstacles identified here is the difficulty to come across such seeds in the first place. Considering the plight of heirloom and landrace seeds, the willingness to bring back old seed varieties, regardless of limited financial gain, serves as a promising opportunity in seed conservation. Furthermore, involving people who are mostly already environmentally-conscious and open to creative ideas, opportunities around growing and safeguarding heirloom and landrace seeds in urban gardens greatly increase.

Not surprisingly, these initiatives point towards a bottom-up, grassroots approach. This is similar to what has been found in the community allotment plot project. As one of the environmental NGO representative helping out in a school garden noted:

*'The issue is that the rest of the school teachers are not invested in the garden. They do not feel ownership over it. We tried to organise talks and discussions and I also showed them around, made easy-to-follow information sheets for them and am always available to support. But since the idea did not come from them and they were not brought on board from the get go, we are finding it more difficult to get teachers to be involved in taking care of the garden with their students.'*

In this case, the research participant is talking about how herself and the headmistress, who had approached her to start the garden at the school, are finding it difficult to instill a community spirit and ownership with the rest of the teachers. If teachers' input is not valued from the beginning, it will not be possible to sustain the garden in the long-term.

#### **4.5.4 Gender**

People in general can interact with nature on both a family and a community scale. Yet women are normally seen to interact mostly on the family scale due to household commitments. Their interaction with the environment and understanding of related issues are therefore confronted on this scale (Rocheleau, 2013). Despite clear benefits to an individual and a given community, gardening as opposed to farming, has been largely dominated by women (Puet, 2014). Not surprisingly, the majority of the community gardening initiatives that were encountered in this study have been spearheaded by women. Although there should be a push to make this an activity which is inclusive of all genders, it is also an opportunity to empower women allowing them to build self-confidence and contribute to the community outside of their family-life (Müller, 2007). Gardening can be a form of healthy escapism allowing women with families to take time away from household duties, thus also moving away from the restrictive family-only interactions and towards engaging with the environment on a community scale (Müller, n.d.). By creating a space for women to connect with their natural surroundings on different levels, this could possibly push them into playing a larger role in implementing environmental solutions, especially through growing the urban gardening movement as a form of sustainability initiative.

Breaking down the overly-simplistic, bilateral approach to defining gender and women's roles in nature is imperative in the quest to attain ethnobotanical knowledge in conjunction with spreading the urban gardening movement, which builds a new space for the revival of old traditions. This reinterpretation helps us ask questions which we previously took for granted, such as, who has control over seeds and who propagates them? Who decides which seeds are desirable and according to what criteria?

In addition to gardening, here women also take on activist role by breaking down the stereotype of a hetero-white male as the only one able to take charge of agriculture by pushing for inclusive education, environmental justice and sustainability initiatives as the major proponents for change.

## 4.6 Risk and investment

Although farmers may appear risk averse in terms of financial spending, especially in the case of conventional farmers who use the same dependable practices over generations; weather, economy and infrastructure development all produce risk to the farmer. Thus, by the very nature of their work, farmers have a rather unstable livelihood.

However, the market presents an even bigger risk for full-time farmers forced to grow what consumers demand to ensure a proper income. This pressure forces out any creativity, especially for conventional farmers. Investigating ways to reduce these risks is encouraged while questioning if the reduction and/or elimination of risk would lead to a change in environmentally harmful agricultural practices and promote innovation.

As previously noted, full-time Maltese farmers must be able to earn a living from what they produce. Therefore, pushing many of these growers to take risks to bring back local varieties and adopt sustainable farming methods over conventional ones could easily fail.

It was suggested that creating a space for dialogue between farmers, consumers and national agencies could bring forth more solutions that would simultaneously encourage the expansion of local produce in the market with less risk of financial loss to the farmer. Doing so would require additional education and awareness campaigns for people outside the agricultural field to understand the realities farmers face. Although there are already resources available to cushion these risks, such as bank loans and funds granted by the European Union and local authorities, these might still not be accessible to farmers.

*'Farmers are scared of applying for funds. There is too much paperwork involved.'*

Experimentation involves investment, both in terms of money and time, time that could have been spent growing conventional crops which they know have a place on the local market. Landrace/heirloom crops are an investment that farmers know might not pay off. However, an important question that was posed by one of the participants during one of the focus groups was:

*'What are they more afraid of? Investing more time or investing more money in such a start-up?'*

Unless we can answer this question, targeted solutions to support the farmers in this endeavour are difficult to implement. Moreover, the risks being taken up by farmers in favour of seed conservation of local varieties are currently not compensated. A suggestion that was made during the focus groups was to motivate growers by giving them a subsidy if they opt to grow heirloom and/or landrace crops. This could be included in the next Rural Development Plan for Malta (post 2020) which presently already contains financial pay-outs for farmers but not for cultivating heirloom and/or landrace crops.

*'For the farmer, it is extra work to cultivate, for example, a local pumpkin for years, save the seeds and then sow them rather than simply purchasing them from the shelf. And then farmers just throw away everything, go and buy a packet of seeds, containers of seeds because it is so much more easy than having to collect and save them. Our agriculture unfortunately has become a lot of this 'take from the shelves seeds and plantlets' like strawberries.'*

One participant noted that growers face pressure from importers, an additional deterrent to bringing back local varieties. Given that the amount of pressure placed on farmers from imports remains unknown, actively pursuing this concern may not be worthwhile. This is further questioned because many farmers transitioned to hybrid seeds over twenty years ago, with the expansion of new technology and before importation was a big concern. Hybrid seeds are more profitable, pest resistant and higher yielding in comparison to heirloom and landrace seeds. All the farmers who expressed a willingness to bring back heritage vegetables did so conditionally, if there was a premium price that consumers would accept.

On the other hand, for part-time farmers who are purely invested in agriculture as a hobby and do not consider it a livelihood, heritage seeds are a bigger priority. There is no financial risk since their income is entirely sourced from other work and whatever is earned through agriculture is supplemental.

It was interesting to find that despite the risk in innovation, farmers were willing to take other risks by experimenting with a crop that an individual grower profited from. This was the case with watermelon, which having been successful the year prior for one individual, led to many farmers – thanks to word of mouth – growing watermelon themselves, causing an oversaturation in the market. This in turn forced a lower price and little profit, if any, returned to growers. As one of the growers mentioned in a focus group:

*'Farmers trust other farmers. They speak their language. If they hear that something was successful for a farmer, they will probably copy them.'*

Clearly, the vehicle which is used to transfer knowledge and raise awareness within the farming community is essential for the eventual uptake of such information. Collaboration rather than aggressive competitiveness could also be a way forward for local farmers who are farming in close proximity and are all competing for profit within a small market.

Some farmers, especially young ones, are open to minimising pesticide use and speak openly about change. However, these actions also pose a risk, of which the magnitude is difficult to determine. In the context of changes in agricultural practices and increased importation of foreign plant material, we have seen an ever-increasing introduction of new pests and diseases on the Islands (Mifsud, Biavatti & Cutajar, 2017). With fairly limited options for biological controls against such pressures, this reduces the farmer's willingness and/or ability to take risk in experimentation.

Other risks identified pertained directly to local farmer livelihoods in competition with imported goods. For example, oranges are grown in Malta, but most people will buy the ones imported from Spain and Israel because they are cheaper. Local farmers have to compete with farmers living in other countries who might have stronger financial or infrastructural support to produce their own goods, hence the cheaper price. Countering this, it was noted that a small population of Maltese are demanding an increased number of vegetable boxes, a pre-packaged selection of fruits and vegetables from organic farms. However, the amount of locally sourced organic produce available is not enough to satisfy the consumer demand, in fact the organic fresh produce market is supplemented by Sicilian produce (personal communication). The extent to which provenance influences consumer choices is yet to be formally studied.

#### **4.7 Market**

The market is in constant flux, heavily leaning towards the desires of the consumer who has little, if any, connection to the farmer producing food that ends up on peoples' plates. Growers succumb to demands that force local varieties steadily towards extinction while consumers have little knowledge in what is accessible to them in terms of health, location and diversity. Landrace and heirloom varieties have largely declined possibly due to lack of concern in the markets. Consumers go for the cheapest option, which is usually imported produce from industrial scale farming. However, other reasons that have shaped the market and this decline need to be investigated.

Much of the discussions around market incorporated little about the effects on minority and migrant groups. There is a repeated gap from farmer to consumer, lower socioeconomic class to high quality foods and restaurants to the local markets. The major identified overlying gap found in this research is between the educated and food-illiterate, applied to both farmers and consumers. Whilst it may seem intuitive that all people should and do have access to local, healthy foods, lack of awareness and knowledge significantly undermine the hurdles associated with shaping the market to become accessible to different socioeconomic classes.

Seeing that there is a large disconnect between consumers regarding their level of knowledge on different crops and fruit varieties, how can there be a market demand for a product consumers are not aware of? And what or who is shaping consumer' desires?

The trade market has opened a lot since World War II. It has made imports easily accessible for people from different socioeconomic backgrounds. As one of the growers in the study observed:

*'The shift happened very rapidly, over the span of a decade. People went from depending on small food stalls to going to supermarkets where they can get everything easily, quickly and it does not matter that it was imported from abroad. The consumer does not pay attention to this because there is no benefit for them to do so.'*

Although the consumer is surrounded by virtually any kind of food in a large supermarket, there seems to be a different market depending on socioeconomic status. Healthy foods are considered high quality. They normally fetch a premium price which restricts them to a niche market of consumers, usually of higher socioeconomic class, who are able and willing to pay more for the added health and environmental benefits. This market is quickly expanding in Malta and there seems to be more demand for such products. Some participants explained that having separate markets for different niches was not inherently a bad thing, however the idea that healthy and high quality are exclusively for the elite class requires attention. Inherently, discourse about heirloom and landrace produce was linked to healthy foods by participants in this study and talk about bringing back heritage crops and healthy food was most often than not interchanged during discussions. As one of the academics studying food systems argued:

*'... we need to tackle the market because the supermarkets will have a special "health foods" section and people who are well-off can afford to be picky, which makes these healthy, more expensive foods also gourmet—but healthy food is not gourmet, and by making these foods more accessible, you're also helping the small farmer who might not be able to sell his produce to the supermarket.'*

Having different markets for social groups, while not inherently alienating, may not lead to the necessary changes towards a healthy diet, lifestyle and connection to the environment and Maltese heritage. Furthermore, there is no consensus on how to reach people who do not have a choice or are not food literate and are forced to comply with market demands.

While many people associated diet with socioeconomic status, most young adults in this study voiced their active attempts to change food diet trends by offering fresh, healthy, ethical and environmentally friendly food at an affordable price. This pro-active attitude points to the fact that young people have the potential to greatly impact the direction of the environmental movement in regards to establishing more sustainable and healthier societies.

Restaurants can play a role in breaking down the idea that healthy is only reserved for the upper classes. As the manager of one of the foremost known 'healthy and ethical' restaurants in Malta said during a focus group:

*'We try to appeal to people from different socioeconomic classes. We have high-end products which will be 100% pesticide free and local at a higher premium. However, we also sell food which is cheaper and thus more accessible.'*

Through the simplest approaches, such as word of mouth, restaurants focused on healthy and affordable cuisine can quickly attract members of different demographics. The same manager also had this to add:

*'By appealing at first to businessmen in the area and people who are already health conscious and take the time to look for this kind of niche, we were able to market ourselves to other demographics and attract locals who in the beginning had little knowledge about the kinds of foods offered on our menu.'*

Aside from growers, the market affects food establishments which are often forced to consider profit over locally sourced and organic foods. For a local food business, which endeavours to become fully organic over time and supports local, organic producers, buying from conventional farmers is not an option. However, given the insufficient amount of organic locally grown produce available, they are forced to import. Enabling more connections between food establishments and farmers trying to transition to organic and heirloom/landrace crops could help reduce risk for the farmer whilst also reducing the amount of organic produce that has to be imported by the restaurant.

*'We [the food outlet] would be interested to explore potential links with local producers who grow heirloom produce. It's something we can market as a 'special item' on our menu.'*

Gender shifts may also shape the market. There was consensus by the participants of a focus groups that many women are not housewives anymore, but working professionals and that this shift ultimately leaves less time for cooking because there is a lot of preparation involved from chopping and peeling to cutting and cleaning. Locally sourced ready-prepared foods are difficult to find in Malta, which leaves consumers to shop for imported products. Farmers therefore take a direct hit from this demand. Some bakeries have responded by providing sliced Maltese bread, which in consequence results in a loss of the 'skill' to slice at home. The significance of such lost skills is easily attributed to less cooking, omnipresent accessible junk food, heavily processed, pre-packaged meals and further 'memory loss' pertaining to what is deemed fresh, unaltered and locally sourced produce.

The priority shifts from having fresh, home-cooked meals to preparing what is quick and easiest. Considering the recent shift in gender roles and shared household responsibilities, who is making the food choices? Interestingly, a healthy food store owner observed that:

*'...apart from the young, educated, people with money to spend, a high percentage of which are foreigners, I also get a good number of men, above 60 usually, who come and buy from here either because the doctor recommended that they start eating healthy or because they read about stuff on the internet. It's something that I imagine the housewives do not do much of because they have less free time on their hands.'*

#### **4.8 Consumer Demands**

Consumer demands have changed substantially over the past several decades. Many Maltese have abandoned and possibly even forgotten about small, local shops carrying local produce varieties. Technological advancements have led to an unprecedented rate of change in lifestyle, including the pace at which a given individual performs tasks and communicates. Supermarkets in turn feed into that speed, allowing individuals to purchase ready-made meals and pre-chopped vegetables to avoid the chore of cooking.

On the other hand, these supermarkets do not necessarily carry everything that consumers need. Some migrants are not able to find what they want in the market and have begun growing their own vegetables because of that. By opening their own shops and selling their preferred food, migrants are introducing new food varieties to the local markets. The social impacts from these enterprise initiatives remains unknown, but it is likely that there is little effect, given how small the groups are. Further research is suggested to investigate strategies to expand positive impacts. This also feeds into the concept of niche markets in which minority groups take care of the foods that only they themselves are interested in.

Widespread food illiteracy is touted as one of the biggest hurdles in Malta to affect a behavioural change when it comes to food choices. It was generally agreed by the research participants that there is not enough education about healthy eating and food origins, including basic skills passed down from parent to child about cooking. Rather than the story of food and cooking passed down from generation to generation, children are presented with narratives on the television screen, as deftly put by one of the food-systems academics:

*'Jamie Oliver becomes the educator.'*

In light of this emerging food illiteracy, initiatives to educate children about food and agriculture by environmental NGOs and educational institutes are spreading across schools. Such efforts encourage the resurgence of local varieties in markets, especially with the aid of ethnobotanical research.

Effective marketing campaigns could also play a role in shaping consumer demand. For example, it is not enough to simply encourage Maltese to buy local oranges. Instead, one option is to introduce creative recipes using oranges in various sweets. Innovative campaigns serve as an informative platform whilst also presenting new ideas to the consumer alongside promoting accessibility of local products. As one participant observed, we need to 'bring back the fun in food, cooking and eating.'

Several 'fun' approaches were introduced during this study for altering consumer demand, for example, farmers marketing heirloom produce by providing homemade jam samples. Making the jam accessible through free tasters inherently gives consumers free information; what the fruit is, where to buy it and where it comes from. Furthering this exposure, a demand is created. Other local fruits also harbour potential, as was explained by a participant who works closely with farmers and wine producers:

*'At the moment they [the farmers] produce it [Girgentina] because they had it in the field - they don't go out of their way to grow it - in fact some have replaced the vine with non-local varieties. However, Girgentina fetches a higher price at the industry. If Girgentina is harvested at the right time and a Girgentina wine is produced, it will be sought after by tourists. Maybe it won't be used by locals because they can find cheaper wine from new world. But tourists/cruise liner tourists look for these products and will be happy to spend money on local food products...honey, gbejniet, wine. They fetch a high price.'*

By enabling demand for specific products, the risk to the farmer in propagating local varieties becomes much lower. It is possible to introduce food suppliers, chefs and

restaurants with a taste first, which grows into larger demand that farmers can respond to.

An additional tool to shape consumer demand is exposure to different food varieties. As a grower and fresh produce seller reflected:

*'I see a big demand for more exotic... other vegetables. I mean recently... from Sicily... we got some of the Romanesco cauliflower. And people love this, they have different colours, tomatoes or carrots. I mean it looks beautiful when you have this different colour. And people don't know that the orange carrot is only one of the hundreds of colours they come in. And it's such a fun way to show that there is a lot more brand than one particular.'*

#### **4.9 The Farmer: Sharing of Knowledge and Good Practice**

Even though more well-educated growers are appearing and taking active roles in the agricultural field, according to both growers who practise alternative methods and academics, older-generation farmers may require further awareness on how their way of production impacts the environment. Further awareness is required with regards to the biology of the crop they grow and the methods of defining local from imported seeds. Although some growers are highly aware of where their seeds come from and the differences between them, some may require this information. Actively involving farmers, and appreciating their wisdom in local discussions and knowledge-sharing sessions means creating the conditions for change to take place. This means factoring in time of day when the farmers are available, choosing a location that is easy for them to get to and providing information in a language that is accessible. As an NGO activist and participant in this research commented:

*'I remember there was once a business breakfast that was organised by some governmental department for farmers to come and discuss. But I tell you... how can you expect farmers, who wake up at dusk to start work in the field, to suit up and attend a business breakfast?'*

The way that these educational workshops and sessions are framed is also highly important. For example, some farmers have commented that whenever training sessions are organised by public services, it feels like it is done because funds are available and it was one of the deliverables, rather than out of a spirit of care and wanting to help farmers out. Hence farmers sometimes feel like they are a 'tool' for public bodies to get funds. One particular example was given with the recent closure of the Farm Advisory Service Consortium (FASC). FASC was set up with European funds that were available. Their role was to provide consultancy services to farmers on how they can be compliant with European standards. Once the funds ran out, the agency closed. Nothing else was set up to replace it and provide the same support for the farmers, hence why it left farmers bitter, feeling like they are only a priority when it is convenient to tap into funds.

Peer-to-peer networking seems to be the most successful and simple method of sharing knowledge and passing on new information among farmers and rural communities. Ways of utilising this method to encourage farmers to experiment with different local seed varieties need to be found.

#### **4.10 Befriending the Farmer: Mistrust, disrespect, secrets and fear**

Mistrust and fear from farmers was highlighted as a significant issue and an important hurdle to address in networking efforts. Growers have displayed lack of trust to both the public and researchers specifically. It was also noted that farmers keep many 'secrets' in regards to seed sharing. Consequently, identifying all the possible growers on the island who have heirloom and landrace seeds is both a difficult yet an important task.

Academics in agriculture and food studies participating in the research argued that a number of communication challenges are faced in seed conservation and in trying to bring back local produce. A universal concern is loss of information from older generations. Within Malta specifically, it is unknown how many farmers have local heirloom and landrace seeds. It is additionally difficult to establish relationships between farmers and researchers in academia and industry as an academic from the University of Malta who participated in the research ascertains. For example, one participant explained that a farmer burnt his own trees because he was told that someone from the University of Malta was conducting research on them. Although this took place twenty years ago, the various fears and mistrusts by farmers are still very relevant today.

Several factors have been identified as contributing to mistrust and disinclination to share knowledge, including people having picnics in and stealing from private agricultural lands as well as lacking information about research and how this may positively impact rural communities. The problem is further exacerbated through misrepresentation on social media. Many signs (for example, Reserved to Owner, RTO) indicate private land and are easily disregarded. Even particular NGOs have been known to ignore them, as clear from media reports (Times of Malta, 2013). In consequence, a fog has formed over the state of these private lands with a bigger divide between the farmers and the public.

This lack of trust leads to miscommunication between researchers and growers. In the burning trees example, it is unclear why the farmer felt fear at the prospect of trees on his land being scientifically investigated. There is a sustained perception that established institutions are 'out to get' the farmer. Therefore, growers may not be willing to work with academics, researchers and government officials.

However, no one can work in isolation, including the institutions themselves. Increasing outreach efforts with other entities, such as the Hub, was identified as a possible solution to gain access to all available propagation material and local seed varieties. This is especially crucial in helping to build a rapport with farmers.

The importance of how to approach farmers was also noted by some academics, with the aim of establishing two-way relationships, instead of simply 'collecting' information. This is done with the intention to break down barriers and encourage trust. One example that was given to illustrate the positive outcome of such an initiative was by a department at the University of Malta which was successful in bridging the gap between academia and practitioners when they established a honey project to study the chemical composition of Maltese honey. The beekeepers, instead of simply being approached to donate samples of their honey, were instead regarded as contributors and recipients of knowledge sharing information about the honey they produced and had donated for the study.

## 5. General Conclusions and Recommendations

This research suggests that a feminist and queer approach can yield beneficial, additional insights that would otherwise be overlooked in shaping strategies to respond to long-standing issues addressed throughout the study. Furthermore, grower and consumer perspectives presented here display the myriad complexities in regards to market and consumer practice as related to agriculture. The most predominant conclusions are presented here:

1. There are various initiatives happening locally, however, the target audiences and aims are not clear, which makes it difficult to evaluate possible effects on the market.
2. Grassroots initiatives by people who are not financially dependent on the success of their outcomes potentially serve as an untapped opportunity to expand the growth of landrace and heirloom varieties, as well as products made from them, with the addition of structural support from both government and civil society.
3. Shifting baselines: the findings suggest that the average consumer has forgotten what crops are found locally, what they look like naturally, when they are in season and how to use them properly. The local is important, especially in relation to the local-global dichotomy, although by exploring the local we must not fall into the trap of turning the local into a conservative bubble riddled with nostalgia.
4. Heirloom and landrace crops were linked in participants' minds with organic foods and what is considered healthy. Even though there is an inherent difference, the distinction between these two concepts did not appear in discussions.
5. Wild seeds could be interesting to look at alongside heritage seeds. The latest trend in foraging suggests a return to this tradition but potentially with differing objectives or motivation.
6. It has been suggested that consumers have experienced a 'memory loss' when it comes to local varieties. This has been linked to the fact that people's lives seem to be more far removed from nature as a result of quickening the pace in lifestyle. This leaves us less time to savour and enjoy the process of cooking and reflect on the narratives behind the produce we purchase and consume.

The report is aimed at providing recommendations for policy makers as well as Government service providers, NGOs and other entities and individuals involved in the field. It encourages the present administration to enact policies that care for farmers and rural communities. A new government initiative to financially support people interested in initiating new agri-business enterprises is welcome news (One News, 2017). For a truly successful and inclusive measure, salient points mentioned in this report, such as how to approach growers, who to approach and how to make initiatives more accessible should be kept at the forefront of the initiative.

The following conclusions and recommendations have been made:

1. There is currently a lack of outreach and support systems to address finances, available resources and to provide information for individuals (both full-time and part-time farmers) and other entities who are interested in setting up grass roots initiatives.

**Recommendations:**

- Create opportunities where people can meet and discuss the work they are doing in relation to bringing back heritage crops. This sharing of information can also be in the form of an online sharing platform through the Hub.
- Establish a repository where resources, such as free, unused agricultural space, tools and seeds can be lent and shared with people who are looking for such resources.
- Encourage urban gardens, most of which are currently located in schools, to hold more outreach and educational activities open to the public by supporting them through sharing educational material and by providing support with the logistics of organising such events. Similarly, monastic gardens can also be re-proposed as community spaces. Urban gardens can become hubs for conservation action, a platform for intercultural dialogue and a place for knowledge sharing.
- Agriculture policies require a stronger component of ‘care’ towards those who grow food and rural communities, including protection towards their cultural life and heritage.

**Actions taken:**

The Hub has designed a mapping tool to tag and provide information on locations of ethnobotanical interest, for example, places where heirloom/landrace crops are currently being grown and/or protected or wild-varieties are still found. This map will be made openly accessible to everyone and will be used to both share and buildup on the knowledge base that has been collected throughout this research and beyond. By taking advantage of innovative technologies and exchanging knowledge and skills, we can galvanise more people to participate and take action in bringing back heritage crops.

2. A clear strategy remains absent in bringing agencies, scientists, politics, communities, food suppliers and farmers all under one roof for the purpose of sharing knowledge and experience as well as in terms of establishing official partnerships.

- Establishing an overseer to help engage farmers as a possible way to help bring them to the discussion with other interested parties. The Hub can take an active role in coordinating and creating a critical space for dialogue. It is important that this be a safe space, conducive to sharing and producing knowledge: a space that acknowledges and respects the diverse knowledge base and practices, and seeks to negotiate the multifaceted perceptions, needs, objectives and barriers different stakeholders may prioritize. Such initiatives may take on many forms, including farmer-to-farmer information sessions, where instead of bringing in ‘outsiders’ to talk to farmers about new methods and ideas, farmers who have already embraced alternative methods can introduce these to other farmers.
- Bringing forward a mediator from the ‘outside’ who is neutral and not connected to issues presented in this report to help steer future discussions between stakeholders in a useful and productive direction.

- The Plant Health Department is already working on establishing a local seed bank. The Hub can play a role in facilitating interaction and help build trusting relationships between the stakeholders involved including academics and growers who would both contribute and benefit from the collection.

### **Actions taken:**

The Hub has already taken up the initiative to facilitate networking across different culture groups, growers, minorities and fiscal stakeholders by responding to a farmer's request during one of the roundtable discussions that was held between 2014-2015. The Hub has also participated in disseminating results from the research. As a direct outcome of this work, the Hub has been instrumental in connecting various stakeholders who met during the process of this research and interest has been expressed by both academics and growers to be involved in a follow-up of this study. Finally, following this research, one food establishment has shown interest in purchasing heirloom/landrace produce to include it in their menu.

3. There is no real direct line of communication between farmers and consumers.
  - Restaurants can serve as flagbearers of change, bringing in creativity by offering good quality foods using heirloom and/or landrace vegetables and exposing consumers to produce they otherwise would not be aware of.
  - The relationship between the farmer, local agricultural produce and the consumer can be strengthened through diverse non-formal educational strategies. Schools, local councils and the media may be important partners in this process.
  - Networking is fundamental to spreading awareness, but it also strengthens individual and small group efforts in altering consumer demand towards local plant varieties. It is possible to help connect farmers open to innovation with restaurants that are seeking to purchase more locally sourced produce. By involving the community in these initiatives, the risk to the farmer in bringing back landrace and heirloom seeds is also reduced. The risk is instead shared between partnerships in which participants are already willing to buy local products.
  - Food labels must include more information and/or display easily comprehensible symbols. For example, rather than simply having 'Potatoes' on a label, this can include the name of the specific variety, a simple description of how best to use it and origin.

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