FRIENDS OF THE EARTH MALTA 2017

From Apricots to Zucchini

THE LOCAL VEGETABLE AND FRUIT SUPPLY CHAIN IN MALTA

Friends of
the Earth
Malta

This Agro Katina report is the product of Friends of the Earth Malta's research into the local vegetable and fruit supply chain and the agricultural sector in Malta. This research was conducted in the context of the Supply Cha!nge project, which strives to find solutions to the growing challenge of reducing environmental impacts and improving working conditions along the supply chain of supermarkets. The project was financed by the EU and the Ministry for Social Dialogue, Consumer Affairs, and Civil Liberties.

Friends of the Earth Malta strongly believes in shorter supply chains, as these have a positive impact on local farmers, strengthen local economies and small business, and bring the public closer to their food sources.

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Friends of the Earth Malta is a Maltese non-government organisation, member of an International network of NGOs, which strives to promote sustainable development and to ensure that human activities do not harm other living creatures. Friends of the Earth Malta engages in vibrant campaigns, raises awareness, and mobilises people to participate in public decision making.

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Summary

What is the contribution of agriculture to the Maltese economy? What is the effect of the different seasons on the production of vegetables and fruit in Malta? How has the sector changed since the accession of Malta to the EU? Where can citizens buy local produce? How are local farmers using new agricultural techniques and investing in niche markets to stay competitive? These and further questions lie at the heart of the Agro Katina research project – a quest to find out more about the local vegetable and fruit supply chain and the agricultural sector in Malta. Through expert and stakeholder interviews, focus groups and surveys with citizens, as well as a review of published reports and articles, the characteristics, issues and opportunities of the Maltese supply chain of local vegetables and fruits were investigated. Maltese agriculture is characterized by small farm holdings, with three quarters of registered farmers having an area of less than 1 hectare. Nearly half of the agricultural area is used for the cultivation of forage crops, with the other half made up of vegetable cultivation, kitchen gardens, potato cultivation, vineyards and other permanent crops such as fruit trees. In terms of volume, the most cultivated vegetables are tomatoes, potatoes, onion and cauliflower. The most commonly grown fruits are grapes (for viticulture), oranges, strawberries, peaches and lemons.

Even though agriculture only contributes to less than 2% of national GDP, the sector is very important locally for the food and beverage industry, for employment (especially part-time) and for upholding the rural character and landscape of the Maltese Islands. Farmers can sell their produce through wholesale markets, such as the Pitkalija, the farmer's market, or directly to middlemen, (green)grocers, hotels/restaurants or directly to the customer. Since joining the EU in 2004, Malta has had to bring its agricultural sector in line with the Common Agricultural Policy (CAP), which also provides the main funding mechanisms for farmers, through Direct Payments and the Rural Development Programme (RDP). Locally, a National Agricultural Policy is currently being drafted, in order to effectively address key issues for the sector such as nitrate pollution, water stress and other sustainability issues, competitiveness of farmers through increased quality and diversification, and facilitation of the entry of young farmers.

In Chapter 2, the present situation of the local vegetable and fruit supply chain is being discussed, looking at the economic impact of agriculture, the quality of local, seasonal fruit and vegetables, the local supply chain, and recent changes in the agricultural sector. Stakeholders point out that valuing agriculture only in terms of its contribution to GDP is a mistake; the sector delivers invaluable and substantial contributions in terms of stewardship of land and soil, the character of the countryside, and to other important economic sectors such as tourism. The quality of local fruit and vegetables is praised by many stakeholders, who say that the taste and freshness are superior to that of imported products. At the same time, they admit, good presentation and marketing of local produce is often lacking. The direct relationship between farmers and customers has unfortunately been severed over the past decades, state stakeholders, and they stress the importance of re-establishing this link: to build trust, for citizens to inform and educate themselves and for farmers to tune in to the needs and demands of their customers. Experts and stakeholders state that the entry to the EU has been difficult for the previously protected Maltese agricultural sector, but has also brought new opportunities for export and the introduction of new techniques that improved efficiency and access to information and better practices, for example in the field of pesticide use. The main challenges for the local agricultural sector, as identified by the experts and stakeholders, are water and climate change, competitiveness, the ageing farmer population and issues with the Pitkalija market system.

In Chapter 3, recommendations are presented, targeted at stakeholders in the agricultural sector: producers, retailers, customers and policy makers. The recommendations are a collation of suggestions from the stakeholders, as well as ideas put forward in other research and policy documents. The recommendations are aimed at improvements in terms of adding value, through tapping into higher value products, better presentation and marketing, and processing produce; quality products, such as alternative higher revenue crops, focusing on niche markets, and grading of produce; education & information, by investing

in agricultural education, lifelong learning, and labelling and campaigning; environmental issues, through a focus on integrating water efficiency measures, protection of biodiversity and increase in renewable energy, while tapping into RDP funding for agri-environmental measures; tourism, by creating a strategy for agritourism and better marketing of local produce in the tourism sector; markets, through improvements at the wholesale market, better preservation of produce and tapping into online markets; and farmer's organisation & cooperation, by organising in cooperatives and a union, creating a mechanism for young and new farmers to access land, and working on a strategy to target part- time farmers.

Friends of the Earth Malta strongly believes in shorter supply chains, as these have a positive impact on local farmers, strengthen local economies and small business, and bring the public closer to their food sources. Friends of the Earth Malta hopes the Agro Katina research, and this report in particular, can contribute to a deeper appreciation of local produce and agriculture, and a stronger integration of agricultural policies with interlinked topics, such as water, biodiversity, natural habitats, health and better quality of life.

INTRODUCTION

Agriculture in Malta

Land and climate

The Maltese Islands, consisting of the islands of Malta, Gozo and Comino, and several small islets, has a total surface area of 316 km^2. Malta is the smallest country in the EU, but simultaneously has the highest population density. With a population of 429,344 in 2014, the population density is around 1360 inhabitants per square kilometre. Just short of 50% of the population lives in the Northern and Southern harbour districts, which form the conurbation around the capital city Valletta (NSO, 2016a). Despite the high population density and a high percentage of developed land (29%), over 40% of the country's land surface area is classified as agricultural land (NSO, 2012).

Malta has a Mediterranean climate, with mild winters and hot, dry and sunny summers. Average annual rainfall amounts to just above 500mm/year, with the majority of rainfall occurring between October and February, representing on average around 75% of total yearly rainfall (NSO, 2011). Because of the hot and dry weather, the summer period presents difficulties for growing crops, unless the land is irrigated, and therefore the main agricultural growing season in Malta is in winter (Dwyer et al., 2014). However, if farmers have access to sufficient water for irrigation, it is possible to grow 2 or even 3 successive crops throughout the year.

Water is one of the key challenges for agriculture in Malta. National water resources are considered among the most stressed in the world, because of limited local resources (there are no lakes or rivers – recharge of the water aquifers relies solely on rainfall), high population pressure and persistent over- abstraction. Increases in average temperature, the occurrence of droughts and changes to rainfall patterns as a result of climate change are expected to further exacerbate the current situation (EC, 2015). In terms of vegetable and fruit production, the impacts of droughts and reduced rainfall can be severe, as highlighted in the NSO report on the Climate of Malta: 1951-2010 (NSO, 2011).

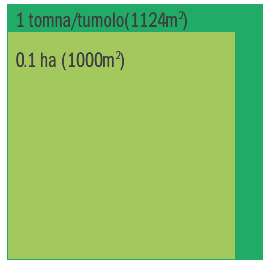
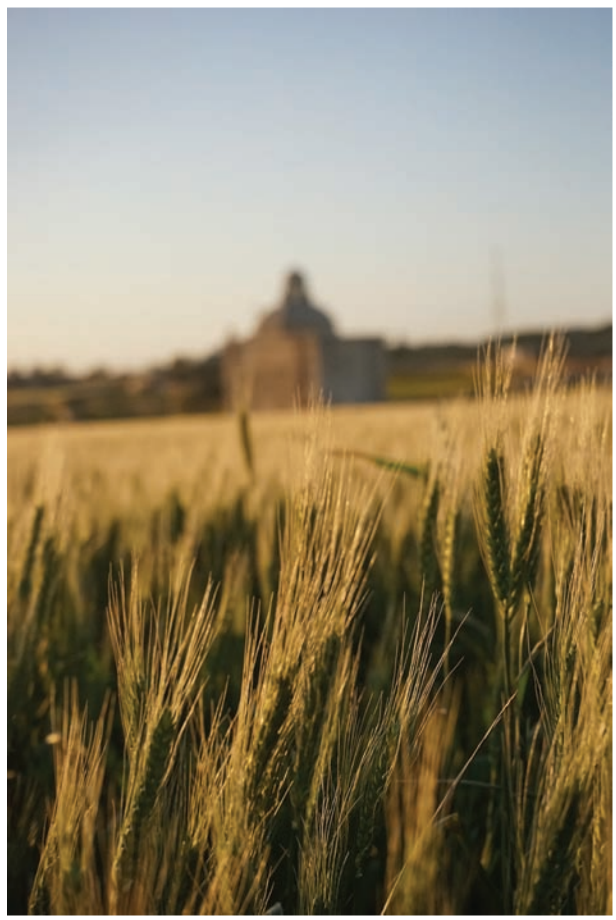


Figure 1: The size of 1 tomna / tumolo, compared to 0.1 ha

Farmland and agricultural products

Maltese agriculture is characterized by small agricultural holdings. In 2013, the total Utilised Agricultural Area (UAA) amounted to 11,689 hectares of land (around 90% of total agricultural land). The total number of agricultural holdings is 12,466, of which three quarters are considered relatively small, with an area of less than 1 hectare. Only 2.4 percent of agricultural holdings are considered large, with an area



of 5 hectares or more (NSO, 2016b). In Malta, land sizes are most often expressed in tomna/tomniet (tumolo/tumoli): 1 tomna/tumolo equals 1124 m^2, just over 0.1 hectare (0.1 ha = 1000 m^2), as represented in Figure 1. As can be seen in Figure 2, nearly half of the total utilised agricultural area is used for the cultivation of forage crops. Over 15% of agricultural land is used for vegetables for the market, whereas 12% of agricultural land is taken up by kitchen gardens, which represent agricultural products that are not sold in the market but consumed directly by the farmer and his household (NSO, 2016b). Areas under cultivation for potatoes and vineyards both represent just over 5% of the total utilised agricultural area (NSO, 2016b).

Total agricultural area by crop type

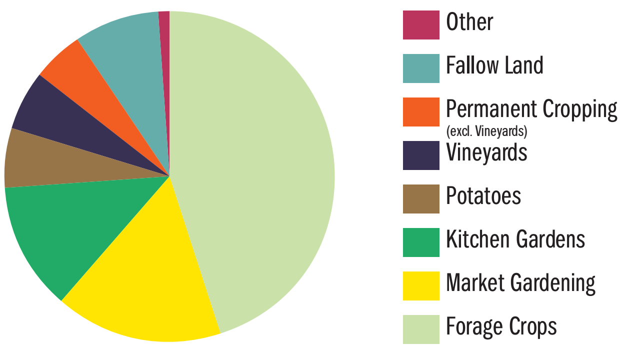


Figure 2: Total agricultural area (UAA) by crop type in 2013 (NSO, 2016b)

In 2012, agriculture contributed to 1.6% of total GDP (EC, 2015). Despite the modest contribution of the agricultural sector to national GDP, agriculture maintains an important role in the local food and beverage sector, in terms of employment (especially part-time employment) and maintaining and upholding the rural character of the Maltese countryside (EC, 2015; NSO 2016b). Almost 20,000 persons are actively involved in the agricultural sector, although most of the employment is part-time: only 7% of that figure constitutes full-time farmers (NSO, 2016b).

Total vegetable production by volume

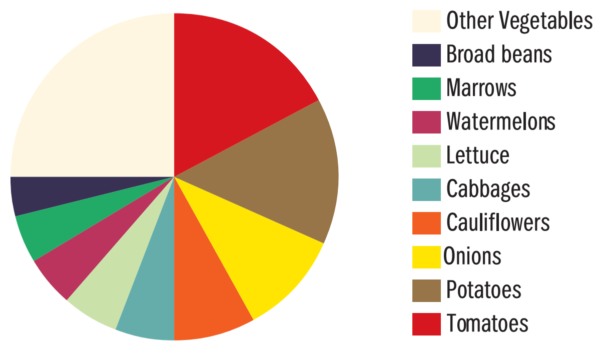


Figure 3: Total vegetable production in 2014: 74,410 tonnes in total (NSO, 2016b)

Almost 75,000 tonnes of vegetables, with a producer value of €33 million, and just short of 10,000 tonnes of fruit, with a producer value of almost €7,5 million, were produced in Malta in 2014 (NSO, 2016b). Melon and watermelon are included in the vegetable category, even though they are commonly identified as fruit by the public. As can be seen in Figure 3, the main vegetable products sold by volume were tomatoes, potatoes, onions and cauliflowers. Apart from grapes, which represent the majority of fruit but are mainly grown for the wine industry and not for direct consumption of the fruit, the main fruit products sold by volume were oranges (sweet and bitter), strawberries, peaches and lemons, as shown in Figure 4.

Total fruit production by volume

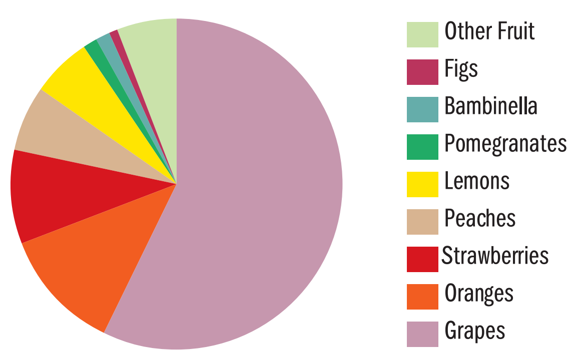


Figure 4: Total fruit production in 2014: 9,359 tonnes in total (NSO, 2016b)

Supply chain: wholesale and farmer's markets

The Maltese Pitkalija is the main wholesale market for agricultural produce, although there are other markets such as the Co-op Malta, Co-op Gozo and Ta' Qali Producers Group, and until a few years ago, the Gozo Pitkali (Dwyer et al., 2014). The Pitkalija is owned, operated and regulated by the government. The main market days are Mondays and Thursdays. Fresh produce is then purchased by middlemen, who receive 8% commission on the sale and auction the produce to vegetable hawkers, who then sell the produce on to supermarkets, greengrocers, restaurants and hotels, and directly to consumers from vans and stalls (Atriga Consulting Services, 2015). There are plans for a reform of the Pitkalija following years of critique, including the lack of transparency in prices, which are negotiated by the middlemen, a lack of grading of produce, and a lack of traceability, as weighing and data inputting are still done manually (Dwyer et al., 2014, Atriga Consulting Services, 2015).

Part of the planned reforms include setting up a system of grading and tracing the produce, whereby the farmer will receive an email or text message when a product has been sold, including the full details of the transaction (Dwyer et al., 2014).

In response to the growing dissatisfaction with the Pitkalija standards, and as well because of renewed appreciation for fresh, local produce, Malta now has its own established farmer's markets, on Tuesdays and Saturdays at Ta' Qali and on Saturday's in Birgu, where customers can buy directly from the farmer. This more direct way of selling is especially appealing to small-scale producers who offer a wide variety of products. The farmers can only sell their own produce and are not permitted to sell the remainder of their produce at the Pitkalija, as this would constitute an abuse of market power (Dwyer et al., 2014).

Apart from the wholesale and farmer's markets, farmers can also sell from their farm, directly to hotels or restaurants, or directly to a middleman or retailer; local shops, greengrocers and supermarkets. Some farmers have their own greengrocer or street hawker vans. There are also a number of farmer's cooperatives, in which farmers come together and sell their produce jointly through the different channels.

Legislation and policy

Before joining the EU in 2004, Malta imposed taxes on imported foods, thereby protecting its national agricultural sector from foreign competition. As an island nation, Malta suffers from relatively high food prices, due to the high cost of transportation. The same costs hamper its agricultural export potential, as the added cost of transportation diminishes the competitiveness of agricultural products on foreign markets. Upon joining the EU, Malta had to adopt agricultural policies in line with the European Common Agricultural Policy (CAP). Until 2014, Malta received financial assistance from the EU to cope with the transition through the Special Market Policy Programme for Maltese Agriculture (SMPPMA), to provide subsidies to local farmers (Dwyer et al., 2014).

The European Common Agricultural Policy, which was reformed in 2013 with the aim of moving from product to producer support and to a more land-based approach, is based on two pillars:

1. Direct Payments
2. Rural Development

The Direct Payments pillar provides direct financial assistance to farmers, specifically those working in vulnerable sectors and constrained areas. There are additional payments available for farmers applying greening measures, as well as for young farmers and small- and medium sized enterprises (EC, 2013). The Rural Development Programme (RDP), the second pillar of the Common Agricultural Policy, is aimed at helping rural areas in EU member states meet the wide range of economic, environmental and social challenges they face, with a specific focus on achieving the EU's environmental and climate change objectives. To this end, 30% of RDP funds are reserved for voluntary agri-environmental climate measures, organic farming, and forestry measures (EC, 2013). In Malta's Rural Development Programme the following five main needs were identified: 1) Water, wastes and energy, 2) Maltese quality produce, 3) Sustainable livestock, 4) Landscape and environment, and 5) Wider rural economy and quality of life (MEAIM, 2015).

Of special importance in Malta is the issue of nitrate pollution. The whole of the Maltese Islands have been identified as a Nitrate Vulnerable Zone (NVZ), as nitrate levels in inland surface waters and ground water in Malta have been found to exceed the upper acceptable limits, as laid down in the EU Nitrate Directive and transposed in national legislation. The main sources of nitrates leaching into surface and groundwater bodies are cultivated soils and animal wastes. The National Nitrates Action Programme (NAP) contains measures to reduce nitrate pollution from agricultural practices, including improved fertilization and irrigation practices, limits to the amount and type of fertilizers and time periods that fertilizer may be applied, as well as a monitoring framework to measure progress (NAP, 2011). The NAP demands that farmers develop a crop plan and fertilizer plan, for which they can receive assistance through RDP farm advisory services (Atriga Consulting Services, 2015).

In Malta, organic farming is certified and controlled by the MCCAA (Malta Competition and Consumer Affairs Authority). A full list of certified organic producers and retailers can be found on their website (MCCAA, 2017). Certified organic products can be recognized from the EU organic label. The organic farming segment in Malta is still comparatively small, with only 13 recognized organic producers as of June 2017, occupying around 0.2% of total utilised agricultural area (Agriculture Directorate, 2015; MCCAA, 2017). Although there are some inhibiting factors particular to Malta, such as small holding size, land fragmentation, poor soils, and proximity to conventional farmers, because of increased consumer awareness about pesticide use, as well as the availability of funding and support, it appears to be a growing market segment (Atriga Consulting Services, 2015). Nevertheless, organic agriculture still occupies only a relatively small part of the total agricultural acreage in Malta.

Currently, a National Agricultural Policy (2016-2025) for the Maltese Islands is being drafted. The new policy will address the following main targets: increasing competitiveness of farmers by focusing on quality and diversification, facilitate the entry of young farmers, foster sustainability of farming activities, and ensure that farmland is managed by genuine farmers (Department of Agriculture, 2016).

Agro Katina Research Methodology

The Agro Katina research project has investigated the local vegetable and fruit supply chain and the agricultural sector in Malta. This research was conducted in the context of the EU funded Supply Cha!nge project, which strives to find solutions to the growing challenge of reducing environmental impacts and improving working conditions along the supply chain of supermarkets. The aim of researching the local vegetable and fruit supply chain was to highlight the present situation, including its challenges and opportunities, and formulate a set of recommendations to strengthen the local agricultural sector. Having a strong local supply chain boosts local producers and the local economy, increases the traceability of the products, reduces the energy and emissions for transporting goods across the globe, and provides retailers and customers with the opportunity to connect with the local farmer and know where the produce they're eating comes from.

Through interviews, focus groups and quantitative surveys with a variety of stakeholders, as well as a literature review, the characteristics, issues and opportunities of the Maltese supply chain of local vegetables and fruits were investigated. Farmers, vendors, chefs, customers, policy makers, and experts in the field of agriculture were invited to share their knowledge, views and concerns.

A total of 16 stakeholders were interviewed in 12 separate interviews in January and February 2017. The interviews revolved around a set of questions about local agriculture and the supply chain of fruit and vegetables, related to: 1) the quality, seasonality and popularity of local produce, 2) farming practices and 3) environmental, social and economic impacts of and in the agricultural sector.

Two focus groups were organised that brought together a varied group of people, to discuss their views on food shopping, local vegetables and fruit, and agriculture in Malta. Each focus group was made up of 14 participants, and attention was paid to ensure there was an even distribution of different age groups, equal representation of gender, and a variety in participants' background and provenance.

The online survey, which questioned users about their food shopping habits (how much, how often, from where and what they buy), and their considerations when purchasing vegetables and fruits (origin, seasonality, price, and availability of products), was returned completed by 613 respondents.

The information obtained through the interviews and focus groups was coded and grouped based on recurring keywords and themes, and visualised in a mind map, highlighting the main themes and their relationships. The results of the survey were processed and the data analysed and visualised in Microsoft Excel. The main themes that came forward from the analysis of the interviews, focus groups and survey results were further explored and compared with each other and the information obtained from the review of published reports and articles.

The insights that were gathered through the data collection were framed around main themes, forming logical clusters to present the results of the Agro Katina research project in Chapter 2, The Local Vegetable and Fruit Supply Chain, describing the present situation and discussing the main issues. Chapter 3, Recommendations for Stakeholders in the Agricultural Sector, presents recommendations for the main identified themes and issues. The recommendations are a collation of suggestions from the stakeholders, as well as ideas put forward in other research and policy documents and articles which were covered in the literature review.

THE LOCAL VEGETABLE & FRUIT SUPPLY CHAIN

The different themes that were identified through the research and data collection process are presented here, first outlining their position in the present situation, explaining their current state, including their challenges and opportunities. Thereafter, the main issues that have come out of the information obtained from the interviews, focus groups and surveys, are presented.

Present Situation

Economic impact: more value than just GDP

The direct contribution of the agriculture to the Maltese economy in terms of its share in the GDP (Gross Domestic Product) is relatively small, less than 2%. However, as many stakeholders pointed out, we are mistaken if we value agriculture only in terms of its contribution to GDP. In their view, that is only a small part of the picture.

Indirect contribution

Beyond the direct production of vegetables and fruit, the agricultural sector delivers an invaluable and substantial indirect contribution to the stewardship of land, soil, and the countryside in general. As one of the stakeholders, a horticulture lecturer and gardener, phrases it: "Agriculture forms a substantial part of our environment; Malta is now practically 1/3 urban, 1/3 natural and 1/3 agricultural". Another stakeholder, a farmer, explains that "the farmer plays an important role in maintaining the Maltese environment, by preserving the traditional rural landscape, including the rubble walls and the cultivation of fields". Agriculture and horticulture also act as a carbon sink, as carbon dioxide (CO_2) from the atmosphere is stored as carbon in plant biomass and soils.

Self-sufficiency

The importance of maintaining and supporting the local agricultural sector is also stressed in terms of self- sufficiency. Producing vegetables and fruits locally means we do not have to import all of the produce we consume, therewith avoiding import costs and increasing our country's resilience. A participant in one of the focus groups, a financial manager, highlighted the importance of self-reliance and the ability to feed ourselves as a population: "What if something happens abroad? What if we cannot import any food?" Even if we are not fully self-sufficient, local agricultural production reduces our vulnerability to outside shocks, such as higher food prices, food shortages or trade sanctions.

"If there would be no agriculture, what would we have? Just buildings?"

Importance for tourism

The importance of agricultural produce and the agricultural landscape for the tourism product was a recurring theme, brought up by many of the stakeholders that were interviewed. Tourism is an important pillar of the Maltese economy, and the relationship between agriculture and tourism works both ways. Firstly, in the sense that tourists value the Maltese environment and countryside, the agricultural landscape with its rubble walls and tilled fields, and traditional local practices such as the making of sundried tomatoes, capers and gbejniet, local cheese. Of course, tourists are drawn to Malta by the sun and the sea, but they also come for an authentic experience, to taste the food and enjoy the landscape. As one of the stakeholders, a local agricultural expert, puts it: "An adverse effect on the landscape would negatively affect Malta's image and the tourist product". Secondly, the tourism sector presents an important market for local agricultural produce. Malta receives almost 2 million tourists per year, and these all need to have breakfast, lunch and dinner. A government official added that it's about more than providing tourists with local food: "If you look at the consumption of Maltese wine, this increases drastically during the peak season with a higher influx of tourists". Tourism can be seen as another form of exporting our produce as well, without having to bear the costs of packaging and transportation. Our produce is exported in the form of a story, says one of the farmers that was interviewed: "a story of how nice the sunshine in Malta was, and how good the Maltese tomato tasted", drawing in new tourists who come to try it for themselves.

The quality of local, seasonal fruit and vegetables

Overall, the majority of the interviewed stakeholders believe firmly in the local agricultural product. When compared to imported produce, they praise the taste, freshness and quality of local fruit and vegetables.

A variety of fresh & tasty produce

When asked what the best Maltese products are in their opinion, the products that jump out and were mentioned most often by the local farmers, experts and practitioners in the agricultural sector are: potatoes, tomatoes, marrows, broad beans, onions and garlic. Aubergines, carrots, peppers and olives were also mentioned. In terms of fruit, stakeholders highlight the local citrus, especially the Maltese oranges, as well as melons and watermelons. The sun is mentioned as an important contributor to the quality of local produce, as it imparts a sweetness and flavour that is hard to find in imported produce. Several of the interviewees mention the wide variety of produce that is being cultivated locally, especially considering the small size of Malta. These local differences can be attributed to differences in soil, water, and micro-climate. As one of the stakeholders, a local agricultural expert, notes: "with the wide variety of fruits and vegetables that we find locally every day, I think it is possible to have a very rich Mediterranean diet with fresh, nutritious food". Just how strong the local component is in locally produced fruit and vegetables can be observed in the fact that specific localities are famed for specific products, for example onions from Rabat and Dingli, pumpkin from the North (Mosta, Mgarr, Mellieha), and cauliflower from Siggiewi and Zebbug.

"I think it is possible to have a very rich Mediterranean diet with fresh, nutritious food ... with the wide variety of fruits and vegetables that we find locally every day".

In recent years, farmers have increased the variety of produce grown: from purple cauliflower to yellow watermelon, in an effort to provide the customer with different products. Experimenting with different varieties of a crop can also present other opportunities. For example, when the long, dark-skinned zucchini, as opposed to the locally more common round or long, white varieties of zucchini, was introduced to the market in Malta, customers were initially hesitant. However, as people became more accustomed to this variety, farmers also started experimenting with growing it locally, and discovered that this variety had the advantage of being well adapted to a warm, sunny climate; it is in fact a common variety in Sicily and Southern Italy.

Even though it is not a local variety, it is a crop that is very suitable for growing in the Maltese climate, and can provide farmers with an alternative crop in circumstances when other varieties would not perform as well.

Although most stakeholders applaud the variety of produce grown by the Maltese farmers, this diversity can be seen as both an advantage and a disadvantage. On the local market, diversification is generally seen as a positive attribute, as a wider variety of produce will appeal to a wider variety of customers, and contributes to resilience in light of pests, crop failure and falling prices due to over-production of the same crop. However, in comparison with farmers in other European countries, which generally have much larger and more specialised farms, it is difficult for the Maltese farmer to establish a competitive advantage, which limits their export opportunities. The opportunities and challenges for exportation of agricultural produce are discussed in more detail further on in this chapter.

Seasonality

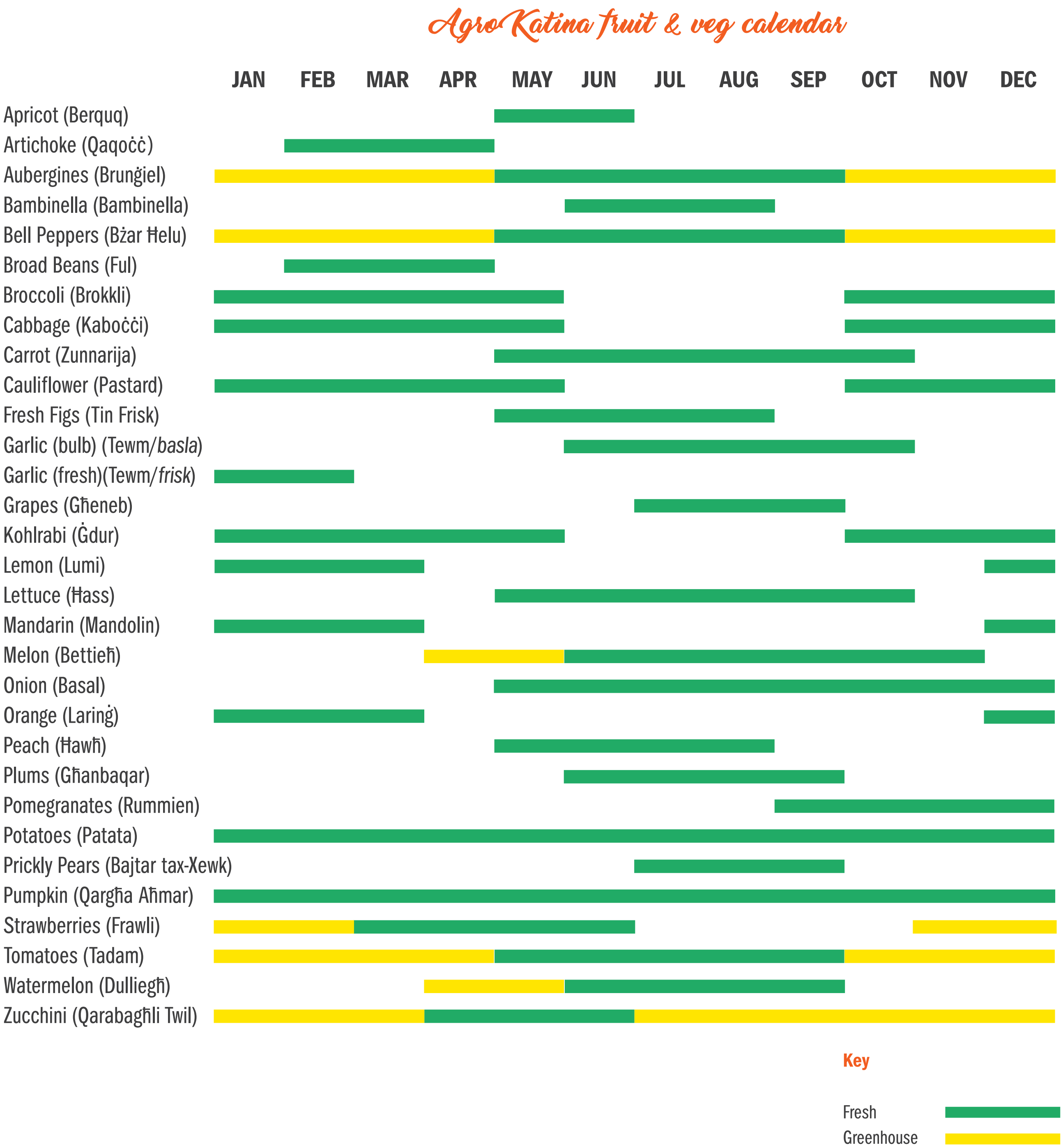
Certain products are less affected by seasonality than others. Potatoes, onions, garlic and root vegetables such as carrots for example are less perishable than soft fruits and vegetables, and can be more easily preserved and sold over a longer span of time. As one of the stakeholders, an agricultural expert, commented: "By preserving his produce, the farmer can store these products with minimal effort and put them out on the market as he pleases". Some stakeholders also mention specific local conditions and methods that contribute to the preservation of produce, for example the influence of sea spray and the salt it contains on the preservation of potatoes, and the way onions and garlic are strung up and hung to dry to prevent rot and preserve them for months.

As one of the stakeholders, a local agricultural expert, explains: "Maltese farmers still plan their production according to the seasonality, and therefore our food and agricultural produce is very genuine. This as opposed to what we call high tech farmers in the Northern hemisphere, where they modify the climate in their greenhouses and on a daily basis produce the same product no matter what the climate is". Certain Maltese products still have a strong seasonal component, such as broad beans, carrots, garlic (including the fresh garlic), as well as fruits such as oranges, strawberries and melons. The seasonality of a product also has an impact on its price. In the beginning of the season, as the product will still be in short supply, the price will be high; whereas later on in the season, when the market is flooded the price will drop significantly. Customers, especially the older generation, have been observed to take note of this and buy products such as broad beans in bulk when they are in season and low-priced, to freeze at home so they have a supply for the rest of the year. Certain products, such as tomatoes, marrows, peppers and aubergines are now practically available all year locally, as even outside their original season farmers are now managing to grow them, in greenhouses and polytunnels and by using different varieties. However, their taste and abundance, and a drop in their price, can still be felt in their true season.

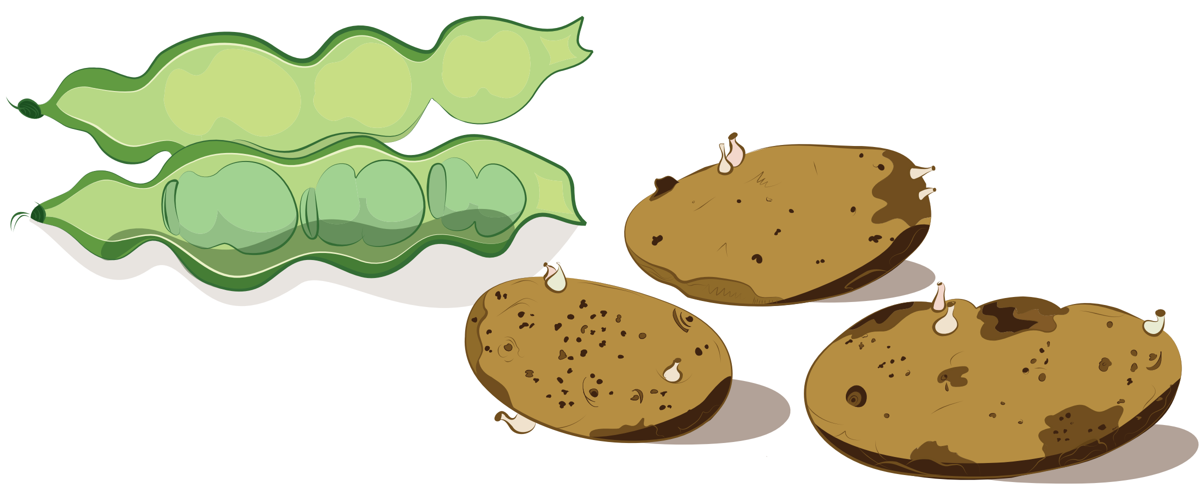
The importance of seasonality is decreasing, several stakeholders state, as seasonal produce is becoming less popular (for example in the case of broad beans), or customers will just source the product from foreign importers during the rest of the year, and do not pay much attention to whether the product is local or not, and whether it is in season or not. One of the stakeholders explains that they "would prefer that in December we would consume a fresh local orange, and in May we consume a fresh local strawberry, and in July we consume a fresh local melon or watermelon", but that the market and the customers demand a product to be available year round. The younger generation specifically is mentioned as being less aware of the seasonality of products, and used to finding whatever they like, irrespective of the season.

Strawberries are a famous seasonal local product, but as one of the stakeholders, a horticultural expert, explains "they are not actually a local product and require a lot of inputs in terms of water, fertilizers and pesticides". Regardless, they were introduced very successfully and are a very popular local product; they have earned their place in the market. In their main season, from March to May, foreign imports cannot compete with the local strawberries. What can be observed however is that strawberries are now in demand year round, especially in the summer tourist season, and since they are not in season locally in the summer months, strawberries are being imported at a premium price from Northern Europe.

Several stakeholders commend the introduction of seasonal feasts focusing on a particular product, such as Festa Frawli, Festa Ful and Festa tal-Patata, as they indicate and educate when the natural season of a product is, and celebrate the "charm of the season".



AgroKatina fruit & veg calendar
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Apricot (Berquq)
Artichoke (Qaqoċċ)
Aubergines (Brunġiel)
Bambinella (Bambinella)
Bell Peppers (Bżar Ħelu)
Broad Beans (Ful)
Broccoli (Brokkli)
Cabbage (Kaboċċi)
Carrot (Zunnarija)
Cauliflower (Pastard)
Fresh Figs (Tin Frisk)
Garlic (bulb) (Tewm/*basla*)
Garlic (fresh)(Tewm/*frisk*)
Grapes (Għeneb)
Kohlrabi (Ġdur)
Lemon (Lumi)
Lettuce (Ħass)
Mandarin (Mandolin)
Melon (Bettieħ)
Onion (Basal)
Orange (Larinġ)
Peach (Ħawħ)
Plums (Għanbaqar)
Pomegranates (Rummien)
Potatoes (Patata)
Prickly Pears (Bajtar tax-Xewk)
Pumpkin (Qargħa Aħmar)
Strawberries (Frawli)
Tomatoes (Tadam)
Watermelon (Dullieġħ)
Zucchini (Qarabagħli Twil)
Key
Fresh
Greenhouse



Local vs. imported produce

One of the stakeholders, a local farmer, stated they believe that "the closer you are to the farmer – if you manage to shake the hands of the people that are producing your food – the better and the healthier the food you are eating is". Although there are many factors impacting the taste and nutritional value of a product, the advantage in Malta is that locally grown fruit and vegetables are generally sold within a short time-frame from the time they have been harvested (usually less than 24 hours), and are picked when they are ripe and in season, and therefore have an unmistakeable advantage in terms of flavour and nutritional value, when compared to imported produce. Foreign produce that arrives on the local market will have been harvested days before, and is often treated to ensure the product still has a nice and fresh appearance. As one of the stakeholders, an agricultural expert, explains: "foreign countries that export fruit and vegetables usually treat the products with gases or radiation to kill bacteria and to preserve them, to make them hardier for transport, whereas Maltese products with their short supply chain do not have to go through this process". Of course, there are certain fruits and vegetables that are not produced locally, such as apples and avocados, so if the customer wants these they have to buy imported ones. However, most stakeholders agree that for locally grown and cultivated vegetables they are the better choice as they are fresh, nutritious and very competitive.

The above relates to a sentiment expressed by many of the stakeholders; how image plays such a large role in the customers' perception of the quality of a fruit or vegetable, but that, as one of the participants of the focus group phrases it, "the fact that something looks nice on the outside doesn't mean it is necessarily nice on the inside as well". Several stakeholders commented on the lack of attention or importance given locally to the presentation of the product. They lament the fact that foreign produce often looks more attractive, as it's washed, polished and packaged nicely, whereas the local product is often actually of better quality and taste in their opinion. Certain farmers, processors and retailers are however picking up on these tricks and applying the same methods, by grading their produce (grouping and subdividing the harvest in terms of size and quality) and packaging them differently. For example, customers can now find cherry tomatoes not just for sale from a large crate, but also graded, washed and packed in a family-sized container. However, one of the stakeholders commented that often the local market is not large enough to warrant the investment in packaging machinery, and explains there isn't enough demand locally to make a business case for the production and packaging of ready chopped vegetables for salads, as can be found in many supermarkets abroad. Some of the participants of the focus group pointed out that packaging of produce is not necessarily a good thing: the amount of plastic to pack products is excessive and useless, and it harms the environment.

In the survey, more than 80% of respondents indicated that they are interested in the origin of the fruit and vegetables they purchase, and almost 75% of respondents state that they look at a food label or at a display in the purchasing outlet to determine where food is grown or made. However, more than 60% of respondents believe there is not enough information about the origin of fruit and vegetables. Several suggestions are made for information that could be included, such as the country of origin, whether it is a seasonal product, and the food miles, with some respondents stating that they would wish to know even the exact farm and farmer that produced the fruit and vegetables.

When asked about a number of statements relating to the price, quality, appearance and impacts on the environment and economy of local produce when compared with imported produce, the following answers (see Figure 5) were given by the respondents.

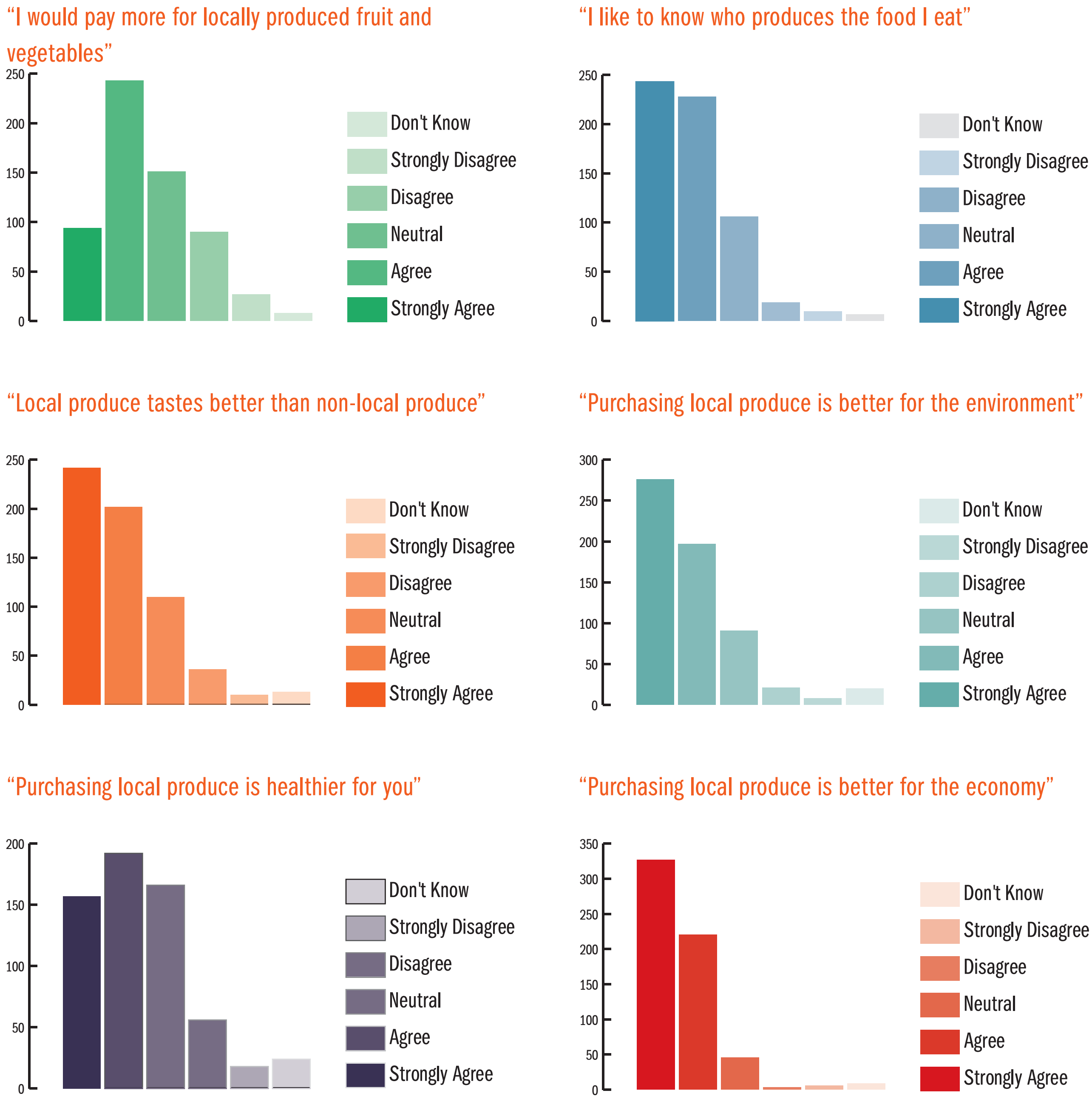
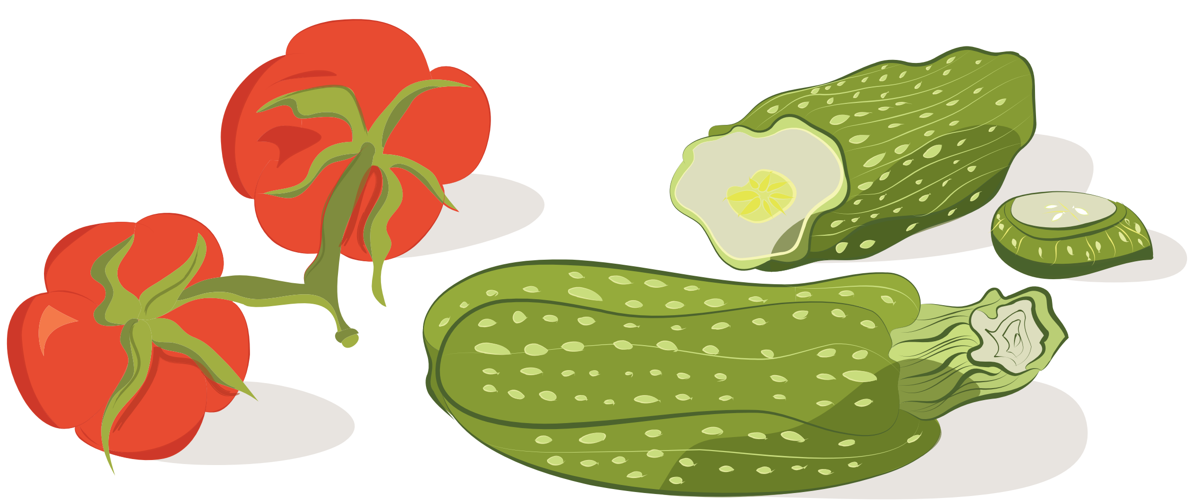


Figure 5: Respondents' reactions to statements about local produce (Agro Katina survey)



Imported produce can present threats to the local agricultural market. To be able to compete with cheap imported produce, Maltese farmers will also have to keep their price low, as otherwise they do not sell because customers are going for the cheaper option. Another issue is the import of foreign pests and diseases. Despite the system of plant health control and the plant passport, there is an increasing occurrence of problems with imported diseases affecting local plants and produce, because of increased import volumes.

Certain local products are of a high quality, such as olives and olive oil, wine, honey, capers, tomatoes and fresh herbs and present an added value when compared to cheaper, more common agricultural products. Several stakeholders, including a government official in the agriculture sector and one of the experts, question whether it makes sense for the Maltese farmer who has limited space and access to water, to produce products such as watermelon in large quantities when watermelon from Sicily and other countries arrives in high volume. For certain products, farmers fetch a low price that is not sufficiently rewarding for the effort they are putting in. Instead, they argue, "farmers should focus on high quality value added products, such as olive oil, which is not currently produced in sufficient quantities to meet demands, and fetches a great price". The interviewed government official points out the Quality Mark for Agricultural Products that was introduced in 2014. This local label which aims to communicate that a product is truly Maltese, and of a certain quality, is meant to highlight products that do not just "meet minimal European standards on matters such as cultivation, packaging and transport, but also exceed them, as certified through an independent audited process" (The Malta Independent, 2014). Further information about criteria and selected products has however not been found.

The potential for export

When discussing the export market, many stakeholders naturally refer to the Maltese potato, the main local agricultural export. As one of the stakeholders explains: "We export potatoes because we are the first potato on the market in the new year; it's a niche market". Seasonality is very important for the export market, as you can sell to a market where that product is not yet available. With our Southern Mediterranean climate, for many products there is a time window of 3 or 4 weeks where we can dominate the market, as the product will not yet be ready for harvesting in other countries. Stakeholders mention some experiments with exporting other products, such as onions and bambinella. However, because of the size of Malta, the production volumes are limited. As one stakeholder states: "I don't think there is a lot to export. Between the Maltese population and the tourists, all that we produce is consumed". Furthermore, it is proving difficult to compete with countries such as Italy and Spain, which have a large agricultural sector and more economies of scale. Despite this, some of the interviewed stakeholders see potential for exporting produce, for example by focusing on value added products, or on processed products rather than fresh vegetables and fruits. Additionally, stakeholders mention the need for cooperation between farmers, using the romantic image of the Mediterranean island in marketing and creating unique selling points rather than trying to compete for cash crops.

From farm to fork: the local supply chain

The direct relationship between farmers and customers has been severed over the past decades, state several stakeholders, and in their opinion, efforts should be made at re-establishing the link between the producer and customer. Malta's short supply chain and close proximity between rural areas and urban centres provide scope for doing so. A direct relationship between the farmer and customer is important to build trust, for citizens to inform and educate themselves and for farmers to tune in to the needs and demands of their customers.

A farmer's life

"The farmer's life is not an easy life, it involves a lot of time, hard work, come rain or shine, and is unfortunately not appreciated by consumers and society at large", says one of the farmers that was interviewed. The work of the farmer and their sacrifice is not appreciated, and several stakeholders comment that whereas they are active in the agricultural sector, as a farmer or vendor, their offspring has opted for other career paths. This observation leads us to one of the main issues that Malta's agricultural sector is being confronted with: the farmer population is ageing, and there aren't many people in the younger generation taking up the profession.

An important consideration when buying local produce is the social dimension. As one of the stakeholders, an agricultural expert, explains: "If you buy local produce you are supporting families, Maltese families, and these are the roots of Maltese society. The people that are actually waking up at 4 in the morning to produce the food for us, they are tending to the fields and working as the stewards of our lands". Supporting local farmers enables them to continue in their profession, and keep up the local food production, as well as all other, more indirect, benefits provided by agriculture.

Although there are a number of cooperatives – one of the stakeholders mentions the Cooperative of Farmers (FCCS), which covers around 800 farmers in Malta – there is little formal organization between farmers, and their interests are not represented by any union.

Education and training

The provision of quality education is key for farmers to learn about new processes and innovative solutions. Stakeholders praise the vocational character of agricultural education at MCAST, as agriculture is a particularly hands-on topic, and should not be approached only from a theoretical perspective. As explained by one of the lecturers, the Agribusiness department of MCAST have extensive fields (around 16 hectares of land) that are cultivated by students themselves, where they can put theory into practice and experience effects first-hand, while getting their hands dirty. One of the farmers that were interviewed mentioned the importance of lifelong learning and evening courses, to continue their education and learn about new techniques, and how to apply these in a sound technical manner. They lamented however that these courses were not offered for free to farmers, as well as that the government experimental farm, Gammieri, has stopped offering courses and training. Several stakeholders mentioned the lack of local technical agricultural expertise, and how this hampers innovation and efficiency in the sector.

Along the supply chain

There are a number of pathways through which farmers can sell their produce: through the official markets (such as the Pitkalija), through the farmer's market, through a middleman or cooperative, directly from their farm or van, to local truck vendors, groceries and greengrocers, to supermarkets, and directly to restaurants and hotels. One of the stakeholders, an agricultural expert, explains that different systems work for different farmers: "the wholesale market works for farmers that grow a lot of the same product, say 100 boxes of cauliflowers, whereas the farmer's market works better for farmers that grow different types of products, including quality products". Some farmers are now entering into contracts with hotels and restaurants directly, agreeing to produce solely for them. A chef, one of the stakeholders interviewed, comments on the importance of building a relationship with the producers and vendors that supply their restaurant, so they get a better feel of what produce is good and affordable, and are given better deals, which then translates into better products and profits.

The farmer's market was widely mentioned by the stakeholders as a positive new development, albeit still representing only a small fraction of farmers when considering the local agricultural sector as a whole. As one of the persons who initiated the farmer's market divulges, interest and demand in the market picked up straight away, although the Tuesday remains a weak day in comparison with Saturday. At the farmer's market, customers can buy produce directly from the farmer, often harvested within less than 24 hours before the sale. Farmers explain that this is where they sell their nicest produce, and although they look at the highest prices being offered at the Pitkalija, they can still remain competitive when compared to produce sold through the Pitkalija or vegetable vendors, as these will add their own operational costs and commissions to the price of the product. Customers praise the fact that they can buy directly from the farmer, ask them questions about the way things are produced, and find special local products, such as gbejniet and pickled eggs. Farmers that sell their produce at the farmer's market have direct contact with the customers, and have a better idea of the demands and needs of their customers. Some farmers have since started growing a wider variety of produce, such as cherry tomatoes of different colours, purple cauliflowers, and sweet potatoes, as they found out there is a demand for these products. However, some stakeholders, including a local farmer who sells at the farmer's market, commented that certain customers expect to find everything they need at the farmer's market. This farmer explains that "the farmer's market is not a supermarket; the scope of the farmer's market is that the farmer sells his products, what he has". A difficulty for many farmers is that they run their business alone, and those that do not have a family member to help them have to leave their fields alone to sell at the farmer's market, an option not everyone is willing to choose. The operating days of the farmer's market, Tuesday and Saturday, were however chosen explicitly so as not to clash with the Pitkalija days, so farmers can still supply to both.

Participants of the focus groups agree that whereas they like the idea of buying fresh, local produce directly from the farmer or from the farmer's market, they generally go to wherever is close (to home, work, or children's school), whichever is most comfortable and convenient. Some customers add that they have shifted from buying from smaller shops in their community to doing a bigger weekly or bi-weekly shop at a larger supermarket. The data collected through the survey shows that most respondents buy vegetables and fruit 2-3 times a week (50% of respondents), or once a week (35% of respondents). The survey responses show that people buy mostly from the supermarket, followed by street hawkers, greengrocers and local grocers (see Figure 6; more than one answer possible). When asked why they buy from those types of outlets, respondents answered that location (closeness to home and work), convenience (buying all the shopping from the same outlet) and price were their main considerations.

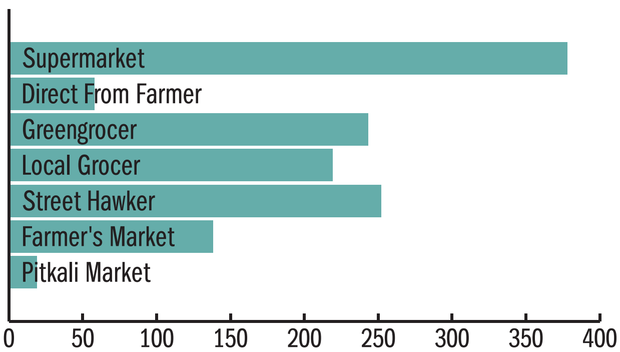


Figure 6: Where people buy their fruit and vegetables from (Agro Katina survey)

Customer changes

One of the main changes that can be observed in customer demands is the request for new and different products. In recent years, products such as kale, sweet potato, asparagus, pumpkin, leek, spring onion, rucola and broccoli were introduced on the local market and popularized through the media. Certain farmers have responded to this demand and are now growing these new products, especially those that are well suited to the Maltese climate. However, in some cases it is not so easy for the local market to respond: there is an increased demand for avocado, but this water-intensive crop is not easily grown locally, and therefore is imported. Customers have also started replacing traditional Maltese products with foreign products as they have become more accessible, for example mozzarella as opposed to fresh gbejna and mange-tout beans instead of local ful (broad beans).

The survey responses show that in terms of types of vegetables and fruits that people buy, the five main vegetables mentioned are tomatoes, onions, carrots, potatoes and garlic, and the five main fruits are banana, apples, oranges, melon and strawberries. It is interesting to note that all the vegetables are quintessential local products, whereas in the fruit section, people are opting more for foreign fruits, such as apples and bananas, although local products such as oranges, melon and strawberries are close followers. When asked what factors respondents take into consideration when choosing fruit and vegetables, taste, price and seasonality are mentioned as the three key factors, with aesthetics, place of origin, production method, dietary considerations and ease of preparation deemed of less importance in the decision. Over 50% of respondents state that they only buy certain fruits and vegetables when they are in season, mentioning summer fruits (e.g. melon, watermelon, peaches, figs, and prickly pear), strawberries, broccoli, broad beans and artichokes as the main examples of local seasonal fruits and vegetables.

In the focus groups, participants put convenience forward as the main consideration nowadays when buying vegetables and fruit, often favouring packaged, portion-sized and frozen products that fit a fast- paced lifestyle over fresh whole vegetables and fruits that still need to be peeled, cut and cooked. Customers, and especially the younger generation, are said to expect everything to be available to them year round at economical prices. Interviewed stakeholders comment that many customers do not understand the seasonality of produce, and if they do not find what they want from a local vendor, they will buy the imported product. As one of the stakeholders illustrates: "if a consumer sees strawberries on the supermarket shelf in May, or August, or October, they do not ask for the difference".

An increasing interest in healthy eating can be observed, such as fresh, local produce and a growing demand for organic products, say several participants of the focus groups. Malta is the country in the EU with the highest obesity rate, and there is an increasing awareness about the role of food and nutrition in relation to illnesses and diseases. Several participants in the focus groups mention a positive change in the quality of food offered in school canteens and tuck shops, as well as the introduction of government sponsored fruit and vegetable bags for school children. They do however agree that much more can be done to educate children, and their parents, about healthy eating and a healthy lifestyle.

Information provision

The negative image that has been created surrounding the allegedly excessive or wrong use of pesticides by local farmers in the media was raised by several stakeholders. A local agricultural expert states that "a lot of people think that Maltese farmers use a lot of pesticides compared to other, foreign farmers, but that this is not the case, that this is a misconception". Several farmers that took part in the interviews also confirmed that whereas they do use pesticides, they feel they are properly educated on how and when to use them, they have access to precise machinery that doses the pesticides, and that there are strict regulations and controls for the use and storage of pesticides. However, many citizens, as became apparent from the discussions in the focus groups, are not convinced or satisfied by the information provided and remain skeptical and worried about the use of pesticides. As one of the participants of the focus group explains: "I feel like we have arrived at a point where you are eating fruit and vegetables thinking that you are making a healthy choice, but in actual fact you are not. One thing is treated with gas; the other is full of pesticides". In response to this, another participant states that the best thing you can do therefore is to grow your own produce, whereas another person explains that that is why they seek out organic produce, to be sure the fruits and vegetables do not contain any pesticides.

The lack of information about local and seasonal vegetables and fruit was mentioned by several stakeholders. One of the stakeholders explains that there has been a great campaign about fish, guiding customers on where and when to buy fresh and local fish and seafood, and that something similar for fruits and vegetables could be created, to educate customers about the quality and seasonality of local produce.

Recent changes in the agricultural sector

The entry of Malta to the EU in 2004, and the implications of the common European market and the Common Agricultural Policy for Maltese agriculture, as well as the introduction of new methods and technologies, has changed the reality of local farmers in recent years.

Introduction of new agricultural techniques

One of the main new agricultural techniques that have been introduced over the past years is the establishment of greenhouses, polytunnels and plastic crop covers. Unlike the highly sophisticated greenhouses in Northern Europe, that regulate the climate inside with precision, the intervention in Malta is of a simpler sort, generally just providing a cover that protects crops from cold, hail and wind, and contributing to a warmer growing climate during the colder winter months. Through the introduction of these greenhouses, crops such as peppers, aubergines, marrows and tomatoes can now be grown year round. Even though, as some stakeholders note, the taste of the greenhouse product is not as good as the one grown in its true season, they recognize that it is an important means for farmers to ensure they keep up their level of production throughout the year, and can offer a variety of produce to customers.
Another way of stretching the growing season is by choosing different varieties and crossbreeding to make use of positive characteristics of other varieties. One stakeholder explains: "Zucchini should be a very seasonal product, but by choosing local varieties and by applying genetics from varieties from other countries we have managed to literally extend the season to 12 months, in the case of some farmers completely without requiring to plant in greenhouses". Importing seedlings from abroad, as opposed to growing locally from seed, also enables farmers to grow in faster succession, and make use of the strength of selected seedlings, such as F1 hybrid seeds, the first generation of offspring of a crossbred variety, not the seed of a seed. At the same time, local varieties can be threatened or obliterated by foreign varieties, and may be lost forever. One of the stakeholders, a local agricultural expert, highlights a local research project aimed at stretching the growing season for strawberries throughout the winter months. They are experimenting with planting the strawberries in early September, when temperatures are still very warm, and are ready to harvest the first crop in October/November. Then, after the short winter, the plants start flowering again in February, and harvesting can take place again in March and April. Of course the extra effort in the new, short season is reflected in the price, making it an interesting undertaking for farmers.

Drip irrigation, an automated micro-irrigation system consisting of a network of pipes, valves, tubes and drippers, often in combination with a pumping system at

the well or water source, is now widespread in the farming community. As one of the stakeholders illustrates: "you will rarely come across someone nowadays who opens the pipe to water the field randomly". When applied properly, drip irrigation systems use water more efficiently than other forms of watering (e.g. sprinklers or flooding), because of the localised application and reduced evaporation. They also save time in comparison to manual watering, reduce risk of disease because the foliage is not wetted, and reduce soil erosion and leaching.

"Peppers, aubergines, marrows and tomatoes can now be grown year round"

Solar panels are also becoming a more common feature on farms that, notwithstanding the initial investment costs, can save the farmer money on fuel and electricity in the long term, as well as help reduce carbon emissions. One of the stakeholders, a government official, mentioned a project through which farmers could get funding to install solar panels on their water cisterns.

In terms of pesticide application, new technologies such as pesticide dosers and injectors, which supply a uniform and controlled dose, ensure that the farmer does not exceed the allowed dosage of pesticides and reduces overuse and wastage.

Applying new technologies on the farm is taken to the next level by a local mushroom farm, which in the words of one of the stakeholders interviewed is a "fully state of the art mushroom farm; it is a factory in an industrial zone. Everything is computerized; the farm is controlled from the office 24/7". These applications of new technologies can help farmers to allow production to move forward.

EU accession: change of farming sector

Before Malta joined the EU, the agricultural sector in Malta was quite protected: there were levies on the importation of food, as well as quotas on the quantity of imported products. When Malta joined the EU in 2004, these protective measures disappeared, as we were now part of the common market, and farmers and producers suddenly had to compete not only on a national level, but with farmers and producers throughout Europe. One of the stakeholders, a government official, comments that "before Malta joined the EU, the impression was given that agriculture would move forward as new markets would become accessible to the Maltese farmer". The argument was that the market for Maltese products would increase, and many farmers thought they would be able to increase their production and sales, whereas in actual fact the reverse happened: they suffered from increased competition from imported produce.

In the first 10 years after accession to the EU, Malta still benefitted from financial assistance to cope with the transition, such as subsidies on fruits, including watermelon and strawberries, as well as for vines and vineyards, which provided a boost to the local agricultural sector. Since 2014, this form of financial assistance has come to a halt, and Malta has entered the standard programme of agricultural funding, the CAP (Common Agricultural Policy), and therefore the local agricultural sector is adapting again to the new reality. However, as one of the stakeholders notes: "only a handful of stronger farmers manage to apply for and receive EU benefits and funds, many smaller farmers are not coping". Another stakeholder adds that "locally, the industry could have been better prepared. We could have reaped more benefits than we did". They add that generally speaking they still believe the accession to the EU has been a positive experience for the local agricultural sector, but that the government needs to make sure that they continue to engage with the stakeholders to look for and to reap more benefits.

Looking at the upside, stakeholders mention that EU accession has brought the local agricultural sector new ideas, knowledge, information and equipment. EU agricultural subsidies have been put to good use to upgrade machinery and equipment, to restore rubble walls and water tanks, as well as for agri-environmental measures, such as pollinator-friendly planting to attract bees and contribute to local biodiversity. Increased awareness of pesticide use and improved storage and application of pesticides is also mentioned by stakeholders as a positive leap forward upon EU accession. They mention that information provision, through trainings and meetings, on this topic has improved, as well as the increased occurrence and vigour of inspections.

Main Challenges

During the conversations with the different stakeholders in the agricultural sector, ranging from farmers, retailers, and experts to policy makers, a number of central issues emerged. The following challenges came out as the most pressing in the current local agricultural system.

Water & climate change

The water crisis is highlighted by the stakeholders as one of the most pressing issues affecting local agriculture. Malta has very limited water resources and due to over-abstraction the soils and water sources are becoming more saline. More frequent and longer droughts are being observed, as well as changes in weather patterns, and their occurrence is expected to increase as a result of climate change. Several stakeholders mention climate change as one of the main threats to the agricultural sector. The stakeholders stress the need to focus on water use efficiency and to become specialised in drought-resistance farming and water efficiency. Although work is being done, such as through the treatment of sewage water to such a standard that it is safe to be used for agriculture, the precarious water situation and adaptive measures to climate change demand much more attention.

Competitiveness

How to stay competitive in light of increasing competition on the European and global market is one of the main challenges for local farmers. The inputs necessary to produce vegetables and fruit, in terms of land, water, fertilizers and labour, come at considerable costs. Yet, the local farmer has to keep his prices down, hampering his ability to make a profit, in order to remain competitive with imported produce.

Ageing farmer population

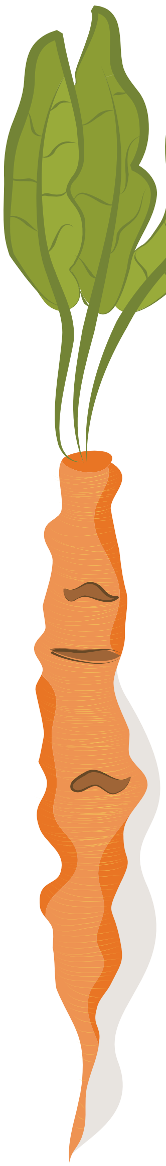
The average age of the farmer is increasing, not only in Malta but across the EU, where the average age of a farmer is now 55. One of the stakeholders warns: "If we lose our farmers we lose those people who are on a day to day basis in the countryside protecting it". Not only that, we won't have people producing local vegetables and fruit. Stakeholders express their fear of becoming completely dependent on foreign imports, and having to rely on the quality and production levels of third-party countries. One stakeholder, a local agricultural expert, warns that "unless consumers and policy makers realise that we are in a dire situation, unless something drastic is done, agriculture as we know it will disintegrate into a hobby sector". As a nation, we cannot view agriculture solely in terms of production; we need to look at the whole chain and the indirect contributions of agriculture to the environment and economy. We need to ensure that the farming profession remains viable.

Not many young people are taking up the profession of farmer, and those who do face many challenges. Two of the main issues for young farmers are access to land and high investment costs. Unless young farmers have access to fields already, for example inherited through their family, they are faced with high costs for the procurement of land. As one of the stakeholders illustrates, to buy a plot of 1 tomna, the current cost is approximately €20,000-€40,000, and to start a profitable agricultural business, a farmer would need a much bigger plot of land than that. Adding to the cost of land, the expenditure needed to set up an agricultural business and the total cost will add up to a considerable amount: even a simple tractor can cost €40,000. The small sizes of plots and the increasing fragmentation of land present issues as well, as the fields are often not suitable to be worked with large machinery, and there is thus a need for manual labour, which is much more costly and time-consuming. The difficulty to access land and high investment costs are serious deterrents for aspiring young farmers, and it is no surprise that many young people are opting for other, easier and more financially secure employment options.

Pitkalija market

The infrastructure and operations of the Pitkalija were identified as problematic by a number of stakeholders. One goes as far as to say: "I believe that one of the main reasons, if not the biggest reason, of the dwindling agricultural sector is the lack of attention and care given to the Pitkalija". Stakeholders mention that the farmer has very little control over and insight in what happens to their produce at the Pitkalija; there is no traceability and therefore they are at the mercy of the middlemen. Farmers comment that sometimes their produce is sold at very low prices or not at all, and then wasted; meaning their inputs and work has been for nothing. One of the stakeholders, employed at the Pitkalija, states however that he acts with the interest of the farmer in mind and tries to fetch the best price for their produce. In his opinion, the importers and wholesalers are the ones squeezing out the farmers, driving down prices and allegedly cheating the system, as they have been said to place foreign produce in the local produce boxes at times.

"Agriculture has been slowly dying down in Malta"



RECOMMENDATIONS FOR STAKEHOLDERS IN THE AGRICULTURAL SECTOR

Problems can be tackled; issues are there to be solved. The following recommendations are a collation of suggestions from the stakeholders, as well as ideas put forward in other research and policy documents which were covered in the literature review. Although they have their concerns about the present situation of agriculture in Malta, the interviewed stakeholders and participants of the focus groups were also full of ideas and suggestions how to improve the situation and ensure there is a future for agriculture in Malta. To provide a balanced set of recommendations that address the myriad of themes and issues that were discussed in Chapter 2, the following reports and articles were consulted to include further recommendations:

- Towards a New Agricultural Policy for Malta (Dwyer et al, 2014)
- National Agricultural Policy for the Maltese Islands: Issues Paper (Atriga Consulting Services, 2015)
- Strain on aquifers worse due to borehole overuse (Times of Malta, 2016)
- Farmers offered low-cost ‘polished water’ for their crops (Times of Malta, 2017a)
- New rules to ensure fruit and veg hawkers more street-wise (Times of Malta, 2017b)
- Any space for young farmers? (MAYA Foundation, 2017)

The recommendations are targeted at specific stakeholder groups along the local supply chain of fruit and vegetables: the producers, retailers, customers and policy makers. The recommendations are grouped per theme, and simple pictograms show at whom the recommendations are targeted:

PRODUCERS

RETAILERS

CUSTOMERS

POLICY MAKERS

ADDING VALUE

Producers should focus on creating products with added value. For example, there is not enough olive oil being produced locally to meet the local demands. This is a great opportunity for farmers, as it is a high quality product that fetches a great price.

Producers and retailers together should improve on the packaging and marketing of products, to meet customer demands and make them more appealing to the customer. There is potential to tap into the convenience demand, preparing vegetables and fruit ready for consumption or for a ready-made meal. However, caution has to be exercised as excessive plastic packaging contributes heavily to the global plastic waste issue. Alternatives to consider are bio-degradable or recycled paper packaging options.

Producers and policy makers should push the concept of zero miles, which is gaining popularity and can help in communicating and marketing local produce, raising awareness about the distance imported food travels and the benefits of eating locally.

Producers should invest in processing agricultural produce, such as what is done with tomatoes, turning them into kunserva and sundried tomatoes. Potatoes for example can be turned into fries and potato slices; frozen products that can extend the shelf-life of a product.

QUALITY PRODUCTS

Policy makers should be giving the agricultural sector a clear direction and support the shift to quality production. A strong National Agricultural Policy setting out a vision and goals for the sector should be put in place and kept updated.

Producers should make a move from quantity to quality: they need to focus on products that fetch a premium price, such as viticulture, honey and olive oil, instead of cabbage and cauliflower.

Producers should consider alternative crops that are well suited to the local climate. Herbs for example present an opportunity: they develop a strong smell, great taste and high oil content because of the heat and solar radiation.

Producers should tap into niche markets, such as the growing demand for products that are associated with a healthy lifestyle, for example organic produce, certain types of popular vegetables such as kale and broccoli, and artisan products, such as jams and pesto.

Producers and retailers should work towards a system of grading, to distinguish between lower- and higher-grade produce, and package, price and sell the different grades of produce to different market segments.

EDUCATION & INFORMATION

Policy makers should prioritise agricultural education, both in the higher education system as well as in terms of lifelong learning, and make it more attractive and affordable, in order to ensure the agricultural sector keeps up with its time, young farmers are knowledgeable and inspired by new techniques, and local expertise is created and cultivated.

Retailers and policy makers should lead the way with labelling local food, for example by including the information on the price label or creating a separate section in the outlet for local produce.

Policy makers should ensure there is information available about local and seasonal vegetables and fruit, as was done through a campaign about fish: how and where to buy fresh, how to prepare, and what are the best choices.

Producers and customers should enter a dialogue about contentious issues, such as the level of pesticides in local fruit and vegetables. It is important that farmers learn about what customers' needs and worries are, and for customers to know that they are close enough to the local farmer to ask about their produce, growing techniques and other information.

Policy makers should ensure that sufficient checks and balances are in place to closely monitor the use of pesticides, fertilizers, and abstraction of water, and that this information is disclosed to the public in an effective manner.

ENVIRONMENTAL ISSUES

Policy makers should create a cohesive policy for the agricultural sector that considers agriculture in relation to water quality and quantity, biodiversity, soil and landscape preservation, natural habitats, afforestation, energy, food quality, health and quality of life. In line with the approach in the RDP, agriculture should embrace working with nature rather than against it, and benefit from the funds available for agrienvironmental measures

Policy makers should push for water reuse and water efficiency measures on a national scale, for example through the creation of a national water strategy, actions to address the over-abstraction of borehole water, the promotion of using treated sewage water (a scheme was launched in September 2017), the restoration of wells and cisterns, and catchment of rainwater.

Producers should incorporate strategies to optimise the use of water and minimise the negative effects of droughts, protect biodiversity through minimal use of pesticides and incorporating pollinator-friendly measures, and increase tree cover and agro-forestry to capture CO_2, reduce soil erosion and improve the landscape, all measures which can be funded through the RDP funding for agri-environmental measures under the CAP.

Policy makers should push for more efficient and reduced use of energy and for the generation of renewable energy on agricultural holdings, such as solar, wind or biogas, in order to reduce use of fossil fuels and promote low-carbon technologies.

TOURISM

Producers and policy makers should formulate a vision and strategy for local agritourism, especially aimed at the shoulder months, when tourist facilities (e.g. hotels, transport, reverse osmosis, electricity capacity) are not used to full capacity, when agricultural production and the countryside are flourishing, and the weather is perfect for spending time outdoors and going for walks.

Producers and retailers should market local produce and agriculture better in the tourism sector. Tourists are interested in tasting local food and will take products and stories back home and spread the word.

MARKETS

Policy makers should ensure that the auctioning system at the Pitkalija market is improved, aimed at fetching a good price for the farmer. This could be done in a manner similar to the flower market auction system in Holland: an inverted auctioning system in which the price doesn't start from zero but from a high price where everyone auctions down.

Policy makers should ensure that all produce entering the Pitkalija market is labelled, so that produce can be traced along the supply chain. In this way, customers can know where and how the produce they purchase is grown, and farmers can be sure their quality products are sold for a good price.

Producers and retailers should ensure that the produce is preserved better. During transport and sale, produce should be kept cold in a closed truck, not in an open truck exposed to the sun, dust and fumes from the road. If produce is transported in a refrigerated van and kept in a cold store, it will be fresher and cleaner, of better quality for the customers, and less food will be wasted.

Producers and/or retailers should create an online shop to sell local produce: either fresh produce for the local market (such as weekly veg boxes or subscription schemes, which can be ordered online and delivered at home) or even internationally (for preserved products, such as olive oil, sundried tomatoes, honey, capers, pesto, jams)

FARMERS' ORGANISATION & COOPERATION

Producers should organise themselves better in farmer cooperatives or organisations. Together, they can benefit from economies of scale, joint selling to restaurants and hotels, sharing facilities (e.g. for packaging of produce), sharing or pooling of resources to purchase machinery together, building knowledge and experience to obtain funding and explore new markets. Under the CAP there is specific funding to promote cooperation between farmers, and to improve their marketing and supply chain.

Producers should come together to set up a farmers union, to better represent and safeguard their interests.

Policy makers should push for the creation of a mechanism that allows agricultural land to be passed on from government, the largest agricultural land owner in Malta to dedicated young farmers that do not have access to land.

Policy makers should assist and equip farmers to handle the increased bureaucracy and funding applications to help them tap the funds available under the CAP.

Producers and policy makers should formulate a vision and strategy for part-time farming, which is becoming more common as production has become more automatized and efficient, and as fewer people embrace farming as a full-time occupation. Measures should be created and tailored specifically for this type of farmer, in order to enable others to consider part-time farming next to other occupations, and in that way keep local agriculture alive.

Producers and policy makers should work together to create a national seedbank, to protect and preserve local seed varieties and their genetic diversity.

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