



Irish Seed Savers

Protecting Ireland's food crop heritage for future generations

Mr. Michael Creed T.D.
Minister for Agriculture, Food and the Marine (DAFM)

11th October 2019

Dear Minister Creed and team,

In line with invitations for submission for this CAP Strategy, we at Irish Seed Savers, through our experience research, growing and curating the country's heritage apple tree collection of over 175 varieties and over 600 varieties of open pollinated heritage vegetable seeds, are eager to contribute towards the development of in-situ measures for conservation of heritage/landrace and/or Crop Wild Relatives as well as In forestry, improving hedges and increasing planting of trees in unproductive corners or other parts of fields, through the development of a Traditional Orchard scheme for farmers to engage, by including these measures under CAP post 2020.

This will not only Contribute to climate change mitigation and adaptation, as well as sustainable energy; contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes; but will also improve the response of EU agriculture to societal demands on food and health, including safe, nutritious and sustainable food, as well as animal welfare.

Through the Department's focus on programmes to connect agriculture and environmental regeneration, such as REPS and Glas, we see a great opportunity to engage farmers with biodiversity and environmental care and regeneration through this CAP Strategy for which we are recommending the inclusion of Traditional Orchards as way to protect the heritage Irish apple tree collection, as well as establish greater biodiversity and environmental adaptation of our plant genetic resources throughout the country:

Irish Seed Savers Association CLG (hereinafter referred to as 'Irish Seed Savers' or 'ISSA') have been actively engaged in conserving and promoting Irish plant genetic resources for nearly 30 years. In collaboration with the Department's Crop Policy, Evaluation & Certification Division, we have worked to protect genetic diversity and adaptation to environmental change of heritage and naturalised vegetable seeds, and curate the country's heritage apple tree collection comprising over 175 varieties.

P.T.O...

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Directors:

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Since our work began in 1991, we have observed how the changing climate affects our environment and how plants respond to it. We have become increasingly aware of the importance of genetic conservation work and the additional challenges that climate change brings. We strongly believe that in the global struggle of climate change adaptation faced by humanity, every institution, stakeholder and individual has a duty to give their contribution to this conservation and long-term protection, no matter how big or small the effort.

Our proposals are based on our experience with agricultural biodiversity and the conservation and utilization of Irish plant genetic resources (PGR) stretching to nearly 30 years.

In this spirit, we appreciate your consideration and the opportunity to propose projects for inclusion in the CAP Strategy.

We are available to present further on these proposals and to help advise further on our work and the importance of our partnership with the Department of Agriculture.

Thank you for your consideration.

Kind Regards.

Jennifer McConnell
General Manager
For and on behalf of Irish Seed Savers Association CLG



Irish Seed Savers

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PROPOSAL FOR DAFM CAP STRATEGY

The Common Agricultural Policy (hereafter referred to as CAP) is an important programme to support farmers throughout the country.

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Biodiversity in the context of agriculture, does not exclusively relate to habitat networks in rural areas but indeed also concerns the cultivated crops which are at the heart of the agro-system. DAFM, in coordination with universities and NGOs such as Irish Seed Savers Association, has been actively promoting the conservation and utilization of Irish Plant Genetic Resources (PGR). This work is ongoing and destined to become increasingly important as adaptation to climate change is going to require as wide a gene-pool as possible to enhance the resilience and adaptability of our food crops (FAO 2015).

With the current focus on addressing climate change, this is an important opportunity to connect farmers and the Department as a whole, to engage with existing programmes such as the Genetic Resource Grant Aid Scheme (GRGAS) continuing support of research in protection of plant and animal genetic resources.

The intertwining between **heritage** and agriculture encompasses culture and food, which is at the centre of every culture and every society. DAFM has been actively promoting Ireland's food heritage through the REPS, AEOS and GLAS schemes whereby participating farmers throughout the country were encouraged to plant traditional orchards of Irish heritage apple varieties. These schemes have proven very popular amongst qualifying farmers: not only are they acknowledge and validate Ireland's agricultural heritage, but also enhance rural biodiversity and bring added value to our landscapes (DAFM 2016).

Biodiversity is intrinsically linked to agriculture. Its importance however is not limited to the flora and fauna thriving at the margins of cultivated fields, but also lies within the crops that we grow in them. DAFM has been acknowledging the importance of Plant Genetic Resources (PGR) and supporting their conservation since Ireland joined the FAO treaty on Plant Genetic Resources for Food and Agriculture. Most of this conservation work relies on ex-situ conservation and gene-banks: in the face of the challenges posed by climate change, a recent document by FAO highlights the need to increase in-situ and on-farm conservation work in order to achieve gradual adaptation to the changing climate of existing genetic resources. Conserving genetic resources in complex, diverse, risk-prone environments builds on natural and farmer selection and helps to maintain a variety of genetic options from which breeders can draw for breeding work or pre-breeding screening (FAO 2015, Jarvis et al. 2015). This new conservation target can be achieved through agricultural policies encouraging farmers and growers to “adopt” indigenous landraces, in co-ordination with DAFM and NGOs, such as Irish Seed Savers Association, operating in the sector. An example of successful implementation of on-farm conservation is the “Traditional Orchards” measure (Irish heritage apples), previously included in REPS and Glas, and for which we now propose for the CAP Strategy. Similar measures and incentives could be easily devised for other crops such as cereals and vegetables, meeting the two important objectives of increasing/maintaining agricultural biodiversity and conserving essential genetic material for future breeding work in a dynamic and cost-effective manner.

Traditional Orchards

Tree Supply

In order for ISSA and other nurseries to adequately plan and provide sufficient quantity of stock for such a scheme, accurate demand forecasting would greatly help. The proposed scheme design includes the step that GLAS make known publicly the number of participants countrywide approved for this option. This could be achieved in two ways:

- Either GLAS publicly declare the final number of participants approved after the application process
- OR
- GLAS restrict the total number of participants for this option on an annual basis.

Either scenario would act as a forecast of the total tree demand for this scheme.

In previous years, many farmers suddenly looked for trees in the second year of their plan, days before their deadline, with no prior warning – In previous schemes, the number of participants was variable from year to year and unknown centrally even to Teagasc.

- Scheduling the training course in the first half of year 1 would prepare farmers for the practicalities of purchasing fruit trees. They would have sufficient time to contact nurseries and ensure purchase in time for planting deadline within a 2-year timeframe. Many organised farmers would be able to complete their planting within 1 year. In the event of stock shortages, the second year would provide ample opportunity for the nurseries to replenish stock.
- The planting deadline should be scheduled as 2 years from the date GLAS make known publicly the number of participants in the Traditional Orchard option.

Here at Irish Seed Savers, as the country’s only organic fruit tree nursery, we can produce approximately 6,000 fruit trees each year – 3,000 on vigorous rootstock and 3,000 on dwarf or semi-dwarf. Therefore, if the scheme initially limited entries to approximately 300 farmers then a demand of 300 x 8 trees would result in a forecast of 2,400 trees on vigorous rootstock. This would easily be fulfilled by ISSA and other nurseries without over stretching the supply chain.

If the CAP Strategy decide on a figure of more than 8 trees per orchard, this would not represent a problem in terms of supply if the mechanisms for publicising demand information were implemented as outlined above.

The following timeline is proposed as the most feasible & implementable for all parties:

Year 1 - 2021

Year 1	Scheme opened to limited number of participants
Year 1	Approvals issued to farmers. GLAS make known publicly the total number of participants availing of the Traditional Orchard option

Year 2 - 2022

Early Year 2	Participants complete 1-day training: planning, purchasing, planting & future maintenance.
Feb – Mar Year 2	Nurseries bench-graft varieties to rootstock according to scheme requirements (Quantities based on limited scheme number and GLAS information).
Autumn Year 2	Participants plan orchard – land assigned and fenced-off.
Sept Year 2	Potted trees available for sale (subject to quantity limitations of each nursery)
Nov Year 2	Bareroot trees available for sale (subject to quantity limitations of nurseries)

Year 3 - 2023

Sept yr 2 to Feb yr 3	First opportunity for participants to plant orchards
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Year 4 - 2024

Sept yr 3 to Feb yr 4	Second opportunity for participants to plant orchards
Feb Year 4 (2024)	Deadline for planting orchards.

Quantity

- Smaller plantations may be better established and maintained => better success rate and long-term benefit. Suggest an orchard of 8 vigorous trees.
- Previous schemes specified quantities of 12, 14 or more trees. This may have been too large a project for many farmers who were planting apple trees for the first time and did not appreciate the maintenance required in the first 5 years (juvenile period) of orchard establishment.
- The fruit harvest from 8 trees would be more than enough for most average households.

Variety Selection

- Irish heritage – use varieties as listed / contained in new publication "*The Heritage Apples of Ireland*" in addition to ISSA's webpage catalogue.
- As with rare breed animals, The best way to keep these rare varieties alive is to eat them, The more people there are who know what an Irish Peach, Cavan Sugarcane, Rose Hogan or Ard Cairn Russet tastes like and values it and tells their community about it the more chance of genetic continuity into the long term. ISSA would insist on only providing apple varieties aligned with our charitable objectives, to conserve and utilize Irish plant genetic resources.
- Nurseries may offer an 'Orchard pack' pre-selected by nursery as a 'quick-pick'. Or the customer may make their own choice based on their own research or priorities.
- County of origin – although certain varieties were documented to be traditional to certain local areas, most varieties may be grown successfully in any geographical area in Ireland given a good orchard site and good orchard maintenance practice
- With the advent of genetic fingerprinting and DNA analysis of our Irish Heritage Collection. ISSA's conservation

and charitable aims are to preserve the genetic character of varieties unique to Ireland, For any traditional orchard scheme proposal we would emphasise the importance in terms of a carbon neutral rural Ireland, conservation and future food security the genetics of early ripening and late storing varieties adapted to temperate Atlantic climate will be needed. Some of these varieties are a hop, skip and jump away from extinction and must be prioritised in any future scheme.

Tree vigour

- Large / Vigorous rootstock (MM106, MM111, M25, etc...)
 - Better habitat for insects, birds, general wildlife etc... in the long-term
 - The grasslands in existing traditional orchards have been undisturbed for decades if not longer and have escaped agricultural improvement. Both the nitrogen and the phosphorous from fertilisers contribute to the loss of plant diversity in grasslands common in traditional orchards. Mature trees and vigorous standard trees encourage biodiversity development and protection through the establishment of woodlands and meadow wildflowers
 - Long living trees expected to grow for more than a century.

1-day Training Course:

- To prepare farmers adequately for planning, planting and maintenance tasks ahead. This was a learning outcome from the previous 'traditional orchard option' in REPs and AEOS. Many tree failures were due to inadequate understanding of the requirements of young apple trees. A series of training courses in orchard maintenance were implemented in the final years of the schemes, in many cases after trees were planted. Small errors and misunderstandings resulted in poor growth and tree failures. It became apparent that many farmers would have greatly benefitted from training prior to planting the orchard. Modern agricultural settings in Ireland are increasingly hostile environments to the establishment of young trees, often the same mistakes are repeated, in terms of inadequate protection from livestock, rabbit and hare damage. In addition poor after care of vulnerable trees in the initial years of a traditional style orchards establishment. ISSA are in a position to design and deliver a comprehensive orchard establishment 1-day training course to demonstrate best practices in orchard establishment. From correct planting, soil preparation, mulching and appropriate tree protection measure to maximise the efficiency, economy and lasting outcomes of any future orchard scheme.
- The above as per RDP priority 1 (c) 'fostering lifelong learning'
- This training course could be provided by ISSA or another suitably experienced fruit grower through regional Teagasc offices.
- *For example: 15 Training courses organised in regional areas around the country could be designed for 20 participants each. Thus, a cohort of 300 farmers could be trained and prepared each year with what are widely transferable countryside management skills.*

Additional Information

ISSA has participated closely with Teagasc to provide support, training and trees to the previous REPs and AEOS schemes. This proposal draws from experience gained from providing 10 five-hour farmer training courses around the country (through Teagasc) and inspecting over 20 new orchards created within these schemes.

According to Catherine Keena, Teagasc Countryside Management Specialist, the following are critical elements for the success of a Traditional Orchard Option in GLAS.

- A Five Hour course is essential for all farmers undertaking this option. There is a lack of appreciation of the need for management of the apple trees in the first five years.
- The timing of a training course should be before the trees are planted. Advice on the selection of varieties, suitable location, ground preparation and planting is vital to farmers.
- A two-year production phase is required for the supply of traditional apple trees. If information of the numbers of farmers approved for Traditional Orchards be made publically available to all nurseries as soon as approvals are issued – the deadline for planting trees must be two years later.

Growing / Production Cycle:

Young apple trees may be produced in nurseries according to 2 general growing systems, outlined below:

Budding

Year 0 – Oct / Nov	Rootstock ordered (Decision on production quantity made by nursery)
Year 1 – Jan / Feb	Rootstock received from supplier
Year 1 – Feb	Rootstock dibbed into cultivated ground
Year 1 – Feb to July	Rootstock grown-on
Year 1 – July / Aug	Bud grafting – bud of variety grafted into rootstock (using fresh cuttings)
Year 1 – Aug / Sept	Bud heals onto rootstock
Year 1 – Oct to Mar	Dormancy and preparation for next growing season
Year 2 – Mar / Apr	New shoot emerges from bud and begins to grow
Year 2 – Apr to Oct	Variety grows to become '1 year old maiden whip'
Year 2 – Nov / Dec	Maiden whip is 'lifted' and sold as bare-root

Bench Grafting

Year 0 – Oct / Nov	Rootstock ordered (Decision on production quantity made)
Year 0 – Dec / Jan	Cuttings from varieties taken during winter pruning
Year 1 – Jan / Feb	Rootstock received from supplier
Year 1 – Feb / Mar	Grafting – cutting of variety inserted into rootstock. Tied and sealed.
Year 1 – Apr to Aug	Freshly grafted trees nursed in pots
Year 1 – Sept	Grafted tree 'lignifies' and becomes known as '1 year old maiden whip'
Year 1 – Oct	Maiden whip available for sale as potted tree.

As can be seen from the above descriptions, the 'bench-grafted' trees have a shorter production cycle. They are more expensive to produce due to costs of potting compost, pots, and irrigation. Quantities are more restricted due to space limitations in irrigated nursery areas and due to the requirement to use larger cuttings (sections of cuttings 4 to 6 inches long).

'Budded' trees are less expensive to produce as they are grown in the soil. This method has the potential for larger scale quantities due to its field-scale nature and due to only using a single bud (Therefore more clones may be produced from a given length of scion wood)

About Irish Seed Savers Association CLG

Irish Seed Savers Association has been in operation since 1991 originating from an ambitious effort to create a central store of food crop seeds and fruit trees where none had previously existed. Our work to date has been to research and protect rare, heritage and naturalised open pollinated food crop seeds and fruit trees. Curating the country's public seed bank of 600 varieties of heritage food seed and the country's 180 varieties of heritage apple trees, our work has expanded over the years to include an education and outreach remit to not only connect more people to our work, but also to ensure the protection of these collections for the future.

With the growing focus on climate action, reducing carbon footprint and striving for greater biodiversity sustainability, our work addresses these areas by growing and making available collections of our plant genetic resources and

understanding and capturing their adaptation (or lack thereof) as our environmental and climate changes over time. Through growing these open pollinated food seeds and fruit trees ensures that we can multiply them to make them available for people to grow in their homes and communities, ensuring protection of our food crop heritage for now and future generations. It is not the seeds of today that count but their survival for the future that will matter to us all.

WE ARE: Irish Seed Savers Association (ISSA), one of Ireland's main curators of our plant genetic resources in native and heritage food seeds and fruit trees.

OUR MISSION is to secure these collections and replicate our work for long-term sustainability in food accessibility, diversity and food security

Our main objective is to conserve Ireland's very special and threatened plant genetic resources. Our work focuses on the preservation of heirloom and heritage food crop varieties that are native Irish or suitable for Ireland's unique growing conditions.

We manage the country's public living seed bank, which means the seeds we maintain are growing, observed, protected, and shared, to keep these rare and heritage varieties living within our precious biodiversity. Our apple orchards since 2019 are recognised as a living gene bank listed in the European Eurisco plant genetic resources database.

HOW WE LIVE OUR MISSION: We are:

1. The main organic vegetable seed producer in the country
2. The only organic fruit tree nursery in Ireland,
3. Leading educators on food sovereignty and the importance of protecting our rich biodiversity
4. Active collaborators on environmental care and food biodiversity in Ireland, UK and Europe.

OUR VISION:

As we reach our 30 years in existence, our focus for the next 30 years is:

1. To continue our research, make the collections available to growers, hobby gardeners, and market gardeners for commercial use.
2. Create greater awareness about our work so that seed viability and seed sovereignty is supported in the importance of protecting our food security.
3. Implement seed saving in the practice of growers, to reduce reliance on hybridised imported seed.
4. Support ongoing research to protect open pollinated seeds and fruit trees for future generations.

Our team focuses on food crop conservation, land management, biodiversity education, sales, marketing, policy, and administration. Reporting to the General Manager, the organisation is overseen by a voluntary Board of Directors, who in turn report to 10 founding members who protect our ethos, vision and mission. The team meets on a bi-monthly basis as well as interacting each working day. The General Manager reports to the Board, which meets every six to eight weeks and then in turn we all collectively meet with our founding members once a year for our AGM. We are audited by the Irish Organic Association (IOA) to ensure we comply with organic practices, and we are part-funded by the Department of Agriculture, Food and the Marine, to curate the national collections of heritage and native food seed, and heritage apple trees. We are an active member of The Irish Environmental Network (IEN) and Environmental Pillar, which contributes to environmental policy in Ireland and the EU.

As a member of SEED (Schools Earth Education Development) in Ireland, we are a member of the European Co-ordination Let's Liberate Diversity; an advisor to the SKEP (Sharing Knowledge Experience Platform) in Europe's Dynaversity project to strengthen community seed networks throughout Europe and are an active partner in the Irish Apple Growers Association and the UK Apple Network.

Our apple collection has been registered as a living gene bank by Eurisco and we curate Ireland's active community seed bank.

As an active participant in the Department of Agriculture's Working Organic Seed Group and the Genetic Resource Grant Aid Committee, we are at the centre of policy and practice in developing supports for seed growing and the protection of our precious plant genetic resources.

With a subscription base of nearly 2,000 active supporters and a customer base in the thousands, we have growing interest in our collections, making available up to 150 varieties of heritage vegetable seed and over 50 varieties of heritage apple trees for public consumption per year. Participating at important events such as Bloom and the Ploughing Championships, we are regular invited to showcase our work, giving talks at various Heritage OPW gardens, educational workshops to schools and adults alike, and feature in local, regional and national media, most recently in The Farmer's Journal 'Country Life' magazine, and on Newstalk's Documentary on Ireland's heritage apple, entitled 'Bittersweet' (appendix of media coverage included).

We travel throughout the country raising awareness on the importance of protecting our food crop heritage for now and future generations and encourage engagement with plant genetic diversity rather than focus on a mono crop culture or hybridised or genetically modified plants which destroy the resilience of our precious biodiversity and alter our rich heritage landscape.

Conclusion

Our work at Irish Seed Savers Association is to protect diversity of our plant genetic resources through the research and growing of heritage open pollinated vegetable seeds and heritage fruit trees, predominantly focused on apples. Over the past 28 years we have gathered and curated the country's heritage apple tree collection containing over 175 varieties connected to most counties throughout the island. Making these available to farmers through schemes such as the CAP Programme keeps these varieties alive and further protects this collection to ensure long-term viability and support continued research on adaptation to environmental changes, yield growth or decline, and further protects carbon sequestration by supporting effective soil management, contributing to the security and regeneration of Ireland's precious biodiversity for years to come.

Media Coverage

Radio Interviews:

https://www.newstalk.com/listen_back/3342/45282/04thJune_2018-Documentary_and_Drama_on_Newstalk_Part_1_-_Bittersweet_Documentary_on_Newstalk

Print Media:

<https://www.independent.ie/business/farming/irish-seeds-in-safe-hands-36859489.html>
<https://www.irishtimes.com/news/environment/seeds-of-an-idea-saving-our-crops-for-the-future-1.3204934>

Podcast: - <https://foodture.ie/2018/08/23/food-citizenship-Fndcast-episode-3/>

Videos:

<https://vimeo.com/302601980/0a8e67a046>
<https://www.youtube.com/watch?v=IWrs45iAY6k>

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