

From Foil-Packets to Food Security

My first ‘office’ job at the Irish Seed Savers Association (ISSA) involved drawing up an inventory of their genebank, better known as back-up freezer. When you tell people that ISSA have a seedbank, this is probably what most will think of: A huge freezer with lots of seed samples safely kept in it; the ultimate example being the Svalbard Global Seed Vault located on the Norwegian island of Spitsbergen where a section of our global biodiversity rests (in peace) in the permafrost. This, falls under what is called *ex situ* conservation, literally “off-site” conservation. Typically, seeds are stored in a cryogenic environment, i.e. a freezer, where their aging process is delayed.

In contrast, *in situ* conservation preserves the plant variety by growing it out in its natural habitat, on-site. At ISSA, this is done by harvesting seeds from the different crop varieties and by growing them out on a rotational basis. ISSA then distributes part of the seed to the public – hobby gardeners, commercial growers and farmers – so that more people grow traditional crops *in situ* and thereby preserve and enhance agricultural biodiversity.

ISSA cannot grow out all varieties every year, so the seed of plants that are not grown is kept in air tight containers on shelves and in fridges. As an additional insurance and to better maintain seed fertility, one sample of each variety is also kept in a freezer. What essentially makes up ISSA’s genebank is in fact a small part that complements *in situ* conservation. The seeds are sealed in small foil-packets labelled with date saved and name and stored in a large home freezer. By sorting through hundreds of these packets – entering the name, date and number of packets into a spread sheet – I slowly familiarised with the different crop names, to what plant species and family each belong. While this gave me a good idea of the sheer number of vegetables and grains ISSA preserve, I had nothing with which to associate the individual, often curious sounding, names but foil-packets.

This changed rapidly with my next job where I got to browse ISSA’s seed database to gather all the information needed to make informative signs for the 2012 grow-outs. Gradually I learnt about the – in many cases very personal – stories behind the seeds, where ISSA originally got them from, their heritage, uses and peculiarities. When I was ready, I put up the signs by the different beds all over the gardens, giving the words more meaning.



In tandem with this, I have been working outside every week; sowing, pricking out seedlings, watering, weeding, planting out. This is where I started associating more than foil packets with individual varieties. Instead, feeling the shape, size and texture of a seed; observing the growth process and the plant’s reaction to the changing environment; tasting the first fruits; harvesting new seeds.

It all comes down to preserving our plant genetic resources for present and future food security.

There are clear advantages to *in situ* conservation. It allows plants to adapt to and evolve with the ever-changing environment they grow in, may this be more erratic rain patterns, changing temperatures, higher levels of certain pests or less fertile soils. This is especially important under current climate change threats and increasing costs of external farming inputs such as oil-based fertilisers and pesticides. Farmers working with a range of traditional crops, cultivating them in different locations,

enhance varieties over time and make them suitable to their own needs, including characteristics such as taste, maturing times and storage qualities. Through *in situ* conservation organisations like ISSA, together with farmers and growers, maintain traditional food plants and their inherent flexibility and genetic variability.



The lesson for development then is that *in situ* conservation benefits many. It benefits consumers who can enjoy more diverse and culturally embedded foods; it makes our countryside more interesting and benefits wildlife. Foremost, it benefits farmers and growers who engage in saving, reusing, sharing and developing new crop varieties. These are customary practices of traditional agriculture that contribute to the conservation of our plant genetic resources and are engine for innovation in agriculture, both vital to food security.

While *ex situ* conservation is important and complements *in situ* conservation, recently, too much focus has been on the former and too little invested in the latter. *Ex situ* conservation benefits few, mainly professional breeders in laboratory settings who use genetic material originally developed from traditional varieties. However, they don't engage in maintenance of these resources. Increasingly, multinational seed companies such as Monsanto and Du Pont, which are also hugely involved in the petrochemical and pharmaceutical industries, gain access to genetic resources from genebanks. By employing biotechnology and genetic engineering methods they produce modern varieties that are designed to be grown in monocultures and to require high levels of oil-dependent inputs. Varieties derived this way and distributed to farmers for the sole purpose of mass food production, negatively impact on farmers' rights, independence, self-reliance and culture in the long term.

Ex situ and *in situ* conservation can complement each other, but people should know the difference and be aware of who are the main beneficiaries from each. The latter benefits many. It ensures that conservation remains an active, evolving process in which many participate, leading to a culture in which individuals understand the links between seeds, food plants and sound cultivation practices. Biodiversity then becomes associated with something thriving and bursting of life that forms the basis of food security. Not an affair between the white-coated breeder and the permafrost that dictates our food production and -security.