

## Duchy Originals Future Farming Programme – Field Lab – Trialling Open Pollinated Seed Varieties

### Why grow open pollinated seeds and varieties?

I wish to make it clear from the outset that I am addressing this subject from the standpoint of open pollinated seeds and not necessarily from an Organic, Biodynamic or Conventional standpoint, though they clearly show up.

One simple answer is, if we don't grow OP varieties, it probably won't be so very long before we won't have any or many to grow for the simple reason they are being turned into Hybrids. More beetroot and parsnip varieties and also relatively minor species like radishes are turning up as F1's. We wait for crops like lettuce, Swiss chard, rainbow and ruby chard and spinach beet to turn up as hybrids. Then perhaps the various bean types and the various pea types as the finale.

Having said that, even if we do grow OP varieties they disappear from the market in any case as they are taken off seed lists and being 'replaced' by F1's.

In 2005, a study from Germany pointed out that on the European seed market, 74% of cauliflower varieties were hybrids, of carrot varieties 80% were hybrids, of calabrese 85% were hybrids, of spinach 87% hybrids, of tomato varieties 89% hybrids, of salad cucumbers 92% hybrids.

In 2011 these figures will undoubtedly be higher.

Already by 2001 the seed company Seminis had deleted 2000 OP varieties from their seed list. (They were bought out by Monsanto in 2004) The 2000 or so varieties of course remain as breeding material for the company's further breeding program.

In 2007, Kultursaat (cultural seeds), a no-profit Association of Central European Biodynamic plant breeders, set up a gene bank for the collection and in-situ maintenance of open pollinated varieties. More than 800 OP varieties were bought from all over Europe as the sense was they would likely be taken off seed lists in the near future. (This project was co-funded by the German federal program for organic farming)

The taste of OP's is often superb. They don't all mature at the same time which can be an advantage for some growers. Their yields are quite acceptable. The fact that they breed true to type, that we instinctively value the inherent possibility and freedom to save the plant's seeds, may seem right to us. That plants and seeds still belong together. Or that by growing OP varieties we contribute to crop genetic diversity and are helping to maintain a collective gene pool between farmers which can be of value somewhere.

Seed saving is an age old practice and skill intimately tied up with crop growing in many countries and which is still practiced all over the world. It is only in the last few generations in the industrialised countries including the UK that farmers have been out of this loop.

In 1985 The Biodynamic movement particularly in Germany and Switzerland, decided that if they were going to be true to their ideals and values they would need to take on the whole seed question themselves, to start growing seeds for their crop production. Soon after they realized they also had to breed their own varieties. In a small way this also started in the UK.

This move was only possible because there were open pollinated varieties on the market. It was possible to use existing but 'free' varieties, with expired plant breeder's rights still available on national lists and begin to cultivate and maintain them on biodynamic farms. That way they could steer the plant in the direction they felt

was more in line with their ideals. This has all been done according to seed regulations, seed standards and using free varieties.

The farmers had to learn the art and skill of plant selection and seed production and that has been a great learning situation and of great value and stimulation to many. Market gardeners have now also become good seed producers and in many cases breeders too. Some have stepped out completely of crop production leaving that to the younger people and concentrating on selection and breeding themselves.

Today there are seeds of more than 400 varieties of many different species of vegetables herbs and flowers produced internationally by Biodynamic and Organic farmers and growers and their breeding program submits every year new open pollinated varieties to the German and European seed lists.

These are some examples of where the importance of OP varieties comes in and why we should grow them.

One more but important point to mention. Where OP varieties are seen to deteriorate this is very likely due to poorer selection of cultivars by maintenance breeders and should be addressed directly. No hesitation.

### **Range of OP varieties available:**

The availability question is directly connected to the point raised above, there are a lot less OP's on the market.

In the UK, Kings Seeds, Tamar Organics, Moles seeds, Demeter seeds and Tuckers seeds are among the best options for open pollinated varieties. See [http://www.open-pollinated-seeds/Seed\\_Links.html](http://www.open-pollinated-seeds/Seed_Links.html)  
Also Thomas Ety seeds and the Real seeds company would be interesting to for those who appreciate heritage varieties.

Moles Seeds should be given a special mention re OP seeds.

It was interesting to see what they had on offer.

<b>Conv. Seeds</b>	<b>Organic seeds</b>
Beetroot: 11 op's & 2 F1 hybrids	4 op's & 1 F1
Carrots: 19 op's & 20 F1's	5 op's & 4 F1's
Celeriac 3 op's	2 op's
Celery 4 op's & 4 F1's	1 op
Onion seed: 9 op's & 6 F1's	2 op's & 1 F1 + 3 salad types
Onion sets 1 op & 5 F1's	
Leeks: 10 op's & 3 F1's	4 op's
Parsnips: 4 op's & 3 F1's	1 op
Cucumbers: 3 op's & 12 F1's	2 op's & 3 F1's
Cauliflower: 10 op's & 22 F1's	1 op & 5 F1's
Calabrese: 2 op's & 9 F1's	1 op & 1 F1
Bruss Sprouts 3 op's & 18 F1's	2 F1's

It is clear that they market a fair range of OP's for some species and very few for others.

It is also clear that they include F1's for the larger scale organic Vegetable growers, or those who prefer the F1 hybrids. However, generally one would expect a few more OP varieties for the Organic selection, or would one? Who decides this.

### **Research currently going into developing OP varieties:**

There a number of organizations involved in developing OP's.

Kultursaat. (cultural seeds) Established in 1994. A nonprofit Association of Biodynamic plant breeders in Germany which has listed more than 60 new OP varieties during the last decade with more varieties in the pipeline. They have 18 breeders with about 100 seed producers.

Demeter seeds and Tamar Organics in the UK are selling a number of these varieties.

[http://www.kultursaar.org/pdf/FSO\\_case-study.pdf](http://www.kultursaar.org/pdf/FSO_case-study.pdf)

ECO-PB.

The European Consortium for Organic Plant Breeding (ECO-PB) founded in 2001 is now in its 10th year. A diversity of organic breeding programs has emerged and several cultivars specifically bred for organic and low-input agriculture in Europe are on the market. Cultivars adapted to organic farming systems contribute to the realisation of a low-input external management with emphasis on long-term soil fertility, active soil micro-organisms and optimal farm system resilience. To achieve such cultivars many new concepts have been applied in research and practical breeding, such as broad disease resistance, exploiting genetic diversity in the cultivar concept, improved weed suppression, root systems interaction with beneficial soil micro-organisms, and more experimental approaches.

Eco-pb produce 6 annual newsletters. Please see their website: <http://www.eco-pb.org>

**Organic Plant Breeding: What makes the difference?** Organised by Eco-pb  
10 year's Anniversary Conference, Frankfurt, 3rd and 4th November 2011

Zukunftsstiftung Landwirtschaft ( Futures Association Agriculture)

A European Organisation which has specifically been set up to support and fund long term Organic seed and breeding initiatives.

<http://whois.pho.to/gmo-free-regions.org>

<http://whois.pho.to/saveourseeds.org>

### **The role of OP varieties in self-sufficient and resilient farming systems.**

The self-sufficient and resilient farm systems are generally more diverse and where vegetable production exists, often between 20-50 different varieties are grown. The market is mostly farm shops, farmers markets and box schemes. The production is not necessarily so dependent on crop uniformity because extended harvesting periods may be an advantage. Therefore the open pollinated types fit very well in these situations. Their genetic variability is quite suitable for farm shops, farmers markets and box schemes, and I'm sure that customers would be very supportive of the production of OP varieties if they only knew about them.

The role of OP's could really contribute educationally as well. Where there is diversity there usually also exist the understanding and interest for biodiversity. Often a few more hands are available and where there is an element of education like having apprentices and occasional one day seminars or weekend courses it could be imagined that the skill of plant selection and seed saving could be introduced, which could lead to actual seed production and eventually breeding. Imagine if we did not even have this option.

Somehow the age old, almost timeless act of plant selection and saving seeds is still with us. It belongs to the farm organism or farm system where the understanding and interest for diversity exists. In vegetable growing, seed saving is never far away, in fact it is always close and many gardeners see different crops flower or even go to seed before they discard them.

Whatever we do has an effect elsewhere. Our choices concern not only ourselves. Every time I buy a packet of seeds I vote for breeding method and aims and it sends the signal to supply more of the same. It's simple and powerful. We are deciding for the future. If I cultivate and buy OP seeds the chances are we will still have them. If I buy F1's then we will have F1's.

Much larger areas of vegetable production use hybrids than use OP's. Hence seed companies interest to supply industrial production. However, the home gardener and allotment holder also use many OP's for reasons I have given above about extended harvesting period and this is by no means insignificant.

65% of kings seeds are sold to home gardeners and allotment holders.

We can educate the customer and this is what has to come next. To quote the German Biodynamic Plant Breeding association, Kultursaar. 'We consider breeding, seed saving and varieties as part of our cultural heritage and

consider the maintenance of this heritage as a task of mankind’.

Peter Brinch – November 2011

[www.open-pollinated-seeds.org.uk](http://www.open-pollinated-seeds.org.uk)