6. What are the opportunities for open-pollinated varieties?

Open-pollinated varieties have as great a yield potential as hybrid varieties

Thanks to the focus on hybrid breeding the breeding of open-pollinated varieties in certain crops has fallen behind.

The most frequently referred to advantages of hybrids are yield (heterosis effect) and uniformity. But there are also open-pollinated varieties with yields that are comparable to those of F1 hybrid varieties (such as onions). These F1 hybrids are often more uniform than open-pollinated varieties. Conclusions:

- No clear statement can be made about the differences in yield potential between F1 hybrids and open-pollinated varieties.
- Various breeders confirm that, if sufficient breeding efforts are made, open-pollinated varieties can be at least as good as F1 hybrids.

Opportunities for biodiversity

The low costs of breeding and seed production for open-pollinated varieties mean that the diversity of varieties can increase. Moreover, open-pollinated varieties help to maintain a broad genetic basis as these varieties may always be used by other breeders. This is important for food security in the future.

Figure 9.
A grower selects in the offspring of a red cabbage crossing, in the search for an attractive cabbage shape with fewer fleshy veins and a narrower core. The stalks with the roots of the best-looking cabbages will be replanted to produce seed for the next generation. (Photo: Louis Bolk Instituut)

Breeding for open-pollinated varieties

There are now a few organic and biodynamic breeders in the Netherlands and abroad who are focusing on the breeding of open-pollinated varieties in cabbages, chicory, onions, leeks, carrots, beetroots, lettuce, tomatoes, wheat, barley, maize, etc.

Role and commitment of the chain

Because of changes to the cultivation system, for example as a result of the use of a harvest band in the case of cauliflowers or a top-lifting harvester in the case of carrots, certain old open-pollinated varieties no longer fit in with today's farming. These varieties can be adapted by selection to suit specific characteristics. For instance, important criteria are self-covering ability in the case of cauliflowers for the white colour or the sturdiness of the leaves in the case of carrots during mechanical harvesting.

- This therefore requires improvements to old varieties and therefore breeding.

In some cases products of open-pollinated varieties are not as uniform as F1 hybrid varieties

- and that requires acceptance by the trade (and consumers) who are used to assessing the products on the basis of their uniformity.