

Initiative power and reshaping - Getreidezüchtung Peter Kunz

The beginnings of Getreidezüchtung Peter Kunz (GZPK) go back more than 40 years. Thanks to their quality and stability, the varieties from his biodynamic breeding have become the benchmark in organic agriculture and the company has become a Europe-wide networked partner for research and development in the organic seed sector. In addition to the operations center in Feldbach/ZH, there are independent new foundations by former employees in Germany and Italy. Four years ago, Peter Kunz handed over the enterprise to the next generation, to Monika Baumann and Herbert Völkle. The name, the quality and the popularity of the GZPK varieties are a proof of his initiative. Some steps and challenges to the creative power are described here in short sketches.

In overview, there are four periods of development of about 10 years each: in the first period it was mainly about the "work inward", the formation of the own bases for the working methods and the breeder's view. In the second phase, the breeding programs for Wheat, Spelt (Dinkel), Triticale and Corn were systematically developed, expanded and consolidated. The third phase is characterized by the creation of external relationships: with authorities and partner companies through variety registration, seed multiplication and variety marketing. And the last phase is the preparation for the handover to the next generation.

1) "Working inwards" - what is meant by that?

Back then, at the end of the 70s, nobody asked for organic cereal breeding. Organic farmers mainly used conventionally bred varieties - as is still the case today with many field crops, vegetables and fruit - with the corresponding problems because the varieties do not fit with the farming method.

More than 100 years ago, Rudolf Steiner, the initiator of biodynamic agriculture, pointed out the urgent need for breeding to counteract the loss of quality. Since then, a few biodynamicists have been engaged in "wild plant improvement" and "breeding", but without methodical confrontation with the scientific basis of crop development and the practical requirements of productive agriculture. Thus these efforts lacked the practical breeding "tools" and could not be successful. It is a tragedy in itself that today many field crops and vegetables still grow from seeds from Syngenta, Bayer-Monsanto & Co, and yet a Demeter label is stuck on the end of them, while at the same time the illusion is strongly propagated that in Biodynamic agriculture only "unbred", "old" and "true-to-seed" varieties may be used!

Thanks to Jochen Bockemühl, Georg Maier and Manfred von Mackensen fundamental research with a wide range of cultivated plants are done in the early 1980s at the Natural Science Section at the Goetheanum in Dornach. From this, new breeding concepts were developed that took up my motivation as a breeder, which has driven me since my early adolescence and since then has formed my

methodological basement. At that time, however, there was nothing, nothing at all - often not even the insight of the experts - in the way of external conditions for a new kind of plant breeding. So the following 20 years were really scanty years, especially if one takes the material support for the work as a reflection of the appreciation instead of the verbal one. Fortunately, the task to develop suitable varieties for organic and sustainable agriculture, which had not been tackled up to then, had already been clear to me many years before in view of a miserable wheat on the farm of an organic pioneer: for organic agriculture, completely different plant varieties are needed than in conventional agriculture. But someone has to start and build up a breeding program!

What does breeding do? The breeders combine their ideas, their breeding goals, with the breeding material and create the new varieties from it. Therefore, the way they develop their ideas is crucial for the result. The innovation in the breeding process consists in the fact that the breeder's eye - a mental ability to recognise the interrelationships of plant growth - works on the breeding material that is actually available and brings its elements together in a new product. This is not a natural process, but its enhancement on a new level. In practice, the eye recognises among x-thousands of individual plants the one with the potential for the new variety or for a new crossing partner. This in turn requires an in-depth and subtle knowledge of plant growth dynamics, fruit formation and ripening in their dependence on the immediate and wider environment, as well as an absolutely unconditional commitment to the plant itself. After the selection decision, the selected plants must be intensively monitored for many years. Such an awareness has accompanied all our cultivated plants without interruption since their origin, i.e. for thousands of years!

This breeder's view and the ability to put it into practice is not something that anyone is born with, but it can be learned and I myself had to train it for many years.

2) Organised processes in the breeding nursery - far more than half the life!

Every crop has its own characteristics that require precise adaptation of the breeding process, which often takes 10-13 years. In a efficient breeding programme with many employees, all work steps have to be described in detail, documented continuously, optimised again and again and adapted immediately to the particularities of the current year. Like an algorithm, this "knowing how" forms an essential part of the invisible resource capital. Starting from the 10-20 grains of the first ear, the multiplication must be carried out without gaps over years until the required seed quantities are reached, which in the end can amount to thousands of tonnes for a popular variety.

In order to be able to evaluate the behaviour of the varieties under extreme conditions, special procedures have been developed and have been integrated into the breeding process from the very beginning. On the one hand, the future varieties will find a large range of different and, in some cases, completely new growing conditions, and on the other hand, no one can predict at sowing time whether

the next summer will be even hotter or once again completely rainy. The the only certainty is that the annual supply of cereals for breadmaking is indispensable. This resilience is expected from good varieties as it is essential for feeding millions of people.

3) Commons in economic partnerships

Breeding is a profession and at the same time a common task that was in former times carried out in Persian and Egyptian mystery places and later in monasteries. Today we are faced with the challenge to develop suitable social forms for this social task. Not least because breeding and seed business is associated with enormous power, because the knowledge of farmers and gardeners about seeds has been lost and today they no longer have the opportunity to carry out these tasks themselves in their productive farms. Whoever owns the seed has the power and sets the prices, even though it is a common good. In the way it is handled today, seed is a very successful business model that not only finances the breeding and seed production of the big seed multinationals, but it also generates billions for the investors in terms of rents. Farmers and gardeners pay for all this by having to buy seed.

How, then, a breeding company committed to the common good can be set up when it should nevertheless be anchored in the reality of economic life? The GZPK and its branches are non-profit organisations. This ensures that the companies remain independent and belong to themselves. All varieties are protected and the rights are held by the non-profit organisation. The varieties are then propagated and sold by partner companies such as BioSaat GmbH and Sativa Rheinau AG in the European countries. So, they are available to everyone who needs seed. The licences we earn from seed sales are equivalent to 5-10% of the seed price and are used 100% for breeding the next generation of varieties. Given the current spread of GZPK varieties, however, this is not nearly enough! Despite the popularity of the varieties, the financing of organic breeding as a common good task is an unsolved problem. The development of the GZPK was - and still is - only possible thanks to a large number of private donations and contributions from foundations and companies. A great effort had to be made to raise the funds each year to continue the work. Further development of cultivated plants is a task of spiritual life, which, like education and research, must be financed by the economy.

The GZPK varieties are popular mainly because all value-adding partners profit significantly from them, not only the farmers, but also the millers, the bakers and in the end the consumers. A recent study calculated a return on investment in breeding of more than 18% for the wheat variety Wiwa for the agricultural sector alone. This means that breeding is really not expensive at all, because it generates important benefits that are often not even noticed by the profit makers! If only one part per thousand of the value of foodstuffs at the point of sale were to be used for the further development of cultivated plants, a very broadly based breeding programme committed to the common good could be amply financed.

These relationships led us to the idea of a crop promise, which would enable every food buyer to participate directly in breeding. Anyone who buys plant-based food would support the breeding of vegetables, cereals and fruit with one per mille of the purchase price, and anyone who buys animal-based food would support the breeding of fodder plants. However, such a simple solution presupposes that all stakeholders in a product understand and acknowledge the great benefit of organic plant breeding for the common good.

4) 10 years of preparation for the handover

Like any pioneering enterprise, the GZPK initiative is closely linked to its founder. The breeding task itself, however, has completely other dimensions: wheat, our most important bread grain, has been cultivated and refined for 10,000 years without interruption(!). Thus, although the GZPK is a personal biodynamic breeding initiative in the modern era, it is at the same time the recovery of a forgotten task for the common good, which must continue to be carried out as long as high quality cereals are needed as food. However, the life cycles of crops and people are different but interlinked. Being aware of this large dimension helps to plan and tackle the handover at an early stage. The following elements were guidelines: no private capital on the company, the breeding must belong to the company itself. All private investments required in the early years were already separated and discharged 20 years ago. Simple, transparent structures. Each member of the team knows his or her area of responsibility and the complex processes involved, and keeps a continuous and detailed record of them. The move into a new and more manageable infrastructure in Feldbach was also a contributing factor. Furthermore, there is no differentiation between strategic and operational management. Whoever manages the enterprise must have the overall responsibility. The only overriding rules are those of the non-profit organisation. Therefore, after a short period with two managing directors, there was no partial handover, but a complete withdrawal of the pioneer. Since then, all further engagement has only taken place at the explicit request of the company. This is a hard step for both sides, but it creates clear conditions and responsibilities.

The decision to take this step also requires the younger generation to have a lot of trust. In the end, however, it is similar to the selection decision: it is the decisiveness, the will that turns the new selection into a successful variety, it is the commitment that makes things work out in an almost magical way!

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