

# Seeds for the future.

## **"Big things have small beginnings", also at Sejet Plant Breeding.**

Since 1947 Sejet Plant Breeding has been dedicated to the breeding of new varieties for beer, bread and animal feed. The main target was initially the Danish market, it later extended to the rest of Europe. Sejet Plant Breeding is a modern company, combining field work with the latest biotechnological methods. We are innovative and involved in research with leading Danish and European universities. In order to meet the needs of the farmers and create new variation, new varieties are developed each year by crossing elite varieties as well as exotic material. Hence generating innovation and foundation for new varieties with improved characteristics.

For a new variety to be put in production it must out-perform what is already on the market. Each new variety must prove its worth through several trials and analysis as well as undergo national official testing. Only new varieties that exceed the performance of known varieties receives the official seal of approval. Once approved, the variety is included in annual national trials, and only the varieties with high yield, top quality and good disease resistance will be selected by the farmers.

## **FACTS**



### **Sejet – Long story short**

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- Founded in 1947
- Owned by DLG (Dansk Landbrugs Grovvarerelskab)
- Located at Horsens fjord near the village Sejet
- Approx. 35 full time employees and 10 harvest helpers.
- Breeding of cereals and faba beans
- Leading varieties in Denmark and many European markets
- International collaboration with numerous breeding/seed companies

It is all initiated in the glasshouse. Crosses of the best performing varieties are made and thereby creating maximum genetic variation and diversity. Previously, creating a pure variety was a slow process of back crossing over several generations and years. Today all crosses goes through a process of cell culturing in the laboratory and glasshouse generating pure lines in ►

# Small details. Big improvements.

one years' time. This process enables a fast release of new varieties with improved characteristics to the farmers.

In our laboratory molecular methods allow us to identify several traits of the new varieties before entering the field. Specific DNA markers is used to identify resistance to diseases and pests, as well as quality traits needed to produce bread or beer. DNA extracted from a single leaf, cut from each new variety allow us to study the genes without interfering with the plant development. This technology has nothing to do with genetically modified plants, it is only a method to study the traits of a potential new variety.

Despite the fast evolution of new techniques to identify valuable traits in the laboratory the main work in selecting a new variety still takes place in the field. Every year we plant thousands of field plots at Sejet and several other locations in Denmark and the rest of Europe for each crop. These plots are used to test yield, disease resistance, as well as other important agronomic traits such as straw length, earliness and lodging in different environments.

In parallel to the testing and selection of the best varieties we also multiply the new varieties in order to produce pure seeds stocks for further multiplication at DLG or at foreign partners. After this initial step of multiplication at Sejet a variety needs additional two years of multiplication before enough seeds are produced and can be sold and grown by farmers. Breeding a new and succesful variety is like finding a needle in a haystack. Having 70 years of experience and knowledge we can do this!

At Sejet Plant Breeding we focus on all details, even those that are invisible to the naked eye.

## FACTS



### Breeding programmes

- WINTER WHEAT for feed and bread
- SPRING WHEAT for feed and bread
- SPRING BARLEY for feed and malt
- WINTER BARLEY for feed and malt
- TRITICALE for feed
- FABA BEANS for feed and food

## FACTS



### "A needle in a haystack"

- Approx. 20,000 new lines in both barley and wheat every year.
- Approx. 100,000 field plots – big and small – every year.
- Every year there is a very strict selection of new varieties – only one tenth continues to next year.
- Every year about 10 varieties per crop is applied to official testing in Denmark and other European countries.
- At the very end only one to two varieties per species becomes a market success each year.