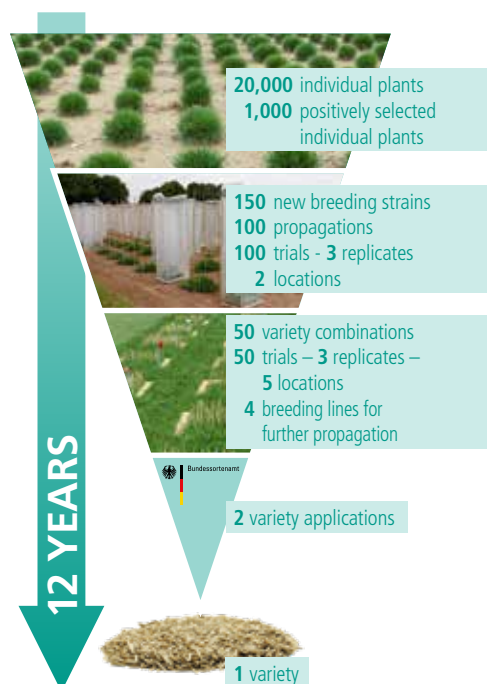


LOOKING BEHIND A GRASS BREEDER'S SCENCES

What is behind the work in grass breeding? What routes and tests does the grass seed have to go through before it reaches the farmer and can be sown?

Not only in crop breeding there is constant breeding progress, but also in grass breeding much has been achieved. In grasses, breeding activities focus on biomass yield, digestibility, health and persistence. Such breeding advances improve forage quality and thus also milk production, making an important contribution to the profitability of dairy farms. In this article, Franziska Krempel, product manager for forage grasses at Deutsche Saatveredelung AG (DSV), describes how complex and lengthy the breeding and production processes for grass seed are.

FIG. 1: IT TAKES UP TO 12 YEARS TO DEVELOP A NEW VARIETY



A passion for grass breeding

This year, DSV is celebrating its 100th anniversary. Even then it was clear that high-quality forage could only be produced with high-quality seed. So DSV devoted itself with great passion to the production and later the breeding of forage grasses.

Today, DSV cultivates more than a dozen different grass and legume species for forage production. This is done at seed breeding stations in Germany, the Netherlands, France and England. Selected variety candidates are also tested for their performance at other international locations. The breeding process takes up to 12 years, depending on the species. Both the most modern breeding and working methods as well as the classic and labour-intensive manual work are used. About 30 % of DSV employees work in breeding. Five breeders alone are mainly responsible for forage grasses and legumes.

The breeding objectives for forage plants are manifold: particularly important are biomass yield, forage quality, persistence, sward density and resistance to diseases such as rust, as well as seed yield. On the basis of comprehensive, internal results from observation and performance tests, only the best variety candidates are selected and submitted for registration with the Federal Plant Variety Office and/or the national approval authorities of other countries.

Variety approval: a long way

The approval of newly bred varieties is the responsibility of the Federal Plant Variety Office and is carried out in accordance with the Seed Act (in German: Saatgutverkehrsgesetz, SaatG). A prerequisite for approval is the passing of the usually two-year DUS test, which checks the **D**istinctness, **U**niformity and **S**tability of the variety. Furthermore, a new variety must pass the two- to three-year VCU test, proving its agricultural value for cultivation and use. For this purpose, the new variety must achieve an improvement for plant cultivation in one of the value-determining properties compared to the reference varieties. If the variety is not approved, it may not be produced and marketed.

Regional variety trials: How is the regional suitability?

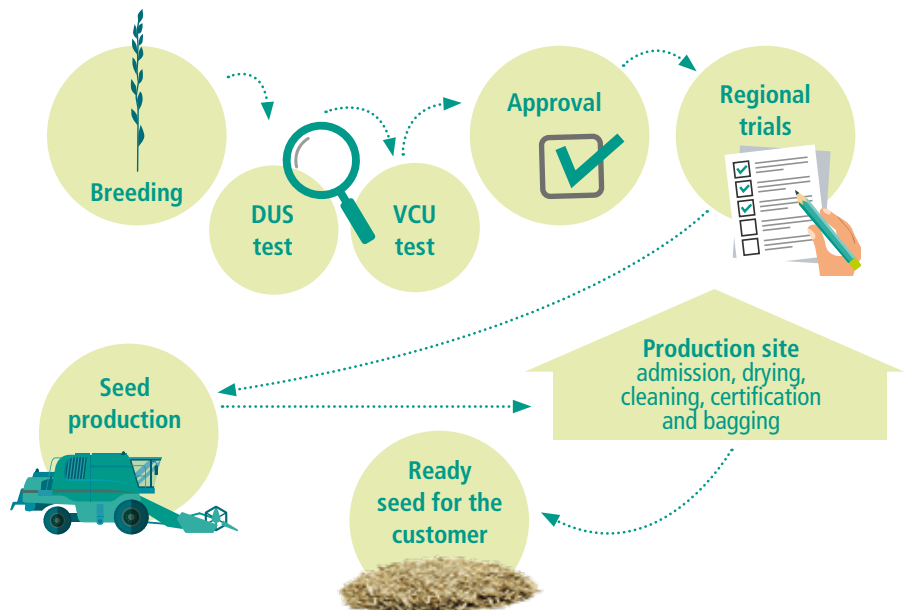
Following the evaluation tests in Germany, the newly approved varieties can be included in the three-year-regional variety trials by the departments of the federal states. The results of these trials then allow further conclusions to be drawn about the suitability of the varieties for certain regions and result in regional recommendations that serve as a guide for farmers in their choice of varieties.

Versatile variety portfolio

Based on the approval and regional recommendation results, DSV decides whether or not to include the variety in the sales portfolio. There are various decision points. For example, should the variety be marketed as a

OUR FORAGE CROPS:

- Perennial ryegrass
- Annual ryegrass
- Italian ryegrass
- Hybrid ryegrass
- Meadow fescue
- Cocksfoot
- Timothy
- Kentucky bluegrass
- Red fescue
- Tall fescue
- Festulolium
- Red clover
- White clover
- Lucerne
- Crimson clover

FIG. 2: THE PATH OF THE SEED

single component or as a high-quality component in the COUNTRY forage mixture programme? In addition, it is decided whether and in which international markets the variety has marketing potential and should be registered. DSV currently has almost 200 varieties in its portfolio across the various forage grass and forage legume species in order to be able to meet all market and utilisation requirements of farmers in Germany as well as internationally.

Seed production of 50,000 t

Once a variety has been approved and is to be included in the sales portfolio, seed production is started. This means that the few kilos of breeder seed that are initially available are multiplied over three cultivation phases into pre-basic and basic seed and finally into certified seed. Seed production is carried out with contract farmers, mainly in Denmark, Germany, the Netherlands and Poland. In Germany, there are around 800 farms, which are supported by a specialised cultivation advisory team. DSV produces about 50,000 tonnes of forage grass, turf grass, clover and intercrop seed annually. The seed yield varies greatly depending on the type of grass or legume and is roughly between 500 and 2,000 kg/ha depending on the type.

Seed processing

DSV has its own production facilities in Germany, Denmark and the Netherlands. The seed arrives there, is picked up, dried if necessary, cleaned, graded and then processed

into marketable goods. A prerequisite for the certification of the seed is a high genetic and technical purity with high germination capacities – official threshold values are the basis for this seed testing.

For small-grained forage legumes (clover and lucerne), DSV offers the innovative DSV seed treatment “DynaSeed LegumeMaxx” in the COUNTRY forage mixtures. It promotes plant development and nodulation. The tailored formula is produced in a special machine and the seed is treated with it.

To produce high-quality mixtures, DSV’s production facilities also have modern mixing and packaging equipment. Thus, more than 6,000 tonnes of forage mixtures are produced in Germany every year.

The combination of mixtures requires a lot of experience

As an experienced grass breeder, DSV not only continuously develops plant genetics, but also combines the high-quality grass and legume varieties into customised mixtures. DSV’s COUNTRY forage programme contains more than 60 quality mixtures for conventional and organic farming. The species and variety compositions are adapted to the most diverse usage requirements and site requirements in Germany. The intelli-

gent combination of the right species and the use of officially recommended varieties makes it possible to produce site-adapted quality forage with a high nutritional value and thus achieve better added value. In order to achieve the best possible results in terms of seed selection and crop management, DSV advisors will be happy to visit you on your farm and offer you free grassland advice.

The finished bag of seed that finally arrives at your farm has come a long way: from the start of individual plant selection, through plot trials, the approval and production processes of an individual variety, to the sale and sowing of the mixture, up to 18 years can pass!

**MORE ABOUT THE
COUNTRY FORAGE
MIXTURE PROGRAMME**



**Franziska Kremper
Lippstadt**
Fon +49 2941 296 369

