

Worldwide seed production



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A global business dedicated to nature

Seed production is an essential pillar of Feldsaaten Freudenberger. Grass and forage grasses, clovers, rapeseeds, various fodder plants and catch crop seeds are currently cultivated on approx. 35,000 ha worldwide for the company. Freudenberger has registered 160 varieties with the Plant Variety Protection Office. It is thus in a position to offer the right variety for every requirement and every application area. This broad range is maintained by working with reputable growers around the world and by having access to a huge gene pool. The high

approval rate at the Plant Variety Protection Office confirms that this is the right approach. The aim of seed production is to fulfil the public service obligation and to provide the consumer with seeds that are perfect from both genetic and technical points of view.

This is done by having preliminary seeds, foundation seeds and certified seeds grown by specialised seed production companies based mainly in Europe, as well as in North and South America, Canada and New Zealand.

The Lower Rhenish company maintains close contact with these highly qualified growers. Each area is individually looked after for optimum yield and quality in cooperation with Feldsaaten Freudenberger's seed production technicians and agricultural engineers using advanced crop technology. The seed produced under the strictest quality criteria is then processed and certified at the production companies.

In order to remain competitive, good seed carriers, alongside other genetic characteristics, are a "must". This is because the profitability of seed production is compared to the contribution margins of competing crops. The seed production areas have to be located in different places around the world. This is essential for reasons of risk diversification. Uncertain factors such as weather conditions, costs and yield security are therefore diversified. In the case of crop failure due to climatic influences, the company can compensate for the loss of income through so-called intermediate seed production in the Southern Hemisphere (New Zealand). For Feldsaaten Freudenberger, seed production transactions mean a price and volume commitment over a longer period. These are sometimes highly speculative, because there are no guaranteed prices for the products.

Furthermore, structural changes in agriculture and agricultural policy frameworks (subsidies, greening regulations, area aid, etc.) must be taken into account when preparing seed production forecasts. Precise flow control in production is a major challenge, because the "workshop" is nature itself and there are no templates. The current decline in the prices of grain, maize and oilseed crops has again created a major incentive to sow grass and clover seeds. Therefore, corresponding areas will be available for harvesting in 2017 and 2018 at a relatively high price level.



Achim Sprengel in a red fescue seed production area in Oderbruch (Germany)

The world is our field

Seed production in over 40 countries





Flowering red fescue (Sweden)

Red fescue (*Festuca rubra*)

Sun and wind are required to propagate this seed. Sun is necessary because the stocks must not remain humid for too long; otherwise they may become infected by fungi. Wind is needed for good pollination of stocks. There are two different production systems around the world. On the one hand, there are high-yielding crops that are cultivated mainly on the coasts of Denmark and Sweden. Here, red fescue must compete with beet in rotation. Due to the natural advantages of these locations, yields of 3,000 kg/ha are the rule rather than the exception.

Another system, like the one here in Oderbruch, is growing pure cleaning crops on difficult soils with lower yields and lower input.

In this case, red fescue is often the last link in the crop rotation. Its main tasks are to develop humus, keep erosion in check and form a stable and powerful soil structure with strong root growth that helps the succeeding crop to achieve maximum yields.

White clover (*Trifolium repens*)

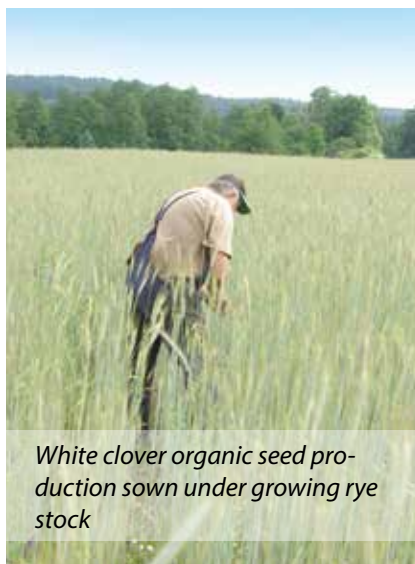
As a legume, white clover is perfect for seed production in organic farming. But there are a few tricks and subtleties that the grower - in this case, Mr. Skibba from Neustadt an der Orla in Thuringia - must take into account. Mr. Skibba favours sowing a white clover seed base under growing rye. This is usually done in a single operation during mechanical weed control in the spring. White clover leads a

shadowy existence under the protection of rye, which allows it to slowly but surely develop its extensive root system. With the help of its symbiosis with rhizobia, white clover can produce initial small amounts of nitrogen, which rye uses to fill its grain. The work has to move quickly after harvesting! It is extremely important that straw swaths are not left lying on the clover for long, suffocating it.

The biggest challenge in organic clover growing is to produce an ideally weed-free stock. This is the only way to produce top seed. Mr. Skibba collects the first harvest and presses it into bales. He then sells them to nearby organic farms with livestock. The seeds are then ripened for the second harvest. If there are many seed weeds in the stock during flowering, Mr. Skibba "skims" the stocks with a 6m-wide cutter bar, which he has designed specifically for this purpose, in order to "decapitate" thistles, docks and sorrels.

Red clover (*Trifolium pratense*)

Production on the other side of the world. Sometimes crops behave very differently than one might think. When the Feldsaaten Freudenberger



White clover organic seed production sown under growing rye stock

varieties are brought to Chile for example, they react quite differently to cultivation measures. In one case, the ELANUS variety responded to a small initial dose of nitrogen in an exaggerated way and formed an excessive amount of mass. A dose of growth

regulator was able to restrain the clover so that it could flower. Targeted doses of potassium, molybdenum and boron have thus ensured excellent seed formation.

In Chile, particular attention must be paid to clover seed weevil (*Apion apricans*) infestation. This is an insect that bites at the base of calyxes to get to the nectar, making them sterile.



René Freudenberger communicating with growers in Temuco/Chile.

Meadow fescue (*Festuca pratensis*)

Meadow fescue does not care if it is cold, as long as it has a full belly. This is to say that Freudenberger varieties such as PARDUS usually propagate on good, fertile soil with a certain depth and good water retention ability, as is the case at the grower, AG Burkhardtswalde.

The special feature is that meadow fescue can tolerate late frosts relatively well. Moreover, it ripens early, so that it completes flowering and grain filling before the negative consequences of a spring drought can be felt. This is why, in Germany, meadow fescue is cultivated mostly in the Rhön Mountains and in the rain shadow of the Harz.

Yellow mustard (*Sinapis alba*)

A yellow carpet stretching all the way to the horizon. This is how RUMBA white mustard propagates. The image shows an area of black soil between the Carpathian Mountains and the Black Sea. Some years, Freudenberger uses the early harvesting areas around the Black Sea.



Achim Sprengel during stock control of meadow fescue in full blossom (at the foot of the Ore Mountains)

The harvest there is usually in early July. This makes it possible to provide the farmers with seed at the beginning of August despite preparation and the lengthy certification process.

**Perennial ryegrass
(*Lolium perenne*)**

Preliminary production

A lot of time and money is invested in the development of new varieties, such as the new ADAGIO grass variety, at the grower Grootes in Neuhar-



On-site in Neuharlingersiel (Germany): Peter Krog-Meyer discusses crop management with the growers.



Bernhard Kaffill on a white mustard seed production field in Romania

lingersiel (East Frisia). Because it is often the case that only very small amounts of starting seeds are available, every agronomic measure here must be well thought out. Spraying accidents could spell death for an entire variety and thus the inglorious end to 10 years of breeding work. Therefore, in the case of such special propagations, it

is absolutely necessary to maintain close contact with the farmers in order to coordinate all actions. Care must be taken to ensure control of plant stocks that differ from the usual variety - so-called "off types". These are removed from the stock before flowering either by pulling or using a rope wick applicator.