



WHEAT

**SAATEN-UNION hybrid cereals.**

**The Future of Crop Farming.**

[www.saaten-union.de](http://www.saaten-union.de)

**SAATEN  
UNION**  
*Züchtung ist Zukunft*



## SU hybrid cereals. For consistently higher and more stable yields.

SAATEN-UNION is now intensifying and concentrating all their international hybrid cereal activities under the name HySEED so that in future even better performing hybrid varieties of rye, wheat, barley and triticale can be offered. SAATEN-UNION is the only plant breeding business with hybrid competence in all four winter cereals. This is based on long-term experience, intensive research and development, reliable seed production and thorough quality management. For years the hybrid competence has already been part of the international sales activities of SAATEN-UNION. It is used over all crop types generating synergetic effects. The advantage for practical farming: High quality seed, high performing varieties and adapted

cultivation technologies for higher and more stable cereal yields.

### Hybrid rye – yield leader

In the mid-80s, the start was made with hybrid rye. Thanks to the foundation work of the University Hohenheim the breeders have a very reliable genetic sterilisation concept for rye at hand. By now hybrid varieties yield about 15 to 20 % more compared to conventional varieties.

SAATEN-UNION is with their yield leading hybrid rye varieties of its seed breeding company HYBRO Saatzucht one of the two market leaders in Germany and Europe.

### Sole supplier of hybrid wheat

In the mid-90s the first variety was approved in France. At the end of the 90s HYBNOS 1 was the first hybrid wheat variety listed in Germany. Since 2005 SAATEN-UNION Recherche has been the sole copyright holder for the gametocide Croisor 100, which is used for the chemical sterilisation in the hybrid seed wheat production.

All hybrid wheat varieties on offer are based on the production technology of SAATEN-UNION. Since the first variety approval hybrid wheat has been cultivated on several million hectares throughout Europe – a European success story.

### Hybrid barley before market launch, hybrid triticale in pre-testing

Hybrid barley is being developed by breeders of the SAATEN-UNION group in two breeding programmes of which one takes place in Germany and one in France. In

December 2017, SU HEDY was the first hybrid barley variety from the breeding station of the SAATEN-UNION group in Austria that got listed.

In various countries throughout Europe more hybrids are in statutory testing. Their approval is expected within the next few years. From the breeding programme for hybrid triticale of the Nordsaat Saatzucht-gesellschaft high performance candidates of the internal pre-tests are close to registration for statutory testing. Thus, in medium-term hybrid triticale varieties can also be expected from the SAATEN-UNION.

In future the hybrid breeding progress is going to be accelerated even quicker as more and more breeders invest more intensively into cereal hybrid breeding. Their advantages for practical farming will keep increasing, their share of cultivation will constantly rise and thus the farmer will benefit even more.



## SU hybrid cereals. The strength comes from the root.

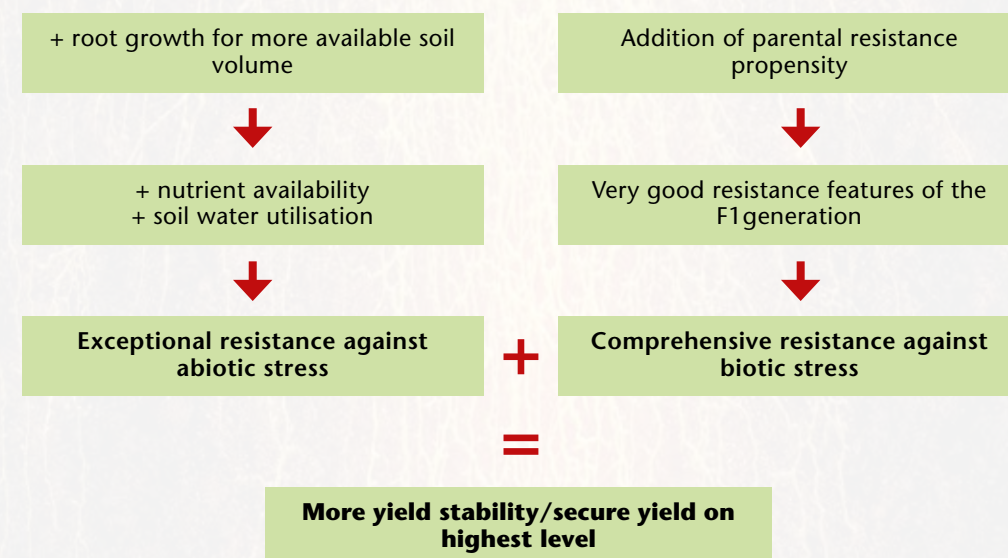
Especially on sites prone to stress and under growing conditions which are sub-optimal for conventional varieties, hybrid cereals have proven to be the more efficient, higher yielding and in particular the more yield stable crop.

As more difficult the crop cultivation conditions as higher the yield advantage. This is especially applicable in the case

of unfavourable weather and soil conditions, unfavourable preceding crops, limited nutrient supply and high disease pressure.

The advantage of hybrids derive mainly from their special hybrid vigour, which results in better roots, stronger tillering and leaf development as well as a better stress compensation capability.

**The objective: Maximum productivity at comprehensive resistances to biotic and abiotic stress factors**

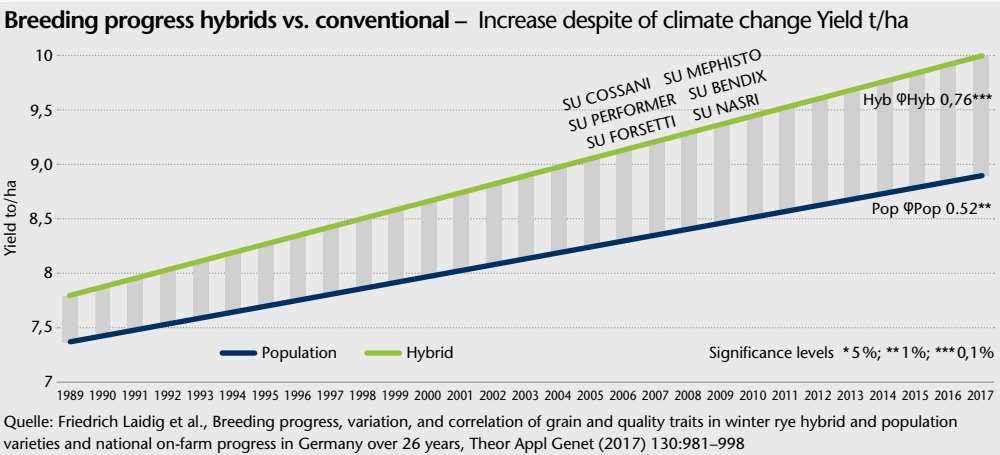




# SU hybrid rye. Yield leader throughout Europe.

The SAATEN-UNION varieties deliver high and stable yields on over 280,000 ha Europe-wide. Thanks to hybrid breeding the breeding company HYBRO could enhance the breeding progress without losses in quality or disease susceptibility. In contrary: The varieties were improved in regard to leaf healthiness and have a better sprouting resistance.

Comparing hybrid and conventional rye shows clearly the increasing yield advantage of hybrids over the last 27 years (see figure). Equally clear is the yield stability compared to varieties, which have been available so far, on less favourable sites typical within conventional rye cultivation regions. Especially in rye cultivation, breeding new high yielding varieties influences yield, efficiency and feasibility the most.



### More yield, more flexibility

Hybrid rye yield potential is superior to 2nd wheat on marginal land. Therefore, today and in future cultivating hybrid rye offers

valuable approaches in order to increase agrobiodiversity. The same applies to wholecrop silage. In regard to its biomass production hybrid rye plays an important role to extend crop diversity of crop rotations with energy crops. The dual-purpose varieties of SAATEN-UNION guarantee a high flexibility if during the growing season the crop use has to be changed from wholecrop to grain and vice versa.

### Maximum water and nutrient efficiency

Thanks to the quick juvenile development hybrid rye is able to use soil moisture still present in spring particularly well for its biomass growth. Furthermore, hybrid rye is the most efficient type of cereal by far, which achieves the highest yield under limited water resources and nutrient supply.

The data of the Bundessortenamt (Federal Plant Variety Office) proves that the variety SU BENDIX is not only the most nitrogen

efficient variety but it is also particularly yield stable. In future, due to its enormous investments into hybrid breeding, SAATEN-UNION will continue to drive the breeding progress forward and hence be able to launch even higher yielding hybrid varieties.

### SU PERFORMER

- Over several years the highest yielding hybrid rye in Germany
- Vigorous, disease resistant and excellent Hagberg falling number stability

### SU COSSANI

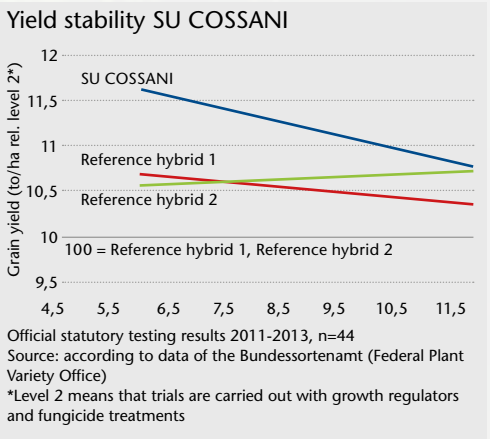
- Stable yield, especially in dry years, when every ton counts
- Balanced quality profile as baking and feed rye

### SU FORSETTI

- Flexible and yield reliable
- Good standing power with high vigour

### SU BENDIX

- Resource friendly – low input, high output
- Good standing power and very drought tolerant



The up to date most successful varieties of SAATEN-UNION are:

### N efficiency of winter rye varieties

adapted of the classification by the Bundessortenamt (Federal Plant Variety Office)

Level 2*	Descriptive list (DL) classification		Adapted from the DL classification*				
	Yield	RAW protein	Yield	RAW protein	Protein yield	Grain N yield	N efficiency**
	DL score	DL score	to/ha	% TM	to/ha	kg/ha	%
*Level 2 means that trials are carried out with growth regulators and fungicide treatments							
SU BENDIX	8	6	8,4	10	0,712	114	81,3
SU COSSANI	8	5	8,4	10	0,686	110	78,4
SU FORSETTI	8	5	8,4	10	0,686	110	78,4
SU NASRI	8	5	8,4	10	0,686	110	78,4
SU PERFORMER	9	4	8,7	9	0,684	110	78,2
KWS Bono	7	5	8,1	10	0,662	106	75,6
SU MEPHISTO	8	4	8,4	9	0,661	106	75,5
KWS Daniello	8	4	8,4	9	0,661	106	75,5
KWS Binnitto	8	4	8,4	9	0,661	106	75,5
KWS Dolaro	8	4	8,4	9	0,661	106	75,5
KWS Gatano	8	3	8,4	9	0,635	102	72,6
KWS Eterno	8	3	8,4	9	0,635	102	72,6
Palazzo	7	3	8,1	9	0,613	98	70,0
Dukato	3	5	6,9	10	0,564	90	64,4

\* With regard to mean values of 0.75 t/ha and 9.5 % crude protein content, respectively (DL score = 5)  
Classification varies between 4.0 or 3.7 % in the DL classification,  
\*\* N availability limited to 140 kg/ha



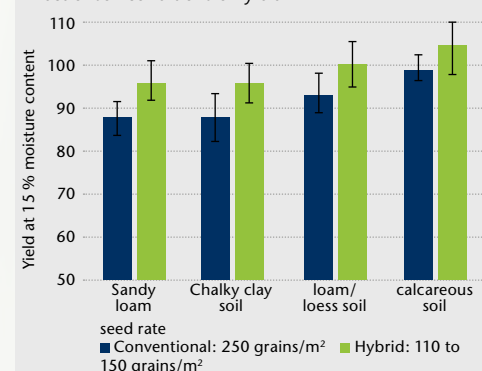
## SU hybrid wheat. Exceptionally efficient under stress conditions.

The success story of hybrid wheat begins in the mid-90s. Since then over three million hectares of hybrid wheat have been drilled in Europe. Thanks to the breeding programmes of SAATEN-UNION RECHERCHE in France and Nordsaat Saatzucht in Germany, SAATEN-UNION has been able to offer more than 40 hybrid wheat varieties on the European market. And the success keeps proceeding: Currently another 22 hybrids are awaiting their approval in Germany and France.

### Steady breeding progress

Breeding objectives of SAATEN-UNION are strong, high yielding varieties with excellent resistances and superb grain quality. The SAATEN-UNION is able with a unique and exclusive process to breed

Grain yield hybrid wheat/conventional  
Effect of soil conditions on yield



Source: SU Recherche

new hybrid wheat varieties year after year, which show under stress conditions an increasing yield advantage (+ 8 up to 10 %) compared to conventional varieties. Thus, SAATEN-UNION is upfront

both in regard to breeding technology as well as the hybrid wheat varieties on offer. By the way, since the year 2017 also the first time with A-wheat\* quality (Group 1). Even in the case of higher disease pressure after unfavourable preceding crops, like 2nd wheat or following maize, hybrids show their advantages contrary to conventional varieties thanks to their comparatively higher vigour.

### Growing market Europe

Due to this expertise and experience in breeding and seed production SAATEN-UNION is the sole supplier of hybrid wheat in Europe. In certain countries hybrid wheat is still a market niche. However, many farmers in various countries already make use of the advantages which hybrids offer.

In the years ahead this market will clearly grow with more varieties developed through the programme of SAATEN-UNION breeders.

### Hybrid wheat 2.0

In the year 2017 the approval of the first hybrid variety with A-quality (Group 1) HYVENTO – marked the beginning of a new even better performing hybrid wheat generation followed by the varieties HYMALAYA and HYENA.

The currently newest varieties of the SAATEN-UNION are:

#### HYVENTO A

##### Highest yielding A-wheat (Group 1)

Excellent nutrient efficiency thanks to a very good root performance

#### HYMALAYA B

##### Highest yielding B-wheat (Group 2)

Extremely flexible and very high yielding hybrid wheat with low fungicide need

#### HYENA C

##### Highest yielding C-wheat (Group 4)

Unbeatable in drought prone areas

\* Wheat classification in Germany equivalent in U.K. nabim Group





## SU hybrid barley. The future inside!

In the past years, hybrid breeding has shown in many agricultural crops a clear breeding progress. In barley, hybrids have also similar advantages compared to conventional varieties. The higher vigour of hybrids leads to enhanced tillering above ground and underground to a better root development. Both together results in

- **higher stress resistance**
- **better nutrient efficiency**
- **improved yield stability**

December 2017 in Austria, SU HEDY was the first listed hybrid barley variety of the SAATEN-UNION group.

### **Various advantages**

Due to better tillering the seed rate of hybrids can be clearly reduced compared to conventional varieties. According to first experiences, because of its higher vigour the advantages of hybrid barley can mainly be seen at late drilling and in less favourable cultivation circumstances.

Owing to the hybrids improved nutrient efficiency combined with an adjusted cultivation system, in future hybrid barley will also achieve additional yields on high yielding sites.



## HySeed. Highest quality from breeding to sowing.

One of the strengths of the HYSEED specialists of SAATEN-UNION is breeding innovative hybrid cereal varieties. The other is the ability to produce seed according to the highest quality standards and to provide it reliably throughout Europe. Quality and reliability are required for the success of the low seed rate system used for growing hybrid cereals. With great experience, a "total quality management system" and excellent partners SAATEN-UNION ensures seed quality and availability from breeding to sowing.

1. Multiplication and production for the whole of Europe is centrally organised and supervised by the breeder.
2. All seed batches are tested for their genetic authenticity and can be retraced completely.
3. The breeder provides all the latest quality data in regard to purity, thousand grain weights, germination capacity and vigour throughout all seed production steps.
4. All specialised certified seed growers are chosen according to the highest quality standards. They are long-term partners.
5. All seed producing and processing sites are linked to the breeder centrally.
6. Crop inspections are carried out by the breeder's employees.
7. All processing plants are equipped with

the most modern dust extracting, cleaning and sorting technology certified by independent experts.

8. Treatments with premium quality fungicides and seed treatments as well as micro nutrients are carried out highly accurate and computerised.
9. The certified seed is packed in units according to seed numbers and in the case of hybrid rye even according to germinable seeds.
10. Supply security is ensured by a strategically, optimal distribution of processing plants.



Processing plant of HYBRO in Kleptow

## HySeed. More precision. More efficiency.

The decision to grow hybrids is at the same time a decision for a modern cultivation system. Cultivating hybrid cereals means to emphasise on the individual plant.

### Reduced seed rate

Only if the individual plant performance is increased reduced seed rates are possible. Furthermore, lower seed rates combined to higher yields and better yield security are able to compensate seed costs. The economic optimum for hybrid barley and wheat is 30 to 50 % under the one of conventional varieties. In regard to hybrid rye it is about 20 %. Reduced seed rates make accurate drilling with good seed spacing and placement worthwhile.

### Adjusted sowing dates

Looking at sowing dates it has to be differentiated. Especially hybrid barley is recommended for late sowing and also rye can cope well with later sowing dates. However, a timely sowing date is recommended for hybrid wheat in order to ensure an optimal individual plant development on less favourable sites.

### Seed treatment more economical

Especially, lower seed rates enable an efficient use of seed treatments with fungicides. In the case of hybrid wheat extra costs, for example for a take-all seed treatment, are

halved. Early and thinly drilled cereal crops are at a higher risk of aphid infestation. Therefore, an insecticide treatment in the autumn should be considered depending on infestation level. In particular for hybrid wheat it is often feasible.

### Sufficient and timely N application

Hybrid vigour in combination with a lower seed rate and early drilling results in a more vigorous, better tillering individual plant.

The danger of an excessive tiller density is low so that the N starter application can be applied sufficiently and the timing be focused on the tillers. Also the application at stem elongation should be carried out earlier.

Further cultivation decisions are made in regard to crop development depending on weather conditions and variety characteristics.

Cultivation intensity is basically not higher but has to be adjusted to the higher yield expectations of hybrids. In the case of cross-pollinated rye it has to be taken into account that hybrids react more specific on treatments. For example, because the individual plants are closer related to each other the application of plant growth regulators has a more intensive effect compared to conventional varieties.



## 15 years of practical experience with **SU hybrid wheat.**

Matthias Hecker, Gut Paetschow near Anklam (Mecklenburg-Western Pomerania): "In the years 2002/2003 I took notice of hybrid wheat for the first time because it was recommended for marginal land and I am cultivating fields with less than 32 soil points." Matthias Hecker observed differences between conventional and hybrid wheat: "Hybrid varieties can cope much better with low rainfall levels than conventional wheat. However, still need a better water supply than rye. Hybrid wheat profits from its deep rooting system which can quickly reach the ground water at approx. 2.5 meters."

Over the years Hecker has approached up to 85 germinable seeds/m<sup>2</sup> in order to reduce the clearly higher seed costs of hybrid wheat.

In general seed rates of conventional wheat drilled in September range between 170 – 240 germinable seeds/m<sup>2</sup> depending on the soil type. As lower the seed rate as more important becomes every individual plant and its optimal

development. Plant losses and growth depressions cannot be afforded.

An even seed placement is extremely important so that every plant has sufficient space for its optimal development. Another difference in crop management is the use of growth regulators. Here applies: less, careful, often.



Matthias Hecker with hybrid wheat (left) and conventional wheat (right, drilled 7 days later)

For the complete article please refer to [www.praxisnah.de/201733](http://www.praxisnah.de/201733)

## **SU hybrid rye.** Several years premium.

Production manager Sebastian Herbst, agricultural cooperative Feldheim, also counts on high performance hybrid rye on his light land.

"I prefer vigorously tillering varieties, which produce many ears/m<sup>2</sup> and never-the-less achieve a high TGW. Those types of varieties are better able to transform low rainfall into yield and still yield up to 8 t/ha on those sites. Under drought conditions they have the possibility to reduce tillers." For Holger Meier from Kirchlinteln



Sebastian Herbst

yield is neither the sole argument for choosing a variety: "Of course, I keep an overall eye on limiting the production risk but I am open for new varieties. My variety portfolio is always a mixture of long-

standing varieties and newly listed ones. Like that I can make quickly use of breeding progress but my risk is limited. Apart from that I prefer varieties with a 10 % conventional rye admixture. This does not decrease the yield but secures a longer, better flowering and less ergot. Of course, the yield potential is very important. However, the variety has to have a good standing power and be able to get going in spring. Overall we have sufficient rainfall but quite often not enough rain in the spring. Therefore, I have to apply the starter N application as long as there is still moisture in the ground. As more vigorous a variety is at this stage the better the uptake of the early nitrogen and the transformation into yield."



Sales adviser Winfried Meyer-Coors (l) and Holger Meier

For the complete article please refer to [www.praxisnah.de/201437](http://www.praxisnah.de/201437)



# HySeed Breeding and testing sites.

## Hybrid rye

On 16 international sites SAATEN-UNION breeds, selects, tests and produces hybrid rye, amongst other in Kleptow, Wulfsrode and many other German sites as well as in Poland, Russia, France, Italy and Hungary.

Seed processing takes place on ten sites with breeding partners and selected production companies in Germany.

## Hybrid wheat

Yearly 5,200 experimental crossings of hybrid wheat are selected, tested and produced on 26 international sites. Deriving from a base of approx. 1,700 paternal and maternal lines in total. For the upcoming years several candidates are in the approval process.

## Hybrid barley

8 hybrids are in official registration trial in six different countries in Europe.



**Level of information in April 2018.** All variety descriptions are according to one's best knowledge under consideration of trial results and observations. No warranty or liability can be assumed for applying in an individual case as growth conditions are subjected to considerable fluctuations.

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