

TIPS FROM THE PRACTITIONER: FORMING WHEAT CULTIVATION

In theory, almost everything is known about growing high-yielding wheat - it's just that in practice, it doesn't quite work on one or two fields. Agriculture can not be taken for granted and presents us with new challenges in production technology every year. Hajo Haake, sales consultant at Deutsche Saatveredelung AG (DSV) and farmer, provides us with practical solutions for wheat cultivation.

To practise successful arable farming, we must first understand the soil system! Soil with a rich soil life is the basis for high-yielding and sustainable agriculture and only healthy soil produces healthy crops. Due to these complex interrelationships, not just one nutrient should be considered separately in cultivation and the „yield cards should be fed“ on this nutrient alone.

Understanding the mineralisation of the site

Soil analysis methods are important tools for understanding the processes in the soil and for planning the measures to be taken. Determining the C/N ratio can be very helpful in understanding and evaluating the mineralisation of your own site. The interaction of nutrients and the CAC should also be analysed more closely. In particular, sites that have been exclusively fertilised with minerals over a long period of time often have gaps in the micronutrient supply and there are often considerable imbalances in the nutrient ratios.

The weather often shows the practitioner an imbalance of nutrients in the soil. This was frequently observed last autumn and winter after the high levels of precipitation due to excessively heavy silting. Humus-poor, silt-rich clay soils are often prone to this. Very often an unsuitable ratio of cations can be seen for the site: Ca and Mg deficiency, K and Na excess (see Fig. 2). In such a year, the areas that are often prone to siltation present the practitioner with major challenges in crop management.



Take a look at Hajo Haake's webinar on wheat cultivation here:



Courage for crop rotation

Farms that ignored the „crop rotation“ tool in the 1990s and early 2000s, some of which had up to 70% winter wheat in cultivation, experienced problems due to early sowing dates up to mid-September - problems in the form of foot diseases such as blackleg or black foxtail. The control of black foxtail in particular has prevented us from „carrying on like this“. This is precisely why a consistent change of crop and active ingredient is essential. The following tips will help you to implement this:

- Avoid stubble wheat, otherwise use a cover crop without cereals - the TerraLife®-N-Fixx mixture is suitable here
- An alternation of stem and leaf crops as well as summer and winter sowing or alternatively the use of cover crops, undersown crops or companion crops



Fig. 1: Good soil structure:



Fig.2: Poor soil structure

Due to a possible nutrient imbalance and less organic matter in the soil, the area in Fig. 2 has a much greater tendency to silt up

Being curious and trying things out can pay off! It should always be kept in mind that a companion crop does not initially appear to contribute a direct profit (€) to the operating result like the main crop. However, in the long term, it can help the main crop to increase its contribution to the operating result.

Adapted variety selection

Each year places different demands on the choice of variety. In 2023, characteristics such as falling number stability, sprouting resistance, hectolitre weight and stability were required. In previous years, crude protein content, winter hardiness, drought tolerance and resistance to yellow rust or ear fusarium, for example, were important.

With ever-changing demands on the variety, you should not simply choose the „last season’s top yielder“. Rather, you should look at the characteristics of the varieties in advance and ask yourself whether they are suitable for your own location, crop rotation, marketing objectives and maturity in the crop rotation. When choosing early wheat varieties, there is the possibility of obtaining valuable and productive vegetation time for greening due to the early maturity. The COMPLICE variety and then a legume-rich cover crop, such as TerraLife®- N-Fixx, are ideal here. These early wheat varieties are also ideal as a preceding crop before oilseed rape. There is usually enough time for stubble cultivation and straw rotting, especially in ploughless cultivation systems.

Fertilisation: The right technique

When choosing a fertiliser technology, it should be noted that it is often too windy for a centrifugal spreader when fertilising in spring. Fertilising with a special liquid fertiliser nozzle or with drag hoses would be advantageous in such cases. Even if the centrifugal broadcaster could theoretically spread the fertiliser well over 27 or even 36 m, in practice it can often be seen that strips develop more frequently on fields that are fed with solid fertiliser. This is because the fertiliser is distributed unevenly over the area. The reason for this is a lack of fertiliser quality or technology for the working width. Please note that differences in distribution accuracy, i.e. the above-mentioned stripes, are only visually noticeable at over 15 % of the area!



Fig. 3: A difference in distribution accuracy can be visually recognised from a difference of 15 %. This can then look like this crop - dark areas in the centre between the tramlines and a light-coloured crop directly next to the tramlines.



Fig. 4: This picture shows the comparison of the early varieties „COMPLICE“ (far right) next to two „normal-growing“ varieties and demonstrates why the different vigour of the different varieties, locations and previous crops should be taken into account when planning the use of crop protection! This applies in particular in spring when growth regulation measures are planned.

In spring, applications should be deliberately ammonium- emphasised. Too much available nitrate in the soil quickly leads to weak plant cells, which become susceptible to fungal infections such as mildew. Under unfavourable conditions, this often results in powdery mildew infection before BBCH 31. Early starter varieties such as COMPLICE or DEBIAN should also be supplied with ammonium and sulphur as early as possible but in a restrained manner.

In extremely dry periods, the crops can also be fed via the leaves. Small amounts of 5 to 7 kg/ha N in the form of urea are often helpful here. Farms that work with AHL anyway can also add 20 l/ha of AHL for intraleaf fertilisation. However, in the case of multiple mixtures, especially with hard spray water, it is essential to ensure that the products can be mixed.

Targeted protein fertilisation at milk maturity, e.g. with 15 kg/ha urea in 150 l/ha water, can also provide the perhaps decisive 0.2 to 0.5 % more crude protein in years with a sufficiently long grain filling phase. In addition to nitrogen, sulphur, magnesium, copper, molybdenum, boron and manganese are elementarily important for protein synthesis. These nutrients should be looked at more closely, especially if protein levels are low. Sites that regularly fall short of their potential in terms of yield or the quality of the harvested products should be analysed more closely. A plant analysis during vegetation and a fractionated soil analysis, e.g. at the Unterfrauner technical office, are recommended for this purpose.

If nitrogen is limited, e.g. in red areas, E wheat varieties such as EXSAL are recommended. They can be fertilised with 30 kg N/ha more than other A or B varieties. Even if there is a very low-protein year, they are very likely to produce an attractive bread wheat for marketing.

Crop protection

When planning the use of crop protection, it is essential to consider the temperature, precipitation, humidity and wind! There are very good tools for this, such as the IQ-Plant app, in which the „Spraying weather“ function uses regional weather forecasts to suggest the right date for PSM measures.

Small and large pests

Orange wheat gall midge

This small insect often goes unnoticed in the crops. You should take a close look at the grains and the combine during the wheat harvest. Wherever spilt and broken grains are sorted out, a closer look for the orange larvae is necessary.



It makes sense to consider varieties with resistance to the orange wheat gall midge, such as DEBIAN or EXSAL, on these areas or in the districts. This is integrated crop protection in practice and saves an insecticide measure that may not always be well placed.

Wild boar

On endangered areas, grassed varieties such as COMPLICE or EXSAL should be used. Fig. 5 shows the difference.



Fig. 5: „Wild boar damage“: COMPLICE, unseeded variety, EXSAL (from left to right)

Do not plan the fungicide strategy in January, but use tools such as the IQ-Plant app mentioned above or Proplant and the ISIP (Information System for Integrated Plant Production) during the season. Always combine the electronic helpers with a field check. Zero plots are always helpful here to check the success of the measures or to be able to schedule possible follow-up measures.

Conclusion

There is no one-size-fits-all recipe for successful wheat cultivation. Constantly changing and unpredictable situations require flexible cultivation measures. It is advisable to use tools that make it easier to determine these measures depending on the situation. Plant analysis methods can contribute to a better understanding of the mobilisation of nutrients in the soil. With apps such as IQ-Plant, plant protection in relation to the weather does not have to be left to chance. Varieties should be selected according to the location and current needs. These parameters should be reviewed every year and „tweaked“ if necessary in order to be prepared for all challenges.

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