WINTER BARLEY – AGAIN INCREASINGLY ATTRACTIVE

The cultivation of winter barley plays a subordinate role on many farms. However, economic analyses in recent years have shown that its reputation is often better than expected. It is striking that in recent years in particular, winter barley yields have been higher than wheat yields. So when and where is it worth growing winter barley? This is explained in the following article.

Just from a psychological point of view, barley has a hard time competing within companies with the price gap to wheat as a significant factor. However, it is well known that turnover does not equal profit and the mere comparison of turnover between different crops does not allow any direct conclusions to be drawn about success.

Status quo of winter barley – where do we stand?

Winter barley harvests in Germany have been around 9.5 million tonnes in recent years, with a cultivation area of 1.28 million hectares (2023). For comparison in 2023: Wheat was grown on 2.81 million ha, oilseed rape on 1.16 million ha and silage maize on 1.98 million ha. When considering the cultivation of winter barley, farms are driven by various aspects:

- The price gap between barley and forage wheat fluctuates, but has been only 1–2 €/dt less for many years. In individual years, prices were also close to identical.
- Ploughless tillage continues to increase.
- However, this is particularly challenging when growing barley due to the grasses and the overgrowth.
- Barley is mainly sold as feed barley. The focus here is on livestock-intensive regions.
- Crop rotations on farms are expanding and becoming more diverse.
- For farms that have to (or want to) apply organic fertilisers in autumn, the possibilities have been reduced by the restrictions of the fertiliser regulations. It is no longer possible to apply fertiliser before wheat. However, organic matter can still be applied before oilseed rape, barley and cover crops in autumn. This plays a major role, especially for livestock and biogas farms.
- Pig farmers have the additional advantage of being able to feed their own barley.

Aspects of winter barley to be considered

If stubble wheat is compared as an alternative to winter barley, there are noticeable disadvantages in some years. It is not uncommon for stubble wheat to have a yield deficit of 10-15 dt/ha compared to leaf-fruiting wheat. Similarly, the yield ratios of barley and wheat are not always the same in a given year. This is due to, for example, the occurrence of early summer drought or wet harvest conditions. As part of the crop rotation requirements, oilseed rape should be sowed with more than 3 years between harvests. Taking into account the current guidelines (GAEC 7), the combination of „oilseed rape-wheat-wheat-barley" can represent a practicable, loosened crop rotation. Especially where neither maize nor beet are possible alternatives. Winter barley is also a welcomed crop on many farms in other constellations to fulfil crop rotation requirements. Or also for participation in the programme of diverse crop rotation (at least five crops and 10 %

»As an early maturing crop, winter barley is more drought tolerant than wheat, for example, and spreads out harvest peaks. It is traditionally the perfect preceding crop for the cultivation of winter oilseed rape. With modern varieties, there are also new possibilities for tackling the BYDV issue.«

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legumes). As an early-clearing crop, winter barley is particularly important at high altitudes in order to optimise the sowing of the following crop. In the past, the timely sowing of oilseed rape as a subsequent crop played a greater role. However, in view of the increasingly earlier cereal harvest in recent years and later sowing of oilseed rape (flea problems, etc.), this point is now less important. Last but not least, labour management issues must also be taken into account. With winter barley, work peaks can be spread out and existing technology can be better utilised.

Production cost comparison

Knowing your own farm-specific production costs should be standard practice for every farm. Table 1 shows the average production costs for the main arable crops. These can vary significantly from farm to farm. The area costs are set at € 500/ha.

A leaf crop wheat with an assumed yield level of 85 dt/ha causes production costs of 23 €/dt. Due to the lower yield level of stubble wheat (8 dt/ha below leaf wheat), the production costs of stubble wheat increase to 26 €/dt. Winter barley performs more favourably, costing around €22.6/dt to produce at a yield level of 85 dt/ha. The production costs do not have to be realised exclusively via the market as the area-linked premiums must be taken into account as additional income. For winter barley, this results in a minimum revenue of €20 per tonne, for leaf crop wheat of €20.7 per tonne and for stubble wheat of €23.2 per tonne.

Comparison of contribution margins

In a sober comparison of the yield contributions, barley has got a difficult time at

first but can quickly score over stubble wheat. You should analysing crop rotation as well as such profitability considerations. This includes concretely and as previously shown:

- Pre-crop effects
- Risk distribution (early summer drought, harvest window, etc.)
- Work peak distribution, utilisation of machines, etc.
- Yield effects compared to alternative crops

This contribution margin includes public direct payments and takes into account all special and labour costs. The highest contribution margins are still achieved with sugar beet, followed by oilseed rape, wheat, maize and barley (see Table 2). Barley can only compete with stubble wheat. With a yield difference of 8 dt/ha between stubble wheat and barley, the contribution margin amounts to 473 €/ha (barley) or 453 €/ha (stubble wheat).

For the event that the stubble wheat cannot be marketed as B wheat, but only as forage wheat, the advantage of winter barley increases by around €140/ha.

Previous crop effects and the loosening of the crop rotation are difficult to calculate across the board. However, it can always be observed that, for example, a 4-year oilseed rape crop achieves higher yields

TAB. 1: PRODUCTION COSTS OF THE INDIVIDUAL CROPS

	Harvest year 2024	Leaf fruit wheat	Stubble wheat	Winter barley	Winter oilseed rape	Beetroot	Energy maize
	Yield level	85 dt/ha €/dt	77dt/ha €/dt	85 dt/ha €/dt	40 dt/ha €/dt	750 dt/ha €/dt	450 dt/ha €/dt
Direct costs	in total	7.6	8.6	7.0	17.1	1.5	1.3
- of which:	- Seeds	0.9	0.9	0.8	3.0	0.4	0.5
	- Fertiliser	3.1	3.3	2.9	7.0	0.5	0.4
	- Plant protection	2.1	2.9	2.0	5.1	0.5	0.2
Labour costs		8.3	9.3	8.3	17.7	1.2	1.2
Building costs		0.6	0.6	0.6	1.2	0.1	0.1
Area costs		5.9	6.5	5.9	12.5	0.7	1.1
Other costs		0.9	0.9	0.9	1.8	0.1	0.2
Total costs		**23.2**	**26.0**	**22.6**	**50.3**	**3.5**	**3.8**
- Direct payments		2.47	2.73	2.47	5.25	0.28	0.47
Minimum revenue		**20.7**	**23.2**	**20.1**	**45.1**	**3.2**	**3.3**

Source: Macke. BB Göttingen

TAB, 2: CONTRIBUTIONS OF THE CULTURES

Crop		Winter wheat	Stubble wheat	Stubble wheat forage	Winter barley	Winter oilseed rape	Energy maize	Sugar beet
Yield in kind	dt/ha	85	77	77	85	40	450	750
Price	€/dt	20.00	20.00	18.50	17.50	44.00	3.20	4.50
Yield per unit area	€/ha	1,700	1,540	1,425	1,488	1,760	1,440	3,375
Direct payments	€/ha	210	210	210	210	210	210	210
Operating income	€/ha	1,910	1,750	1,635	1,698	1,970	1,650	3,585
Seeds	€/ha	81	73	73	71	118	234	282
Fertiliser	€/ha	267	252	252	244	279	195	345
Plant protection	€/ha	180	225	225	170	205	92	375
Direct costs	€/ha	10	10	10	10	15	12	10
Drying / Storage	€/ha	64	58	58	64	30		
Direct costs	€/ha	601	617	617	559	647	533	1,012
Labour costs	€/ha	669	679	679	666	671	505	878
Total direct and labour costs	€/ha	1,270	1,297	1,297	1,225	1,318	1,038	1,890
= Contribution margin	€/ha	640	453	338	473	652	612	1,695

Source: Macke, BB Göttingen

than oilseed rape in a 3-year crop rotation. The link to this can often only be formed by barley. In addition, depending on the federal state, there are currently different advantages of the diverse crop rotation programme. Initially, the federal programme is €60/ha for all farms, but in some states, state-specific programmes can be added to this, so that up to €100/ha total funding is possible. As shown in Table 2 in the comparison of plant protection costs, winter barley also requires less effort overall than stubble wheat. This is not an insignificant fact when it comes to reducing the use of plant protection products.

Breeding continues

The increased occurrence of barley yellow dwarf virus (BYDV) in recent years has been increasingly observed. The damage ranges from individual infestation nests to an entire infestation. Against the background of climate change, the periods of infestation by the virus vectors, which serve as carriers, are lengthening. In order to ensure the sustainable continuation of barley cultivation, breeding is required to establish correspondingly resistant varieties on the market - breeders have already succeeded in doing so with some promising varieties (e.g. with the new authorisation FASCINATION).

Conclusion

As a farm manager, you should always critically scrutinise previously held views. The cultivation of winter barley can be a worthwhile alternative when it comes to displacing stubble wheat as well as for locations in red areas that are increasingly unable to produce A/B wheat and only produce forage wheat anyway. Then the perspective changes quickly. On the other hand, more and more critical voices are being raised that are concerned about sales of winter barley if Germany continues to reduce its livestock production. But this criticism should then be extended to Forage wheat as well. Particularly in years of pronounced early summer drought, winter barley has been able to score in terms of yield. As a result, farms have recently been able to achieve better barley yields than wheat yields in many cases. A situation that was non-existent in the past. Barley yields of up to 120 dt/ha were not uncommon on our advisory farms in recent years.

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