



Superfood and Supergrain

(Translated from an article by Catrin Hahn, https://www.dlg-agrofoodmedien.de/fileadmin/download/artikel/24/GM1_Haferforum-Luebeck.pdf)

Around 130 farmers and industry representatives met at “Haferforum Nord” (the North Oat Forum) in Lübeck, Germany. The event was organised by the farmers' association and the Schleswig-Holstein-based oat milling companies Kölln and Brüggen.

Haferforum Nord offered a full programme with many interesting presentations and lively discussions. It was opened by Jochen Brüggen, one of the three managing directors of the traditional Lübeck mill. He was delighted that the entire value chain was represented. All of those present were united by the desire to promote oat cultivation. From the point of view of mills in Germany, there are far too few oats produced that are suitable for milling, yet oats are both a superfood and a supergrain. Several reasons for the reluctance of farmers to grow oats were discussed in detail during the conference.

Werner Schwarz, Minister for Agriculture, Rural Areas, Europe and Consumer Protection in Schleswig-Holstein emphasised the importance of regional cycles in his welcoming address. The value chain, from producers to local buyers, is becoming increasingly important. Reliability of supply is important to the mills, which they secure with cultivation contracts. In cultivation, a healthy crop of oats is a building block for a resilient, stable and economical arable farming system. However, 2023 was not a good year for oats, which raises the question of how often growers can endure such a weak year (Table 1). It is also clear, however, that the demand from mills will not weaken.

Table 1: 2023 was a difficult growing year for oats

- Above-average precipitation in March
 - Wet and cool spring
 - Late sowing, in some cases not until the end of April
 - Drought from May until well into June, with high temperatures
 - Result: thin to very thin crops
 - Low incidence of disease
 - Growth regulator measures were rather detrimental in some cases
 - Dry spots visible early on light soils
 - Moisture for ripening => undergrowth
 - Storm from 7th to 8th August, individual LSVs demolished
 - late harvest, difficult to harvest
 - Green oat grains up to empty (green) husks
 - Consequence: unsatisfactory grain quality and very low grain yields
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Autumn sowing of spring oats

Steffen Beuch, from Züchterhaus Nordsaat and Chairman of the International Oat Committee, spoke on the subject of breeding and breeding objectives. He has been breeding the crop at the Granskevitz site on the island of Rügen for many years. The breeding centre has a long history. "Nordsaat's activities in oats go back to the 19th century, when Swedish material was adapted for the first time." For a while, a search for suitable winter oat lines was conducted. However, because of a lack of success, all German breeding programmes for winter oats were gradually discontinued. He is now concentrating on the more promising investigation of autumn sowing of spring varieties.

Beuch outlined another problem, though: "In no other crop is the gap between the results of official trials and those from farmers' fields as large as in oats." While the official trials show a steady increase in yield and quality, there is now a noticeable decline in practice. "This is worrying. The causes are less suitable locations, the weaker position of oats in crop rotations, and weaker management of the crop." As a breeder, he does not want to be satisfied with this, and, therefore, points to Ireland, the country with the highest oat yields in the world, where the gap between trial and practical yields is also significantly smaller. The crop is cultivated very intensively there, resulting in yields of over 10 tonnes. There, as in the UK, indications are that spring oats are superior to winter oats when sown later (in November).

These are precisely the questions that the European project "CROPDIVA", launched in 2021, seeks to address. Among other things, 250 spring oat varieties - a large proportion of the European range - are being tested for their suitability for autumn sowing.

The first year's result was that the best spring varieties are not inferior to the winter varieties (Table 2). However, Beuch pointed out that, so far, propagators have not been so well prepared for this new cultivation strategy. At the same time, because of high demands, it is essential to use very good, healthy, and dressed seed. "If the soil conditions are right, sowing is possible throughout the winter. But if I then want to achieve a yield of over 8 tonnes, I can't manage the crop extensively, that's clear." He could not say much about disease incidence and weed development at present.

Table 2: Initial statements concerning the CROPDIVA trials

- Interestingly, many spring oat plants compensated for frost damage through good tillering.
- In the end, the yield of spring oats sown in autumn was 26% higher than when sown in spring across all varieties and locations!
- The smallest difference between autumn and spring sowing was measured on the island of Rügen, with 16%, and the highest yield difference was found in Aberystwyth, with 40 % across all varieties.
- In addition, modern varieties such as DELFIN and YUKON clearly outperformed older varieties in terms of grain yield, which illustrates the progress made in breeding.



- In addition to the higher yields, the kernel content of the oat varieties sown in autumn was 8% higher than in the varieties sown in spring.
 - In contrast, the protein content fell by an average of 2.5 %, which is related to the higher grain yield.
 - Particularly suitable varieties for autumn sowing after the first trial year were DELFIN, CURLY, and ZORRO.
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We offer stability

Sven Sädler, responsible for oat purchasing at Brügger, then presented the activities of the mill, which was founded in 1868. It markets over 3,000 products in 90 countries around the world. Unlike the Peter Kölln company, Brügger products are always marketed under the brand name of the customer, one of which, for example, is Rewe, with its crunchy muesli.

In purchasing, Sädler continued, around 300,000 tonnes of ingredients (in addition to oats, this includes 700 other materials such as different cereals, nuts and fruit) from 330 suppliers in 40 countries. At present, 75% of the oats come from countries in the Baltic Sea region, mainly Sweden and Finland. Only a quarter comes from Germany. There, the area under cultivation fell by 13% last year. In the north-east in particular, buyer Sädler is hoping to find new contract farmers. "With an area of 25 ha we can enter into a dialogue. Our specifications are definitely achievable. Our intention is to enable farmers in the north to plan long-term and securely."

Oats rely on the grain market

Ludwig Striewe, from the agricultural trading and consulting company BAT Agrar, said, on the subject of the oats market, that this small segment is normally priced slightly below the rest of the grain market. Although oats have been grown since horses have been around, cultivation has fallen sharply because of the concentration on bigger crops. "The high price for wheat has once again led to a sharp decline in oats cultivation. Together with the poor harvest across Europe, supply is now tight and prices are rising."

According to Striewe, BAT Agrar is currently launching a programme that could be of interest to oat growers - it is dedicated to GHG reduction in the supply chain, and allows growers to benefit from climate-friendly cultivation by taking advantage of several financial incentives. "If there is a proven CO₂ reduction, this can be up to €200/ha." The programme, presented at Agritechnica, initially applies to wheat, but an extension to other crops is planned.

Otherwise, nobody will do it

An example of the successful integration of oats into the crop rotation of a conventional arable farm was provided by Achaz Graf von Wintzingerode. He's been in charge of arable farming on the Panker and Schmoel estates owned by the von Hessen family (district of Plön) for two years.



"For many years," reports the farmer, "2,500 hectares were subject to a very tight crop rotation, with all the problems that go along with that." Excessive blackgrass and problems in rapeseed were observed, amongst other things. Chemistry had reached its limits, and climate change had had effects that could no longer be ignored. "One of the changes that we then made was the integration of 30% spring crops in the crop rotation." The oats that were subsequently included have numerous advantages for him (Table 3).

Table 3: Advantages of oat cultivation at Gut Panker and Schmoel

- Robust summer cropping (loosening up the crop rotation, good mechanical control of weeds and grasses)
- Good weed suppression (rapid growth, dense leaf structure, exudates from oats into the soil inhibit seed germination and seedling growth of weeds and grasses)
- Reduction of diseases (blackleg, eyespot)
- Reduction of plant protection products needed (approx. 2/3 reduction)
- Good rooting performance
- Better N balance

However, the crop also poses challenges. In addition to uncertain yields, for him these include demanding storage requirements and difficult marketing. In terms of arable farming, the demanding seedbed and challenges threshing are problems, as are the dangers of spring drought. However, he continued, despite those challenges, the estate now cultivates 300 hectares of oats and has a close partnership with the Kölln mill. Yields fluctuate from year to year, but average 7.2 tonnes/ha (Table 4).

Table 4: Oat production technology in Panker/Schmoel

- Fertiliser: 120 kg N (SSA, DAP, KAS), potash. All incorporated before sowing
- PS: Herbicide (1x foliar active), WR application EC 32-39, fungicide EC 39, attractive for aphids due to colour and odour.
- Sowing: 350-400 K/m² (140 kg/ha), as early as possible from the beginning of March, but: seedbed before sowing time! 2-3.5 cm depth
- Soil cultivation: basic soil cultivation in autumn, shallow in spring
- Everything is done with technology already available on the farm

To anchor oats in the region in the long term, von Wintzingerode calls for more commitment from politicians and mills, asking the latter to develop stable partnerships with farmers. With respect to the breeding industry, he asked breeders to focus on the topics of yield stability and



drought tolerance, maturity, hullability, and hl weights. He concluded by saying, "Cultivation must be economical, otherwise nobody will do it."

Feed oats as well as food oats

Ernst-Friedemann Freiherr von Münchhausen is a founding partner of Handelsgesellschaft für Naturprodukte and owner of the Gut Rosenkrantz farm near Kiel. The farm, which converted to organic farming in 1989, has grown oats from the start, says Münchhausen. The main conclusion he draws from harvest 2023 is to expand winter oat cultivation (using the variety 'Snowbird') and, if possible, to finish drilling spring oats by mid-November.

The oats are marketed through the Gut Rosenkrantz trading company, which was founded in 1992. The trading volume includes a total of 12,000 t of organic oats, with the largest amount being marketed as baby food. This also includes a small percentage of gluten-free oats that go through separate processing routes.

"We do our own propagation, sell the seeds, take the harvested material back, deliver it to hulling mills, get the processed goods back and finally sell them," says Münchhausen, describing Gut Rosenkrantz's comprehensive oat product chain (Fig. 5 – see original article). In addition to food products, Gut Rosenkrantz also processes large quantities of fodder oats in its two compound feed plants. The target for 2024 is 45,000 t annual production. "Good fodder oats have their place in piglet and calf feed," he explained.

Oats are about passion

Detlef Kurreck, President of the Mecklenburg-Western Pomerania Farmers' Association, once again stood up for oats with his closing statement. "We need alternatives in the field." As it turns out, a certain amount of conviction is needed. "Oats have to do with passion. And yes, it starts with suffering, as we have seen this year. But every change brings opportunities. Stay tuned."

Manfred Vondran, managing director of Peter Kölln, also gave those present an argument in favour of oats: "Plants will soon be people's greatest breadwinners. There is so much innovation here that we can all benefit from."

Anke Katharina Müller, from the Berlin-based association of the grain, milling, and starch industry VGMS e. V., presented the "Oats – the all-rounder" campaign, which was founded in 2008 and has been supplemented by the "Oat Growing Initiative" since 2019. Supported by the eight German oat mills, specialist information on cultivation, processing and health benefits is provided at events and on the very informative website. www.hafer-die-alleskoerner.de