

Austrian Soft Wheat from the Crop 2021

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Preface

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Ladies and Gentlemen,
Dear Customers and Friends of Austrian Wheat!

The wheat crop in the northern hemisphere is now largely completed, but the difficult harvest this year has triggered in all market participants a rollercoaster of emotions.

Good weather conditions during the month of May awakened hopes of a large wheat crop worldwide and a relaxation of the tight supply situation. Long-lasting periods of hot weather on the one side and extreme weather conditions on the other dashed these hopes and led to a price rally which we have not seen for many years.

The worldwide stocks remain at a relatively comfortable level despite the expected losses, but poor consumer cover, harvest delays caused by the weather and quality problems in parts of western Europe as well as speculative purchases by financial investors shape the markets at present.

Due to the extreme weather conditions in the Pannonian climate zone the wheat crop in Austria is below average, whereby the somewhat cooler weather during the month of July had a positive effect on grain maturation in the later harvest areas and contributed to slightly more satisfying yields as well as good grain formation.

As in previous years enough premium and quality wheat is, therefore, available for the market. Analyses carried out so far show promising results regarding gluten qualities. The analyses carried out so far in the course of our well-established monitoring programme have shown that Austrian wheat of the crop of 2021 is thankfully free from fusarium contamination, as in previous years.

Austrian wheat of the crop 2021 will therefore again this year meet the high quality requirements of our traditional customers at home and abroad.

The Austrian wheat crop of 2021 at 1,445,000 t lies 9,2 % below last year's good result. For this reason, this year's crop is seen as below average (5.5 % below average). The main reason for the low result is the reduction of the wheat area by 8,570 ha to a historical low of only 237,536 ha, as the wet autumn did not allow planting to take place as planned. The yield at 5.6 t/ha despite the partly hot and dry conditions is seen as average, does not however reach the good result of last year (6.1 t/ha).

The farming year began for wheat with a rainy and cool autumn which did not allow planting at the level planned. The replenishment of ground water supplies for the vegetation period was positive. During the growing period from March to May adequate rainfall paired with moderate temperatures allowed the winter wheat to form enough shoots and through this a large quantity of kernels per ear were produced. The resulting grain filling phase was however marked by drought together with heat so that in total only average yields per hectare were harvested. We should also mention the most significant hail event in the history of hail insurance in Upper Austria: through this the well-established cereal stands in Upper Austria were severely impaired. At the same time the later harvested cereals in the Waldviertel were considerably delayed by the storms.

The traditional Austrian quality wheat region covers the central and eastern parts of the province of Lower Austria and the northern and central parts of the province of Burgenland. In climate terms this region is called the continental Pannonian climate zone (Figure 1). As a result of long-term observations, we know that this climate zone is the best region for the production of high-quality wheat, a fact which has come to be known all over Europe. Although the yields are not as high as in the western parts of Lower Austria and in Upper Austria due to the lack of rainfall, the climate is highly favourable to the development of very good baking qualities.

Moreover, this region profits from the deep and rich humus soil that also has an influence on the wheat quality.

In the milling wheat region (western Lower Austria and Upper Austria) the quality parameters are inferior, but they usually produce a good milling quality (Figure 1).

The essential parameters for the baking quality of wheat are protein quantity, protein quality and the gelatinization of the starch. The protein quantity is determined by the variety as well as by weather conditions, soil, fertilization and climate. The protein quality on the other hand is mainly a genetic characteristic and thus a variety feature. Gelatinization of the starch depends essentially on the weather conditions before harvest.

Wheat Varieties

The Austrian wheat varieties are graded into 9 quality categories, category 1 representing the lowest and category 9 the highest baking quality. In the Pannonian climate zone in eastern Austria the quality wheat varieties are dominant, which are classed into the baking quality categories 7 to 9. The leading quality wheat varieties are "Aurelius", "Capo", "Christoph", "Bernstein" and "Energio". Among the milling wheat varieties, which are classed into the baking quality categories 3 to 6, the varieties "Spontan", "RGT Reform" and "Siegfried" are significant.

Yields

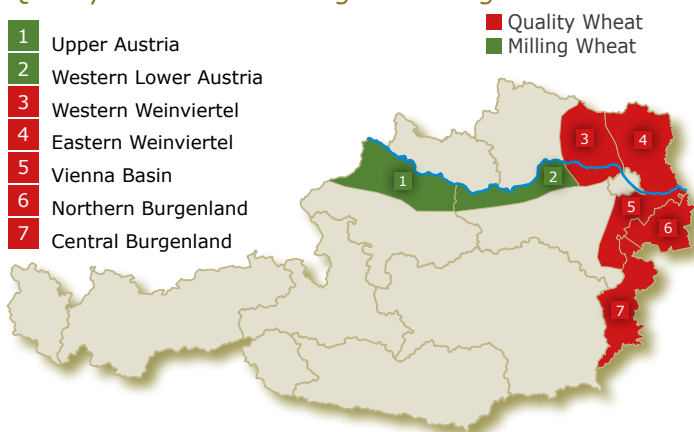
Table 1 lists crop areas, average yields and total production as well as available quantities. For the crop 2021 the figures for market availability are estimates.

Production and available quantities of Quality and Milling Wheat per crop year

The wheat area was reduced again from the record low of the previous year (-8,570 hectares) and reached the historically low figure of only 237,536 hectares.

The areas shown in Figure 1 in the eastern part of Austria also sank to 142,572 ha, which is 6,000 ha less than last year. The crop area in western Lower Austria and in Upper Austria sank by 4,000 ha. The average yield of soft wheat in the entire area is expected to be 56.6 dt/ha. This means that the region has a total production of quality and milling wheat in 2019 of around 1,183,000 tons (estimates). Available from this region from the crop of 2021 is around 1,124,000 t, of which around 60 % of the quantities are to be found in the Pannonian climate zone, of which 60 % is above 14 % protein.

Figure 1
Quality wheat and milling wheat regions



Quality Criteria

The quality data listed in the table below are based on a crop survey made by "Agrarmarkt Austria" and the "Versuchsanstalt für Getreideverarbeitung" (Institute for Cereal Processing) in Vienna who drew samples at the various wholesale buyers and analysed them. The recorded date of the quality data for 2021 as well as of the comparative data from 2020 is August 4th, thus the results are provisional ones.

The average hectolitre weight of quality wheat is 80.8 kg and is good. In Upper Austria and in western Lower Austria the hectolitre weight is, at 80 kg/hl, also good. The milling quality of the new crop is good. More details about the hectolitre weights in the different regions are to be found in tables 2a and 2b.

Quality Parameters of Quality and Milling Wheat Crop 2021 in comparison to 2020

Figure 2 displays averages of this year's quality and milling wheat crop. The protein content, at 15.5 % in the quality wheat area, is excellent. The gluten content is correspondingly extremely high at 34.4 %. In the milling wheat area, a protein of 13.6 % was measured, which is far above the minimum value for milling wheat at the Exchange for Agricultural Products (12.5 %). The wet gluten content is correspondingly good at 29.4 %.

Quality Survey 2021 – Protein Contents and Falling Numbers of Quality Wheat

Tables 3a and 3b list the protein contents and the falling numbers of the Pannonian climate regions and the milling wheat regions. The protein levels and falling numbers are excellent in all areas.

Quality Survey 2021 – Farinogram and Alveogram in the Quality Wheat Area

Table 4 lists the behaviour of wheat in processing. The Farinogram characterizes the consistency of the dough. The average dough development of 5.4 minutes is excellent. Dough stability at 25.1 minutes is an extraordinarily good result.

For the Alveogram the W-value in the quality wheat area with an average result of 351 units is excellent.

The ratio of P/L of 0.5 is ideal.

Farinogram and Alveogram of the crop 2021 in the survey areas of quality wheat and milling wheat

The behaviour of wheat of the various Pannonian areas is listed in table 5a and of the milling wheat areas in table 5b.

The Farinogram stability and the W-values as per Alveogram are excellent in the quality wheat area. Farinogram and Alveogram values of milling wheat are good.

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Mycotoxin Contamination

The problem of the mycotoxins DON (Deoxynivalenol) caused by *Fusarium* has been studied in Austria for many years (examination of the influencing factors in field tests, evaluation of head blight in variety classification tests, etc.). In particular the large-scale field monitoring conducted by the Chambers of Agriculture and the samples analysed give on the one hand an excellent survey of the contamination in the various regions, and on the other hand they make it possible to develop adequate agricultural strategies for the reduction of infection risk. From this viewpoint the Austrian wheat producers have been well prepared to respond to the introduction of the maximum mycotoxin level of wheat applicable at present (DON 1250 µg/kg).

Contamination with heavy metals and pesticide residues

Besides the contamination with mycotoxins we would also like to point to the lack of contamination of Austrian cereals production and milling products with heavy metals. The “Versuchsanstalt für Getreideverarbeitung” (Institute for Cereal Processing) found no contamination with lead, cadmium or mercury in qualitative analysis of any cereal or cereal product from the Austrian Federal Area between 2015 and 2021.

In Austria no residue of Glyphosate was found in wheat, rye and milling products, whereas in the whole European monitoring area 8% of samples analysed were found to be contaminated with Glyphosate.

Summary

Due to average yields the proportion of quality and premium wheat will be similar to last year. The specific gluten qualities are good.

Regarding the baking quality the quality wheat harvest in 2021 in the Pannonian area is classified as excellent.

The protein and wet gluten values are of the very best. The falling number values are slightly lower than last year but still classified as very good.

The Farinogram and Alveogram results lead to expectations of excellent processing characteristics.

The values in the milling wheat areas are, as expected, lower than in the quality wheat area, but also good.

The mycotoxin levels (DON) are classified as extremely low in the whole wheat area.

Figure 2

Quality of Quality and Milling Wheat crop 2021 in comparison to the previous year

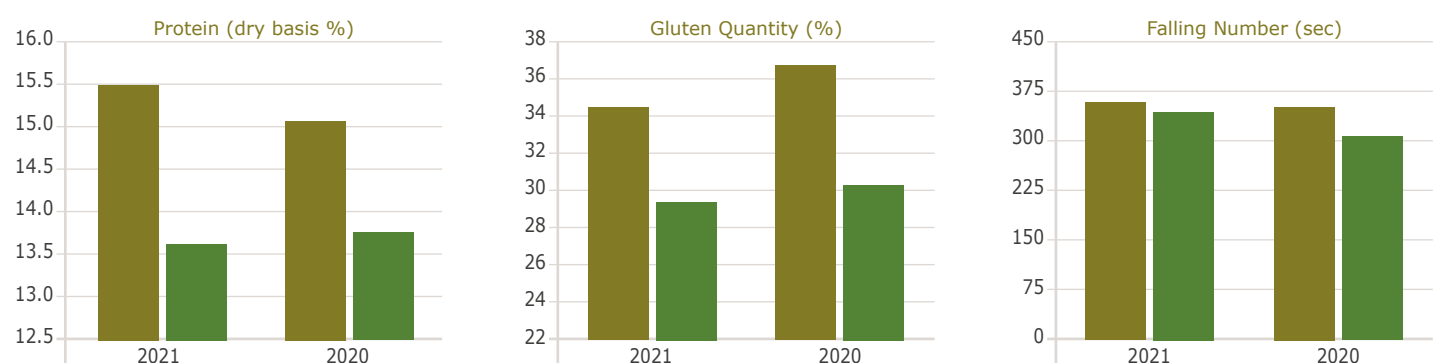


Table 1

Production und available quantities of quality and milling wheat per marketing year

Survey area	2021/22 Estimate				2020/21 Final				2019/20 Final			
	Area in ha	Yield in dt	Production in t	Availability in t	Area in ha	Yield in dt	Produktion in t	Availability in t	Area in ha	Yield in dt	Production in t	Availability in t
Northern Burgenland	15,552	44.0	68,428	65,007	16,110	45.0	72,496	68,871	16,032	46.0	73,748	70,061
Middle Burgenland	10,822	51.0	55,194	52,434	10,340	55.0	56,868	54,024	11,647	48.0	55,907	53,112
Vienna Basin	18,339	50.0	91,695	87,111	19,335	51.3	99,243	94,281	18,569	54.0	100,272	95,259
Eastern Weinviertel	44,396	53.0	235,301	223,536	46,043	58.4	269,079	255,625	46,939	53.0	248,777	236,338
Western Weinviertel	53,462	56.0	299,388	284,419	56,594	61.0	345,242	327,980	56,644	54.0	305,880	290,586
	142,572	52.6	750,007	712,507	148,422	56.8	842,928	800,782	149,832	52.4	784,585	745,355
Western Lower Austria	20,434	59.0	120,558	114,530	22,902	72.6	166,343	158,026	22,483	68.0	152,885	145,241
Upper Austria	46,064	68.0	313,235	297,573	47,236	76.0	358,997	341,047	46,086	75.0	345,643	328,361
	66,498	65.2	433,793	412,103	70,139	74.9	525,341	499,074	68,569	71.5	498,528	473,602
TOTAL	209,070*	56.6	1,183,800	1,124,610	218,561*	62.6	1,368,268	1,299,855	218,401*	58,8	1,283,113	1,218,957

* Remarks on the area:

The following areas for organic farming are included: **2021/22:** 40.658 ha • **2020/21:** 40.280 ha • **2019/20:** 40.298 ha • **2018/19:** 34.968 ha

Quality Survey 2021

Table 2a

Hectolitre Weight of Quality Wheat

Average Hectolitre Weight

SURVEY AREA	2021	2020	2019
Northern Burgenland	80.2	83.2	80.9
Central Burgenland	80.0	82.7	81.4
Vienna Basin	82.1	82.2	80.4
Eastern Weinviertel	80.2	83.1	79.2
Western Weinviertel	81.3	81.6	80.8
Average	80.8	82.6	80.5

Table 2b

Hectolitre Weight of Milling Wheat

Average Hectolitre Weight

SURVEY AREA	2021	2020	2019
Western Lower Austria	79.7	80.6	81.0
Upper Austria	80.3	79.3	79.5
Average	80.0	79.9	80.2

Tabelle 3a

Protein Contents and Falling Numbers of Quality Wheat

Average Protein in dry matter %

SURVEY AREA	2021	2020	2019
Northern Burgenland	15.3	16.0	15.1
Central Burgenland	15.7	15.7	15.2
Vienna Basin	15.8	15.5	15.0
Eastern Weinviertel	15.3	15.0	15.2
Western Weinviertel	15.5	15.2	15.0
Average	15.5	15.5	15.1

Average Falling Number in sec.

SURVEY AREA	2021	2020	2019
Northern Burgenland	366	331	371
Central Burgenland	361	353	358
Vienna Basin	365	350	367
Eastern Weinviertel	365	371	377
Western Weinviertel	339	359	371
Average	359	353	369

Table 3b

Protein Contents and Falling Numbers for Milling Wheat

Average Protein in dry matter %

SURVEY AREA	2021	2020	2019
Western Lower Austria	14.6	14.8	14.6
Upper Austria	12.6	12.7	13.1
Average	13.6	13.7	13.8

Average Falling Number in sec.

SURVEY AREA	2021	2020	2019
Western Lower Austria	365	310	363
Upper Austria	326	296	357
Average	345	303	360

Table 4

Average Farinogram Results

Quality wheat region

	2021	2020	2019
stability	25.1	22.4	24.8

Average Alveogram Results

Quality wheat region

	2021	2020	2019
W (Total Energy)	351	374	307
P/L = Resistance/Extensibility	0.5	0.5	0.5

Table 5a

Farinogram and Alveogram of the crop 2021 in the survey areas of quality wheat and milling wheat

SURVEY AREA	Stability	W (Total Energy)	P/L, Resistance/Extensibility
Northern Burgenland	22.6	327	0.6
Central Burgenland	23.5	366	0.5
Vienna Basin	27.3	366	0.5
Eastern Weinviertel	25.4	334	0.5
Western Weinviertel	26.9	362	0.5
Average	25.1	351	0.5

Table 5b

Farinogram and Alveogram of the crop 2021 in the survey areas of milling wheat

SURVEY AREA	Stability	W (Total Energy)	P/L, Resistance/Extensibility
Western Lower Austria	26.4	318	0.5
Upper Austria	5.2	237	0.6
Average	15.8	278	0.5

Table 6

Mycotoxin Contamination

SURVEY AREA	DON 2021 [$\mu\text{g}/\text{kg}$]
Northern Burgenland	<40
Central Burgenland	40
Vienna Basin	60
Eastern Weinviertel	70
Western Weinviertel	50
Western Lower Austria	80
Upper Austria	80

The contamination level of the current crop is regarded as very low in the quality and milling wheat areas, being well below the maximum tolerance of 1250 μg DON/kg.