

Austrian Soft Wheat from the Crop 2022

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Preface

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

The tense geopolitical situation and exploding energy costs combined with logistical bottlenecks as a result of the Corona Pandemic have led in the past twelve months to a bull market without parallel on agricultural futures exchanges.

Worldwide closing stocks are at their lowest level of the past 6 years.

Positive production outlooks in the USA, Russia, Australia and Canada have, however, led to at least a slight relaxation of the price situation in the past two months.

Good weather conditions in May and adequate rainfall in June saved the domestic wheat crop after a very dry spring. The Austrian wheat crop is 7 % above the five-year average and reaches a total of 1.5 million tonnes.

Beside premium wheat and quality wheat larger quantities of milling wheat are available for the market.

The good weather conditions in the month of June and hot and dry weather during the harvest had a positive effect on wheat quality.

Analyses carried out to date reveal, apart from very high hectolitre weights and falling number values, excellent kneading and baking properties.

Analyses carried out in the frame of our proven monitoring programme show that Austrian wheat of the crop of 2022 happily shows, as in the past, no signs of contamination with Fusarium toxins, heavy metals and pesticide residues.

The excellent quality of the Austrian wheat is sure to satisfy the high demands of our customers at home and abroad.

The reliability and professionalism of the Austrian cereals trade will also ensure that contracted goods will be available to customers even in the very difficult market environment and despite the tense logistic situation.

The wheat crop of 2022 at 1,533,000 tonnes lies 8% above last year's mediocre result. Thus, this year's crop is to be classified as above average (7% above the average). The main reason for the increase in production is the marked expansion of 6,965 hectares in the soft wheat area (after a strong reduction last year), as the dry and mild autumn allowed planting to be completed as planned. The harvested yields per hectare are, at 59 quintals per hectare, despite the partly hot and dry conditions, slightly above average (6.1 % above average) and above last year.

The crop year began for wheat with a dry and warm autumn, during which planting was able to be completed as planned. On the other side the dry autumn and winter led to a lack of the winter moisture necessary for the beginning of growth. For this reason, tillering (the formation of side shoots) was reduced in the spring, for which reason a reduced number of ears per square metre was available as a basis for the development of yield. The warm month of May allowed speedy development so that the delay in development was quickly caught up on (average temperature 2022: 18°C; 2021 14°C). The normal and adequate rainfall quantities in May led to the development of many kernels per ear (2022: 60 mm precipitation; 2021: 76 mm precipitation).

The small number of very hot days in June combined with the quadrupled precipitation compared to last year to influence positively grain filling, for which reason extraordinarily high hectolitre weights were achieved in wheat (days above 30° 2022: 5, 2021: 8; precipitation in June 2022: 58 mm, June 2021 13 mm). The heat and dry weather in July supported a speedy harvest without interruption by rain.

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

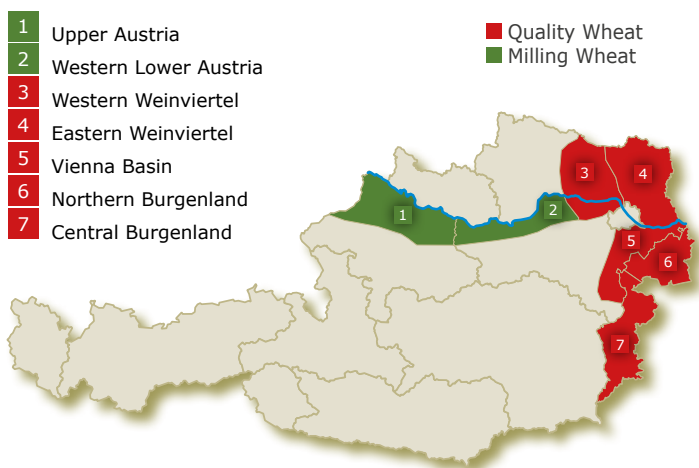
Table 1 lists crop areas, average yields and total production as well as available quantities. For the crop 2022 the figures for market availability are estimates.

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

The wheat area was expanded from the long-term low level of last year (+6,965 hectares) and reached 244,501 hectares.

The areas shown in Figure 1 in the eastern part of Austria came to 142,672 ha, which is 100 ha more than last year. The crop area in western Lower Austria and in Upper Austria rose by 4,500 ha. The average yield of soft wheat in the entire area is expected to be 59.0 dt/ha. This means that the region has a total production of quality and milling wheat of around 1,261,000 tons (estimates). Available from this region from the crop of 2022 is around 1,198,000 t, of which around 60% of the quantities are to be found in the Pannonian climate zone, of which about 50% 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 2022 as well as of the comparative data from 2021 is August 1st, thus the results are provisional ones.

The average hectolitre weight of quality wheat is 82.7 kg and is excellent. In Upper Austria and in western Lower Austria the hectolitre weight is, at 82.2 kg/hl, also very good. The milling quality of the new crop is excellent. 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 2022 in comparison to last year

Figure 2 displays averages of this year's quality and milling wheat crop. The protein content, at 15.0% in the quality wheat area, is excellent. The gluten content is extremely high at 34.9%. In the milling wheat area, a protein content of 13.5% 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 32%.

Quality Survey 2022 – 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 2022 – 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 11 minutes is excellent. Dough stability at 24.7 minutes is an extraordinarily good result.

For the Alveogram the W-value in the quality wheat area with an average result of 357 units is excellent.

The ratio of P/L of 0.5 is ideal.

Farinogram and Alveogram of the crop 2022 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 mycotoxin 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 1,250 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 2022.

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

This year's wheat crop is larger than last year and again has a large percentage of quality and premium wheat. The specific gluten qualities are very good.

Regarding the baking quality the quality wheat harvest in 2022 in the Pannonian area is classified as excellent.

The hectolitre weights are of the highest. Protein and wet gluten values are slightly lower than last year but can still be classified as high. The falling number values are slightly higher than the

already high values of last year.

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 are 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 2022 in comparison to the previous year

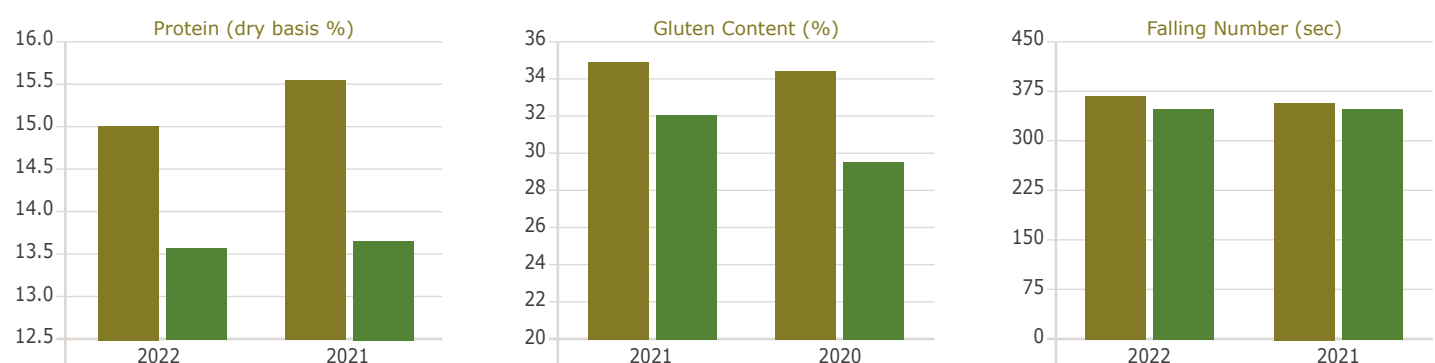


Table 1

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

Survey area	2022/23 Estimate				2021/22 Final				2020/21 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	15,595	45.0	70,179	66,670	15,552	45.0	69,984	66,484	16,110	45.0	72,496	6,871
Middle Burgenland	9,733	47.0	45,747	43,459	10,822	47.0	50,865	48,322	10,340	55.0	56,868	54,024
Vienna Basin	17,596	45.0	79,184	75,224	18,339	45.1	82,686	78,551	19,335	51.3	99,243	94,281
Eastern Weinviertel	44,231	55.0	243,270	231,107	44,396	48.4	215,056	204,303	46,043	58.4	269,079	255,625
Western Weinviertel	55,516	57.0	316,439	300,617	53,462	53.2	284,314	270,098	56,594	61.0	345,242	327,980
	142,672	52.9	754,818	717,077	142,572	49.3	702,904	667,759	148,422	56.8	842,928	800,782
Western Lower Austria	21,587	70.0	151,110	143,555	20,434	70.6	144,211	137,001	22,902	72.6	166,343	158,026
Upper Austria	49,279	72.0	354,809	337,068	46,064	72.0	331,661	315,078	47,236	76.0	358,997	341,047
	70,866	71.4	505,919	480,623	66,498	71.6	475,872	452,078	70,139	74.9	525,341	499,074
TOTAL	213,538*	59.0	1,260,737	1,197,701	209,070*	56.4	1,178,776	1,119,837	218,561*	62.6	1,368,268	1,299,855

* Remarks on the area:

The following areas for organic farming are included: **2022/23:** 41,658 ha • **2021/22:** 40,658 ha • **2020/21:** 40,280 ha

Quality Survey 2021

Table 2a

Hectolitre Weight of Quality Wheat

Average Hectolitre Weight

SURVEY AREA	2022	2021	2020
Northern Burgenland	83.0	80.2	83.2
Central Burgenland	82.0	80.0	82.7
Vienna Basin	83.4	82.1	82.2
Eastern Weinviertel	83.3	80.2	83.1
Western Weinviertel	82.0	81.3	81.6
Average	82.7	80.8	82.6

Table 2b

Hectolitre Weight of Milling Wheat

Average Hectolitre Weight

SURVEY AREA	2022	2021	2020
Western Lower Austria	83.0	79.7	80.6
Upper Austria	81.4	80.3	79.3
Average	82.2	80.0	79.9

Tabelle 3a

Protein Contents and Falling Numbers of Quality Wheat

Average Protein in dry matter %

SURVEY AREA	2022	2021	2020
Northern Burgenland	15.7	15.3	16.0
Central Burgenland	15.1	15.7	15.7
Vienna Basin	14.8	15.8	15.5
Eastern Weinviertel	14.8	15.3	15.0
Western Weinviertel	14.7	15.5	15.2
Average	15.0	15.5	15.5

Average Falling Number in sec.

SURVEY AREA	2022	2021	2020
Northern Burgenland	364	366	331
Central Burgenland	374	361	353
Vienna Basin	370	365	350
Eastern Weinviertel	378	365	371
Western Weinviertel	355	339	359
Average	368	359	353

Table 3b

Protein Contents and Falling Numbers for Milling Wheat

Average Protein in dry matter %

SURVEY AREA	2022	2021	2020
Western Lower Austria	14.5	14.6	14.8
Upper Austria	12.6	12.6	12.7
Average	13.5	13.6	13.7

Average Falling Number in sec.

SURVEY AREA	2022	2021	2020
Western Lower Austria	349	365	310
Upper Austria	349	326	296
Average	349	345	303

Table 4

Average Farinogram Results

Quality wheat region

	2022	2021	2020
stability	24.7	25.1	22.4

Average Alveogram Results

Quality wheat region

	2022	2021	2020
W (Total Energy)	357	351	374
P/L = Resistance/Extensibility	0.5	0.5	0.5

Table 5a

Farinogram und Alveogram of the crop 2022 in the survey areas of quality wheat

SURVEY AREA	Stability	W (Total Energy)	P/L, Resistance/Extensibility
Northern Burgenland	19.9	348.6	0.4
Central Burgenland	26.1	340.0	0.5
Vienna Basin	25.7	359.0	0.5
Eastern Weinviertel	26.0	371.2	0.6
Western Weinviertel	26.0	368.0	0.5
Average	24.7	357.0	0.5

Table 5b

Farinogram and Alveogram of the crop 2022 in the survey areas of milling wheat

SURVEY AREA	Stability	W (Total Energy)	P/L, Resistance/Extensibility
Western Lower Austria	22.4	337	0.3
Upper Austria	7.4	236	0.4
Average	14.9	286	0.4

Table 6

Mycotoxin Contamination

SURVEY AREA	DON 2022 [$\mu\text{g}/\text{kg}$]
Northern Burgenland	<40
Central Burgenland	<40
Vienna Basin	<40
Eastern Weinviertel	<40
Western Weinviertel	<40
Western Lower Austria	<40
Upper Austria	<40

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 1,250 μg DON/kg.