

KEY POINTS

- Despite stronger wheat exports, slowing demand sees heavy end of season stocks remain.
- Barley H&I demand remains at a record high this season, despite the ongoing cost-of-living crisis.
- Maize imports are forecast at more minimum levels, due to price competitive domestic grains.
- With a quality crop this season, oat exports are increased further to a 20-year high.

INTRODUCTION

1. This release covers the fourth official estimates made of UK cereal supply and demand for 2022/23 (Appendix 1).

2. The UK Cereals Supply and Demand Estimates include the official production figures for all cereals published by Defra in the results of the [Cereal and Oilseed Rape Production Survey](#). Please note that due to the hot and dry conditions in 2022, production only from farms who have reported moisture above 14.5% has been adjusted and standardised to 14.5% moisture content.

3. **For 2022/23, total cereals demand for animal feed is estimated at 12.387Mt, down 162Kt from March's estimate and 742Kt lower on the year and remains the lowest level since 2016/17.** In recent months, animal feed production has declined at a stronger rate than initially expected across all sectors, leading to the fall from March's estimates. From the previous estimates, poultry feed demand has seen the largest reductions, from squeezed margins and the impact of Avian Flu. Any recovery in poultry feed demand is now not expected until next season. Cattle feed demand has also seen further reductions since March's estimate, with squeezed dairy margins. Furthermore, ruminant feed demand is expected to lose out to producers maximising grazing and forage usage. The significant declines seen this season for pig feed demand are expected to continue for the remainder of the season, as clean pig numbers fall further. Cereal inclusions in animal feed rations remain down year-on-year. However, with grain prices falling in recent months, the contrast to the relative price of protein meal has become less stark. **Total cereal usage by the human and industrial (H&I) sector in 2022/23 is forecast at 10.525Mt. This is slightly down (-21Kt) from March's estimate, but up 123Kt from 2021/22.** The reduction from March's estimate is due to a slightly slower growth in usage by the starch and brewing, malting, and distilling (BMD) sectors, outweighing a small rise in bioethanol demand.

WHEAT

3. **2022/23 total wheat availability is estimated at 18.585Mt, up 25Kt from March's estimate, and 1.187Mt higher year-on-year.** The increased availability from March's estimate is a result of wheat imports being revised up by 25Kt, to 1.200Mt. Despite the large domestic crop, a certain level of imports are expected to fulfil demand for high protein milling wheat, which is in shorter supply domestically.

A small proportion of feed wheat is expected to be imported by Northern Ireland too.

4. **For 2022/23, H&I wheat consumption is estimated at 7.329Mt, 48Kt higher than March's forecast and 173Kt higher year-on-year.** The increase from March's estimate is a result of higher than initially expected wheat usage by the bioethanol industry, outweighing a reduction (compared with previous forecasts) in usage by the starch and BMD sectors. While this season has brought challenging conditions for the bioethanol industry, falling input costs have improved margins. Both UK bioethanol plants are in operation, with increased usage year-on-year. However, the plants are not expected to be running at full capacity and have had longer maintenance periods than usual this season. Compared with March's estimates, wheat usage by distillers and starch manufacturers is slightly lower, as growth on the year has slowed, but demand remains higher on the year. Usage by flour millers has marginally increased since the March estimate, but milling demand remains marginally down year-on-year. From the previous estimates, flour millers are expected to use slightly less home-grown wheat in the grist, though year-on-year, home-grown wheat usage is higher, on price and availability.

5. **Wheat usage in animal feed is forecast at 6.807Mt, down 139Kt from March's estimate and 435Kt lower than 2021/22 levels.** The reduction seen from March's estimate is due to further falls in feed demand across all livestock sectors, especially poultry. Furthermore, there has been slightly higher levels of barley and maize used in rations, at the expense of wheat, than previously expected. The decline on the year is due to lower total animal feed demand and cereal inclusions in rations. The forecast for wheat fed on farm remains unchanged from March's estimate, but slightly lower year-on-year due to high yielding grain sales from supported prices.

6. **The balance of total availability and domestic consumption of wheat is the largest since 2019/20, at 4.090Mt. This is up 116Kt from March's estimate, and 1.441Mt (54%) higher than 2021/22.** From March's estimate, higher total availability and slower domestic consumption has led to a further increase in the wheat balance. However, exports have also been revised up 150Kt from the previous estimates to 1.650Mt. This is 1.139Mt higher than in 2021/22. From July 2022 to March 2023, the UK exported 1.141Mt of wheat, with March surpassing 200Kt. Furthermore, up to 22 May, 1.542Mt of UK

common wheat was imported by the EU according to the European Commission surveillance data. The UK export pace is expected to be stronger than initially expected for the latter part of the season. At 2.440Mt, commercial end-season stocks are down 34Kt from March's estimate, but up 595Kt from 2021/22. This keeps the carry-out historically high, in line with 2019/20. Taking into account an operating stock requirement of 1.500Mt and exports to date (Jul-Mar), 1.449Mt of wheat is available to either be exported from April to June or carried over into next season as free stock.

BARLEY

7. **At 8.424Mt, total barley availability is 5Kt higher for 2022/23 than March's estimate, and 316Kt higher year-on-year.** The change from March is a result of a slight increase in forecast imports. Despite the lowest level of opening stocks in 10 years, a rise in production led to increased supply year-on-year.

8. **For 2022/23, H&I usage of barley is estimated at 1.986Mt, down 10Kt from March's estimate but 100Kt higher than 2021/22 levels.** The rise in usage by the BMD sector has not been as strong as initially anticipated, leading to a slight reduction from the previous estimate. While down from the previous estimate, despite the cost of living crisis, usage is forecast at the highest this century, partly due to increases in distilling capacity.

9. **Barley usage in animal feed is estimated at 3.995Mt, down 67Kt from March's estimate, and 242Kt lower than 2021/22 levels. The lowest level since 2018/19.** While usage of barley in compound feed is slightly higher than the previous forecast, a reduction in fed on farm usage has led to the fall from March's estimate. The amount of barley fed on farm has been revised down, as growers are expected to have been able to yield more from selling grain. The decline in barley usage on the year is largely driven by a fall in total animal feed production.

10. **The 2022/23 barley supply and demand balance is 2.228Mt, up 82Kt from March's estimate, and 455Kt (26%) higher than 2021/22 levels.** Increased availability, combined with lower total domestic consumption, predominantly from lower animal feed demand, has led to an increased balance from previous estimates. While the balance is higher year-on-year, it remains smaller than the previous five-year average. Full season exports have been increased 150Kt since March, to 1.150Mt. This is 386Kt higher than 2021/22. To date (Jul-Mar) barley exports have totalled 877Kt, with the export pace reportedly remaining firm in April and May. Commercial end of season stocks are forecast at 1.078Mt, down 68Kt from March but up 115Kt from last season.

MAIZE

11. **Total maize availability in 2022/23 is estimated at 2.274Mt, down 13Kt from March's**

estimates, and down 144Kt year-on-year. The reduction from March's forecast is due to full season maize imports being revised down slightly to 2.025Mt. Season to date (Jul-Mar) the UK has imported 1.718Mt of maize, up 8% from the same period in 2021/22. Imports were strong at the start of the season, but in recent months have steadied. A slower pace for the remainder of the season is expected considering its relative price to domestic grains.

12. **For 2022/23, maize usage by H&I sectors is estimated at 709Kt, down 44Kt from March's estimate and 150Kt lower year-on-year.** The reduction from March is a result of reduced demand anticipated by the bioethanol sector, with wheat pricing more competitively. However, maize is not projected to completely drop out of inclusions. **Maize usage in animal feed is forecast at 1.221Mt, up 42Kt from March's estimate and up 48Kt on the year.** While maize has been featuring stronger than expected in rations in the season to date (Jul-Mar), lower demand is expected for the remainder of the season, as domestic grains are pricing more competitively. However, usage in Northern Ireland is expected to stay strong, and be higher year-on-year.

13. **At 340Kt, the balance of maize supply and demand is 10Kt lower than March and 42Kt lower than 2021/22.** Exports have been reduced by 10Kt, to 115Kt due to the slower pace season to date (Jul-Mar). Closing stocks remain at 225Kt, down 23Kt from 2021/22.

OATS

14. **For 2022/23, total oat availability is forecast at 1.179Mt, unchanged from March's estimate and 109Kt lower than 2021/22.** Despite the largest carry-in stocks since 2014/15, availability remains down due to lower production. Imports remain at 15Kt, down 2Kt from 2021/22.

15. **H&I oat usage in 2022/23 is forecast at 501Kt, down 15Kt from March and near in line with 2021/22 levels (-1Kt).** Additional oat milling capacity in the UK is understood to impact next season's demand. **Oat usage in animal feed is forecast at 364Kt, up 2Kt from March's estimate, but back 113Kt from the record levels in 2021/22.** Lower fed on farm usage is expected year-on-year, due to the lower availability and higher quality crop.

16. **At 285Kt, the balance of oat supply and demand is up 12Kt from March's estimate and 6Kt higher than 2021/22 levels.** The export forecast has seen a further increase from March, up 5Kt to 160Kt. The export pace this season has been strong and is expected to slow slightly in the final quarter. This would be the largest since/in line with 2002/03 if realised. End-season stocks are estimated at 125Kt, up 7Kt from March's estimate but 32Kt lower on the year.

17. Appendix II shows cumulative usage and trade data to end-March. This release and related information can be found at ahdb.org.uk/cereals-oilseeds-markets

UK CEREAL SUPPLY AND DEMAND ESTIMATES ^(a)

Estimates made in May 2023

July to June crop years

Thousand tonnes

	WHEAT								BARLEY							
	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Mar-23	2022/23 May-23	Absolute change Mar-23	% change on 21/22	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Mar-23	2022/23 May-23	Absolute change Mar-23	% change on 21/22
(1) Opening stocks	1,848	1,911	2,438	1,416	1,846	1,846	-	30%	1,137	1,091	1,357	1,058	964	964	-	-9%
(2) Production	13,652	16,225	9,658	13,988	15,540	15,540	-	11%	7,361	8,048	8,117	6,961	7,385	7,385	-	6%
(3) Imports	1,826	1,056	2,431	1,994	1,175	1,200	25	-40%	85	70	89	89	70	75	5	-16%
(4) Total availability	17,327	19,192	14,527	17,398	18,560	18,585	25	7%	8,583	9,210	9,562	8,108	8,419	8,424	5	4%
(5) Human and industrial consumption (b)	7,089	6,932	6,594	7,156	7,281	7,329	48	2%	1,833	1,778	1,722	1,885	1,996	1,986	-10	5%
(5a) (of which home grown)	6,003	6,169	5,108	6,056	6,412	6,436	24	6%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(6) Usage as animal feed (c)	7,167	7,560	6,115	7,242	6,946	6,807	-139	-6%	4,264	4,144	5,312	4,237	4,062	3,995	-67	-6%
(6a) (of which home grown)	6,482	7,060	5,365	6,542	6,546	6,407	-139	-2%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(6b) (of which compounders)	4,043	4,320	3,654	4,043	3,878	3,750	-127	-7%	1,458	1,399	1,890	1,553	1,329	1,330	1	-14%
(6c) (of which integrated poultry units)	1,161	1,185	1,080	1,143	1,113	1,101	-12	-4%	77	44	147	83	59	65	7	-21%
(7) Seed (d)	265	215	278	280	280	280	-	-	191	223	185	178	178	178	-	-
(8) Other	68	81	48	70	78	78	-	11%	37	40	41	35	37	37	-	6%
(9) Total domestic consumption	14,588	14,788	13,035	14,748	14,585	14,495	-91	-2%	6,326	6,185	7,260	6,335	6,273	6,196	-77	-2%
(10) Balance (4) - (9)	2,738	4,404	1,492	2,649	3,975	4,090	116	54%	2,257	3,025	2,302	1,773	2,146	2,228	82	26%
(11) Exports (e)	546	1,205	209	511	1,500	1,650	150	223%	1,162	1,790	1,290	764	1,000	1,150	150	50%
(12) Intervention stocks (e)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(13) Commercial end-season stocks (e)	1,866	2,438	1,416	1,846	2,475	2,440	-34	32%	1,109	1,357	1,058	964	1,146	1,078	-68	12%
(14) (of which estimated operating stock requirement) (f)	1,540	1,550	1,500	1,500	1,500	1,500	-	-	784	790	780	800	800	800	-	-
(15) (of which free stock) (g)	326	888	346	346	975	940	-34	172%	325	567	278	164	346	278	-68	70%
(16) Surplus available for either export or free stock (10)-(12)-(14)-(18)	872	2,093		857	2,475	2,590	116	202%	1,474	2,356	1,568	928	1,346	1,428	82	54%
(17) 2020/21 operating stock deficit (13)-(14)**			-84													
(18) Residual (10)-(11)-(13)		761	-134	293						-121	-46	45				

	MAIZE								OATS							
	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Mar-23	2022/23 May-23	Absolute change Mar-23	% change on 21/22	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Mar-23	2022/23 May-23	Absolute change Mar-23	% change on 21/22
(1) Opening stocks	253	313	222	211	248	248	-	18%	124	116	106	147	157	157	-	6%
(2) Production	-	-	-	-	-	-	-	-	991	1,076	1,031	1,123	1,007	1,007	-	-10%
(3) Imports	2,458	2,376	2,856	2,207	2,038	2,025	-13	-8%	21	18	20	17	15	15	-	-13%
(4) Total availability	2,710	2,689	3,078	2,417	2,286	2,274	-13	-6%	1,136	1,210	1,157	1,287	1,179	1,179	-	-8%
(5) Human and industrial consumption	823	800	1,011	859	753	709	-44	-17%	532	553	531	501	515	501	-15	0%
(5a) (of which home grown)	-	-	-	-	-	-	-	-	511	537	513	483	501	487	-15	1%
(6) Usage as animal feed	1,375	1,362	1,536	1,173	1,179	1,221	42	4%	358	346	394	477	362	364	2	-24%
(6a) (of which home grown)	-	-	-	-	-	-	-	-	358	346	394	477	362	364	2	-24%
(7) Seed	-	-	-	-	-	-	-	-	26	29	28	24	24	24	-	-
(8) Other (h)	4	4	4	4	4	4	-	-	5	5	5	6	5	5	-	-17%
(9) Total domestic consumption	2,201	2,166	2,551	2,036	1,936	1,934	-3	-5%	921	933	958	1,008	906	894	-12	-11%
(10) Balance (4) - (9)	509	523	527	382	350	340	-10	-11%	215	276	199	279	273	285	12	2%
(11) Exportable surplus	153	135	138	134	125	115	-10	-14%	70	120	41	123	155	160	5	30%
(12) Commercial end-season stocks	248	222	211	248	225	225	-	-9%	133	106	147	157	118	125	7	-20%
(13) Residual (10)-(11)-(12)		166	178							50	11					

Links connect to relevant Defra/AHDB data pages

Due to rounding, totals may not agree with the sum of individual items

* Change not meaningful

** Due to the highly unusual nature of this seasons hugely reduced wheat production figure, an extra line is included in the balance sheet to show the operating stock deficit.

(a) These are revised during the year. Figures rounded to the nearest 1000 tonnes.

(b) Defra updated the registry for the UK flour millers survey in spring 2016, the wheat H&I usage has been adjusted to take account of this change.

(c) Animal feed usage has been split by sector. Note, other users are only included in the total.

(d) Seed numbers have been updated based on a number of assumptions, calculated for the purposes of the balance sheets only.

(e) Split of exports, intervention and total commercial end-season stocks only published for historical seasons.

(f) Estimated operating stocks requirement is a calculated estimate of the minimum tonnage that users of grain require to get through to a point at which new crop can be utilised.

(g) Free stock is the stock available after both exports and estimated operating stock requirements have been fulfilled.

(h) 2014/15 new format: Maize demand in "Other food use" has been added to the H&I total for maize. This was previously included in the "Other" category.

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		OTHER CEREALS (i)							Absolute change Mar-23	% change on 21/22
		2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Mar-23	2022/23 May-23			
(1)	Opening stocks	5	5	5	5	10	10	-	90%	
(2)	Production	185	169	168	297	330	330	-	11%	
(3)	Imports	4	3	1	11	10	10	-	-9%	
(4)	Total availability	194	177	174	313	350	350	-	12%	
(5+6)	H&I and animal feed	183	169	166	289	325	300	-25	4%	
(5a+6a)	(of which home grown)	178	166	165	279	315	290	-25	4%	
(7)	Seed	4	3	3	10	10	10	-	-	
(8)	Other	-	-	-	-	-	-	-	-	
(9)	Total domestic consumption	187	172	169	299	335	310	-25	4%	
(10)	Balance (4) - (9)	7	5	5	14	15	40	25	183%	
(11)	Exportable surplus	1	-	-	4	5	30	25	601%	
(12)	Intervention stocks	-	-	-	-	-	-	-	-	
(13)	Commercial end-season stocks	6	5	5	10	10	10	-	3%	

		TOTAL CEREALS							Absolute change Mar-23	% change on 21/22
		2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Mar-23	2022/23 May-23			
(1)	Opening stocks	3,367	3,437	4,128	2,837	3,224	3,224	-	14%	
(2)	Production	22,189	25,518	18,974	22,369	24,262	24,262	-	8%	
(3)	Imports	4,395	3,523	5,397	4,318	3,308	3,325	17	-23%	
(4)	Total availability	29,950	32,478	28,499	29,524	30,794	30,812	17	4%	
(5)	H&I (wheat, barley, maize, oats) (h)	10,276	10,063	9,858	10,402	10,545	10,525	-21	1%	
(6)	Animal feed (wheat, barley, maize oats) (h)	13,164	13,412	13,357	13,128	12,549	12,387	-162	-6%	
(5a +6a)	Other cereals (H&I and animal feed)	183	169	166	289	325	300	-25	4%	
(7)	Seed	487	470	494	492	492	492	-	-	
(8)	Other	114	130	98	115	124	124	-	8%	
(9)	Total domestic consumption	24,223	24,244	23,973	24,426	24,036	23,827	-208	-2%	
(10)	Balance (4) - (9)	5,727	8,234	4,526	5,098	6,759	6,984	225	37%	
(11)	Exports	1,932	3,249	1,679	1,537	2,785	3,105	320	102%	
(12)	Intervention stocks	-	-	-	-	-	-	-	-	
(13)	Commercial end-season stocks	3,362	4,128	2,837	3,224	3,974	3,879	-95	20%	
(14)	Estimated operating stock requirement (wheat & barley only)	2,324	2,340	2,280	2,300	2,300	2,300	-	-	
(15)	Free stock for wheat and barley***	651	1,455	278	509	1,321	1,219	-102	139%	
(16)	Surplus available for either export or free stock (10)-(12)-(14)-(18)	3,403	5,038	2,237	2,461	4,459	4,684	225	90%	
(17)	Residual (10)-(11)-(13)		856	10	337					

Source: AHDB, Defra

Links connect to relevant Defra/AHDB data pages

Due to rounding, totals may not agree with the sum of individual items

(i) Includes mainly rye, triticale and mixed grain.

* Change not meaningful

*** Free stock figure in total cereals for 2020/21 balance sheet relates to barley only, due to the wheat deficit

Appendix II

CUMULATIVE MONTHLY STATISTICS

Usage of cereals by processors, external trade and stocks

Situation as at end of March 2023

Thousand tonnes

		2017/18 to 2021/22 average	2017/18 39 weeks	2018/19 39 weeks	2019/20 39 weeks	2020/21 39 weeks	2021/22 39 weeks	2022/23 39 weeks	% Change 2022/23 on 2021/22	Actual Change 2022/23 on 2021/22
WHEAT										
Usage	Flour millers ⁽¹⁾	4,644	5,103	4,677	4,605	4,190	4,474	4,506	1%	32
	of which home-grown	3,835	4,422	3,831	4,020	3,066	3,628	3,849	6%	221
	of which imported	809	681	846	585	1,124	845	657	-22%	-189
	Brewers, maltsters and distillers	565	635	531	486	608	729	809	11%	81
	Animal Feed Processors ⁽²⁾	3,581	3,656	3,679	3,799	3,189	3,501	3,277	-6%	-224
	of which feed compounders	2,707	2,730	2,808	2,915	2,376	2,642	2,459	-7%	-183
of which intergrated poultry units	874	927	871	885	813	860	819	-5%	-41	
Imports	From July ⁽³⁾	1,362	1,214	1,510	837	1,886	1,525	990	-35%	-535
Exports	From July ⁽³⁾	459	383	275	1,001	177	302	1,141	278%	839
BARLEY										
Usage	Brewers, maltsters and distillers	1,370	1,404	1,411	1,422	1,243	1,383	1,459	5%	75
	Animal Feed Processors ⁽²⁾	1,011	939	789	963	1,353	1,171	939	-20%	-232
	of which feed compounders	955	891	751	932	1,248	1,101	896	-19%	-205
	of which intergrated poultry units	56	48	38	31	105	70	43	-39%	-27
Imports	From July ⁽³⁾	53	70	56	40	47	60	55	-8%	-5
Exports	From July ⁽³⁾	1,080	964	737	1,475	1,145	622	877	41%	255
MAIZE										
Usage	Human and Industrial ⁽⁴⁾	**	**	**	**	**	**	**	*	*
	Animal Feed Processors ⁽²⁾	391	264	478	344	476	**	**	*	*
	of which feed compounders	349	232	440	292	431	265	295	11%	30
	of which intergrated poultry units	42	32	38	52	45	**	**	*	*
Imports	From July ⁽³⁾	1,942	1,551	2,135	1,885	2,199	1,588	1,718	8%	130
Exports	From July ⁽³⁾	126	137	144	108	114	98	87	-11%	-10
OATS										
Usage	Human and Industrial ⁽⁵⁾	410	410	410	415	404	387	380	-2%	-7
	Animal Feed Processors ⁽²⁾	51	43	54	49	58	99	58	-42%	-41
Imports	From July ⁽³⁾	19	16	28	12	19	16	14	-14%	-2
Exports	From July ⁽³⁾	49	23	32	106	35	54	136	150%	82

Source: AHDB, Defra, HMRC

⁽¹⁾ Includes bioethanol and starch usage⁽²⁾ Great Britain only⁽³⁾ HMRC⁽⁴⁾ Data no longer available. For quarterly data to end of 2017/18, please access using historic balance sheets.⁽⁵⁾ Oat milled data published quarterly. Data displayed as at end-December (26 weeks).

* Changes not meaningful

**Insufficient sample to produce robust figure

Notes

Due to rounding, totals may not agree with the sum of the individual items.

There are 53 weeks in the statistical year 2020. In order to incorporate the change January 2020 was increased to a 5 week period compared to 4 weeks in 2019.

There are 53 weeks in the statistical year 2016. In order to incorporate the change April 16 was increased to a 5 week period compared to 4 weeks in 2015.

Figures in Appendix II were updated on 25 May 2023. The data above may differ from the most recent published data.

Disclaimer

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