

KEY POINTS

- Increased wheat availability, offsets the rise in estimated usage and exports, leading to the largest wheat end of season stocks since 2015/16.
- With increased barley production boosting supply, and lower animal feed usage forecast, outweighing stronger H&I demand, the barley balance sheet is heavier in 2022/23, but remains relatively tight historically.
- Despite strong imports season to date, maize imports are forecast to steady and usage is expected to be limited this season by increased domestic grain availability.
- With another larger-than-average oat crop, firm exports are expected once again.

INTRODUCTION

1. This release covers the second 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. **In 2022/23, total cereals demand for animal feed is forecast at 12.789Mt, 61Kt lower than November's estimate and down 335Kt on the year. This is the lowest level since 2016/17.** Compared with previous estimates, animal feed production has declined at a greater rate than initially anticipated. Pig feed production is expected to continue fall back and so is poultry feed demand. Cattle feed demand declined last season and is forecast to remain slow in 2022/23. However, some regions have seen poor forage quality boosting feed requirements. Cereal inclusions in animal feed rations are also forecast to fall year-on-year, due to the relative price of protein meal. **Human and industrial (H&I) total cereal usage is expected to increase by 219Kt year-on-year to 10.574Mt.** This increase is largely driven by a rise in demand from bioethanol, starch and brewing, malting, distilling (BMD) industries.

WHEAT

4. **In 2022/23, total availability of wheat is estimated at 18.610Mt, down 124Kt from November's forecasts, but 1.212Mt higher than in 2021/22.** Following the release of the final results of the [Defra Cereals and Oilseed Rape Production Survey](#), wheat production is estimated at 15.540Mt, 124Kt less than November's AHDB estimate, but 1.552Mt higher year on year. Wheat imports remain unchanged from previous forecasts at 1.225Mt, down 769Kt from 2021/22 levels. The majority of imports are expected to be high protein wheat for milling, with a small proportion of feed wheat expected to go into Northern Ireland.

5. **H&I wheat consumption is expected to be relatively unchanged (-9Kt) from November's estimates, but increase by 264Kt year on year in 2022/23, to 7.376Mt.** The increase on the year is

largely driven by a rise in wheat usage by the bioethanol, starch and distilling industries. It is assumed both UK bioethanol plants will be in operation this season, but they are not expected to be running at full capacity, partly due to longer maintenance periods. Compared with November's estimates, bioethanol usage is expected to be lower, but wheat usage in starch production and distilling is expected to rise this season, on the back of increased capacity. With high input costs and significantly lower bioethanol prices, bioethanol demand remains a key watch point this season. While flour production expected to remain relatively stable, wheat usage by millers is forecast to decline slightly on the year, driven by higher extraction rates on the back of higher specific weights. The impact of the 'cost of living crisis' on flour demand and some premium and alternative products, remains a key watchpoint. While the protein content of the 2022 crop has averaged lower, flour millers are expected to use a slightly higher amount of home-grown wheat this season as imports are not pricing as competitively. However, a proportion of imported high protein milling wheat will be required to ensure continuity in the grist.

6. **In 2022/23 usage of wheat in animal feed is 98Kt lower than November's forecast and down 107Kt on the year at 7.141Mt.** The decline from November's estimates is largely driven by a greater fall in animal feed production to date, than initially anticipated. The proportion of wheat used in rations this season, compared with other cereals, is expected to increase, due to its availability and relative price. However, with a reduction in total cereal inclusions in rations and a fall in animal feed production, feed wheat usage is expected to fall on the year. The amount of wheat fed on farm is anticipated to be slightly lower this season due to its relative price, with growers yielding more by selling grain.

7. **At 3.736Mt, the balance of total availability and domestic consumption is 17Kt lower than the previous estimate, but 1.048Mt or 39% higher than 2021/22 levels.** The rise in total availability, driven mainly by a larger crop, has outweighed a slight rise in consumption, leading to the increased balance. With a significant balance, exports are currently forecasted at 1.150Mt for the season, up 639Kt from 2021/22. From July to November the UK exported 432Kt of wheat, which means to reach this forecast, a

minimum of 100Kt per month needs to be shipped from December to June. Commercial end-season stocks are forecast at 2.586Mt for 2022/23, up 740Kt from 2021/22. A similar carry-out to 2019/20. Taking into account an operating stock requirement of 1.500Mt and exports to date (Jul-Nov) the UK has 1.804Mt of wheat available to be either exported from December to June or carried over into next season.

BARLEY

8. **In 2022/23, total barley availability is estimated to be 195Kt higher than November's estimate and 316Kt higher year on year, at 8.424Mt.** Despite the lowest level of opening stocks in 10 years (964Kt), a rise in production has led to an overall supply increase. The final Defra barley production figure is 7.385Mt, up 424Kt on the year and up 195Kt from the AHDB estimate. Full season imports remain forecast at 75Kt, 14Kt down on the year.

9. **H&I usage of barley is estimated to be 50Kt higher than previous forecasts and 91Kt higher than 2021/22 levels at 1.974Mt.** If realised, this would be the highest usage this century. Usage by the BMD sector is expected to be higher due to strong demand, despite the rise in cost-of-living as well as increased capacity in Scotland.

10. **At 4.074Mt, usage of barley in animal feed is forecast to be up 60Kt from November's estimate but fall by 153Kt from 2021/22 levels.** At the start of last season barley was included relatively heavily in rations, which was a knock-on from 2020/21 when barley supply was high. Last season, with a larger wheat supply, barley inclusions fell. With wheat prices elevated during the first half of the season, barley usage in rations has been higher, than initially anticipated. Looking forward, with large domestic wheat supplies and wheat prices lower, wheat looks more favourable during the second half of the season.

11. **The barley supply and demand balance in 2022/23 is 70Kt higher than forecast in November and 376Kt (21%) higher year on year at 2.161Mt.** While up on the year, the barley balance remains lower than the previous five-year average. Exports are forecast at 1.000Mt for 2022/23, up 236Kt from 2021/22. To date (Jul-Nov) barley exports have totalled 474Kt, with the pace expected to slow slightly towards the end of the season. Commercial end of season stocks are forecast at 1.161Mt, less tight than last seasons, 964Kt.

MAIZE

12. **In 2022/23, the total availability of maize is estimated at 2.257Mt, relatively unchanged from November's estimate, but 161Kt lower than 2021/22 levels, as a fall in imports outweighs the rise in opening stocks.** Full season maize imports are forecast to fall by 198Kt on the year, to 2.009Mt.

Season-to-date (Jul-Nov) the UK has imported 925Kt of maize, up 27% from the same period in 2021/22. The pace of imports started to steady in November and is expected to continue throughout the rest of the season due to its relative price compared with domestic grains.

13. **At 711Kt, maize usage by H&I sectors is estimated to fall by 32Kt from the November estimate and 146Kt year on year.** While bioethanol usage is expected to fall on the year, with wheat pricing more competitively, it's not projected to drop out of inclusions completely. **The usage of maize in animal feed is forecast to be up 31Kt from the November estimate and marginally up (8Kt) on the year at 1.181Mt.** The relative price of maize and higher domestic supply of wheat is expected to cap maize inclusions in rations as this season progresses.

14. **The balance of maize supply and demand is unchanged from previous estimates and 22Kt lower than 2021/22 levels at 360Kt.** Exports remain estimated at 135Kt, relatively unchanged (+1Kt) on the year, while closing stocks are forecast at 225Kt, down 23Kt from 2021/22.

OATS

15. **Total availability of oats in 2022/23 is forecast at 1.179Mt, down 74Kt from the November estimate and 109Kt lower from 2021/22.** This is driven by a drop in production outweighing a slight rise in opening stocks. The final Defra oat production estimate for 2022 is 1.007Mt, 116Kt lower year on year down to a smaller area, and 74Kt lower than the initial AHDB estimate. Imports are pegged at 15Kt, down 2Kt from 2021/22.

16. **H&I usage of oats in 2022/23 is estimated to fall 6Kt from November's forecast, but increase 11Kt on the year to 513Kt.** While additional oat milling capacity is expected to come online next season, it is not anticipated to impact demand for 2022/23. **Usage of oats in animal feed is down 53Kt from November and is expected to fall back 82Kt from last year's record levels, to 393Kt.** While demand by compounders is expected to fall somewhat, the majority of the decline on previous estimates and the year is driven by a reduction in fed on farm usage, driven by a smaller, higher quality crop.

17. **At 243Kt, the balance of oat availability and consumption is down 14Kt from the November estimate and 36Kt lower than 2021/22 levels.** Exports remain forecast at 115Kt, 8Kt lower on the year but remaining strong in a historical context. End-season stocks are estimated to be 28Kt lower on the year at 128Kt.

18. Appendix II shows cumulative usage and trade data to end-November. 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 January 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 Nov-22	2022/23 Jan-23	Absolute change Nov-22	% change on 21/22	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Nov-22	2022/23 Jan-23	Absolute change Nov-22	% 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	15,664	15,540	-124	11%	7,361	8,048	8,117	6,961	7,190	7,385	195	6%
(3) Imports	1,826	1,056	2,431	1,994	1,225	1,225	-	-39%	85	70	89	89	75	75	-	-16%
(4) Total availability	17,327	19,192	14,527	17,398	18,735	18,610	-124	7%	8,583	9,210	9,562	8,108	8,229	8,424	195	4%
(5) Human and industrial consumption (b)	7,080	6,932	6,594	7,112	7,385	7,376	-9	4%	1,833	1,778	1,722	1,883	1,923	1,974	50	5%
(5a) (of which home grown)	5,994	6,169	5,108	6,011	6,511	6,515	5	8%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(6) Usage as animal feed (c)	7,168	7,560	6,115	7,248	7,239	7,141	-98	-1%	4,262	4,144	5,312	4,227	4,014	4,074	60	-4%
(6a) (of which home grown)	6,484	7,060	5,365	6,548	6,739	6,691	-48	2%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(6b) (of which compounders)	4,084	4,320	3,654	4,049	4,078	4,011	-68	-1%	1,457	1,399	1,890	1,544	1,358	1,345	-13	-13%
(6c) (of which integrated poultry units)	1,161	1,185	1,080	1,143	1,155	1,124	-31	-2%	77	44	147	83	56	55	-2	-34%
(7) Seed (d)	265	215	278	280	280	280	-	-	191	223	185	178	164	178	14	-
(8) Other	68	81	48	70	78	78	-	11%	37	40	41	35	36	37	1	6%
(9) Total domestic consumption	14,581	14,788	13,035	14,710	14,982	14,874	-108	1%	6,323	6,185	7,260	6,323	6,138	6,263	125	-1%
(10) Balance (4) - (9)	2,746	4,404	1,492	2,688	3,752	3,736	-17	39%	2,260	3,025	2,302	1,785	2,091	2,161	70	21%
(11) Exports (e)	546	1,205	209	511	-	1,150	*	125%	1,162	1,790	1,290	764	-	1,000	*	31%
(12) Intervention stocks (e)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(13) Commercial end-season stocks (e)	1,866	2,438	1,416	1,846	-	2,586	*	40%	1,109	1,357	1,058	964	-	1,161	*	20%
(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	-	1,086	*	214%	325	567	278	164	-	361	*	120%
(16) Surplus available for either export or free stock (10)-(12)-(14)-(18)	872	2,093	-	857	2,252	2,236	-17	161%	1,474	2,356	1,568	928	1,291	1,361	70	47%
(17) 2020/21 operating stock deficit (13)-(14)**	-	-	-84	-	-	-	-	-	-	-	-	-	-	-	-	-
(18) Residual (10)-(11)-(13)	-	761	-134	331	-	-	-	-	-	-121	-46	57	-	-	-	-

	MAIZE								OATS							
	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Nov-22	2022/23 Jan-23	Absolute change Nov-22	% change on 21/22	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Nov-22	2022/23 Jan-23	Absolute change Nov-22	% 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	1,081	1,007	-74	-10%
(3) Imports	2,458	2,376	2,856	2,207	2,010	2,009	-1	-9%	21	18	20	17	15	15	-	-13%
(4) Total availability	2,710	2,689	3,078	2,417	2,258	2,257	-1	-7%	1,136	1,210	1,157	1,287	1,253	1,179	-74	-8%
(5) Human and industrial consumption	822	800	1,011	858	743	711	-32	-17%	532	553	531	503	519	513	-6	2%
(5a) (of which home grown)	-	-	-	-	-	-	-	-	511	537	513	485	505	499	-6	3%
(6) Usage as animal feed	1,375	1,362	1,536	1,174	1,150	1,181	31	1%	358	346	394	475	446	393	-53	-17%
(6a) (of which home grown)	-	-	-	-	-	-	-	-	358	346	394	475	446	393	-53	-17%
(7) Seed	-	-	-	-	-	-	-	-	26	29	28	24	25	24	-1	-
(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	2,035	1,898	1,897	-1	-7%	921	933	958	1,007	995	935	-60	-7%
(10) Balance (4) - (9)	509	523	527	382	360	360	0	-6%	215	276	199	280	257	243	-14	-13%
(11) Exportable surplus	153	135	138	134	135	135	-	1%	70	120	41	123	115	115	-	-7%
(12) Commercial end-season stocks	248	222	211	248	225	225	-	-9%	133	106	147	157	142	128	-14	-18%
(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 Nov-22	% change on 21/22
		2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Nov-22	2022/23 Jan-23			
(1)	Opening stocks	5	5	5	5	10	10	-	90%	
(2)	Production	182	169	168	297	297	330	33	11%	
(3)	Imports	4	3	1	11	10	10	-	-9%	
(4)	Total availability	192	177	174	313	317	350	33	12%	
(5+6)	H&I and animal feed	180	169	166	289	298	325	27	12%	
(5a+6a)	(of which home grown)	176	166	165	279	284	315	31	13%	
(7)	Seed	4	3	3	10	5	10	5	-	
(8)	Other	-	-	-	-	-	-	-	-	
(9)	Total domestic consumption	185	172	169	299	303	335	32	12%	
(10)	Balance (4) - (9)	7	5	5	14	14	15	1	7%	
(11)	Exportable surplus	1	-	-	4	4	5	1	17%	
(12)	Intervention stocks	-	-	-	-	-	-	-	-	
(13)	Commercial end-season stocks	6	5	5	10	10	10	1	3%	

		TOTAL CEREALS							Absolute change Nov-22	% change on 21/22
		2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Nov-22	2022/23 Jan-23			
(1)	Opening stocks	3,367	3,437	4,128	2,837	3,224	3,224	-	14%	
(2)	Production	22,186	25,518	18,974	22,369	24,232	24,262	30	8%	
(3)	Imports	4,394	3,523	5,397	4,318	3,335	3,334	-1	-23%	
(4)	Total availability	29,947	32,478	28,499	29,524	30,791	30,820	29	4%	
(5)	H&I (wheat, barley, maize, oats) (h)	10,267	10,063	9,858	10,355	10,571	10,574	3	2%	
(6)	Animal feed (wheat, barley, maize oats) (h)	13,163	13,412	13,357	13,124	12,850	12,789	-61	-3%	
(5a +6a)	Other cereals (H&I and animal feed)	180	169	166	289	298	325	27	12%	
(7)	Seed	487	470	494	492	474	492	18	-	
(8)	Other	114	130	98	115	123	124	1	8%	
(9)	Total domestic consumption	24,211	24,244	23,973	24,375	24,316	24,304	-11	0%	
(10)	Balance (4) - (9)	5,737	8,234	4,526	5,149	6,475	6,515	40	27%	
(11)	Exports	1,932	3,249	1,679	1,537	-	2,405	*	-	
(12)	Intervention stocks	-	-	-	-	-	-	-	-	
(13)	Commercial end-season stocks	3,362	4,128	2,837	3,224	377	4,110	*	27%	
(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	-	1,447	*	184%	
(16)	Surplus available for either export or free stock (10)-(12)-(14)-(18)	3,413	5,038	2,237	2,461	4,175	4,215	40	71%	
(17)	Residual (10)-(11)-(13)		856	10	389					

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 November 2022		Thousand tonnes								
		2017/18 to 2021/22 average	2017/18 21 weeks	2018/19 21 weeks	2019/20 21 weeks	2020/21 21 weeks	2021/22 21 weeks	2022/23 21 weeks	% Change 2022/23 on 2021/22	Actual Change 2022/23 on 2021/22
WHEAT										
Usage	Flour millers ⁽¹⁾	2,639	2,958	2,743	2,438	2,415	2,498	2,499	0%	2
	of which home-grown	2,165	2,579	2,154	2,118	1,811	1,981	2,138	8%	156
	of which imported	473	379	589	321	604	516	362	-30%	-155
	Brewers, maltsters and distillers	317	343	290	300	336	385	438	14%	53
	Animal Feed Processors ⁽²⁾	1,949	1,964	2,022	2,012	1,798	1,868	1,803	-3%	-65
	of which feed compounders	1,474	1,464	1,535	1,558	1,339	1,414	1,355	-4%	-59
Imports	of which intergrated poultry units	475	500	486	455	459	455	448	-1%	-6
	From July ⁽³⁾	837	725	1,043	436	1,144	867	552	-36%	-315
Exports	From July ⁽³⁾	313	247	134	745	127	161	432	168%	271
BARLEY										
Usage	Brewers, maltsters and distillers	749	769	761	782	682	750	794	6%	44
	Animal Feed Processors ⁽²⁾	526	501	453	490	658	671	488	-27%	-183
	of which feed compounders	496	475	429	473	608	621	461	-26%	-160
	of which intergrated poultry units	29	26	25	17	50	50	27	-46%	-23
Imports	From July ⁽³⁾	32	47	26	20	35	46	35	-24%	-11
Exports	From July ⁽³⁾	668	546	314	1,121	693	383	474	24%	91
MAIZE										
Usage	Human and Industrial ⁽⁴⁾	**	**	**	**	**	**	**	*	*
	Animal Feed Processors ⁽²⁾	191	137	204	192	230	**	**	*	*
	of which feed compounders	169	120	188	162	207	141	168	20%	28
	of which intergrated poultry units	21	17	16	29	23	**	**	*	*
Imports	From July ⁽³⁾	1,044	856	1,098	1,006	1,217	730	925	27%	195
Exports	From July ⁽³⁾	67	66	73	63	68	47	50	6%	3
OATS										
Usage	Human and Industrial ⁽⁵⁾	134	130	142	128	139	128	130	2%	2
	Animal Feed Processors ⁽²⁾	25	20	29	24	28	50	32	-35%	-17
Imports	From July ⁽³⁾	13	13	22	8	8	10	9	-13%	-1
Exports	From July ⁽³⁾	29	18	19	60	19	15	74	399%	59

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.

* 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 26 January 2023. The data above may differ from the most recent published data.

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