SUPPLY AND DEMAND

30 March 2023

KEY POINTS

- The domestic wheat balance remains heavy this season and despite higher exports, wheat end of season stocks remain the largest since 2015/16.
- Barley H&I demand is forecast to reach a record high in 2022/23, despite the rise in cost of living.
- Large domestic grain availability means maize usage is expected to remain at more minimum requirements.
- With a larger-than-average quality oat crop, exports are expected to reach a 20 year high this season.

INTRODUCTION

1. This release covers the third 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. **Total cereals demand in 2022/23 for animal feed is estimated at 12.549Mt. This is 240Kt lower than January's estimate and down 579Kt on the year, remaining the lowest level since 2016/17.** As the season has progressed, animal feed production has declined at a greater rate than earlier anticipated, as challenges from high input costs squeeze demand. From January's estimates, the outlook for cattle feed demand has reduced, on tightening dairy margins, with producers expected to be utilising forage and grazing even more. However, some regions saw poor forage quality this season, boosting some feed requirements over winter. Weather remains key for ruminant feed demand for the remainder of the season. Significant declines seen in recent months across pig and poultry feed production are expected to continue, reducing the outlook from January's forecasts further. Cereal inclusions in animal feed rations remain down year-on-year, due to the relative price of protein meal. However, with cereal prices reducing since the previous estimates, this reduction looks less stark. **Human and industrial (H&I) total cereal usage in 2022/23 is forecast down 29Kt from January's estimate, at 10.545Mt, but remains up 144Kt from 2021/22 levels.** The reduction from January is a result of challenging conditions across the bioethanol sector primarily.

WHEAT

4. **In 2022/23, total wheat availability is estimated at 18.560Mt, down 50Kt from January's estimates, but 1.162Mt higher year-on-year.** Wheat imports are forecast at 1.175Mt, 50Kt lower than the previous estimate, leading to the slight decline in total availability from January. With a large domestic crop this season, imports are expected to be at near minimum levels with a large proportion of imports expected to be high protein milling wheat, with a small proportion of feed wheat going into Northern Ireland.

5. **H&I wheat consumption in 2022/23 is 94Kt lower than January's estimate but 125Kt higher on the year at 7.281Mt.** The reduction from January's estimate is primarily due to lower usage by the bioethanol and starch industries, as well as some reduction in flour milling demand. This season has brought challenging conditions for the bioethanol industry, with higher input costs and lower ethanol prices. However, input costs have started to fall, easing the squeeze on margins. While both UK bioethanol plants are in operation this season, they are not expected to be running at full capacity, with longer maintenance periods than initially anticipated. Despite bioethanol demand being down from previous estimates, it remains up year-on-year, contributing to the overall rise in H&I usage compared with 2021/22, along with an increase in usage by the starch and distilling industries. As always, bioethanol demand remains a watchpoint. Flour production has seen a small reduction since the previous estimates, with the cost-of-living crisis playing into buying confidence for some, which also remains a watchpoint. Despite the lower protein content of the 2022 crop, flour millers are expected to use a slightly larger amount of home-grown wheat this season, driven by price and higher availability. However, a proportion of imported high protein milling wheat will be required to ensure continuity in the grist.

6. **Usage of wheat in animal feed is 195Kt lower than January's estimate and down 296Kt on 2021/22 levels, at 6.946Mt.** The reduction from January's estimate is a result of a sharper fall in animal feed production than initially expected, across all sectors. Wheat remains prominent in rations compared with other cereals, due to its availability and relative price. However, with reduced animal feed production and lower total cereal inclusions in the ration, feed wheat usage is forecast lower on the year. The amount of wheat fed on farm is expected to be slightly lower from January's estimate, despite the decline in prices, with growers yielding higher this season from selling grain.

7. **At 3.975Mt, the balance of total availability and domestic consumption of wheat is up 239Kt from January's estimate, and 1.325Mt (50%) higher than 2021/22; the largest since 2019/20.** Despite slightly lower total availability, a greater reduction in domestic consumption has increased the wheat balance further, compared with previous estimates. However, exports have been revised up by

350Kt from January's estimate, to 1.500Mt, 989Kt higher than in 2021/22. From July 2022 to January 2023, the UK exported 736Kt of wheat, with January alone accounting for 159Kt. Furthermore, 1.130Mt of UK common wheat has been imported into the EU as of 27 March, according to European Commission surveillance data. Anecdotal reports also suggest that the export pace was strong in February and March, with firm commitments for April, while the pace is expected to slow in May and June. It is important to note that price competitiveness and continued buying will be crucial for the direction of full season exports. Commercial end-season stocks are estimated at 2.475Mt for 2022/23, down 111Kt from January's estimate but up 629Kt from 2021/22. This keeps the carry-out similar to 2019/20, historically high. Taking into account an operating stock requirement of 1.500Mt and exports to date, the UK has 1.739Mt of wheat available to either be exported from February to June or carried over into next season as free stock.

BARLEY

8. **In 2022/23, total barley availability is 5Kt lower than January's estimate at 8.419Mt, but up 311Kt year-on-year.** Despite the lowest level of opening stocks in 10 years, a rise in production has led to increased supply year-on-year.

9. **At 1.996Mt, H&I usage of barley is up 22Kt from January's estimate and 110Kt higher than 2021/22 levels.** Yet again, if realised this would be the highest usage this century. Even stronger BMD demand is expected from the last estimate, despite the rise in cost-of-living, driven by increased capacity in Scotland.

10. **Usage of barley in animal feed is down 12Kt from January's estimate, and 175Kt lower than 2021/22 levels, at 4.062Mt.** The slight reduction in barley usage from January's estimate is in line with a reduced outlook for animal feed demand overall, especially with further reductions to pig and ruminant feed demand. At the start of last season, barley was included relatively heavily in rations, after high barley supply in 2020/21, before coming back down. While barley has been favoured in some rations this season, the reduction in total animal feed production has resulted in further declines on the year.

11. **The barley supply and demand balance in 2022/23 is slightly lower (-15Kt) than January's estimate, but 373Kt (21%) higher year-on-year at 2.146Mt.** Larger availability this season combined with a fall in total domestic consumption, due to lower animal feed demand outweighing higher H&I demand, has led to the increased balance on the year. However, the barley balance remains relatively tight and smaller than the previous five-year average. Full season exports remain unchanged from January, but 236Kt higher than in 2021/22 at 1.000Mt. To date (Jul-Jan) barley exports have totalled 674Kt. The pace is expected to slow slightly towards the end of the season. Commercial end of season stocks are forecast at 1.146Mt, up 182Kt from last season.

MAIZE

12. **In 2022/23, total maize availability is estimated at 2.286Mt, up 30Kt from January's estimate, but down 131Kt year-on-year, with lower imports outweighing higher opening stocks.** The slight increase from January's forecast is a result of higher full-season maize imports, which have been revised up by 30Kt to 2.038Mt. Season-to-date (Jul-Jan) the UK has imported 1.374Mt of maize, up 14% from the same period in 2021/22. The import pace has steadied slightly in recent months but remains consistent to fulfil demand. The slower import pace is expected to continue for the rest of the season due to its relative price compared with domestic grains.

13. **Maize usage by H&I sectors is estimated at 753Kt, up 42Kt from the January estimate but down 106Kt year-on-year.** The increase from January is largely due to higher-than-expected usage in previous months. For bioethanol usage, while wheat is pricing more competitively, maize is not projected to completely drop out of inclusions. **Maize usage in animal feed is near unchanged (-2Kt) from January's estimate and marginally up (6Kt) on the year, at 1.179Mt.** Despite overall lower animal feed demand, maize usage in Northern Ireland is expected to be up on the year capping any losses.

14. **The balance of maize supply and demand is 350Kt, 10Kt lower than in January and 32Kt lower than 2021/22 levels.** Exports have been reduced by 10Kt from January, to 125Kt due to the slow pace noted season to date. Closing stocks remain at 225Kt, down 23Kt from 2021/22.

OATS

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

16. **At 515Kt, H&I usage of oats in 2022/23 is up 2Kt from January's forecast and up 14Kt on the year.** Additional oat milling capacity is understood to come online later this year, although it is not anticipated to impact 2022/23 demand. **Usage of oats in animal feed is forecast at 362Kt, down 31Kt from January's estimate and 115Kt from last year's record levels.** The reduction from January is driven by a decline in fed on farm usage.

17. **At 273Kt, the balance of oat supply and demand is up 29Kt from January's estimate but down 6Kt from 2021/22 levels.** The export forecast has increased from January's estimate by 40Kt to 155Kt, on the back of strong pace season to date. This is 32Kt higher on the year and would be the largest since 2002/03 if realised. End-season stocks are estimated to be 39Kt lower on the year at 118Kt, down 11Kt from the previous estimate.

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

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Appendix I

UK CEREAL SUPPLY AND DEMAND ESTIMATES [(a)]

Estimates made in March 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 Jan-23	2022/23 Mar-23	Absolute change Jan-23	% change on 21/22	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Jan-23	2022/23 Mar-23	Absolute change Jan-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	1,225	1,175	-50	-41%	85	70	89	89	75	70	-5	-21%
(4)	**Total availability**	**17,327**	**19,192**	**14,527**	**17,398**	**18,610**	**18,560**	**-50**	**7%**	**8,583**	**9,210**	**9,562**	**8,108**	**8,424**	**8,419**	**-5**	**4%**
(5)	Human and industrial consumption (b)	7,089	6,932	6,594	7,156	7,376	7,281	-94	2%	1,833	1,778	1,722	1,885	1,974	1,996	22	6%
(5a)	(of which home grown)	6,003	6,169	5,108	6,056	6,515	6,412	-103	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	7,141	6,946	-195	-4%	4,264	4,144	5,312	4,237	4,074	4,062	-12	-4%
(6a)	(of which home grown)	6,482	7,060	5,365	6,542	6,691	6,546	-145	0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(6b)	(of which compounders)	4,083	4,320	3,654	4,043	4,011	3,878	-133	-4%	1,458	1,399	1,890	1,553	1,345	1,329	-16	-14%
(6c)	(of which integrated poultry units)	1,161	1,185	1,080	1,143	1,124	1,113	-12	-3%	77	44	147	83	55	59	4	-29%
(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**	**14,874**	**14,585**	**-289**	**-1%**	**6,326**	**6,185**	**7,260**	**6,335**	**6,263**	**6,273**	**10**	**-1%**
(10)	**Balance (4) - (9)**	**2,738**	**4,404**	**1,492**	**2,649**	**3,736**	**3,975**	**239**	**50%**	**2,257**	**3,025**	**2,302**	**1,773**	**2,161**	**2,146**	**-15**	**21%**
(11)	Exports (e)	546	1,205	209	511	1,150	1,500	350	193%	1,162	1,790	1,290	764	1,000	1,000	-	31%
(12)	Intervention stocks (e)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(13)	**Commercial end-season stocks (e)**	**1,866**	**2,438**	**1,416**	**1,846**	**2,586**	**2,475**	**-111**	**34%**	**1,109**	**1,357**	**1,058**	**964**	**1,161**	**1,146**	**-15**	**19%**
(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	975	-111	182%	325	567	278	164	361	346	-15	111%
(16)	**Surplus available for either export or free stock (10)-(12)-(14)-(18)**	**872**	**2,093**		**857**	**2,236**	**2,475**	**239**	**189%**	**1,474**	**2,356**	**1,568**	**928**	**1,361**	**1,346**	**-15**	**45%**
(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 Jan-23	2022/23 Mar-23	Absolute change Jan-23	% change on 21/22	2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Jan-23	2022/23 Mar-23	Absolute change Jan-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	2,009	2,038	30	-8%	21	18	20	17	15	15	-	-13%
(4)	**Total availability**	**2,710**	**2,689**	**3,078**	**2,417**	**2,257**	**2,286**	**30**	**-5%**	**1,136**	**1,210**	**1,157**	**1,287**	**1,179**	**1,179**	**-**	**-8%**
(5)	Human and industrial consumption	823	800	1,011	859	711	753	42	-12%	532	553	531	501	513	515	2	3%
(5a)	(of which home grown)	-	-	-	-	-	-	-	-	511	537	513	483	499	501	2	4%
(6)	Usage as animal feed	1,375	1,362	1,536	1,173	1,181	1,179	-2	1%	358	346	394	477	393	362	-31	-24%
(6a)	(of which home grown)	-	-	-	-	-	-	-	-	358	346	394	477	393	362	-31	-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**	**1,897**	**1,936**	**40**	**-5%**	**921**	**933**	**958**	**1,008**	**935**	**906**	**-29**	**-10%**
(10)	**Balance (4) - (9)**	**509**	**523**	**527**	**382**	**360**	**350**	**-10**	**-8%**	**215**	**276**	**199**	**279**	**243**	**273**	**29**	**-2%**
(11)	Exportable surplus	153	135	138	134	135	125	-10	-7%	70	120	41	123	115	155	40	26%
(12)	**Commercial end-season stocks**	**248**	**222**	**211**	**248**	**225**	**225**	**-**	**-9%**	**133**	**106**	**147**	**157**	**128**	**118**	**-11**	**-25%**
(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)							
		2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Jan-23	2022/23 Mar-23	Absolute change Jan-23	% change on 21/22
(1)	Opening stocks	5	5	5	5	10	10	-	90%
(2)	Production	182	169	168	297	330	330	-	11%
(3)	Imports	4	3	1	11	10	10	-	-9%
(4)	**Total availability**	**192**	**177**	**174**	**313**	**350**	**350**	**-**	12%
(5+6)	H&I and animal feed	180	169	166	289	325	325	-	12%
(5a+6a)	(of which home grown)	176	166	165	279	315	315	-	13%
(7)	Seed	4	3	3	10	10	10	-	-
(8)	Other	-	-	-	-	-	-	-	-
(9)	**Total domestic consumption**	**185**	**172**	**169**	**299**	**335**	**335**	**-**	12%
(10)	**Balance (4) - (9)**	**7**	**5**	**5**	**14**	**15**	**15**	**-**	7%
(11)	Exportable surplus	1	-	-	4	5	5	-	17%
(12)	Intervention stocks	-	-	-	-	-	-	-	-
(13)	**Commercial end-season stocks**	**6**	**5**	**5**	**10**	**10**	**10**	**-**	3%

		TOTAL CEREALS							
		2017/18 2021/22 average	2019/20 estimate	2020/21 estimate	2021/22 estimate	2022/23 Jan-23	2022/23 Mar-23	Absolute change Jan-23	% change on 21/22
(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	24,262	24,262	-	8%
(3)	Imports	4,394	3,523	5,397	4,318	3,334	3,308	-25	-23%
(4)	**Total availability**	**29,947**	**32,478**	**28,499**	**29,524**	**30,820**	**30,794**	**-25**	**4%**
(5)	H&I (wheat, barley, maize, oats) (h)	10,276	10,063	9,858	10,402	10,574	10,545	-29	1%
(6)	Animal feed (wheat, barley, maize oats) (h)	13,164	13,412	13,357	13,128	12,789	12,549	-240	-4%
(5a +6a)	Other cereals (H&I and animal feed)	180	169	166	289	325	325	-	12%
(7)	Seed	487	470	494	492	492	492	-	-
(8)	Other	114	130	98	115	124	124	-	8%
(9)	**Total domestic consumption**	**24,221**	**24,244**	**23,973**	**24,426**	**24,304**	**24,036**	**-269**	**-2%**
(10)	**Balance (4) - (9)**	**5,727**	**8,234**	**4,526**	**5,098**	**6,515**	**6,759**	**243**	**33%**
(11)	Exports	1,932	3,249	1,679	1,537	2,405	2,785	380	81%
(12)	Intervention stocks	-	-	-	-	-	-	-	-
(13)	**Commercial end-season stocks**	**3,362**	**4,128**	**2,837**	**3,224**	**4,110**	**3,974**	**-137**	**23%**
(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	1,321	-126	159%
(16)	**Surplus available for either export or free stock (10)-(12)-(14)-(18)**	**3,403**	**5,038**	**2,237**	**2,461**	**4,215**	**4,459**	**243**	**81%**
(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

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Appendix II

CUMULATIVE MONTHLY STATISTICS

Usage of cereals by processors, external trade and stocks

Situation as at end of January 2023 — Thousand tonnes

		2017/18 to 2021/22 average	2017/18 30 weeks	2018/19 30 weeks	2019/20 30 weeks	2020/21 30 weeks	2021/22 30 weeks	2022/23 30 weeks	% Change 2022/23 on 2021/22	Actual Change 2022/23 on 2021/22
WHEAT										
Usage	Flour millers [1]	3,621	4,007	3,690	3,514	3,275	3,477	3,467	0%	-10
	of which home-grown	2,977	3,477	2,972	3,061	2,398	2,788	2,960	6%	172
	of which imported	644	529	718	452	877	689	507	-26%	-182
	Brewers, maltsters and distillers	427	479	404	358	467	545	621	14%	77
	Animal Feed Processors [2]	2,770	2,793	2,858	2,939	2,492	2,677	2,536	-5%	-141
	of which feed compounders	2,095	2,082	2,178	2,260	1,860	2,023	1,901	-6%	-122
	of which intergrated poultry units	676	711	680	679	632	654	635	-3%	-19
Imports	From July [3]	1,127	986	1,309	617	1,597	1,195	791	-34%	-404
Exports	From July [3]	393	305	213	892	162	265	736	178%	471
BARLEY										
Usage	Brewers, maltsters and distillers	1,062	1,099	1,079	1,108	960	1,075	1,138	6%	62
	Animal Feed Processors [2]	767	725	622	723	998	924	720	-22%	-204
	of which feed compounders	725	687	590	700	922	864	687	-20%	-177
	of which intergrated poultry units	43	38	32	24	76	60	32	-46%	-28
Imports	From July [3]	45	62	45	28	43	55	40	-28%	-16
Exports	From July [3]	909	779	531	1,308	1,019	521	674	29%	153
MAIZE										
Usage	Human and Industrial [4]	**	**	**	**	**	**	**	*	*
	Animal Feed Processors [2]	290	200	339	268	352	**	**	*	*
	of which feed compounders	258	175	313	227	318	202	232	15%	30
	of which intergrated poultry units	32	24	27	41	34	**	**	*	*
Imports	From July [3]	1,521	1,192	1,681	1,451	1,762	1,209	1,374	14%	165
Exports	From July [3]	99	104	113	86	91	73	62	-14%	-10
OATS										
Usage	Human and Industrial [5]	274	274	281	267	275	250	258	3%	9
	Animal Feed Processors [2]	38	32	43	37	42	74	45	-39%	-29
Imports	From July [3]	16	15	27	11	11	13	11	-18%	-2
Exports	From July [3]	41	21	29	89	24	28	118	324%	90

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 30 March 2023. The data above may differ from the most recent published data.

Disclaimer