



Cereal Stocks UK / England and Wales – June 2014

This release provides the tonnages of wheat, barley and oats held on farms in England and Wales and wheat, barley, oats and maize held by UK ports, co-operatives and merchants. These stocks are an important component of the cereal supply and demand balance sheet information. This twice-yearly notice will next be updated in May 2015 and will show the cereal stocks held at the end of February 2015.

Key results:

Stocks of cereals held **on farms in England and Wales** in June 2014 ([tables 1-4](#)):

- Stocks of own-grown wheat decreased by 26% from June 2013 to 367 thousand tonnes. Production in 2013 was 10% down on 2012, which was also low, but quality was improved so demand has been strong.
- There was 289 thousand tonnes of own-grown barley stocks held on farms, a rise of 47% from 2013. Production was up 28%. The increased use for brewing, animal feed and higher exports did not fully off-set the higher availability.
- Stocks of own-grown oats on farms stood at 53 thousand tonnes, 35 thousand tonnes higher than at June 2013 but in line with the 54% in production and relatively weak demand.

Stocks of cereals held at **ports, co-ops and merchants** in the **UK** at the end of June 2014 ([table 5](#)):

- Total wheat stocks were 782 thousand tonnes, 5% lower than at June 2013. The stocks of home grown wheat were 547 thousand tonnes. Stocks of imported wheat were 234 thousand tonnes. Stocks in both 2013 and 2014 are approximately double the stocks levels typically reported in other recent years due to much higher imports of wheat for the 2012/13 and 2013/14 seasons following two low UK harvests in 2012 and 2013.
- Stocks of home grown barley were up by a very significant 40% at 417 thousand tonnes. Similarly home-grown oat stocks more than doubled to 86 thousand tonnes. Increased use did not off-set the much higher availability, resulting in higher stocks.
- Stocks of imported maize were 189 thousand tonnes at the end of June 2014, compared to 89 thousand tonnes estimated at the end of June 2013. Total imports of maize over the 2013/14 season were 2.4 million tonnes, just over 40% higher than the previous crop year.

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Revisions: There are minor revisions to the February 2014 figures for imported barley and oats and maize held by merchants, ports and co-ops (around 1000 tonnes).

Background context

Stocks are an important measure of grain availability and a key component of the UK cereals supply and demand balance sheets. These are constructed on a crop year basis (July to June) for each key cereal in conjunction with the Home Grown Cereals Authority and are published [here](#). This also includes a commentary on the season which explains the forecasts and the factors influencing the forecasts.

The balance sheet is constructed using official UK cereal production estimates, monthly cereal usage statistics from surveys of the various sectors such as flour millers, brewers and maltsters, compound animal feed producers and biofuel producers and monthly trade statistics from HM Revenue and Customs. The usage and trade statistics run two months in arrears. The first forecast balance sheet is constructed in the autumn of each season and is then updated at regular intervals during the season, taking into account the latest data and other intelligence and wider markets conditions. It is finalised each year in September for the previous season.

Grain is a globally traded commodity and supply and demand is influenced by international markets. The stocks at the end of June in any particular year form the end of season closing stocks for the current year and the opening stocks for the following season. These stocks together with home production plus any imported grain constitute the total grain available. The stocks data collected at the end of February provide an indication at a key time of the season of the general stocks direction and situation so have been collected at this time point in response to industry requests and feedback.

The cereal grain is used by a variety of processing sectors e.g. wheat milled for flour production for bread, use of barley for brewing and malting and use of wheat, barley, oats and maize for compound feed production and differentiates between home grown and imported grain. The majority of the grain that is imported is the higher quality wheat grain which is required for milling, but other uses include primarily animal feed. Statistics on cereal use which are a key component of the balance sheet and usage statistics are published monthly on the [Defra website](#). Grain exports and closing stocks form the final components of the balance sheet.

The various factors affecting the cereal availability and demand as reflected in the forecast cereal balance sheet are expected to be shown in the stocks data. Generally high production and low demand will result in higher stocks. For the 2012/13 balance sheet these key issues are the lower UK wheat production, down 13% in 2012, and poor quality of the crop which meant higher demand of higher quality imported wheat primarily for milling but also feed, and increased demand of imported maize for animal feed use. This resulted in higher stocks of imported wheat and imported maize. For the 2013/14 season, wheat production was down a further 10% but for barley and oats was up by 28 and 54% respectively. Wheat and maize imports were high again.

Grain grown on farm can also be used directly on farm for animal feed (primarily for cattle and sheep) and a significant proportion of barley grown on farm is typically used in this way. This

established practice tends to make changes in barley stocks on farm less susceptible to market influences compared to wheat. The regional breakdown of farm stocks given in table 4 also includes livestock numbers from the June Survey of Agriculture and Horticulture for the to allow some cross comparison between stocks and the demand for feed for livestock from the possible use of home mixing of grain on farm for animal feed. There are a number of inter-related factors impacting on animal feed use (compound and/or grain fed on farm) including livestock numbers, grain price and the weather which impacts on grazing and forage availability and quality.

UK cereal area and crop production figures and livestock numbers are available on the [Defra website](#).

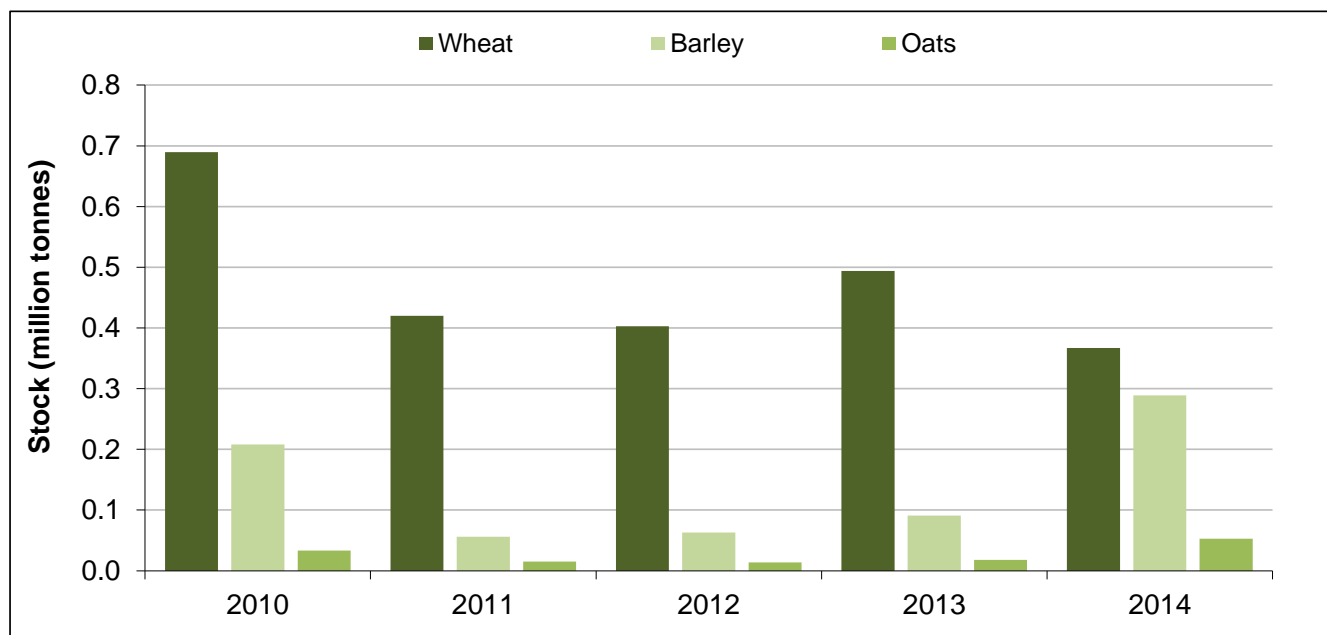
Cereal stocks are held at various points in the supply chain. This includes on the farm on which they are produced, by the cereal processors who use the cereals to produce flour, animal feed, beet and malt etc, by co-operatives who store and market grain, by merchants who trade in grain and at port facilities where the grain is stored after import or prior to being exported.. The cereal usage surveys also collect information on grain stocks. This statistical notice reports held on farm and by merchants, ports and co-ops. Farm survey data is only available and published for England and Wales. There is not the equivalent information available and that is currently published from surveys for Scotland and Northern Ireland to allow publication of a UK figure for farm stocks. Cereal stocks on farm will be highest soon after the harvest in the autumn but will decline during the season as farmers sell and deliver the grain for use. However where the farm also has livestock, some will be held on farm for feeding to livestock, where appropriate. Stocks held by co-ops also tend to decline during the season. Stocks held by merchants and ports will be dependent on the trading activity but do not tend to show the same seasonal pattern.

Detailed results

Stocks at the end of June 2014

Figures 1, 2 and 3 show the stocks of cereals held on farms and by ports, co-ops and merchants at the end of June 2014.

Figure 1: Stocks held on farms of own-grown grain at the end of June each year (England and Wales)



The tonnage of own grown wheat declined by 11% in 2013 to 11,210 thousand tonnes. The quality of wheat is an improvement on the 2012 harvest and has encouraged the demand for home grown wheat. Farms held only 367 thousand tonnes of their own grown stock at the end of June 2013, a 26% decrease when compared to a year earlier. The higher stocks held at the end of June 2013, despite a low production was thought to be due to the low quality, resulting in a higher tonnage to be held back on farm for feeding to livestock on farms.

Stocks of barley have again seen an approximate 3 fold increase with 289 thousand tonnes held on farms in June 2014. This is equivalent to 6% of production compared to 2-4% seen in other recent years at the end of June. Production was up 28% in 2013 and whilst there has been increased use for brewing/malting and in compound feed production and higher exports, this has not off-set the higher availability, so resulting in higher stocks.

There was an increase in on farm oat stocks in June 2014 to 53 thousand tonnes, compared to 18 thousand tonnes a year earlier. The 2014 on farm stocks represent 7% of total oat production an increase in the 3% of total production on farm stocks seen in the previous 3 years. Production increased by 54% and whilst there was some increase in use by millers and for animal feed, demand was relatively weak so has resulted in higher stocks.

Figure 2: Stocks held by UK ports, co-ops and merchants at the end of June 2010 to 2014

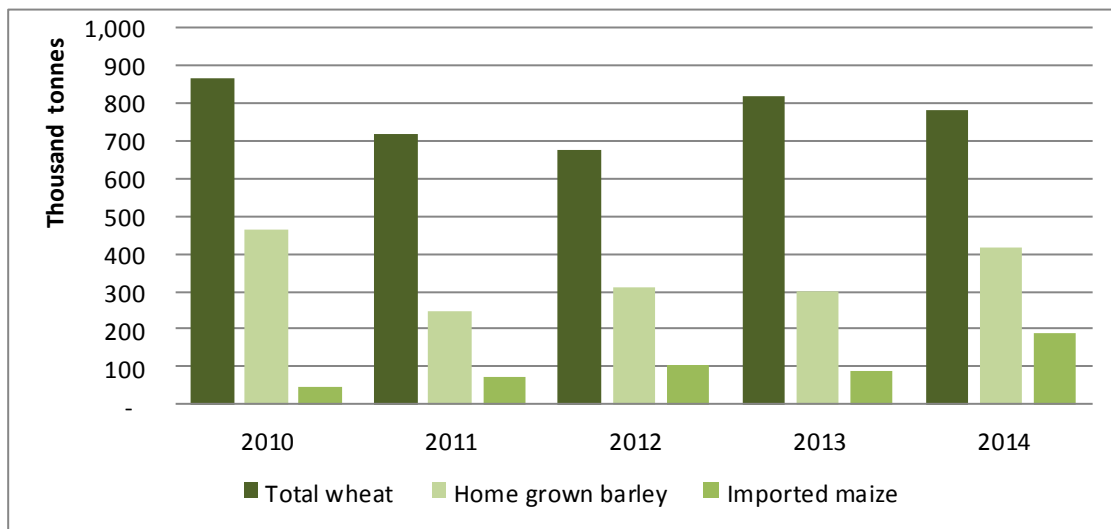


Figure 3: Stocks of home grown and imported wheat held by UK ports, co-ops and merchants at the end of June 2010 to 2014



Stocks of home grown wheat at the end of June 2014 were 547 thousand tonnes, 3% lower than stocks held at the end of June 2013. Stocks of imported wheat were 234 thousand tonnes, 9% lower than those held at the end of June 2013. Total wheat stocks at the end of June 2014 were 782 thousand tonnes, 5% lower than at June 2013. Total wheat stocks have been higher at the end of June 2013 and 2014 compared to the previous two years due to much higher levels of imported wheat in both June 2014 and 2013, approximately double the levels seen at the end of June 2011 and June 2012. This is consistent with low production of UK wheat from both the 2013 and 2013 harvests with the quality of the 2012 adversely impacted by the weather also. This resulted in increased demand for imported higher quality wheat for milling but also for feed wheat for livestock feed. Imports of wheat reached almost

3 million tonnes in the 2012/13 season and 2.2 million tonnes in 2013/14 compared to a re typical 1.1 million tonnes.

Stocks of home grown barley were 417 thousand tonnes at the end of June 2014, a very significant 40% up on stocks held at the end of June 2013 but not quite as high as stocks at the end of June 2010. The higher stocks at the end of this current season are in line with the higher production from the 2013 harvest (up 28%) despite increased use of home grown barley by the brewing/malting sector and in compound feed rations for livestock and also higher exports which did not quite off-set the much higher production.

Stocks of home grown oats were 86 thousand tonnes which is more than double the typical levels. Production of oats in 2013 was up by 54%. Whilst there was some increased demand and use by millers and for compound animal feed for supply, demand did not meet the high supply, resulting in increased stocks.

Stocks of imported maize were 189 thousand tonnes at the end of June 2014, just slightly lower than stocks held at February of 203 thousand tonnes. Total imports of maize over the 2013/14 season were 2.4 million tonnes, just over 40% higher than the previous crop year with high demand mainly for animal feed but also other sectors. Imports in both the 2012/13 and 2013/14 season are high, compared to a more usual 1 million tonnes in other recent years. The stocks of home grown maize remain small; the amount of grain maize grown in the UK is very limited.

Stocks at the end of February

The figures below show the volume of own-grown grain still in stock on farms (figure 4) and grain held in UK ports, co-ops and merchants (figures 5 and 6) at the end of February each year.

Figure 4: Stocks held on farms of own-grown grain at the end of February or March each year (England and Wales)

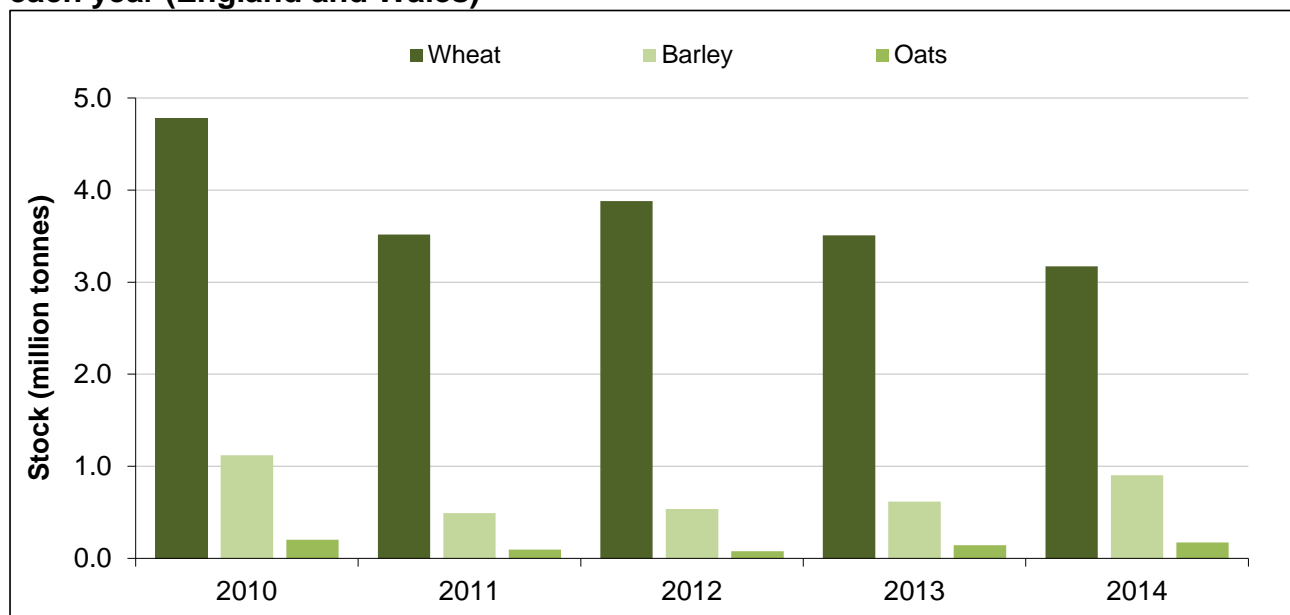


Figure 5: Stocks held by UK ports, co-ops and merchants at end of February for 2010 to 2014

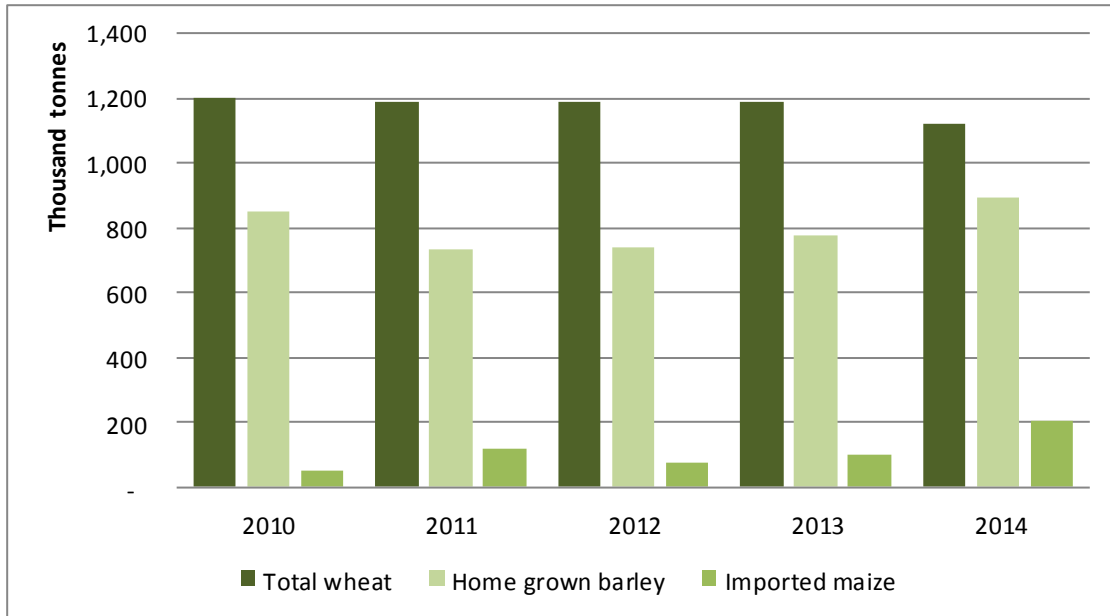
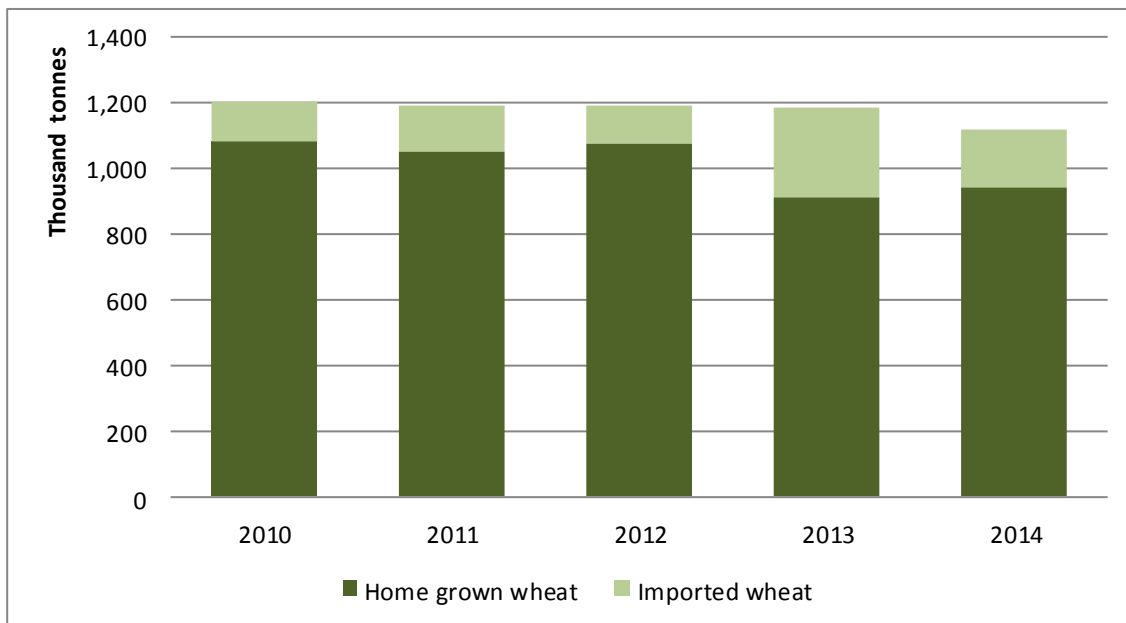


Figure 6: Stocks of UK and imported wheat held by UK ports, co-ops and merchants at end of February for 2010 to 2014



Results tables

Table 1: Stocks of own-grown grain held on the farm at the end of February or March and June ^(a to c)

		Thousand tonnes						% change 2014/2013
		2009	2010	2011	2012	2013	2014	
Wheat	Feb/Mar	4 494	4 781	3 518	3 881	3 507	3 172	-10
	June	1 129	689	420	403	494	367	-26
Barley	Feb/Mar	606	1 119	491	535	616	903	47
	June	150	208	56	63	91	289	218
Oats	Feb/Mar	130	202	94	78	143	173	21
	June	38	33	15	14	18	53	196

Table 2: Stocks of own-grown grain held on the farm at the end of February or March and June as a percentage of total production from the previous year's harvest ^(a to c)

		Percentage of production (%)					
		2009	2010	2011	2012	2013	2014
Wheat	Feb/Mar	28	35	25	27	28	28
	June	7	5	3	3	4	3
Barley	Feb/Mar	15	24	14	15	17	18
	June	4	4	2	2	2	6
Oats	Feb/Mar	20	33	18	16	28	23
	June	6	5	3	3	3	7

Source: Production figures are sourced from the Defra Cereal Production Survey. Results are available at: [Defra website](#).

Table 3: Stocks of bought-in grain held on the farm for farm use at the end of February or March and June ^(a to c)

		Thousand tonnes						% change 2014/2013
		2009	2010	2011	2012	2013	2014	
Wheat	Feb/Mar	17	28	11	19	16	17	6
	June	8	19	7	7	13	11	-15
Barley	Feb/Mar	18	26	12	12	12	13	10
	June	8	38	13	17	11	15	36
Oats	Feb/Mar	1.7	4.4	1.3	0.2	0.8	1.4	74
	June	2.1	2.9	2.5	0	1.9	0.2	-88

- (a) Includes stocks carried over from the previous harvest and grain sold on forward contract but not yet delivered.
 (b) Excludes grain that is held at ports, co-operatives and merchants. These stocks can be seen in tables 5 and 6.
 (c) From 2010 onwards the March survey was brought forward one month to February. For an explanation of this please see the methodology section.

Table 4: Regional on-farm stocks of grain at the end February 2013 and associated livestock numbers at June 2013 (England and Wales)

Wheat	Thousand tonnes			% production still on farm end June 2013	Thousand head ^(a)			
	Wheat stocks on farm at end Feb 2014	Wheat stocks on farm end June 2014	Production 2013		Cattle ^(b)	Pigs	Sheep	Poultry
North East	39	6	358	4	265	1 876	103	2 485
North West	28	7	153	2	933	2 871	157	9 158
Yorkshire and Humber	467	81	1 529	3	544	2 115	1 438	14 107
East Midlands	965	87	2 365	5	496	1 201	377	23 421
West Midlands	237	30	935	3	732	2 215	223	17 663
East of England	819	91	3 373	3	199	301	1 144	26 350
South East and London	378	52	1 437	5	424	1 238	209	8 599
South West and Wales	238	14	1 060	5	2 846	12 566	439	27 280
England and Wales	3 172	367	11 210	4	6 439	24 382	4 091	129 063

Barley	Thousand tonnes			% production still on farm end June 2013	Thousand head ^(a)			
	Barley stocks on farm at end Feb 2014	Barley stocks on farm end June 2014	Production 2013		Cattle ^(b)	Pigs	Sheep	Poultry
North East	37	8	259	2	265	1 876	103	2 485
North West	64	53	297	3	933	2 871	157	9 158
Yorkshire and Humber	209	82	810	2	544	2 115	1 438	14 107
East Midlands	145	18	575	4	496	1 201	377	23 421
West Midlands	68	17	388	7	732	2 215	223	17 663
East of England	110	23	1 007	1	199	301	1 144	26 350
South East and London	74	23	606	2	424	1 238	209	8 599
South West and Wales	195	64	1 016	2	2 846	12 566	439	27 280
England and Wales	903	289	4 958	2	6 439	24 382	4 091	129 063

Notes

- (a) Livestock numbers are shown here as one of the factors which can affect the quantities of grain held on farms. These numbers are sourced from the annual June Survey of Agriculture; results and historical figures are available at: [Defra website](#).
- (b) Cattle figures here relate to commercial holdings only for England. Therefore these figures do not match those published in the June Survey statistical release, which relate to all holdings.

Table 5: Stocks held in UK ports, co-ops and merchants at the end of February or March and June ^(a to f)

		Thousand tonnes								
		2011		2012		2013		2014		% Change
		Feb	June	Feb	June	Feb	June	Feb	June	2014 / 2013
Wheat	Home Grown	1052	598	1076	561	915	562	945	547	-3%
	Imported	138	119	117	117	274	258	176	234	-9%
Barley	Home Grown	735	250	743	310	777	298	897	417	+40%
Oats	Home Grown	70	25	65	17	72	26	108	86	+229%
Maize	Home Grown	0	1	2	3	1	1	-	1	n/a
	Imported	120	75	79	106	99	89	204	189	+111%
Barley & Imported Oats		6	10	3	16	21	13	9	12	-8%

Notes

- (a) Excludes stocks held on farm. These are collected separately and can be seen in tables 1 to 4.
- (b) Includes grain stocks cleared by customs for import and grain intended for export but not yet exported.
- (c) Excludes intervention grain.
- (d) Includes stocks carried over from the previous harvest.
- (e) Imported barley and oats are shown jointly due to confidentiality constraints.
- (f) Excludes wheat tendered on LIFFE (London International Financial Futures and Options Exchange) futures and warrants. There were 110,400 tonnes wheat at the week ending 28 June 2014. Further information can be found at the [Liffe website](#).

Methodology: Combined Cereal Stocks & Ports Co-operatives and Merchants Survey

Results from both surveys were incorporated into a combined statistical release from 2010 providing cereal stock information in February/March and June.

User statement

The stocks data are integral to the construction of the cereal supply and demand balance sheet which is put together in conjunction with the Home Grown Cereal Authority to provide an independent and transparent balance sheet. Further information on the balance sheet is provided under 'Background context'.

The information in this notice and the associated cereal usage and cereal balance sheet is used by the UK Government, the EU and the Food and Agricultural Organisation as evidence for assessing market conditions and evaluating agricultural policy. It can be used for specific negotiations such as on tariffs. The data are also supplied to the FAO to fulfil our obligations to AMIS (Agricultural Market Information System) which was established at the request of G20 Agriculture Ministers to aid market transparency and coordinated policy action in response to market uncertainty. Other users include the food and farming industry, academia and the general public.

Feedback

Contact details are available on the front page of this notice for you to send feedback or to ask questions about the survey or information provided.

Revisions policy

Figures in this notice are provisional and subject to revision. We will provide information about any revisions we make to previously published information in this statistics notice and the associated datasets. Revisions could occur for various reasons, including:

- (a) if we have not received survey data from respondents we make an estimate based on their previous returns. These estimates will be replaced with actual survey data when it is received.
- (b) survey respondents occasionally supply amended figures for previous periods.
- (c) we may also revise the methodology used to raise the survey data to give UK totals.

Other survey results and next publications due

Results from all the Defra farming surveys can be viewed on [Defra website](#). The next Cereal Stocks publication is due in May 2015. The release calendar for all future publications is available from the Office for National Statistics [website](#).

Methodology: Cereal Stocks Survey (on-farm stocks in England and Wales)

This survey is conducted to determine the stocks of key cereals held on farms in England and Wales. An initial survey is sent out to selected holdings in England in February. A follow-up survey is then sent to those respondents who have agreed to participate again in June of the same year.

Data analysis and estimation

The Cereal Stocks Survey February 2014 was a postal survey sent to 1,750 agricultural holdings in England. The results for February were based on 1,332 usable responses which represent a response rate of 76%.

Holdings were stratified into four groups based on the total area of wheat, barley and oats declared in response to the June Survey of Agriculture and Horticulture 2013. The sample design for February 2014 is shown in table 7.

Table 7: Sample design for the February 2014 Cereal Stocks Survey

Stratum	Total June 2013 area of wheat, barley and oats	Population size	Sample size	Sample rate (%)	Number of responses	Response rate %
1	> 0 to ≤ 20 hectares	3 540	375	11	278	74
2	> 20 to ≤ 100 hectares	7 640	725	9	560	77
3	> 100 to ≤ 200 hectares	2 810	350	12	277	79
4	> 200 hectares	1 480	300	20	217	72
Total		15 470	1 750	11	1 332	76

The 2014 June Cereal Stocks Survey was sent to 630 holdings who indicated in their February survey form that they would be happy to take part in the survey again in June. Responses were received from 570 of these holdings, a response rate of 91%.

The response data were subject to rigorous validation checks (e.g. checking extreme values or large year-on-year changes) which identified any questionable values. Any records that had not been cleaned by the results production stage were excluded from the analysis. The production of totals at an England and Wales level for each survey item required estimation to account for non-sampled and non-responding holdings.

The results for stocks of own-grown grain were produced using the technique known as 'ratio-raising'. The trend between the June stocks tonnages in the sample (the response data) and the corresponding February stocks declared in the February 2013 Cereal Stocks Survey (the base data) is calculated for each stratum. We then multiply these ratios by the published February stocks for the whole population within each stratum. Finally the resulting figures for each stratum are summed to provide an estimate of own-grown stocks held on farms at June for the whole of England and Wales.

We do not hold any suitable base data to estimate the results for stocks of bought-in grain by ratio-raising. Instead we use simple expansion-raising whereby we calculate the ratio between the number of farms in the population and the number of farms in the sample for each stratum. These ratios are then multiplied by the sum of stocks in the sample for each

stratum. Finally the resulting figures for each stratum are summed to produce an estimate of bought-in grain stocks for the whole of England and Wales.

Accuracy and reliability of the results

Values for holdings that were not selected or failed to respond are estimated, which adds a degree of uncertainty to the results. The results from this survey are based entirely on responses from holdings in England. Estimates for Wales use the Welsh estimate of February stocks, which is in turn based on areas from the Welsh June Survey of Agriculture and Horticulture. However this relies on the assumption that the relationships between February cereal stocks and cereal area, and between June and February cereal stocks, are identical in England and Wales. All percentages displayed in this statistical release are based on unrounded figures.

A time series of results from the Cereal Stock surveys is available from the [Defra website](#). UK cereal area, yield and production figures are sourced from the Cereal Production Survey. A time series of results can be viewed on the [Defra website](#).

Methodology: Ports, Co-operatives and Merchants Survey (UK)

Survey history

This survey replaced separate surveys entitled The Agricultural Co-operatives and Ports Cereals Stocks Survey and The Importers and Dealers Cereals Stocks Survey. This now amalgamated Ports, Co-operatives and Merchants Survey cannot be directly compared with the previous separate surveys due to changes in the basis of the data collection methodology. These changes were necessary to ensure consistency across the surveys and to align it with the Cereal Stocks Survey that collects on-farm stocks.

Prior to February 2010 we used to collect these data at the end of March but the timing was brought forward in response to user needs. However in 2011 it had to be run on 7 March for operational reasons.

Survey methodology

This survey is conducted to determine the stocks of cereals held at ports, co-operatives and merchants in the United Kingdom. The survey runs twice-yearly in February or March and June and records stocks of wheat, barley, oats and maize. In February or March, all known storage facilities are contacted. In June, a reduced sample of storage facilities are contacted. Using robust statistical methodologies of sampling and ratio raising, trends between March and June are identified and estimates for non-sampled storage facilities or any that do not respond, are made and included in the final reported figures. All facilities contacted are asked to record grain stored at the particular premises or in third party stores on their behalf on the survey date. For ports, grain that has been cleared by customs for import should be included plus grain for export that has not been cleared by customs. Grain for import which has not cleared customs is not included because it is possible that this grain may be re-exported so would not be available for use in the UK.

An extensive register exercise was conducted for the February 2014 Survey. There has also been some refinement of the register and the survey forms to try ensure adequate coverage

of the survey but to avoid double counting of stocks, particularly where merchants may hold stocks at third party rented stores.

Data analysis and estimation

The response data were checked in multiple ways to identify potentially incorrect or outlying data (e.g. checking extreme values or large year-on-year changes). The sample for the June part of the survey required estimation to account for any non-sampled and non-responding stores. The results for both stocks of home-grown and imported cereal were produced using the technique known as ratio-raising, in which the trend between the sample data and base (previous response) data is calculated for each stratum. The calculated ratio is then applied to base data for the non-responding stores data to give UK level estimates.

The stratified sample design for the survey is shown in table 8. The number of storage facilities in each category cannot be shown due to confidentiality constraints as some categories are very small. In some cases, where samples are small, the strata may be combined for the purpose of the ratio raising calculations.

Table 8: Sample design for the February 2013 Ports, Co-operatives and Merchants Survey

P1	Port, Capacity 0 to less than 100 tonnes
P2	Port, Capacity 100 to less than 10,000 tonnes
P3	Port, Capacity 10,000 tonnes or greater
C1	Co-op, Capacity 0 to less than 100 tonnes
C2	Co-op, Capacity 100 to less than 10,000 tonnes
C3	Co-op, Capacity 10,000 tonnes or greater
M1	Merchant, Capacity 0 to less than 100 tonnes
M2	Merchant, Capacity 100 to less than 10,000 tonnes
M3	Merchant, Capacity 10,000 tonnes or greater
N1	New or Unknown, Capacity 0 to less than 100 tonnes
N2	New or Unknown, Capacity 100 to less than 10,000 tonnes
N3	New or Unknown, Capacity 10,000 tonnes or greater

Accuracy and reliability of the results

The accuracy of the survey results is high because a census is carried out of all major storage facilities in February each year. Approximately 145 storage facilities are contacted in February and 90 in June. The typical response rate to this survey is 95%-100% and in June 2014 was 93%. The data for home grown maize, which is only grown to quite a limited extent in the UK, and those for imported barley and imported oats which are not imported to the same extent as wheat or maize, are based on relatively few data points. Careful attention is given to the sampling used in June to include those respondents that typically report such stocks to minimise estimation errors.

Compared to other cereal usage data which records usage typically over a month, stocks data are recorded for a particular day in February or June. If there have been any significant movements of grain in or out of a store, particularly a port, it could have a more significant influence on the level of stocks recorded and this should be kept in mind in interpreting and using the data.