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Cereal Stocks UK / England and Wales – February 2013

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. This twice-yearly notice will next be updated in August 2013 and will show the cereal stocks held at the end of June 2013.

Key results:

Stocks of cereals held **on farms** in **England and Wales** in February 2013 ([tables 1-4](#)):

- Stocks of own-grown wheat fell by 10% from February 2012 to 3.5 million tonnes. This represents 28% of the 2012 wheat production in England and Wales. Due to the poor quality of wheat from the 2012 harvest, it is thought that the majority of grain still on farm in February 2013 was kept for feeding to livestock.
- Barley production increased for the second year running in 2012. Stocks of barley increased similarly and at February 2013 there were 616 thousand tonnes on farms, a 15% rise from February 2012.
- Although oats production did increase in 2012, the tonnage of stocks still on farms in February 2013 was larger than expected at 143 thousand tonnes.

Stocks of cereals held at **ports, co-ops and merchants** in the **UK** at the end of February 2013 ([tables 5-6](#)):

- Total wheat stocks at 1.2 million tonnes were very similar to those reported for February 2012. However the proportion of home grown wheat (915 thousand tonnes) was lower, compensated by a higher amount of imported wheat (274 thousand tonnes). Increased stocks of imported wheat are consistent with the higher level of higher quality imported wheat for milling due to the poor quality of the 2012 UK crop.
- Own-grown barley stocks stood at 777 thousand tonnes, a 4.5% increase on the 743 thousand tonnes reported for February 2012.
- Imported maize stocks were up 25% on February 2012 to 99 thousand tonnes. Favourable price relationships has meant that there has been increased use of imported maize for compound animal feed, substituting for wheat in rations.

Revisions: None.

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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 and published at:

<http://www.hgca.com/content.output/99/99/Markets/Markets/Supply%20and%20Demand.msp>
[X](#).

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 opening stocks for the following season. These stocks together with home production plus any imported grain constitute the total grain available. 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. 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. Statistics on cereal use are another key component of the balance sheet and usage statistics are published monthly at:

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/about/statistics>. Grain exports and closing stocks form the final components of the balance sheet.

The various factors affecting the balance sheet are expected to be reflected in the stocks data. 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 caused by adverse weather which has meant higher demand of higher quality imported wheat for milling and increased demand of imported maize for animal feed use.

UK cereal area and crop production figures and livestock numbers are available at:

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/structure-of-the-agricultural-industry>.

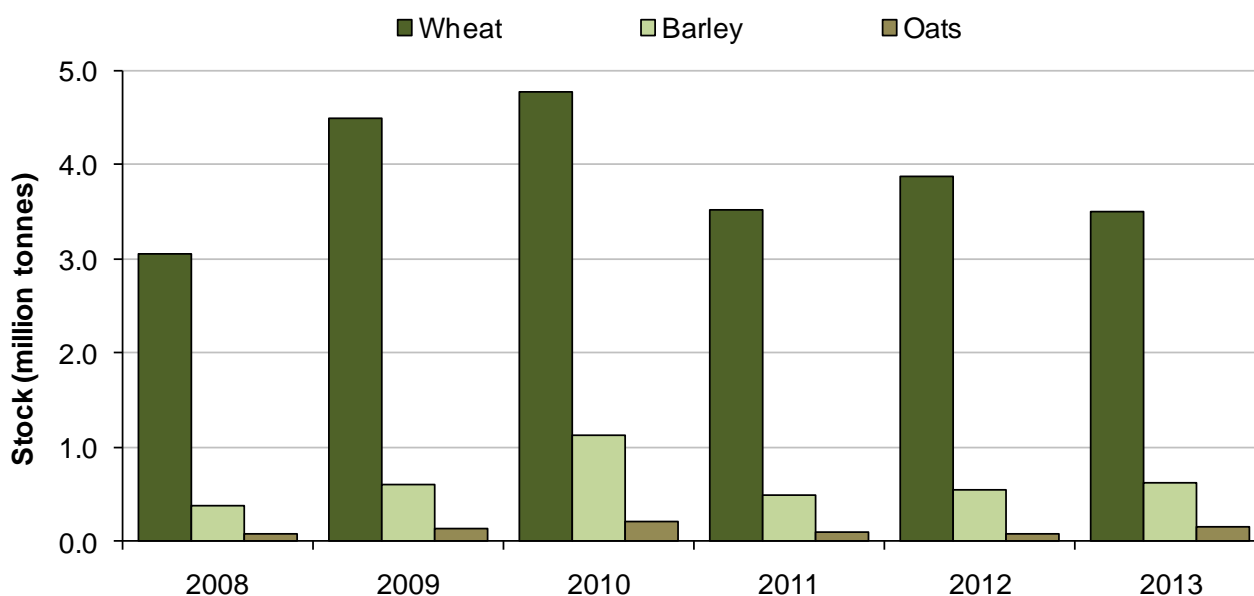
Grain grown on farm can also be used directly on farm for animal feed (primarily for cattle and sheep) and a significant proportion of barley grown on farm is typically used in this way. This established practice tends to make changes in barley stocks on farm less susceptible to market influences compared 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.

Detailed results

Stocks at the end of February 2013

Own-grown wheat stocks on farms in England and Wales fell by 10% from February 2012 to a similar level seen in 2011 of 3.5 million tonnes (figure 1). This is in line with the decrease of 13% in the tonnage of wheat produced in the 2012 UK harvest. As a proportion of production, wheat stocks still on farms in February 2013 (28%) have remained similar to 2012 (27%). It is thought that a lot of the wheat still on farms is being kept back for animal feed due to the poor quality. Regionally the largest proportions of production still on the farm were 39% in the East Midlands and 29% in the East of England (table 4). These two regions also produced the largest tonnages of wheat with 19% of total production in England and Wales coming from the East Midlands and 30% from the East of England.

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

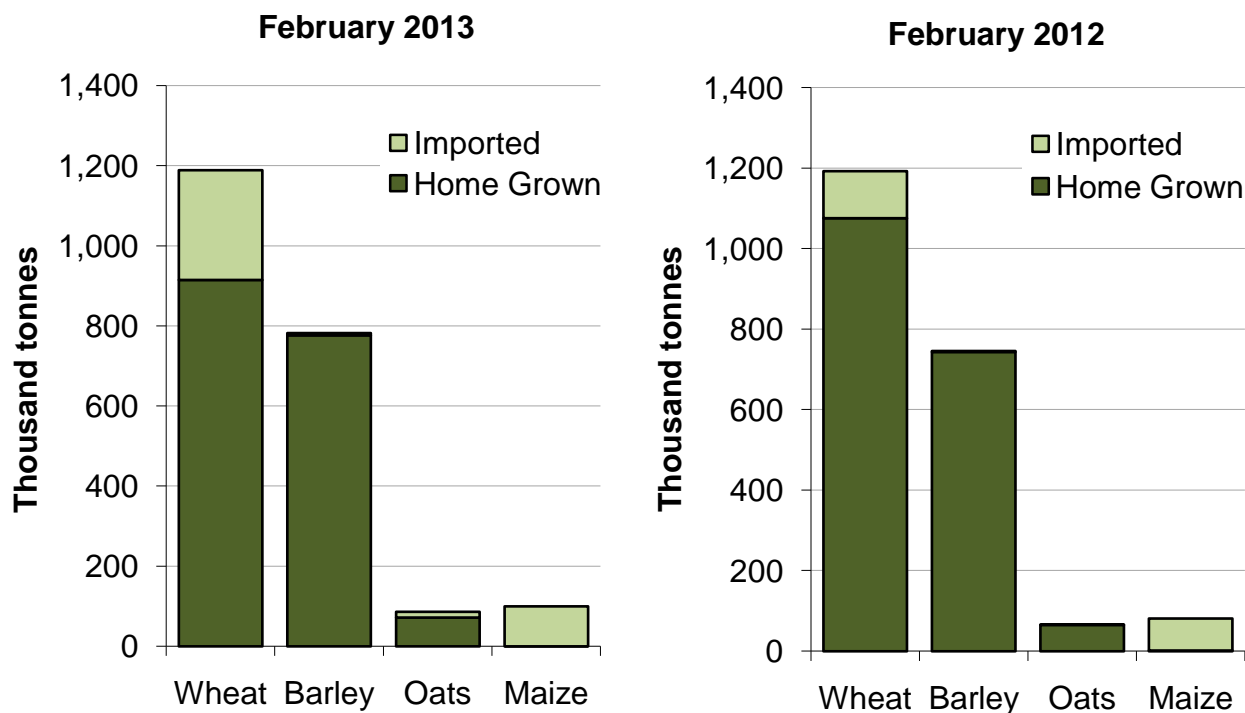


Stocks of own-grown barley on farms increased by 15% from February 2012 to 616 thousand tonnes. Barley production in England and Wales also increased in 2012, though to a lesser extent (3% to 3.7 million tonnes). As a proportion of the total production, 17% of barley was still on farms in February 2013 compared to 15% at the same time in 2012. A relatively large proportion of barley is grown for feeding livestock on the farm. There is expected to be a small increase in the amount of barley grain fed to livestock on farms this year. On a regional basis the highest tonnage (859 thousand tonnes) of stocks still on farms in February 2013 was in the East of England. The highest proportion (35%) of the 2012 regional barley production still on farms in February 2013 was in the East Midlands.

The increase of 83% in the stocks of own-grown oats on farms between February 2012 and 2013 was larger than expected. However oats production did increase in 2012 and similar to wheat, the quality was adversely impacted by the weather. Consequently millers have needed to import higher tonnages of higher quality oats. This would suggest more oats are being held on farm, possibly for feeding to livestock on farm or for sale later in the season. The Cereal

Stocks Survey collects tonnages of stocks on the farm on the survey day (28 February for 2013) including those already sold. It is possible that the stock levels on farms may well fall back in line with those expected by the end of June when the next survey runs.

Figure 2: Stocks held by UK ports, co-ops and merchants at end of February 2012 and 2013



There was a notable 135% increase in the amount of stocks of imported wheat held at ports, co-ops and merchants at 274 thousand tonnes at February 2013 compared to 117 thousand tonnes for the previous February. This is consistent with increased demand for higher quality wheat for milling due to the poor quality of the 2012 UK wheat crop. The amount of home grown wheat was down 15%.

For barley, UK production in 2012 was slightly higher than in 2011 but the quality has been reasonable, not impacted by the weather to the same extent as wheat. Stocks of home grown barley held at ports, co-ops and merchants were 777 thousand tonnes at February 2013, up 4.5% on February 2012.

The tonnage of imported maize held at ports, co-ops and merchants also increased 25% to 99 thousand tonnes at February 2013 compared to the previous February. There has been greater demand for use of maize in compound feed rations, replacing wheat, due to favourable quality and price comparisons. Imports of maize have been higher during 2012/13 which would explain the higher stocks of imported maize. 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 June 2012

The figures below show the volume of own-grown grain still in stock on farms (figure 3) and grain held in UK ports, co-ops and merchants (figure 4) at the end of June each year. Additional surveys will run in June 2013 to collect this information for the end of the 2012/13 crop year. Results from these second surveys will be published here in August 2013.

Figure 3: Stocks held on farms of own-grown grain at the end of June each year (England and Wales)

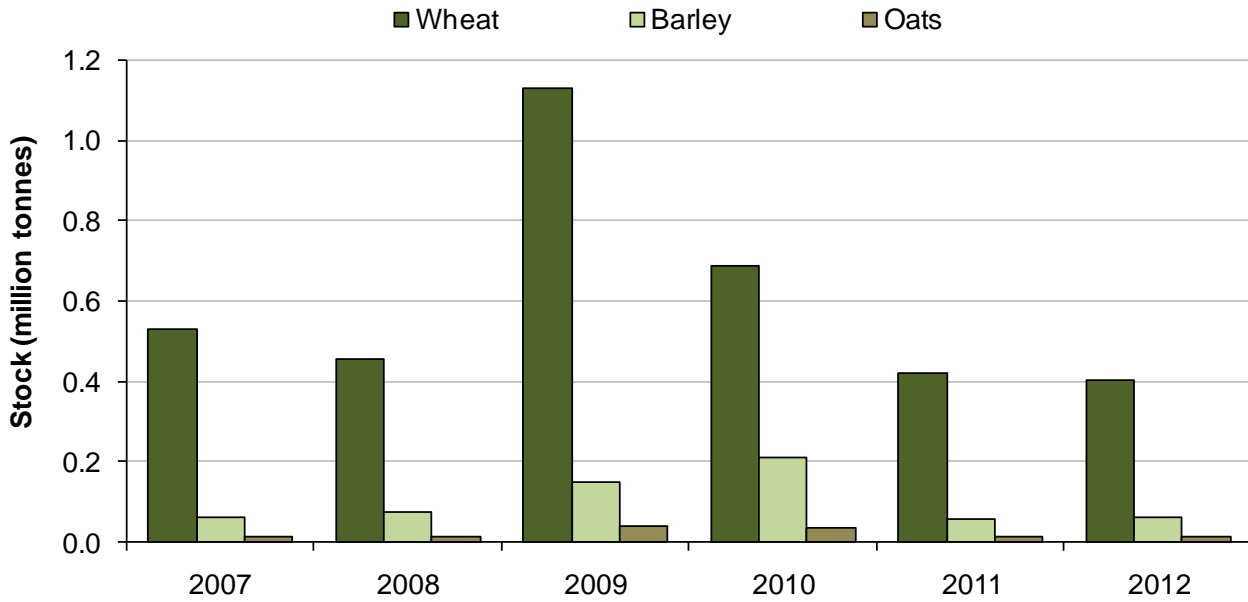
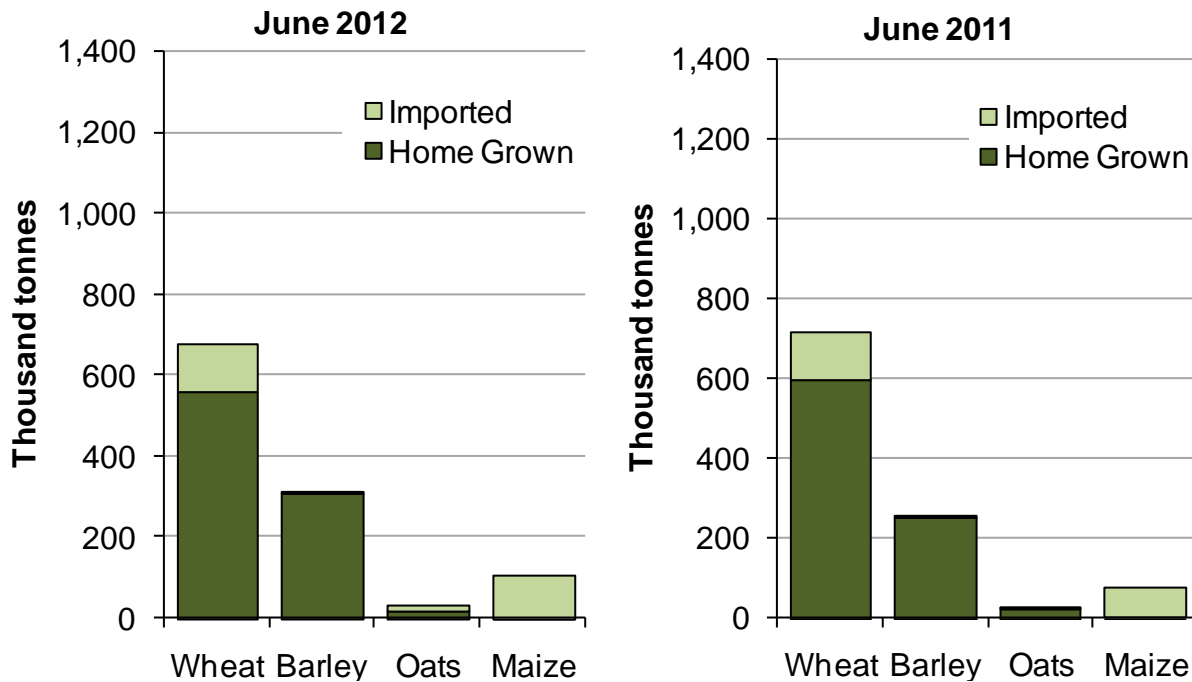


Figure 4: Stocks held by UK ports, co-ops and merchants at the end of June 2011 and 2012



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 2013/2012
		2008	2009	2010	2011	2012	2013	
Wheat	Feb/Mar	3 054	4 494	4 781	3 518	3 881	3 507	-10
	June	457	1 129	689	420	403	:	
Barley	Feb/Mar	383	606	1 119	491	535	616	15
	June	73	150	208	56	63	:	
Oats	Feb/Mar	80	130	202	94	78	143	83
	June	15	38	33	15	14	:	

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 (%)					
		2008	2009	2010	2011	2012	2013
Wheat	Feb/Mar	25	28	35	25	27	28
	June	4	7	5	3	3	:
Barley	Feb/Mar	12	15	24	14	15	17
	June	2	4	4	2	2	:
Oats	Feb/Mar	14	20	33	18	16	28
	June	3	6	5	3	3	:

Source: Production figures are sourced from the Defra Cereal Production Survey. Results are available at: <https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/structure-of-the-agricultural-industry>.

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 2013/2012
		2008	2009	2010	2011	2012	2013	
Wheat	Feb/Mar	10	17	28	11	19	16	-11
	June	7	8	19	7	7	:	
Barley	Feb/Mar	14	18	26	12	12	12	-1
	June	7	8	38	13	17	:	
Oats	Feb/Mar	1.6	1.7	4.4	1.3	0.2	0.8	240
	June	0.5	2.1	2.9	2.5	0	:	

: Represents data that are not available or have not been collected.

(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 2012 (England and Wales)

Wheat					Thousand head ^(a)			
	Thousand tonnes			% production still on farm end Feb 2013				
Region	Wheat stocks on farm at 28 Feb 2013	Wheat stocks on farm end June 2013	Production 2012		Cattle ^(b)	Pigs	Sheep	Poultry
North East	85	:	446	19	268	90	1 894	2 267
North West	20	:	184	11	942	148	2 892	9 462
Yorkshire and Humber	423	:	1 761	24	546	1 266	2 061	14 192
East Midlands	944	:	2 407	39	491	360	1 130	20 424
West Midlands	234	:	1 120	21	738	197	2 141	18 419
East of England	1 079	:	3 726	29	195	1 006	302	26 068
South East and London	426	:	1 745	24	416	213	1 191	8 999
South West and Wales	297	:	1 144	26	2 870	410	11 899	26 347
England and Wales	3 507	:	12 531	28	6 466	3 691	23 510	126 179

Barley					Thousand head ^(a)			
	Thousand tonnes			% production still on farm end Feb 2013				
Region	Barley stocks on farm at 28 Feb 2013	Barley stocks on farm end June 2013	Production 2012		Cattle ^(b)	Pigs	Sheep	Poultry
North East	18	:	215	9	268	90	1 894	2 267
North West	33	:	178	19	942	148	2 892	9 462
Yorkshire and Humber	111	:	670	17	546	1 266	2 061	14 192
East Midlands	144	:	413	35	491	360	1 130	20 424
West Midlands	68	:	270	25	738	197	2 141	18 419
East of England	95	:	859	11	195	1 006	302	26 068
South East and London	55	:	411	13	416	213	1 191	8 999
South West and Wales	91	:	656	14	2 870	410	11 899	26 347
England and Wales	616	:	3 672	17	6 466	3 691	23 510	126 179

Notes

: Represents data that are not available or have not been collected.

(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: <https://www.gov.uk/government/statistical-data-sets/structure-of-the-agricultural-industry-in-england-and-the-uk-at-june>.

(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							
		2010		2011		2012		2013	% change
		Feb	June	Feb	June	Feb	June	Feb	Feb 2013/ 2012
Wheat	Home Grown	1086	719	1052	598	1076	561	915	-15
	Imported	116	146	138	119	117	117	274	135
Barley	Home Grown	849	463	735	250	743	310	777	4
Oats	Home Grown	79	41	70	25	65	17	72	10
Maize	Home Grown	3	<0.1	0.2	1	2	3	1	46
	Imported	54	44	120	75	79	106	99	25
Barley & oats	Imported	2	5	6	10	3	16	3	5

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 35,700 tonnes wheat on 28 June 2012. Further information can be found at the LIFFE website at <https://globalderivatives.nyx.com/en/nyse-liffe/commodity-reports>.

Table 6: Ratio of home grown to imported stocks held in UK ports, co-ops and merchants at the end of February or March and June ^(a)

		ratio %						
		2010		2011		2012		2013
		Feb	June	Feb	June	Feb	June	Feb
Wheat	Home Grown	90	83	88	83	90	83	77
	Imported	10	17	12	17	10	17	23
Maize	Home Grown	5	0	0	1	2	2	1
	Imported	95	100	100	99	98	98	99

Notes

- (a) Percentages are shown to the nearest whole number.

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 information in this notice is used by the UK Government, the EU and the Food and Agricultural Organisation as evidence for assessing market conditions and evaluating agricultural policy. Other users include the food and farming industry, academia and the general public. Contact details are available on the front page of this notice for you to send feedback or ask questions about the 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.

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 2013 was a postal survey sent to 1,750 agricultural holdings in England. The results for February are based on 1,278 usable responses which represent a response rate of 73%.

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 2012. The sample design for February 2013 is shown in table 7.

Table 7: Sample design for the February 2013 Cereal Stocks Survey

Stratum	Total June 2012 area of wheat, barley and oats	Population size	Sample size	Sample rate (%)	Number of responses	Response rate %
1	> 0 to ≤ 20 hectares	1 985	375	19	278	74
2	> 20 to ≤ 100 hectares	4 135	725	18	520	72
3	> 100 to ≤ 200 hectares	2 162	350	16	248	71
4	> 200 hectares	1 503	300	20	232	77
Total		9 785	1 750	18	1 278	73

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 stocks tonnages in the sample (the response data) and the corresponding areas declared in the June 2012 Survey (the base data) is calculated for each stratum. We then multiply these calculated ratios by the cereal areas for the whole population within each stratum. Finally the resulting figures for each stratum are summed to provide an estimate of own-grown stocks 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 Welsh holdings use areas from the Welsh June Survey of Agriculture and Horticulture, but rely on the assumption that the relationship between cereal stocks and cereal area is 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 at:

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/cereal-usage-and-stocks>.

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 via the following link:

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/structure-of-the-agricultural-industry>.

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 are made and included in the final reported figures. All facilities contacted are asked to record grain stored at the particular premises 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.

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 or 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 130 storage facilities are contacted in February and 70 in June. The typical response rate to this survey is 95%-100% and in February 2013 was 98%.

Other survey results and next publications due

Results from all the Defra farming surveys can be viewed on the Defra website via the following link:

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/about/statistics>. This also contains details of future publication dates and datasets from previous surveys. The next Cereal Stocks publication is due in August 2013.